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Each issue has a specific topic that is a subtopic of major journal coverage.

FREQUENCY

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JOURNAL HISTORY

The journal *Annals of Spiru Haret University. Economic Series* was founded in 2000 at the initiative of two professors from Spiru Haret University: professor Ph.D. Gheorghe Zaman – also corresponding member of the Romanian Academy and professor Ph.D. Constantin Mecu – one of the University's founders and vice-rector.

Between 2004-2010, the journal is headed by professor Ph.D. Constantin Mecu, as editor-in-chief, and associate professor Ph.D. Aurelian A. Bondrea, as deputy editor, both of them vice-rectors of the university.

In 2011, associate professor Ph.D. Aurelian A. Bondrea, rector of the university, takes over the presidency as editor-in-chief and leads the journal until present.

The *Annals of Spiru Haret University. Economic Series* was issued annually, once a year, starting 2000, until 2009.

Since 2010, the *Annals* have a new format, with a four-annual issuance exclusively in English, with both redaction and review conditions comparable to the most rigorous international requirements.

In 2007, *Annals of Spiru Haret University. Economic Series* obtained the B+ quotation from The National Council of Research in Higher Education in Romania, becoming a publication of real scientific interest.

Starting 2009, the review is indexed in REPEC, SSRN and Google Scholar and beginning with 2016 our Journal is under a process of rebranding, the new team trying to rethink the journal indexing strategy in international databases, suggesting a greater external visibility.

Along the years, in the journal pages, the members of the teaching personnel – professors, associate professors, lecturers and teaching assistants – active in six economics faculties and distinct specialty departments, as well as in the Central Scientific Research Institute, functioning within Spiru Haret University, present the results of their scientific research. The journal also hosts many studies of professors, researchers or Ph.D. students from other universities and research institutes all over the world.

The subject of the publication firstly reflects the concern for the modernization of teaching economic science in University: marketing, management, finance, banking, accounting, audit, international economic relations, trade, business, tourism, administrative data processing, politic economy, commercial law, cybernetics, environmental economics, statistics, ethics in economics, insurance, advocacy & lobby, economic philosophy, econometrics etc.

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FOREWORD

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According to the European Central Bank's macroeconomic projections for the euro area, the outlook for economic activity and inflation in the euro area in March 2022 has become very uncertain and depends largely on the evolution of the Russo-Ukrainian war, the impact of current sanctions and possible additional measures. The sharp rise in energy prices and the negative effects on confidence have significant adverse effects on short-term domestic demand, while the announced sanctions and a sharp deterioration in the outlook for Russia's economy will slow down the dynamics of euro area trade.

Baseline projections are based on the assumption that current disruptions in energy supply and negative effects on conflict-related confidence are temporary and that global supply chains are not significantly affected. Given these assumptions, the baseline projections predict a significant negative impact of the conflict on euro area economic growth in 2022.

However, given the starting point of the euro area economy, amid a robust labor market and of the expected reduction in the adverse effects associated with the pandemic and supply bottlenecks, economic activity is still expected to grow at a relatively robust pace in the coming quarters. In the medium term, growth is expected to converge at historical average rates, despite a less favorable fiscal policy stance and rising interest rates in line with technical assumptions based on financial market expectations.

Overall, real GDP is expected to average 3.7% in 2022, 2.8% in 2023 and 1.6% in 2024. Compared to the projections of Eurosystem experts in December 2021, the outlook for economic growth has been revised downwards by 0.5 percentage points for 2022, mainly due to the impact of the crisis in Ukraine on energy prices, confidence and trade. This downward revision is partially offset by a positive carryback effect generated by the upward revisions of the data for 2021. The increase for 2023 has been revised downwards by 0.1 percentage points and that for 2024 is unchanged.

After a series of exceptional shocks to energy prices, the conflict in Ukraine involves the continued placement of total inflation in the baseline scenario at very

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high levels in the coming months, followed by a slow moderation towards the target. This will average 5.1% in 2022, 2.1% in 2023 and 1.9% in 2024. Short-term inflationary pressures have increased significantly, especially those associated with oil and natural gas. These pressures are expected to last longer than previously anticipated and will only be partially offset by the inhibitory effects on economic growth generated by declining confidence and the more modest dynamics of trade following the conflict.

However, in the absence of additional upward shocks to commodity prices, the "energy" component of inflation is projected to decline significantly over the projection horizon. In the short term, this decline is associated with base effects, while technical assumptions based on futures quotes predict a decline in oil prices and wholesale gas prices resulting in a negligible contribution of the "energy products" component to total inflation. in 2024.

HICP inflation excluding energy and food products remains high at 2.6% in 2022, reflecting the stronger price dynamics of services that require long physical interaction, the indirect effects of rising energy prices and the impact of growth, as a result of current supply bottlenecks. As these pressures ease, it is expected that this measure of core inflation will fall to 1.8% in 2023 and then rise to 1.9% in 2024, due to stronger demand and tightening market conditions, work and second-round effects on wages, in accordance with historical periodicities.

Compared to the projections of Eurosystem experts in December 2021, in cumulative terms over the projection horizon, total inflation has been substantially revised upwards, especially for 2022. This upward revision reflects unforeseen developments in recent times, with rising energy prices, more persistent upward pressure on supply disruptions and more alert earnings dynamics, also associated with the planned increase in the minimum wage in Germany.

The upward revision also takes into account the recent return of the indicators based on surveys of medium-term inflation expectations to levels compatible with the inflation target set by the ECB. These effects completely offset the negative impact on inflation of a significant upward revision of market-based assumptions on interest rates and the negative demand-related effects of the conflict in Ukraine.

In the current context, the authors found forums for discussions and debates and have written articles for the current issue trying, as far as possible, to look at some solutions for the problems facing the new world state of economy. Whether or not they succeeded in responding to the challenges, we leave it to you to determine.

The first scientific paper published in our present issue named **Domain-Driven Design as a Choice for Software Development in Projects with Complicated**

Business Processes written by *Svetlana Anđelić, Goran Radić, Nikola Dragović* and *Dušan Unkulov*, explains the critical concepts when using domain-led design as a software development approach. It presents what makes a domain-driven design, how that philosophy came about, the advantages and disadvantages, and when it is best to use it. All the necessary elements that are essential for software designed in this way to succeed, which together form a domain-driven design, are explained in detail. Particular emphasis is placed on the importance of domain-driven design in the case of software in projects with complicated business processes.

Raluca-Ana-Maria Dumitru wrote the second article entitled **Big Data and Sustainable Development Objectives** and is telling us that most scientific fields explore the perspectives of digital applications. In the digitalization process, Big Data offers us new ideas and methods to understand the Earth and undertake the epic mission of sustainable development with a new impetus. Big Data offers us new ideas and methods to understand the Earth and undertake the epic mission of sustainable development with a new impetus.

Uroš Todorović, Dragana Petrović and *Vladimir Vuković*, in their paper entitled **The Implementation of e-Commerce Software Solutions on the Example of Valigara Software**, will explain the concept, origin and development of e-commerce and the most important online stores, and then implement Valigara software in e-business. Valigara software itself is a unique multi-channel online jewellery sales management system. The authors will do business on ETSY and eBay online stores, as the software is best integrated with these online stores. First, the paper will show how models are created and how variations and without are made from models. Then the products themselves will be placed on the store, the best practices of SEO listing optimization and price insertion. This paper explained how Valigara software works in major online stores, and above all, the author will concentrate on ETSY and eBay. It will explain how the software works, why it is desirable to integrate it, best practices in online stores, and how to promote sales, use promotions, and other opportunities provided by the software itself.

Luka Rajn, Nikola Pavlovic and *Šemsudin Plojović*, in their paper named **Penetration Testing of WPA and WPA2 Security Protocols and the Analysis of Security Solutions** will discuss about the security protocols of wireless computer networks. WEP, WPA / WPA2 encryption and the reasons for the existence of such protocols and how they are applied will be explained. The security of WEP and WPA / WPA2 protocols will be tested with practical examples and penetration testing in a secure environment, using Airedodn and Pixiewps tools. The operating system to be used is ParrotOS.

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Victoria Iordachi and *Viorica Popa*, in their paper entitled **The Connection of the Republic of Moldova to the Circular Economy Concept**, are talking about European legislation on the circular economy that has registered an accelerated promotion in recent years. The European Commission has adopted a package of measures and legislative proposals to stimulate sustainable growth and help Europe make the transition to a more circular economy. The transition to a circular economy involves abandoning the linear economic model and focusing on reducing energy and raw material consumption. However, the pandemic generated by COVID-19 calls into question the importance of circular economy legislation at European level and in particular the need to achieve its objectives in reality. Thus, the new action plan for the circular economy adopted on 11 March 2020 by the European Commission is part of the main blocs of the European Green Pact, a new European agenda for sustainable growth and an EU growth strategy to achieve climate neutrality until 2050. It presents a forward-looking agenda for the circular economy, aimed at achieving the goal of a cleaner and more competitive Europe, in collaboration with economic actors, consumers, citizens and civil society organizations. In this article, the authors aim to report on the actions of the EU and the Republic of Moldova in the field of circular economy from a legislative perspective and analysis of international experience, but also the impact of existing programs and projects to produce lasting effects in society. At the same time, the main barriers to the circular economy transition in the Republic of Moldova are highlighted, as well as the first progress made. This study was developed within the State Program 20.80009.0807.22 Development of the mechanism for forming the circular economy in the Republic of Moldova.

Hana Stefanović, *Bojan Kocić*, *Ana Savić* And *Nikola Popović*, in their paper entitled **Cryptocurrencies as an Accelerator of Sustainable Development** are talking about globalization and the changes that have affected the world economy and conditioned the development of new models of thinking, investing, trading and payment methods in the world economy. The end of the 20th and beginning of the 21st century was marked by rapid technological progress, which has not bypassed any economic sector, and all households have experienced the change. Cryptocurrencies represent a new trade and payments model and a way for making some form of earnings. It is a form of property that is used as a digital asset exchange using new cryptographic algorithms.

The study named **The Effect of Oil Receipts and Fuel Subsidy Payment on the Current Account Deficit in Nigeria and Venezuela** and written by *Mathew*

Adagunodo assessed the effect of oil receipts and fuel subsidy payment on current account deficit in Nigeria and Venezuela. Data collected were analysed using trend analyses, unit root, cointegration techniques and Autoregressive Distributed Lag (ARDL). The result showed that estimated oil revenue had a negative and significant impact on current account deficit in the short-run in Nigeria ($t_c = -3.42$; $P < 0.05$) and Venezuela ($t_c = -2.97$; $P < 0.05$). The estimated oil revenue had a negative and significant impact on current account deficit in the long-run in Nigeria ($t_c = -3.96$; $P < 0.05$) and Venezuela ($t_c = -3.83$; $P < 0.05$). Fuel subsidies also had positive and significant long-run impact on current account gap in Nigeria ($t_c = 3.40$; $p < 0.05$) and Venezuela ($t_c = 3.58$; $p < 0.05$). The study concluded that despite the positive contributions of oil receipts to the current account in the two countries, continues fuel subsidy payment would impose significant fiscal costs and undermine current account position in Venezuela much more than Nigeria.

Alexandra Radu, in her paper entitled **The Efficiency of Applying NLP Principles in Communication between the Internet of Things and Smart City Citizens** is talking about cities that are expecting massive growth in the coming years. Urbanization projects are looking at 2.5 billion more people living in cities. With that kind of growth, city government can no longer afford to lag behind in the digital landscape. Connecting, engaging and fulfilling of services between city and government will need to become increasingly digitized to keep up with rising demand while budgets remain tight, or in the near term, face deep cuts. Digital experiences can be made more efficient when complemented by NLP principles, image recognition and robotics, and these efficiencies translate to better experiences and reduced costs. In addition to larger smart city applications that cover utilities and traffic management, there are many opportunities to improve citizen engagement and city service delivery. Increasing citizen involvement in communication systems involving the idea of Smart City, automatically facilitates the population's access to the Internet of Things and determine assertive behavior, by applying the principles of neurolinguistics in communication between citizens and authorities through the cyber system that includes the citizen.

Dragoş Mihai Ungureanu, in his paper named **Reviving Productivity Growth in Urban Economies** is telling us that the COVID-19 pandemic is affecting productivity growth in many ways (e.g. through human capital, investment, resource reallocation, frictions to global value chains, etc.) and is likely to leave

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scars. Fostering digitalisation and intangible investment can help the recovery thanks to their overall positive impact on productivity. Key policies to unlock productivity growth include: high-quality investments in innovation, human capital and infrastructure, well-functioning labour and product markets to facilitate resource reallocation also across sectors, to absorb the shock of the crisis, facilitating access to finance and liquidity, and a supportive business environment. There must be strong value added in international cooperation for productivity-enhancing policies: international cooperation can allow the sharing of information on lessons learnt and best practices. Moreover, common efforts and joint initiatives (for example, in investment) can maximise the impact of the measures and the positive spillovers.

Authors *Babalola Oluwayemi Oginni, Kolawole Sunday Ajibola and Toyin Solomon Olaniyan*, in their paper entitled **A Study of the Effects of Occupational Health and Safety and Work Environment on Employees' Job Performance in a Manufacturing Organisation of Lagos Metropolis, Lagos, Nigeria** examined the effect of occupational health and safety and work environment on the employees' job performance using manufacturing organisation in Lagos Metropolis as the unit of analysis. aside this, the study identified the relationship among occupational health and safety, work environment and employees' job performance and singles out the dominant factor that contributed more in terms of potency to factors affecting employees' job performance. Research questionnaire was the instrument used in data collection which was administered to 189 respondents while convenience and random sampling techniques were applied. The result shows that each of the variables i.e. occupational health and safety and work environment are significant at $p < 0.05$ where $F_c = 39.494 > F_t = 2.821$ which was further supported by the result R^2 of 73% responsible for what happens in employees' job performance and work environment with the higher value of $\beta = 0.308$ was found to contribute more as a factor to explain variables with potency to affect employees' job performance. It was concluded that high premium should be placed on the work environment and occupational health and safety of employees and recommended that there is need to create a family-like atmosphere to work environment friendly and safe.

Melina Allegro, in her paper entitled **The Conflict in Working Relationships: An Overview. The Crisis of Roles in Modernity: the Man-Woman Working Relationship** is telling us that the conflict is a divergence of opinions which, as such, generates an emotional alteration in turn arising from a clash of mutually

antithetical views. She decided to start from this definition to emphasize how much, within a conflict situation, whether it be work or family, the factors in the field concern both the cultural aspect of a person and the emotional one. Speaking of conflict, therefore, without taking into account the socio-cultural substratum in which it has its roots, inevitably involves an emptying of those which are the fundamental ingredients of any type of relationship. The socio-cultural transformations that have occurred in recent decades have led to a complete redefinition of the roles that men and women respectively cover during their lives. In fact, in the era of modernity, many of the roles that had been at the basis of society for decades were gradually overturned.

Dragoș-Adrian Iorga, in his scientific paper named **The Smart Management and Industry 4.0, Providers of Potential Solutions for Improving the Implementation of the Operational Programme Human Capital** is talking about the Regional Intermediate Body for Sectoral Operational Programme Human Resources Development Bucharest-Ilfov Region that implements the 40Ready Interreg Europe project, “Strengthening SME capacity to engage in Industry 4.0”. Within this project, a research tool, a survey (“Industrial revolution 4.0 coming to our lives”), was developed and applied, designed to provide relevant information in the field of Industry 4.0 and also to provide thematic solutions (a new criterion to support SME digital competences through the Operational Programme Human Capital 2014-2020; a new evaluation criterion for the call “Digital competencies for SMEs’ employees”, designed to support the Managing Authority for OPHC in evaluation and, at the same time, to help SMEs acknowledge the main I4.0 domains to focus on their digitalisation path in general and specifically for developing employees’ digital competencies). This paper, is the result of an exploratory research, and aims to present the relevant characteristics, trends and potential solutions for improving the implementation of the Operational Programme Human Capital 2014-2020, a topic that generated the need to start and, implicitly, to operationalize such a study. Therefore, in the configuration of the research process, there were no strict rules.

Paolo Cioni, in his paper entitled **Women in Work Contexts. A Sociological Investigation** is telling us that in the world of work, the presence of women has been a very stable phenomenon for years now. Some factors, such as: the increasing level of education, the progressive outsourcing of the national economy, the diversification of employment contracts, have definitely favored an increase in the employed female population, which however still remains in a due minority

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compared to the figures regarding male employment. However, one factor outlines the importance of the presence of women in the labor market, and is that relating to female entrepreneurship, which has grown in recent years thanks above all to regulatory systems which, in fact, have progressively favored both its promotion and development. However, this is a process that has not only affected Italy, but the entire sphere of the European Union, where it is estimated that almost a fifth of the annual GDP growth can be explained, in principle, precisely with the increase participation of women in the workforce. Although disparities continue to affect the employment market, the "gender segregation" element appears singular, with women concentrated in some types of employment and men, obviously, in others.

Olatunbosun Ayo Falana, Olalekan Ademola Adedun and Oluwole Adeolu Familoye, in their paper entitled **Youth Economic Empowerment and Poverty Reduction in West Africa (Reference to the Amnesty International Programme in the Niger Delta)** are talking about the fact that the growth of an economy needs to have a great impact on the citizens of that economy and thus help reduce poverty which is one of the main purposes of the millennium development goals. Nigeria has one of the largest populations in Africa and regarded as wealthy in terms of natural resources but with high levels of poverty. The government in their effort applied many policies in eradicating poverty through many empowerment programmes. This study attempts to examine if the empowerment programmes implemented by the government really helped in reducing poverty with focus on the youth who are the future of the economy. Focus was laid on the Amnesty Programme implemented to empower the youth in the Niger-Delta, highlighting the financial commitment of the programme and challenges encountered. The study uses the qualitative research approach which was exploratory and descriptive in nature with information leading to deduction of conclusions derived from journals, books and previous papers. It was realized that the Amnesty programme has helped to prevent the militant youths from their bad deeds and succeeded in equipping them with technical training in various fields of endeavour. It was also concluded that there has been a lavish expenditure on the programme but still encounter many challenges such as unpaid or irregular payment of allowances to beneficiaries, inappropriate training provision, and limited employment prospects and so on. The challenges hinder the achievement of the expected goals and thus do not yield any effective result in reducing poverty. The study recommends that The Federal government should provide funds to the beneficiaries of the programme to establish their own businesses or provide them with job opportunities since unemployment of the graduates can push them back to the creek.

Elena Gurgu, Milena Ilic, Sabyasachi Rath and Ioana-Andreea Gurgu, in their paper entitled **What Will the Future of Creativity and Innovation in Public Relations Look Like?** are talking about creativity in public relations, that is clear that we all need. For the authors, creativity in public relations can be a mean, a novel way to accomplish an objective more easily, more efficiently and more quickly. It is clear that every client appreciates creativity, but in many situations it does not translate into events or visible messages for a mass audience and then it is not visible. We also talk in our paper about the profile of a creative relationalist, that must be: involved, informed, avid after work, possessing theoretical knowledge, having flexible and positive thinking, being visionary. Through this paper the authors will try to demonstrate that creativity can occur in one of the following situations: either in strategy (positioning, planning), or in execution (tactics, presentation materials, information).

Stella Ogechukwu Okezie, Kelechi Vivian Ikeji, Caroline Chisara Ogu and Emmanuela Duru, in their paper entitled **Corporate Social Responsibility Cost and Sustainable Growth of Listed Manufacturing Firms in Nigeria** examined the effect of corporate social responsibility cost on sustainable growth of listed firms in Nigeria. The study adopts ex-post facto research design. Fourteen (14) out of the 56 listed manufacturing companies on the Nigerian stock exchange as at 2021 were selected for the study. Data was analysed using panel regression and Autoregressive Distribution Lag (ARDL) model. Findings from the study reveal that, corporate social responsibility cost denoted as social responsibility cost and environmental cost has a long run relationship with sustainable growth of listed manufacturing firms in Nigeria as measured by the bounds test using the Wald statistics. Furthermore, the results also reveal short run relationship with a speed of adjustment to long run equilibrium at 77.95% significant at 5% level of significance. It is thus recommended that manufacturing firms should continue to invest in corporate social responsibility as this has a significant effect on their sustainability. Firms must sustain the current corporate social responsibility strategy and improve on ways to be cost efficient while still maintaining an effective corporate social responsibility strategy that will put the firms in good light with consideration to environmental responsiveness.

Ejiroghene A. Oghuvbu, in the paper entitled **Nigeria-China Bilateral Relations: The Current Challenges, 2015-2020** is telling us that the year 2020 marked the 50th anniversary of diplomatic relations between Nigeria and China. Despite the functioning of Sino-Nigerian bilateral relations, Nigerians

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have resented and criticized every socio-economic interaction. Concern was raised about the alleged disadvantages on Nigeria's fragile economy by the dumping of inferior Chinese industrial products in Nigeria. Some scholars claim that Nigeria's investment in China has less opportunities to survive due to the restrictions on employment and visa restrictions faced by many Nigerians to explore business opportunities in China. It is against this backdrop, this study examined the relationship between Nigeria and China, accessing their strategic relevance and the current challenges in their bilateral relations. The study also pinpoint into Sino-Nigeria relations during the novel corona virus. This work adopts the historical method of discuss and analysis in understanding the Nigeria-China bilateral relations from 2000 till the covid-19 era. In other to properly do this, this paper looks at primary and secondary sources such as books, newspaper reports, interviews, journal articles among others. The study adopted the Neoliberal Institutionalism theory to explain Sino-Nigeria bilateral relations. The findings from the study showed that the bilateral relations benefited China more in terms of trade, its unwillingness to assist Nigeria curb unemployment challenges and the failure to transfer technology to Nigeria. Given that the relationship is lopsided, the study concludes that Nigeria's problems cannot be solved by China as the former must learn from China's hard way to industrialization.

Olajide Clement Jongbo, in the paper named **Terms of Trade, Trade Restrictions and Real Exchange Rate in Nigeria** examined the determinants of real exchange rate in Nigeria. To achieve the stated objectives, several empirical tests were conducted to ascertain the relationship among the variables under study. They include the descriptive statistics test, the ADF unit root test, the serial correlation and stability tests, the ARDL bound test and ARDL short run ECM test as well as the cointegration test. Analyses of the results revealed that real government expenditure has a negative but significant relationship with real exchange rate. Both domestic money supply and nominal exchange rate both have a positive and significant relationship with the real exchange rate. The results further revealed that real trade restrictions and technological progress both have a positive but insignificant impact on real exchange rate. In conclusion, both real and nominal variables are the core fundamentals that determined real exchange rate in Nigeria mostly in the short run. Consequently, the study recommended that regarding the real terms of trade; since capital accumulation appreciates the real effective exchange rate, there is need for the creation of enabling environment that encourages investment in the tradable goods sector, rather than the non-tradable goods sector.

Jyldyz Chymanova and *Baktybek Isakov*, in their paper named **Kyrgyz Ethnographic Terms in Contemporary Public Advertising** are talking about the usage of a variety of stylistic and lexical means that makes the language of advertisements colourful, rich and bright. Language of advertising is been created with the aim to attract customers' attention and provoke them to the further actions. This paper covers the examples of the advertisements taken from the Kyrgyz language in order to demonstrate the structural traits of the advertising discourse. The analysis of the advertisements in Kyrgyz assist to reveal the main contextual notions represented in advertising. The paper hypothesis is that the advertisements in Kyrgyz can greatly influence the views of the ordinary people. The paper has been accompanied by the examples taken from the mass media sources functioning in Kyrgyzstan.

Guliyeva Gular, in her paper named **The Marketing Research of Consumer Behavior in the Process of Market Selection**, is making a study of consumer behavior that is considered one of the most important tasks of any market entity. Practical experience shows that producers (sellers) are obliged to unambiguously define their market behavior in order to better understand their consumers, to meet their desires and aspirations in everyday trade relations. However, the breadth of firms and the diversity of markets do not allow most users of marketing tools to make direct contact with their customers. Therefore, business leaders are clearly trying to study the market behavior of consumers by spending more time and money.

Stefano Amodio, in his paper named **Organizational Expertise and Decision Making in Corporate and Complex Organizations** is talking about the ability to carry out coordination tasks within the group is identified with the leading role of the group itself. If this ability manifests itself continuously, it is an indispensable premise for the attribution of leadership to the one who demonstrates and exercises it. Leadership is therefore a quality, a gift that is not only a factor of appreciation for the individual, but also a valuable resource for the group. It usually happens that one or more members of an organization find it important to engage in seeking some influence on other members; this means making attempts to exercise authority. If these attempts are successful and are repeated over time, they can actually confer leadership on the one who has been the protagonist. In whatever sector they operate, companies need to reap the benefits offered by leaders capable of generating the emotional resonance in the company that allows everyone to realize their aspirations and make their potentials concrete.

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Aurelian-Virgil Băluță and *Alexandru Rada*, in their paper entitled **Problems and Restrictions in the Management of Digitization Projects in Large Companies** at has the following chapters: the need for a good result from the cost-benefit analysis, multi-disciplinary elements in the management of digitization projects, knowledge management in digitization projects, ethical issues – restrictions in digitization projects, natural opposition to change of organization. The use of cost-benefit analysis has the following moments of use: before its launch or choosing the option to carry out the project, if the need for a project for which there are several implementation options has been established by other methods. In digitization projects, one of the concepts used more and more is that of smart infrastructure. Recent management talks about the fact that systems are much more important now than before. One of the problems with current systems is connection.

In the case of digitization projects, there are also components that aim only at acquiring the skills necessary for new technological systems or work procedures. In their case, there are many elements already established in the field of education. One of these is the relationship between the importance given to certain knowledge and its usefulness. The process of globalization has extended internationally the regulation of the ethics of certain professions, including in the field of ITC and project management in large companies. The professional ethics as restriction of digitization projects are applicable not only to multinational companies, but to all those operating in a global market. Staff confidence in the usefulness of digitization projects must aim for maximum capacity. Digitization can be conceived as a solution to increase the revenue of the companies as a financial sources to motivate the staff.

Hope Osyantın Aifuwa and *Philip Gideon Temidayo*, in their paper named **Do CEO Gender and Educational Background Affect the Financial Performance of Hotels in Nigeria?**, are telling us that in recent times, firms or businesses in the Hotel and Tourism industry across the globe have suffered setback financially in terms of patronage and turnover. This is out rightly attributed to the emergence of the invincible enemy – the COVID-19 pandemic. The upper echelon of organization, thus have a role to play in reviving this sector. Against this backdrop, this study examined the impact CEO gender and educational background on the financial performance of hotels in Nigeria. This study sampled three listed hotel in the Nigeria Stock Exchange from 2017 to 2020. Ordinary least squares regression was employed to empirically ascertain the relationship between variables of the study. The study found that CEO gender has no significant impact on the financial

performance of Hotels in Nigeria. Secondly, the study found that CEO educational background has positive and significant impact on the financial performance of Hotels in Nigeria. The study recommends that CEO with hotel and tourism educational background should be appointed in hotels in Nigeria to improve the financial performance.

Elena Robu, in her paper named **Scientific Fundamentals of Studying the Territorial Recreational System**, is talking about the fact that the set of phenomena related to recreational activities should be considered as a system, so that the object of study of recreational geography is the Territorial Recreational Systems (TRS). The main social function of TRS is to maximize the needs of the population in recreation, health, treatment and increasing physical and spiritual potential. TRS is an open system, it receives information, matter, energy from the external environment. TRS transmits to the external environment, mainly, information for the management of the supersystem and the so-called recreational information for the population (potentially aggregated by tourists) and, most important, it returns the tourists themselves - people after rest, healthy and spiritually enriched. Studying the models of development and functioning of the Territorial Recreational Systems (TRS) is inextricably linked to the problem of identifying the relationships between the individual elements of this system, such as tourists, natural complex, technical structures, service system) and between recreational and non-recreational systems (reinstallation) etc.

Liana Gădău, in her paper named **Accounting in the New Age of Digitization. Cloud Accounting**, is telling us that, in the recent years, there has been substantial progress in the field of Cloud Computing. The changes brought about by digital technologies are felt in all areas, including in accounting. Currently, in business, the transfer of accounting systems in the Cloud is a new solution used by more and more companies that believe that, in this way, they will improve the economic efficiency of their business activity, performance and competitiveness of the company. The purpose of the article is to analyze the implementation of Cloud technology in the organization's accounting, how it influences the flow of accounting processing, and accounting results. The author wants to investigate whether Cloud technology is a solution for the future of accounting, or whether there are important impediments that make us susceptible and cautious as users. The research methods used consist in the analysis of the specialized literature by applying different techniques of analysis of works based on qualitative, quantitative research but also comparative analysis.

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Dorcas Adebola Babatunde, in the paper named **The Impact of Treasury Single Account (TSA) on Public Sector Performance in Nigeria**, examined the impact of treasury single account (TSA) on public sector performance in Nigeria. Specifically, this study analyzed the effect of treasury single account on budget execution; accountability and cash management in Nigeria public sector. This study made use of primary data sourced from 300 randomly selected respondents from government parastatals, agencies and ministries across six southwest states in Nigeria. Data were collected with the use of structured questionnaire. Collated data were analyzed with the use of percentage/frequency count and ANOVA regression analysis. Result showed that TSA adoption exert significant positive effect of budget execution (0.794; $p < 0.05$); level of accountability (0.750, $p < 0.05$), and cash management (0.960, $p < 0.05$) in Nigeria public. The study therefore concluded that treasury single account has substantial positive impact on performance of Nigeria public sector. Hence this study recommends the need for government to strengthen guidelines for the full implementation of the policy so as to ensure long term sustenance of the policy across the country. In addition there is need for government to engage in objective public enlightenment about the importance of the policy. Government should also overhaul the capacity of the Federal Ministry of Finance and the CBN to cope with challenges associated with enforcement of the provisions of the TSA so as to further harness the benefit of centralize control of funds across the country.

Oluwatoyin Olusola Akintayo and *Akindele Iyiola Akosile*, in their paper entitled **The Relationship between Auditors Independence and Audit Report Quality in Listed Nigerian Deposit Money Banks in West Africa**, focused on the relationship between auditors' independence and quality of audit report. To investigate this objective a survey research design was adopted to gather data from the respondents through the distribution of questionnaires to 120 respondents comprised of 12 auditors and 108 senior staff of the 12 randomly selected Deposit Money Banks (DMBs) in Nigeria. In addition, 120 copies of questionnaires were distributed to the respondents from which only 118 questionnaires were returned and used for the study. Both descriptive and inferential statistics of logit regression was adopted for the study. The result obtained from the regression analysis showed that there was a significant positive relationship between auditor independence and quality of audit report. This assertion was premised on the fact that the p-value of the LR-statistics computed for the test of 0.0000 was less than the critical value of 5%. It was concluded that auditor independence and quality of auditor report were

sufficiently related. It was recommended that auditors should not interfering with the affair of its client in order not to erode its independence.

Bianca Rusu, Lăcrămioara Hurloiu, Iulian Hurloiu and Lucian Ilincuță, in their paper named **The Economic Reflection of the Internal Audit Function Depending on the Managerial Assistance** are talking about the fact that the control environment, which is largely determined by management policies and the operating style of the entity, is fundamental to the way the controls are carried out within an organisation. In order to obtain a full understanding of the control environment, the auditor should focus more on the high-level policies and practices of the audited entity and less on the detailed controls within individual operations. Professional scepticism is of great importance when assessing the control risk. The auditor must apply it when verifying how the internal controls, implemented by the management of the entity, have acted in the direction of reducing the specific inherent risks.

Abayomi Olarewaju Adeoye and Kafiu Sunkanmi Odusanya, in their paper called **The Effects of Business Process Management on Organisational Productivity: A Study of Selected Banks**, examined the effects of business process management on organisational productivity. Survey research design type was adopted for the study. The population was characterized with both genders (that is male and female workers) in Guaranty Trust Bank and United Bank of Africa. A sample size of two hundred and twenty-one (221) staff was selected. The sampling technique that was used was Random Sampling Technique. Data collected were analyzed using frequency, descriptive and all stated hypotheses were analysed using Pearson Correlation and the findings indicated that there was a significant relationship between change in process and competitive advantage; also, the finding showed that there was a significant relationship between radical redesign and sales growth. The study therefore recommended that during the reengineering of the processes, organizations should stress on their planning as well as strategies.

Olajide Clement Jongbo, in the paper entitled **An Analytical Assessment of the Determinants of Exchange Rate: An Empirical Evidence from Nigeria**, utilised econometric techniques as data analysis technique and it is indicated that there is no significant relationship between real terms of trade and real exchange rate in Nigeria; there is no significant relationship between real trade restrictions and real exchange rate in Nigeria; there is no significant relationship between technological progress and real exchange rate in Nigeria. However, it is demonstrated that there is a significant relationship between real government

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expenditure and real exchange rate in Nigeria and there is a significant relationship between nominal exchange rate and real exchange rate in Nigeria. Therefore, the study concluded that, at the long run level, the real variables alone that influences real exchange rate in Nigeria were insignificant. However, real exchange rate in Nigeria was determined by both real and nominal variables are the core fundamentals that determined real exchange rate in Nigeria mostly in the short run. It is therefore recommended that there is need for the monetary authority in Nigeria to create enabling environment that will encourage and attract international trade activities by investing in the infrastructure of the nation.

Kudirat Adeola Banjo, Sunday Adekunle Aduloju and Sunday Stephen Ajemunigbohun, in their paper named **Environmental Risk, Reputational Risk, and Legal Risk as Determinants of the Performance of Manufacturing Companies in Nigeria** are telling us that most manufacturing firms focus on how to improve their effectiveness and pay less attention to the possible risks that can affect their profitability. The impact of environmental, reputational and legal risks on the performance of manufacturing firms was examined in this paper. An exploratory research design was used by the researcher. The population of this study is 305 senior staff from 10 manufacturing companies in Lagos state's Ikorodu Metropolis. The Logit Binary regression model was used to test the study's hypotheses. This model is thought to be suitable because it can predict the impact of independent variables on dependent variables. According to the findings of this study, environmental risk, reputational risk, and legal risk all have a negative significant impact on the performance of manufacturing firms. This study recommended that manufacturing company management give greater attention to their environmental, reputational, and legal risks by making sure that such risks are properly managed with the help of Enterprise Risk Management Tools and by offering valuable intelligence into their entire organization with Data-Driven Decision Making. Manufacturing firms should use Optimised Heat Maps and Charts to distinguish, analyze, and assess Environmental Risk, Reputational Risk, and Legal Risk in order to avoid or minimize such risks.

Lăcrămioara Hurloiu, Iulian Hurloiu, Bianca Rusu and Lucian Ilincuță, in their paper named **The Evolution of the Legislative and Economic Framework Regarding the Fiscal Inspection within ANAF** are talking about the fact that the modernization of life, in general and the economic one, in particular, have led to a renovation of economic violation, at an adaptation of economic violation to everyday life. Classical patrimonial offenses have lost their relevance, currently

assisting in a sophistication of economic violation, one of the new forms it takes being economic evasion. The universality of the evasion phenomenon is explained by its extension to all types of societies and to all social classes. The age of tax evasion is linked to the very appearance of taxes and fees. A complex phenomenon, which appears as a response of the taxpayer in relation to the coercive action of the state, the tax evasion is a subject disputed equally in the legal sciences and in economics, bending on the recent branch of economic law. In this context, it is necessary to analyze the evolution of the legislative and economic framework in Romania about the fiscal inspection within ANAF.

Sonja Milutinovic and Tanja Stanišić, in their paper named **FDI and Income Convergence in the Central European Transition Countries**, are talking about foreign direct investment that generates a number of benefits, especially for developing and transition countries, and, therefore, it is a major factor in economic development. Some of the advantages of foreign direct investments are technology and knowledge spillover, increased employment and competition and improved balance of payments. The aim of this research is examining the effect of foreign direct investment on income convergence of Central European transition countries. Regression analysis is used to test this effect. The results indicate that Central European transition countries with a higher inflow of foreign capital achieve more propulsive convergence towards the average income of developed countries of the European Union. The results of the research can be useful for the economic policy makers of transition countries.

Sunday Stephen Ajemunigbohun, Kudirat Adeola Banjo and Toyin Shafau Saka, in their paper entitled **Insurance Literacy and Risk Appetite: Evidence from Selected Small and Medium-Sized Enterprises in Lagos, Nigeria** are talking about the fact that the economic loss that possibly occurred from the inactions of individuals may be resultant effects due to lack of insurance literacy in their personal financing decisions. However, insurance decisions that rest upon the level of risk acceptability of an individual SMEs is usually expressed in the course of attaining a high level of personal financial satisfaction. Therefore, this study examined the relationships between insurance literacy, and risk appetites, with specific reference to SME operators/owners in Lagos, Nigeria. The study adopted a cross-sectional survey research design. Thus, the single-stage cluster sampling method was adopted in the questionnaire distribution and collection processes. A structured questionnaire was employed for data gathering. A total of 386 copies of the questionnaire were distributed, of which 273 were found usable which

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represented a 71% response rate. The data procedural technique employed were simple frequency percentages and the multivariate regression method. The results show that all other determinants of insurance literacy except for insurance behaviour have positive relationships with SMEs' risk appetites in Lagos, Nigeria. This study recommended that insurance education, as a field of study, should be taken as seriously as possible so that it can help develop the peoples' minds psychologically and sociologically to get attracted to insurance in order to manage their future. More so, insurance providers in Nigeria should attempt to make the business of insurance lovable and affordable to SMEs' operators/owners in a bid to shapen their behavioural risk attitudes.

Sunday Adekunle Aduloju and Oluwaleke Ebenezer Akindipe, in their paper named **Risk Financing Strategy and Project Success: Evidence from Building Contractors in Lagos State, Nigeria**, evaluated the significant effect of risk financing strategy on project success among building contractors in Lagos State with focus on risk transfer strategy and risk retention strategy on project success among building contractors in Lagos State, Nigeria. This study employed a descriptive survey research design. The population of the study comprises all registered builders in Lagos State which are 2,422 builders. The study adopted a convenience sampling method. The total sample used for the study is 170 respondents. The study employed a structured questionnaire as its instrument of data collection. Data collected were analysed using Statistical package for social science students (SPSS) and regression analysis. The regression result showed a strong positive relationship between risk transfer strategy and project success among building contractors in Lagos State which is indicated by the R value (.701) at 5% significance level and it is statistically significant at .000 which is less than ($P < 0.05$). The second hypothesis regression result showed a strong positive relationship between risk retention strategy and project success among building contractors in Lagos State which is indicated by the R value (.701) at 5% significance level and it is statistically significant at .000 which is less than ($P < 0.05$). It was concluded that the compliance level of the contractors with regards to the stipulation of section 64(1), No.37 of Insurance Act 2003 was very low compared to their high level of awareness with the stipulation. The compliance level was less than 20% compared to the awareness level that was more than 20%. It was recommended that all built environment stakeholders should become more involved in the implementation of risk management. Their early involvement will

facilitate a better understanding of each party's roles and enhance collaboration and communication within the Nigerian construction industry.

Imade Osazee Graham and Segun Idowu Adeniyi, in their paper named **Tax Aggressiveness and Firm Value: Evidence from Publicly Listed Industrial Goods Companies in Nigeria**, are talking about the relationship between tax aggressiveness and firm value among publicly listed industrial goods companies was examined. Ex-post facto research design was used and data obtained from the financial statements and accounts from 2006-2020. Data (non-debt tax shield, cash effective tax and revenue growth) obtained were analyzed using summary (mean, median, standard deviation, minimum and maximum values, Karl Pearson correlation) and inferential (variance inflation factor, ordinary least square, fixed and random effects, Hausman specification tests) statistical tools. Findings indicated that tax aggressiveness has positive and insignificant impact on firm value on publicly listed industrial goods companies. Given the findings of the study it was recommended that the relevant tax institutional framework and authorities of Nigerian firms must ensure that the corporate governance provisions and tax implementation be strictly followed to by the publicly listed industrial goods companies in Nigeria in order not to compromise the use of aggressive tax mechanisms.

Clement O. Olaoye and Ifeoluwa Odunayo Fasanmi, in their paper named **Taxes and Profitability of Deposit Money Banks in Selected Africa Countries**, examined the effect of taxes on profitability of Deposit Money Banks in selected African countries. Objectively, the study examined the effect of company income tax and education tax on profitability of DMBs in selected African countries in terms of return on equity and return on assets. Ex-post facto research design was adopted and the population covered all the 14 quoted Deposit Money Banks in Nigeria; out of which, 10 banks were purposively selected. Secondary data obtained from the audited annual financial statement of the selected banks for 10 years spanning from 2010-2019 was used. Panel regression of fixed and random effect estimation was to test the formulated hypotheses and this was carried out after descriptive statistics and Pearson correlation. It was discovered that corporate income tax exerts a positive but insignificant effect on profitability of deposit money banks in terms of return on equity and return on asset to the tune of $0.011(p=0.503 > 0.05)$ and $0.001(p=0.617 > 0.05)$ respectively. Education tax was found to have a positive and significant effect on return on equity to the tune of $0.006(p=0.047 < 0.05)$. However, it has a positive but insignificant effect on return

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on asset to the tune of 0.0005 ($p=0.317 > 0.05$). Based on the findings made, it was established that there was a statistically significant effect of taxes on the profitability of Deposit Money Banks in Nigeria. Thus, it was recommended that the tenets of the ability to pay tax on company income tax and education should be upheld by the relevant tax authorities in Nigeria. This might afford firms with financial crises and low profitability to pay commensurate taxes.

Marinela Geamănu, in her paper entitled **The Analysis of the Financial Equilibrium Based on the Financial Balance Sheet**, aims to highlight the importance of financial balance in the activity of any enterprise. Thus, she will present the financial balance sheet based on the balance count sheet. In order to establish the financial balance within an economic entity, the financial balance indicators must be analyzed, as well as their role in the analysis of the financial position of the economic agents.

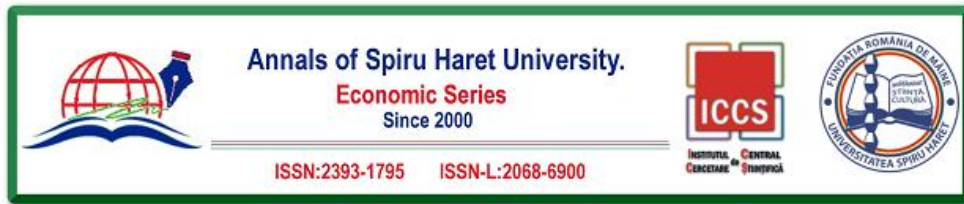
Abdurrauf Babalola, in the paper named **The Exchange Rate and COVID-19 Pandemic: An Application to the Nigerian Economy**, is telling us that the recent tremors in the Naira exchange rate amidst the COVID-19 pandemic are quite worrisome. Countries that depend on the exportation of transport-driven resources could be worse hit. This study aimed to examine the impact of the COVID-19 pandemic on the exchange rate in Nigeria. The Naira exchange rate was made the criterion variable while the COVID-19 pandemic, disaggregated as Covid-19 new cases, COVID-19 period, and COVID-19 new deaths was put as the predictor variables. ARDL technique was employed as informed by the unit root tests. The finding revealed that, in both the short run and long run, the period of COVID-19 had a significant direct impact on the exchange rate in Nigeria. However, COVID-19 new cases and new deaths could not significantly impact the exchange rate. The study, therefore, suggests that Nigerians should be aware that the upsurge in the naira/dollar rate is due to the COVID-19 period, among other causes. The economy should step-up other internationally demanded products like crude oil and produce in large quantities to cushion the effect of low export.

Elitsa Petrova, in her paper entitled **An Empirical Study in a Real Environment on the Problem of Students' and Cadets' Performance in the Educational Process**, is telling us that the subject of the study is the motivational salience of the students and cadets in higher education institutions, the relation with their performance in the training process and methods used to motivate learners in the field of security and defence. The objects of the study are learners at the National Military University in Bulgaria. The study began in 2012 and ended in

2019. Currently in 2021, its results are implemented by the management at the National Military University. The collection of the necessary information for the study was carried out by a combination of research methods. The main method used was the empirical statistical study conducted in a real environment. Experts with a major academic and command experience were attracted and provided feedback on presentation of learners in the training process and methods used to motivate learners. Large volume of literature sources was studied in the period from 2002 to 2019 in order to find an appropriate methodology and the research to be scientifically substantiated and conducted in accordance with the scientific requirements.

Carmen-Gabriela Nițu (Chitafes), in her paper named **Benchmarks Related to Financing, Accounting and Benefits of the Projects Financed with European Funds, which Can Be Implemented by Entities in the Ministry of National Defence**, is talking about the fact that the core of her paper consists in the ineluctable explanation of the amount to which the European funds absorbed, a strategic resource, influence the development of the Ministry of National Defence (MND), through the essential financial support, valuable in the implementation of the economic, social, health, political and military processes. The purpose and motivation of this paper are professional, because in her position of public officer of the Romanian state, she is in search of the most efficient financing solutions and means, considering the national interest, the essential pillar ensuring permanent support for the economic progress, as well as for the stability of the society as a whole. In developing the topic of the: “Benchmarks related to financing, accounting and benefits of the projects financed with European funds, implemented by entities in the Ministry of National Defence”, the author has used quantitative and qualitative methods of research, comparative analysis of the data and information selected and she is going to present thus various considerations, findings and approaches at theoretical level as concerns the European financing and the use of the European funds in Romania. The most remarkable motivation for selecting the topic was to express in a balanced manner the impact the European funds have on the development of Romania, as there have been quite heterogeneous discussions. In the final part, the author has pointed out the role of the accounting in the implementation of such projects in entities under the Ministry of National Defence.

We hope that our journal issue caught your attention and made you read it. Also, we strongly believe that all the articles are interesting and deserve to be appropriated



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by those who are interested in understanding the specific issues of the global economy.

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Finally, hoping that you found interesting Issue no. 1/2022, I strongly invite you to address your comments and suggestions at ashues@spiruharet.ro and, of course, to submit your own paper via online submission system, using the following link: <http://anale.spiruharet.ro/index.php/economics/login>.

Research is the breath of the future. Let's shape the world together!

*Associate Professor Elena GURGU, Ph.D. in Economics
ASHUES Deputy Chief Editor*

ACADEMIA PAPERS

DOMAIN-DRIVEN DESIGN AS A CHOICE FOR SOFTWARE DEVELOPMENT IN PROJECTS WITH COMPLICATED BUSINESS PROCESSES

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Abstract

The article explains the critical concepts when using domain-led design as a software development approach. It presents what makes a domain-driven design, how that philosophy came about, the advantages and disadvantages, and when it is best to use it. All the necessary elements that are essential for software designed in this way to succeed, which together form a domain-driven design, are explained in detail. Particular emphasis is placed on the importance of domain-driven design in the case of software in projects with complicated business processes.

Keywords: *domain-driven design (DDD) software principles; onion architecture.*

JEL Classification: O33

Introduction

Software is a set of instructions that allow users to interact with a computer and perform specific tasks. [1] There are many such definitions, and this article will

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not deal with which of these definitions is correct but will focus on making the software itself using specific methods. Software is just a means to an end, and usually, that goal is something convenient and accurate. For example, the software controls air traffic, which is directly related to the real world. Today, in the case of air traffic, sophisticated machines are used to manage the software to coordinate the flight of thousands of planes in the air at any given time.

However, one of the main problems for people making software of any nature is that they ignore software created to solve a real-life problem. So, the software must be practical and valuable. Otherwise, people would not invest so much time and resources in its creation. Therefore, it is highly connected with a particular aspect of human life. Thus, a specific software cannot be separated from the domain sphere for which it was built. This attitude leads to many problems, which this article will address.

Of course, there are different ways to approach software design. In the last 20 years, experts in the software industry have practised several methods for making their products, each with its advantages and disadvantages. The purpose of this article is to focus on a technique that has emerged and evolved over the last two decades but has crystallized more clearly over the last few years: "Domain-driven design" (DDD).

DDD is a development philosophy introduced initially by Eric Evans in *Domain-Driven Design: Tackling Complexity in the Heart of Software* (2003).

This article will explain why this approach to software development has become very popular in the industry in recent years. Each of the main ideological principles and practices of this philosophy will be covered.

1. Domain

It is essential to understand what a domain represents in the software world regarding domain-driven design. In the context of software engineering, a part usually refers to the subject area in which the software is intended to be used. In other words, during software development, the domain is the sphere of knowledge and activity on which the application's logic is based.

The example best shows the importance of knowing the domain for which the application is being created. If we look at the complete banking system that needs to be modelled in software, it is hard to imagine that this can be achieved without the help of people who understand this area of business. However, unfortunately, developers often focus on technical problems that arise when creating software, much less on issues significant to domain experts, bankers.

The banking system is best understood by the people inside, their experts, the employees who use it, and everyone who maintains a bank's ecosystem. They know all the details, tangible and problematic parts, and possible questions and rules. Therefore, it is always necessary to understand the domain for which the software is designed to provide the required value to experts in the field.

2. Domain-driven design determinants

Now that it is clear what role the domain plays, the next question is what is not domain-driven design. So DDD is the software development philosophy first proposed by Eric Evans in 2003, and it includes various strategic, philosophical, tactical and technical elements and is related to many specific practices. It is used to create complex, "enterprise" software, closely linking implementation with a particular domain's model and business concept processes. Therefore, its strategic value refers to the replication of business domain concepts into software artefacts. This achieves a natural separation of the whole code following business problems and avoids a prevalent mistake where you first think about how the software will be made and with what technologies. Only then try to adapt business concepts to the natural language (Native language) of selected tools.

If the representation of money in code is taken as an example, most solutions will use some decimal type according to the programming language. However, the trap lies because there will soon be a misunderstanding in the conversation between the developer and, say, a financial consultant who explains all the domain concepts necessary for the software to contain. For example, suppose a consultant is presented with a figure of decimal 50, which should represent money. In that case, there may be disagreement about what exactly that number means since people who deal with money must know which currency is in question and maybe on what day. So a simple float or decimal is nowhere near enough for situations like this. The solution to such problems will be explained in more depth in the "Values" section.

Having in mind the mentioned problems, Evans placed perhaps the most significant focus on developing the concept of the so-called ubiquitous language. The universal language forms the basis for successfully mapping a domain language into the software code itself. When we say "common", we mean using the same terms, phrases, and other domain concepts, in discussions with domain experts and in the code itself.

In summary, DDD is a philosophy of bringing software closer to the business domain, not the other way around. In addition to a clear definition of what DDD is, it is essential to emphasize what DDD is not: [2]

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1. DDD is not tied to any technology, tool or programming language. Although there is much talk about how some languages are more suitable for using this development philosophy, at least some of the principles and methods presented by DDD can be applied in any technological setting.

2. It is not a software development methodology. DDD can be used just as well in an agile environment (Scrum, Kanban ...) as in the so-called "big design up front" models (waterfall, spiral, V-model ...)

3. Perhaps the most important thing to say is that DDD is not always the right choice. If it is necessary to make a simple application without complicated business processes, the introduction of DDD principles would significantly complicate the software project without the benefits that DDD otherwise provides.

3. Reasons to use DDD

When a new software system or model is developed, there will never be a "real" answer to all the questions that follow. When designing any system, it is necessary to determine whether it is justified to use a particular approach or technology or not. Also, this article will not provide accurate answers to all the questions that arise. The correct answer always depends on the context in which the software is developed and the domain for which it is produced.

One of the main problems when using DDD is deciding whether to use it at all. The rule is that using DDD will generally pay off if the domain for which the software needs to be designed is complex enough. Since it is pretty challenging to determine precisely where the boundary defines whether a part is complicated or not, Vaughn Vernon presented a table that can be used to conclude whether it is worthwhile to start with the DDD approach [3].

If the total number of all-rounded points is seven or greater, the use of a domain-guided design should be considered.

From the table, it can be concluded that DDD is most suitable when the domain for which the software is made is initially very complex. However, when it comes to Complexity, the most important thing is to understand that it is not essential if the domain is objectively complicated. However, people who develop software must understand it to such an extent that they can safely "insert" it into the software itself.

In addition to the initial Complexity, a prominent role is played by the number of changes and additions of new functionalities through software development over time, usually years. Suppose there is a tendency for software to have a long lifespan, which can mean different things for each project individually. In that case, it is

recommended to use DDD so that the system does not succumb to one of the many "anti-patterns". This would lead to the inability to add changes, correct errors, and generally to the dissatisfaction of employees assigned to maintain such a code.

Table 2-1. Reason for choosing a domain-driven design [3]

Is the project...	points
If the application is entirely data-oriented and qualifies for a pure CRUD solution, where each operation is a simple database query to create, read, update or delete, DDD is not required.	0
If the system only requires 30 or fewer business operations, it is probably pretty simple. However, this would mean that the application will not have more than 30 use cases, with each of these cases having only minimal business logic.	1
If the system has more than 30 use cases with more extensive business logic, it slowly enters the DDD territory.	2
Even if the application will not be complex in the beginning, will the Complexity grow over time? Unfortunately, this is often not known until the actual users start working with it.	3
It is expected that the application's functionality will change very often over the next few years, and it cannot be assumed how complicated these changes will be.	4
The domain is not understood by the people who need to create the software because it is new or complicated. This most likely means that it is complex or at least deserves in-depth analysis to establish the level of Complexity.	5
Total points:	?

However, there are situations in which the choice of whether to use DDD depends on circumstances that are not directly related to the scalability, sustainability, and general stability of the software throughout its life. One such example is the "lean" business development methodology, especially in "startup" cultures.

Lean startup is a business and product development methodology that shortens product development cycles and quickly discovers whether the proposed business model is sustainable. This is achieved by adopting a combination of business hypothesis-based experimentation, iterative product release, and validated learning. With this in mind, the question arises as to how DDD would then fit into this methodology, given the fact that it takes a lot of time and effort to apply the principles and practices that make DDD, and lean dictates that rapid experiments should provide feedback from by users who tested that quickly made prototype. In this case, it may be decided not to start the implementation using DDD immediately but to include it later if the prototype is successful. [4]

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When the software should be ready is the next significant factor in deciding whether to engage in DDD. There are various reasons why software should be delivered "just then", and it greatly influences the decisions of engineers related to its development. The so-called "time to market" is one of the more common reasons. Specifically, when it comes to "lean", to test the market or target group with an impoverished software solution, and only when the vision of what should be the final product is concretized, resort to domain-led design.

Another less popular reason among engineers is that the company is directly influenced by the shareholders who profit the most or lose depending on how the application is placed on the market. As a result, investors often pressure teams to launch software sooner than software engineers would like. As a result, decisions are made to avoid applying a philosophy such as DDD at the start of development for fear of delays, and thus the consequences.

There is another good circumstance in which it is advisable not to use DDD initially, yet it includes shareholders and investors as the main reason. Namely, to get the affection and the necessary financial help in general, "startups" must show in action what they need financial resources for. Then it is much better to make a simple and unfinished prototype of the application or software itself, which shows the usefulness and value it brings. At the same time, it does not take months or even years to develop something that is still not certain to be used at all. Of course, if the so-called "proof of concept" passes, and it is determined that development needs to start, DDD again becomes a valid option.

4. Software complexity

In the previous section, a detailed explanation was given under which conditions DDD is offered as a perfect solution for a broad set of practices, ways of making and designing the components of a software solution. From this module onwards, the focus will be on each of these practices and how all of this is achieved. The problem mentioned in previous sections and that DDD best solves is the problem of increased Complexity throughout the system. An explanation of how this is performed will be provided below.

To be clear about what exactly Complexity means in this context, it is necessary to define it more deeply. Rich Hickey did a great job in "Simple Made Easy". He presented Complexity as nothing more than an intertwining of components or ideas in the same part of the system. Nevertheless, first, there is a crucial difference between the two types of Complexity in software engineering.

Fred Brooks, a 1986 Turing Award winner, explained this brilliantly in his "No Silver Bullet - Essence and Accident in Software Engineering". Brooks singled out two different types of Complexity: random Complexity and essential Complexity. [5]

1. Essential Complexity is the Complexity of the mentioned components in the software, but it is necessary to solve the problem itself. It arises because of a problem that needs to be solved, and nothing can remove it; if users want the program to do 30 different things, then those 30 things are necessary, and the program has to do those 30 other things. It forms the essence of the final software.

2. Random Complexity is, on the other hand, the intertwining of components and ideas, which are not necessary for solving problems. This Complexity is accidental and can occur for two reasons:

- because there has been an unnecessary importation of things, ignorance of how this can be avoided, or insufficient commitment to this problem.
- because an effort has been made to optimize further some part of the system using more advanced techniques. For example, optimizing batch data processing for faster processing or introducing a more complicated data compression algorithm.

As a result, the software is much harder to understand than expected and often leads to massive frustration among people who maintain such software. Therefore, it is essential to know when introducing additional Complexity of this type is necessary and avoid the standard error known as "premature optimization".

Figure 2-2 presents a simple graphical example that explains these two concepts.

Figure 2-2 shows the differences and the most common causes of these two types of Complexity. On the left side is the essential one, which creates the domain itself in the "real" world. It is intentional, necessary and crucial for the software to be valuable and successful.

On the other hand, there is an example of "legacy" code, mostly massive projects made over many years and even decades. The biggest drawback of such systems is that many engineers work on the software solution and often rotate. Rotation mainly happens because it is complicated for developers to understand what they need to do and make software changes, most prominent engineers. The latter has a vision of how the whole system works have left the company. This leads to a lot of error correction in the code, for which they are not even sure what it is doing at all. It is known that fixing mistakes is not particularly interesting for

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developers, so they leave companies searching for something else that leads to the mentioned rotation. In this process, each programmer leaves his "trace", which often further complicates the part of the system he worked on and thus contributed to the random Complexity that everyone is trying to avoid. [7]

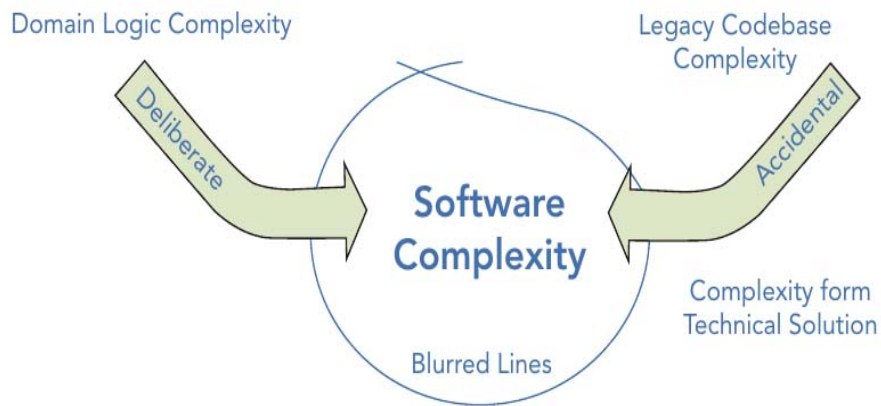


Figure 2-2. Software complexity [6]

5. Good and bad Complexity

Now that it is clear what Complexity is and how it is divided, the question arises of how to solve it. Perhaps the text from the previous section can be interpreted as "good" and "bad" Complexity, but that is not the case. Namely, if these two complexities were isolated, it would be established that each of them contributes to improving the software solution. If we discuss the first, introducing domain or so-called business logic into the answer, we get more enriched software with new functionalities.

An excellent example of this is the application for delivery of goods abroad. The client may request the introduction of a new domain logic that should adhere to the following:

"For each order, calculate an additional price that covers the cost of delivery to the final destination. This is achieved by automatically adding to the price before paying for the order, depending on the zone in which the address is located. "

This is what a request for new functionality or a so-called "user-story" might look like if it is a "scrum" methodology, which roughly defines what needs to be

done or added to an existing system. So, this is about the additional business logic necessary for the software to present how things work in the real world faithfully.

When it comes to random Complexity, it is much more often about the technical problems and solutions that make the software more efficient in various ways. They generally do not contribute to the business processes of the natural world but technically allow these processes to take place. The following client request describes this well:

"In the part of the internet portal for the delivery of goods, it is necessary to speed up the process of uploading photos of new products to reduce the load on the servers, and thus their maintenance cost."

At first glance, the simple requirement in terms of domain logic, moreover, has nothing to do with real-world problems, unlike in the past. However, this does not mean that it can be easily achieved. This requires some kind of data compression using one of the complex compression algorithms, which is necessary to keep the image quality at a certain level. This leads to the need to mainly include additional libraries in the code to solve such problems since it would be inefficient to write such things from the beginning. Therefore, introducing the component, which is very complex from the technological point of view, solves the problem but increases the mentioned random Complexity.

When both types of Complexity are viewed from this angle, both act as a necessary and desirable element of the software solution, as they solve the problems imposed by client requirements. However, the problem arises when mixing these complexities in the same part of the code. More precisely, when the infrastructural aspect of the code is combined with the domain code. An example of this is given in the next section.

6. Traditional "N-Layered" architecture

"N-Layered" architecture or "Multitier" is a concept of client-server architecture in software engineering. The functions of presentation, processing and data management are logically and physically separated into several layers. The rule is that the "above" layer cannot reference the "below" layer, which means "The component in the reference layer must not depend on the component from the reference layer and must function independently of any reference layer". The key to understanding here is that the "Data" layer must exist and function on its own, then the "Logical" layer exists and works on its own, but only by connecting to the base "Data" layer, and so on. An example can be seen in Figures 2-3.

N Tier Architecture

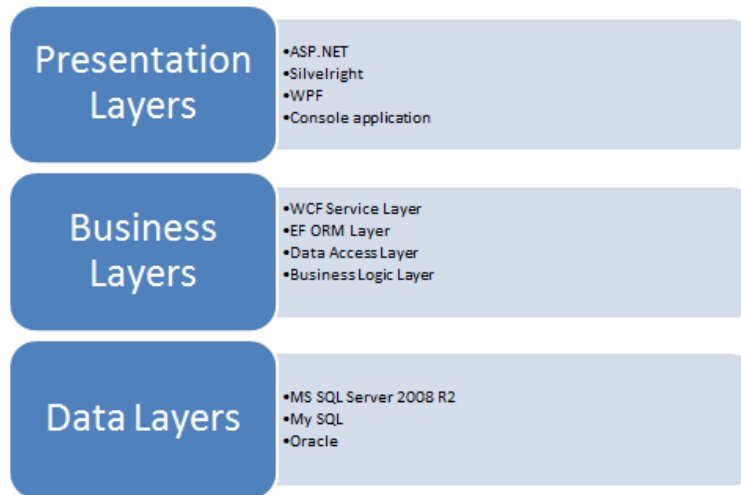


Figure 2-3. N-Tier architecture [8]

Layered architecture initially emerged to scale Internet-based client-server applications that can support hundreds of thousands of users. By placing the Load balancer level at the top of the processing logic, the system would withstand high loads more efficiently and provide a higher degree of resilience. That is how it worked, which is why it became so popular. [9]

However, over time, it has proven too inflexible to scale more modern effectively, low-latency applications where data volumes are exponentially more significant each year. The main reason why this is so may not be immediately apparent, as most of the flaws only come to the fore when the project grows. The reasons are as follows: [10]

1. Too generic solution

Division of the system into rigid layers tends to jeopardize flexibility. For example, a layered design may require validation in the middle layer when it is sometimes outstanding to apply the same validation logic in the presentation and intermediate layers in more straightforward cases. In addition, the reason closely

related to the data being processed is perhaps even closer to the data warehouse. The point is that the solution should satisfy specific business functionalities and not adhere to a predefined abstraction.

2. The problem of separation of worries

"Separation of Concerns (SoC)" is one of the most basic principles in software development. It is so important that 2 of the 5 SOLID principles are based on this principle:

- Single Responsibility
- Interface Segregation

Since the components in this architecture are generic, it is tough to define adequate abstractions. Layers tend to be restricted by their technical role rather than business functionality, which further leads to the "omission" of business logic in multiple places within a single layer, thus totally losing the authority of a particular business process by its "owner". After a while, it becomes impossible to tell where things are going wrong, and even banal changes require code changes on each layer. Adding new features becomes almost impossible, and most of the time is spent not crashing the rest of the system. Anti-patterns such as "Big ball of mud" (lack of clear architecture in the system) and "Shotgun Surgery" (changing one component means changing many others) are becoming a reality.

3. Tight Coupling

Another big problem is that in this architecture, the dependence of the components (eng. Dependency graph) always goes down. All of these classes and methods are tightly coupled due to the direct instantiation of layer objects below the current one. An example of this is using the new keyword in languages such as C # or Java. Because of this, every change in the class or method in the last layer causes the need to change and every component that directly depends on it. In small systems, it is easier to keep track of all these changes. However, as soon as the project grows, the vision of which components need to be changed is quickly lost. Thus, a "Shotgun Surgery" scenario is obtained (changing one feature imposes many varying others).

The opposite of this harmful practice is Loose Coupling, which achieves increased stability, sustainability and more remarkable ability to test a particular module. This is achieved by using the interface as a "contract" of communication between the components. Thus, the part implementing the interface can be changed without consequences as long as all these interfaces required is further complied with.

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In the IT industry, as Uncle Bob, Robert Martin released a article entitled "The Dependency Inversion Principle" in the 1990s that explained in detail exactly how to solve all the problems mentioned above present using the "N-tier" architecture.

The Dependency Inversion Principle is the letter "D" in the "SOLID" principles, which is also credited to Uncle Bob and is still the best way to separate the dependencies of software components. The whole idea consists of two parts: [11]

1. High-level modules should not depend on low-level modules. Both should depend on abstraction.
2. Abstractions should not depend on details. Details should depend on abstraction.

An important detail of this definition is that high and low-level modules depend on abstraction. This design principle changes the direction of dependence and divides the support between high and low-level modules by introducing abstraction. In the end, two dependencies are obtained:

1. A high-level module depends on abstraction and
2. A low-level module depends on the same abstraction.

It is now clear that the "N-tier" architecture is not subject to respect for this design principle. It is easy to see that at the bottom of the chain of dependence is just a specific implementation or the already mentioned implementation detail database. This is precisely why alternative architectures were sought, to separate support from the database and respect the "Principle of Inversion Inversion" and other recommended already mentioned practices.

The previous section said that an example of an uncontrolled increase in Complexity in the software would be given by mixing the essential and the random. Modelling software that relies heavily on the database and its limitations is the case. The biggest problem is that the crucial part of the software, the domain, directly depends on the database's infrastructural detail. It has already been said that all the tools used in the software are used to enable the execution of a business process. However, in doing so, they add considerable random Complexity to the system. Databases are known to be very complex and certainly contribute the most to it. One example is storing "bool" values in a system. Although it is logical to use the native type in any programming language: true or false, in some databases such as "SQLServer", this is expressed with the bit data type, using 0 or 1. In such situations, developers often agree to compromise and use shorting or another alternative to solve this as painlessly as possible since the base is in the foreground. However, its limitations cannot be easily ignored. DDD provides a solution and uses the mentioned principles to put the database in the background.

7. Onion architecture

It has already been pointed out that DDD does not provide a ready-made solution that everyone must adhere to completely. However, Eric Evans put together and created this approach to software development, a set of best practices, design principles, and patterns in the IT industry.

One of these principles is the "Onion" architecture, first introduced by Jeffrey Palermo in 2008, currently providing the best alternative to the traditional "N-tier" approach. As he says, the "Onion" architecture is not suitable for small websites. However, it is ideal for long-term business applications as well as for applications with many complex processes. The architecture emphasizes the use of the interface, which achieves the already mentioned inversion of component dependencies and forces the externalization of the infrastructure, thus avoiding dependencies and reducing Complexity. Figure 2-4 shows what it looks like.

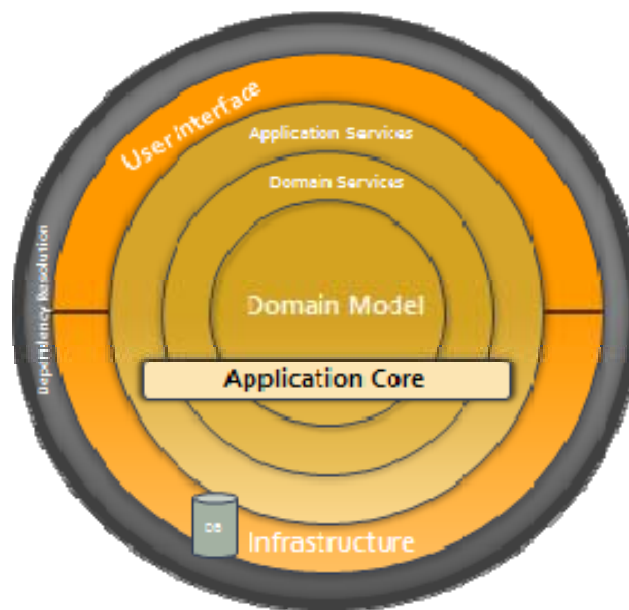


Figure 2-4. Onion architecture [12]

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The basic rule is that the code can depend on the more central layers, but it cannot rely on the further layers from the core. This architecture is fearlessly biased towards object-oriented programming and puts objects ahead of everything else. This is a bit reminiscent of the "N-tier" model, where the dependence also moves downwards. However, this time, there is a domain model in the centre. The domain model combines states and behaviours that model the organization for which the software is created. There are other layers with more behaviour around the domain model. The number of layers in the application core varies, but the most important thing is that the domain model is always in the centre. This means that the domain model is connected exclusively and only with itself. In other words, there is no unnecessary connection with things that change very often over time. For example, the "Angular framework" used to create the user interface releases new major versions every six months, often changing many things. Furthermore, having in mind that the software should live for years, and even decades, it is clear that it is essential to separate it as far as possible from the centre of the architecture and not use it as a support on which the software is built.

In this regard, Figure 2-4 clearly shows that the database is located outside, at the same level as the other infrastructure code. Database externalization can be quite a significant change compared to the "N-tier" approach where the database is in the foreground. Some applications can use a database as a data storage tool, but only through some external infrastructure code that implements an interface that makes sense for the application core. Separating an application from a database, file system, and physical computer reduces maintenance costs over the life of the entire application.

Of course, it is still necessary that the infrastructure communicates with the domain model so that the data is stored in the system according to what is required. That is why the "Onion" architecture is based on the principle of dependence inversion ("DiP"). The application core uses predefined interfaces, which maintains a loose dependency. Implementing these interfaces is on the very edge of "Onion", which includes complicated technical details, external libraries, databases, file systems, web protocols and everything else. This is accomplished by injecting that implementation code when the software code is executed, known as a runtime. [13]

There are other variations on this architecture, but they are also very similar with minor terminological differences. The most famous is Uncle Bob's "Clean Architecture" from 2003 and Alistair Cockburn's "Hexagonal architecture" from 2006. Using this architecture, DDD solves the main design problem that the

industry has encountered in the past. This is also the basis of all the elements that make up DDD, which will be discussed later in the next section.

8. DDD components

The last section presents an architecture that solves design problems that people have encountered in the past. The focus is on how to achieve a loose relationship between the components, the so-called "low coupling, high level of cohesion" ("Low coupling, high cohesion"), which according to many, is the crucial thing when it comes to creating a sustainable and scalable system. But, in the picture that shows the "Onion" architecture, there are other components that were not mentioned. These and many other elements play an essential role in what DDD wants to achieve.

It has been said that DDD is nothing but a set of practices, patterns and principles that together make a sustainable system. The creator of DDD, Eric Evans, recognized all these elements very well and presented them all in his book [14]

One of the reasons why Eric's book is not recommended for engineers who are just entering the realm of DDD is that it is tough to understand all the concepts covered in the book, having in mind a lot of new ideas. Figure 2-5 shows this. Although not trivial, everything becomes much clearer when each of these concepts is studied, and the value of their application in a software solution brings excellent results.

To make it easier to understand what all this represents, these practices and patterns can be divided into two groups: [15]

1. Strategic DDD:

has a broader context and is very influential in what kind of results the whole project will bring, mainly in the context of its scalability and the possibility of significant changes in the system. Strategic design is fundamental at the beginning of the project, where certain boundaries between the components are clearly defined, so it can be said that such decisions are not made every day.

2. Tactical DDD:

On the other hand, tactical DDD is something that developers encounter every day and contributes the most to the ability to adequately express a domain within the boundaries defined by strategic design. If all the principles are used in the right way, the possibility of making changes without fear of affecting another component is achieved. In addition, it provides a great way to test business logic and processes.

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Conclusion

Looking at domain-driven design as a software development philosophy, it can be established that several complicated concepts must be understood for this philosophy to be successfully applied. The benefits of using DDD are evident if there is a need for it. In case the project contains complicated business processes that must be presented in the software, DDD is undoubtedly worth using. However, by its nature, it adds Complexity in itself, but it produces stable and scalable software in return. On the other hand, if it is necessary to create a more straightforward application, all DDD principles are unnecessary. Again, this does not mean that specific ideas from DDD cannot be used where necessary.

Probably the most critical part of the DDD philosophy is the proper use and understanding of strategic design. Creating a ubiquitous language together with domain experts is something without which the project would not be successful. This brings more readable code, clearer intent, and fewer comments explaining what each part of the system is doing. Finding the proper context boundaries and representing subdomains within these limited contexts is not an easy task, but it is a vital step towards software sustainability in the long run. In addition, this provides the possibility of total autonomy not only of the code but also between multiple teams of people who can work in other technologies, which significantly increases the options.

The final decision as to whether DDD should be used for a particular software is undoubtedly up to the one who designs it. In this article, many reasons are expressed as to whether such a decision is justified or not.

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BIG DATA AND SUSTAINABLE DEVELOPMENT OBJECTIVES

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Abstract

Most scientific fields explore the perspectives of digital applications. In the digitalization process, Big Data offers us new ideas and methods to understand the Earth and undertake the epic mission of sustainable development with a new impetus.

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Keywords: *Big Data, sustainable development, sustainable development objectives, digitalization, environmental protection.*

JEL Classification: Q01, C8, O44, P18, P28

Introduction

The International Society for Digital Earth, an affiliate member of the International Science Council, published a special issue of “Big Data in Support of Sustainable Development Goals” in its journal “Big Earth Data” to celebrate the inauguration of the International Center for Big Data Research Sustainable Development.

The transformation of our world is taking place permanently. The 2030 Agenda for Sustainable Development offers a comprehensive program to collectively

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address several global challenges, such as environmental protection, climate change, disaster risk reduction, food security. However, gaps in data and methods for evaluating several indicators restrict compliance and effective implementation in several countries around the world.

The concept of “Big Data” refers to data that involves a greater variety, being received in volumes and at higher speeds. This aspect is also known as the “three V”.

Simply put, Big Data means larger and more complex data sets, especially from new data sources. These datasets are so bulky that traditional data processing software cannot handle them. But these massive volumes of data can be used to solve business problems that could not have been addressed before (<https://www.oracle.com/ro/big-data/what-is-big-data>).

The term of “Big Data” (big data, metadata) refers to the extraction, manipulation and analysis of data sets that are too large to be processed normally. For this reason, special software is used and, in many cases, specially dedicated computers and hardware. In general, at this data the analysis is done statistically. Based on the analysis of those data, predictions are usually made of groups of people or other entities, based on their behavior in various situations and using advanced analytical techniques. In this way, trends, needs and behavioral evolutions of these entities can be identified. The scientists use this data for research in complex physical simulations, biology, environmental protection, meteorology etc.

Relevance of Big Data

We are all aware that a modern digital framework allows for more innovations in science and technology that have facilitated our analytical capabilities, giving us information about data that was not possible decades ago. Therefore, we are witnessing an exponential growth of digital services and solutions in various aspects of human society. Most scientific fields explore the perspectives of digital applications. In the digitalization process, Big Data offers us new ideas and methods to understand the Earth and undertake the epic mission of sustainable development with a new impetus.

Big Data for Sustainable Development

The transformation of our world is taking place permanently. The 2030 Agenda for Sustainable Development offers a comprehensive program to collectively address several global challenges, such as environmental protection, climate

change, disaster risk reduction, food security. However, gaps in data and methods for evaluating several indicators restrict compliance and effective implementation in several countries around the world.

Thus, it is particularly necessary to improve access to data and the exchange of information between different organizations and countries. This is only possible by democratizing digital resources, information, data and in particular scientific knowledge. This is mainly true for the fields of natural sciences and engineering where a comprehensive knowledge of the complex interactions between different ecological and environmental systems is required to meet common challenges.

There are opportunities within the United Nations technology facilitation mechanism to improve the digitization and networking of scientific data and information. This will not only enable the flow of knowledge and information to all countries, but will also help to encourage and empower young talent to develop and to innovate solutions for their communities using globally distributed resources and information. CBAS, as an international research center, to exploit these opportunities, will work in the context of a “science for sustainability” framework and will develop scientific products, methods and technologies from the global to the local level to ensure global access to the most up-to-date, the most reliable information about SDG indicators. It will also work to mobilize technological and data resources useful for analyzing and visualizing information for informed actions and policies, with fair and free access. The SDG (Sustainable Development Goals) set of indicators was developed by the SDG expert group, which was set up by the United Nations Statistics Committee.

Introduction to CBAS

China announced in September 2020, during the general debate of the UN General Assembly Session, that it will set up an international big data research center for sustainable development goals.

CBAS aims to capitalize on big data for dissemination.

Transforming our world includes the 2030 Agenda for Sustainable Development, with multidisciplinary research in the field of Earth system sciences, economic and social sciences, and the science of sustainability. This process is dedicated to monitoring and evaluating indicators of sustainable development objectives in areas where Big Data plays an important role.

CBAS is working on a vision where data is open and accessible at the international and disciplinary level, technology is available to contribute to the

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whole policy-making process, and ideas and knowledge are communicated and developed, especially in developing countries.

CBAS is motivated to ensure collective development. CBAS has five key missions (according to the International Science Council, <https://council.science/ro/current/blog/big-earth-data-advances-science-and-engineering-for-sdgs/>):

1. Development of SDG data infrastructure and information products
2. Development and launch of a series of SDG satellites
3. Providing new knowledge on SDG monitoring and evaluation
4. Creation of a think tank for science, technology and innovation on promoting the SDGs
5. Providing SDG capacity development in developing countries.

Major Community Scientific and Technological Group of the United Nations

ISC, together with the World Federation of Engineering Organizations (WFEO), is a co-organizing partner of the United Nations Major Scientific and Technological Community Group. To this end, a mandate is provided for science at the UN and for the integration of science into major global policy processes, such as the implementation and monitoring of the 2030 Agenda.

The goals of sustainable development must support both people and the planet.

Following the meetings at the United Nations on the definition of the Sustainable Development Goals (SDGs), a group of international scientists published an appeal in the journal Nature, arguing for a set of six goals linking poverty eradication to protection and sustaining life on Earth. Researchers argue that in the face of growing pressure on the planet's ability to sustain life, adhering to outdated definitions of sustainable development threatens to reverse the progress made in developing countries in recent decades.

In 2013, in Melbourne, Australia, it was proposed that ending poverty and protecting the Earth's life support system should be double priorities for sustainable development goals, according to many researchers. The research team identified six objectives that, if met, would contribute to global sustainability, while contributing to poverty alleviation.

"Climate change and other global threats to the environment will become more and more serious barriers to further human development", said the professor David Griggs of Monash University in Australia. Humans are transforming the life

support system of the Earth - the atmosphere, oceans, waterways, forests, ice sheets and biodiversity – all that allow us to thrive permanently in ways that could jeopardize development gains.

The director of the Stockholm Resilience Center believes that research shows that we are at a time when the stable functioning of the Earth's systems is a basic condition for a prosperous global society and future development.

The team says that the classic model of sustainable development, of the three integrated pillars - economic, social and environmental - that has served nations and the UN for more than a decade, is flawed because it does not reflect reality. Co-author Dr. Priya Shyamsundar of Nepal's South Asian Network for Development and Environmental Economics believes that "as the global population grows to nine billion people, sustainable development should be seen as an economy that serves society within the system supporting the life of the Earth, not as three pillars".

Researchers believe that the Millennium Development Goals (MDGs) have contributed to the focus of international efforts on eight poverty targets. However, despite successes in some areas (the number of people living on less than a dollar a day has more than halved), many millennium development goals have not been met, and some remain in conflict with each other. Economic gains have come at the expense of environmental protection. Some people are struggling to link global environmental concerns with tackling poverty.

The new set of objectives improved lives and livelihoods, food security, water security, healthy and productive ecosystems, clean energy, governance for sustainable societies - aims to resolve this conflict. Each objective includes updates and extended objectives within the objectives of sustainable development, including the eradication of poverty, the fight against HIV / AIDS and the improvement of human health. But they must help: climate stability, reduce biodiversity loss, protect ecosystem services, sustainable use of nitrogen and phosphorus, clean water, clean air and sustainable use of materials.

Mark Stafford Smith, the Scientific Director of CSIRO's Climate Change Adaptation Program in Australia, said: "The key is that the SDGs must really add to sustainability. The SDGs have the potential to block the spectacular gains we have made over the past two decades in human development and to help the globe transition to a sustainable lifestyle. But the link between these two goals needs to be more consistent".

The new research is linked to Future Earth, a new international research program designed to "develop the knowledge needed by societies around the world

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to meet the challenges of global environmental change and identify opportunities for a transition to global sustainability”. Many authors are closely involved in the development of this new research program.

Dr. Stafford Smith said: “Ultimately, choosing goals is a political decision. But science can inform what combination of goals can achieve a sustainable future. And science can identify measurable targets and indicators”.

About the Future Earth

The Future Earth is a 10-year international research program that provides critical knowledge to societies in order to meet the challenges of global environmental change and to identify opportunities for a transition to global sustainability. The Future Earth will provide the highest quality sciences, integrating, as appropriate, different disciplines from the natural, engineering and human, social (including economic and behavioral) sciences. It is a collaborative project and includes academics, business, government and civil society, encompasses bottom-up ideas from across the scientific community, is solution-oriented and includes existing international projects on global environmental change and related research.

The paper is an early example of the solution-oriented work that Future Earth will undertake, with interdisciplinary teams of scientists coming together across borders to help solve sustainability issues. (International Science Council, <https://council.science/ro/current/press/sustainable-development-goals-must-sustain-both-people-and-planet/>)

The Concept of “Big Data”

The concept of “Big Data” refers to data that involves a greater variety, being received in volumes and at higher speeds. This aspect is also known as the “three V”.

Simply put, Big Data means larger and more complex data sets, especially from new data sources. These datasets are so bulky that traditional data processing software cannot handle them. But these massive volumes of data can be used to solve business problems that could not have been addressed before (<https://www.oracle.com/ro/big-data/what-is-big-data>).

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computers and hardware. In general, at this data the analysis is done statistically. Based on the analysis of those data, predictions are usually made of groups of people or other entities, based on their behavior in various situations and using advanced analytical techniques. In this way, trends, needs and behavioral evolutions of these entities can be identified. The scientists use this data for research in complex physical simulations, biology, environmental protection, meteorology etc.

Typically, Big Data includes datasets with dimensions that exceed ordinary software and hardware capacity, using unstructured, semi-structured, and structured data, focusing on unstructured data (Dedić Nedim, Stanier Clare, Towards Differentiating Business Intelligence, Big Data, Data Analytics and Knowledge Discovery, in Innovations in Enterprise Information Systems Management and Engineering, Springer International Publishing, 2017). Big Data sizes have increased over time since 2012, from a few tens of terabytes to exabytes of data (Science History Institute, Information Overload, 2016). Making Big Data work more efficiently involves learning machines to detect patterns, but this data is often a byproduct of other digital activities.

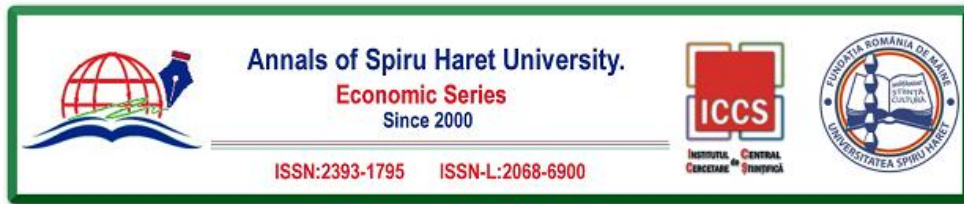
Another recent definition states that “Big Data is the data that requires parallel computing tools to manage data”, this is a turn in computer science, through the use of parallel programming theories and the lack of guarantees assumed by previous models. Big Data uses inductive statistics and concepts to identify nonlinear systems to deduce laws (regressions, causal effects, nonlinear relationships) from large data sets with decreased information density to obtain relationships and dependencies or to make predictions of results and behaviors. (Wikipedia, https://wikipedia.org/wiki/Big_data)

According to “The Ethics of Big Data: Balancing Economic Benefits and Ethical Questions of Big Data in the EU Policy Context”, Big Data is a term that refers to the enormous increase in access to and automatic use of information. This refers to the very large amounts of digital data controlled by companies, authorities and other large organizations, which are subjected to extensive analysis based on the use of algorithms. Big Data can be used to identify general trends and correlations.

Conclusions

Therefore, we are witnessing to an exponential growth of digital services and solutions in various aspects of human society.

The goals of sustainable development must support both people and the planet.



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There are opportunities within the United Nations technology facilitation mechanism to improve the digitization and networking of scientific data and information. This will not only enable the flow of knowledge and information to all countries, but will also help to encourage and empower young talent to develop and to innovate solutions for their communities using globally distributed resources and information.

The Future Earth will provide the highest quality sciences, integrating, as appropriate, different disciplines from the natural, engineering and human, social (including economic and behavioral) sciences. It is a collaborative project and includes academics, business, government and civil society, encompasses bottom-up ideas from across the scientific community, is solution-oriented and includes existing international projects on global environmental change and related research.

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THE IMPLEMENTATION OF E-COMMERCE SOFTWARE SOLUTIONS ON THE EXAMPLE OF VALIGARA SOFTWARE

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Abstract

The paper will explain the concept, origin and development of e-commerce and the most important online stores, and then implement Valigara software in e-business. Valigara software itself is a unique multi-channel online jewellery sales management system. The authors will do business on ETSY and eBay online stores, as the software is best integrated with these online stores. First, the paper will show how models are created and how variations and without are made from models. Then the products themselves will be placed on the store, the best practices of SEO listing optimization and price insertion. This paper explained how Valigara software works in major online stores, and above all, the author will concentrate on ETSY and eBay. It will explain how the software works, why it is desirable to integrate it, best practices in online stores, and how to promote sales, use promotions, and other opportunities provided by the software itself.

Keywords: *eCommerce; Valigara; implementation; software; online store.*

JEL Classification: O31, O32

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Introduction

The subject of the research is Valigara Online Jewelry Manager, which facilitates the creation of a unique online product catalogue, which significantly saves time, money and effort in creating a listing of products for sale. The product offering makes it easy to link and place many listings on online stores such as eBay, Etsy, Amazon, Alibaba, Rapnet and many other online stores. The software enables the management of the entire process of selling jewellery on the Internet, from creating an online jewellery catalogue, jewellery distribution to leading markets, the complete order management and analytical element.

The paper will discuss the system that unites the most important parts of the business related to the sale of jewellery. Valigara is: [2]

- enterprise resource planning system (ERP),
- a unique solution for e-commerce jewellery and
- Customer Relationship Management (CRM) system.

The combination of these three solutions allows the manufacturer to fully control all steps of the production and sales process:

- Jewelry sales on eBay, Etsy, Amazon, Sears, Alibaba, Rapnet, Facebook;
- Sale of diamonds and other precious stones in the aforementioned online stores;
- Inventory and product management;
- Management of precious stones, metals, collections, variations, diamond certificates, as well as other materials used for jewellery making;
- Price calculation;
- Creating an online jewellery catalogue that is offered for sale;
- Cooperation with clients and their orders, both wholesale and retail.
- Monitoring of analytics of sold items, visits to stores, orders, etc.

Valigara Online Jewelry Manager is a multi-channel system that provides all the significant features needed to sell jewellery to the largest online stores. Valigara integrates with all relevant jewellery markets. The Valigara system is integrated with the following online companies: eBay, Etsy, Amazon, Sears, Bonanza, Rapnet, Alibaba, Rakuten. The software saves time and money because it allows you to easily and quickly create online listings and use multiple sales channels simultaneously. [5]

1. E-commerce

E-commerce is an area of e-business that represents the process of buying and selling goods and services via computer networks. However, this process is not

limited to buying and selling but includes all resale and after-sales transactions in the supply chain. This means that this type of trade involves flows of materials, information and money from the supplier to the company and the company to the end customer. These are activities such as electronic sales and purchases, internet marketing, electronic money transfer via the Internet, or other electronic communication technology.

In the work of Zheng Qin [13], it is stated that e-Commerce, i.e. e-commerce is a necessity of international business, and conversely, international trade encourages e-commerce. The development of computer science and communication sciences has laid a solid foundation for e-commerce. Furthermore, the development of information security makes this trade more secure, while the laws in this area also provide legal guarantees between the participants who perform transactions in it.

As the term itself indicates, e-commerce refers to various online commercial activities that focus on exchanging goods through electronic means, primarily through the Internet, from companies, factories, enterprises, industrial enterprises to consumers. Many well-known organizations and corporations also have their definitions of e-commerce. For example, the Geneva-based International Organization for Standardization, based in Geneva, which is in charge of standardization, defines e-commerce as a general term for exchanging information between companies and between companies and customers. The Global Information Infrastructure Committee defines it as economic activities that use electrical communications, through which people can buy products and advertise goods.

E-commerce can be viewed from a broader and narrower point of view. Thus, Gerhard Rolletschek (2007) points out that in a broader sense, e-Commerce can be defined as any method or means of enabling and promoting commercial transactions through electronic communication technology. According to this broader sense, E-commerce and e-business are intertwined. Consequently, many researchers on this topic also include electronic funds transfer, supply chain management, online transaction processing, data exchange, procurement, inventory management systems, customer relationship management, and other processes. Their valid argument for grouping these fields under one food area, although all these fields have evolved within certain limits with their logic, they all focus on transactions. However, if one factor pulls all ancillary business processes out of e-commerce, what remains is a narrower definition of e-commerce [6].

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2. Valigara software

Creating Inventory for sale is based on models, metals, precious stones, and sizes in the same carats. By using this software, we can easily and quickly get a good position for sale in online stores; it helps the products get the best exposure, in a fast and efficient way, because the software algorithm is designed to automatically put all the data of jewellery offered for online sale stores. [9]

Account management provides customers with insight into detailed statistics, which they can customize and the ability to manage orders. In addition, customers are enabled to analyze the performance of the model, metal, ring size, precious stones, and which model is the most sought after and the like.

Valigara helps in sales, whether it is the sale of finished jewellery or precious metal and precious stones individually. It allows you to create a listing for all types of jewellery. Suppose the amount of jewellery offered for sale is limited and sold in multiple markets. In that case, the system automatically removes the product when sold in one market, in all markets where the product is offered. With Valigara, managing variations is very simple. Suppose the jewellery is produced and offered in silver, 14-carat yellow gold or plated silver, with several precious or non-precious stones. In that case, the system allows you to create one model with all these variations to make many products from one model in just a few simple steps. By setting the quantity and different prices for each product created from one model, it is possible, as well as automatic removal of the same from different online markets in which we offer the product [8].

Valigara offers many management tools. So we have an image management system, the ability to place different images of the same product in different markets. It is crucial to choose high-quality images. The tools it offers are high-precision because selling jewellery online is one of the most competitive in electronic markets. Therefore, the jewellery must be put on sale at the right time, in the correct format with the proper parameters; software algorithms such as post planning, browsing options, clever placement, accessible listing on sale, price adjustment makes this software one of the best software for selling jewellery online.

Valigara has 13 built-in parameters of precious, semi-precious or precious stones. If you want to sell a diamond on eBay, provide customers with as many technical product specifications as possible. Provides the ability to manage categories for publication in various other markets. If possible, certificates of gemological institutes can be placed on the software and thus attach evidence of

the offer's authenticity. All this provides a better starting position for sales in the markets. There are different classes of multi-channel marketing platforms on which the system can be used. [3] The entry-level system provides simplified solutions with basic capabilities for users. Mid-level software provides more advanced solutions and some automation. The professional-level Valigara system offers maximum versatility and advanced solutions for eCommerce needs, responding to the most demanding user requirements.

The Inventory of Valigara products is made especially for jewellery, diamonds and jewellers. It stores all information in the appropriate format: stone type, design and models, collections, metals, sizes, product variations, certificates, images and other parameters. Separate stones, jewellery and jewellery sets are handled individually, depending on the nature of the product itself. Separate jewellery and stone inventory provides maximum flexibility to use all the resources and benefits of the software.

Creating a virtual product is done based on different combinations of metals, precious stones and sizes. For example, suppose we have ten diamonds that match ten types of jewellery (ring, necklace, bracelet). In that case, Valigara can create 100 items in the Inventory of pro-statements, thus enabling a wide range of offers, thus filling the virtual catalogue of offers. Furthermore, all products are connected so that when one, e.g. gemstone, sells up virtual markets, jewellery with these gemstones can be automatically removed from all sales channels.

In addition to joint integrations with markets such as eBay, Etsy, Amazon and Sears, Valigara connects with unique systems relevant to the sale of jewellery and diamonds. By these systems, we mean - Rapnet, GIA, Acadia ERP systems, Segoma Imaging and other systems used in this industry. Using this software, we convert pro-product specifications into marketing content through data mapping. Valigara maps technical jewellery data according to the requirements of the online market. In this way, the system optimizes visibility on eBay, Etsy, Amazon and other channels. [15] Thus, when posting a ring on eBay, the metal, metal purity, size, and other parameters will be automatically transformed into eBay specification items. While on Amazon, they will also add a diamond cut, colour, clarity and other specification.

Valigara also provides content generators - the ability to instantly create titles, tags, descriptions, templates based on data entered during the creation of the gemstone and model. Reflecting the uniqueness of each product, these generators help release hundreds and thousands of products on the market within a few

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moments and a few mouse clicks. In addition, the system has an advanced image management system. The sale of jewellery, diamonds depends a lot on having as many high-quality photos, which means more offers for sale. The platform allows you to provide maximum attention in product image management. The system has a built-in photo editor, which allows you to set a different image for each sales channel. Also, integration with the GIA certificate loading laboratory is enabled.

Valigara covers all steps of an e-Commerce solution, from an integrated ERP system and inventory management, through a multi-channel marketing and inventory management account, to advanced statistics. Valigara offers a complete solution for all relevant and classic offline but also online clients.

Valigara presents and provides the following features and options: [4]

- Integration of CRM and e-mail marketing system,
- Automation of marketing on social networks,
- Wholesale, resale and dropshipping operations,
- Multiple warehouses, logistics and inventory management,
- Integrated minisite, online catalogues and PDF catalogues,
- Creating advanced branded jewellery websites.

Valigara software consists of:

1. Dashboards,
2. Catalog,
3. Inventory,
4. Channels,
5. Orders and
6. Statistics.

The Valigara control panel analyzes the current Inventory. It uses an integrated mechanism that provides relevant ideas and information about optimization to make the offer more competitive in the market. In addition, system alerts provide more detailed information on what needs to be fixed to improve the market position.

The catalogue works by collecting all the products that are in the system. It is the principal place of work and management of the system. Catalogue information is distributed to sales channels with the Mass Post option on all connected/integrated sales channels. Thanks to additional fields, the catalogue is exceptionally agile, allowing customized information to be adapted to the provider's needs. [14] For example, suppose it is necessary to keep the photographer's name who took the photos of particular listings. In that case, this can be done by creating an appropriate additional field in the system.

Uploading product images makes handling all product images and videos extremely easy, fast, and convenient to use. In addition, product import allows us to immediately download all products from an Excel file or the current market store by integrating with the system.

Creating an online inventory starts with models. The models are the basis for natural products and describe the initial jewellery settings: type, collection, etc. Then, for the system to be tailored to the needs, all information can be managed, including relevant metal types, precious, semi-precious stones, ring sizes, length of necklaces, bracelets, etc.

The system enables the management of stocks of products and materials ready for delivery in the system. [12] This makes it possible to prevent product shortages that will be available in more markets and to display appropriate warnings on the control panel if they are missing.

Channels provide an accurate, current status picture and fast real-time management of all channels. In addition, the embedded channel manages an integrated eCommerce minisite, with an integrated catalogue, a wholesale module and a unique online PDF catalogue.

Valigara accumulates orders from all markets. Entering tracking number is an action that requires only one click, without the need to visit and log in to the store itself, e.g. eBay. The actions on the account in this part help define the presence of sold products in online stores and make the necessary adjustments so that better best-selling products are in stock. Customer information is aggregated, including data from previous orders. In addition to customers, automatically generated from other sales channels, the system allows manual addition of other customers to the system database. It is possible to create a custom price level and catalogue for each client individually.

E-mail templates create automation to automatically send and cross-sell products to existing customers. It is possible to automatically insert personal customer data into templates for better personalization. [6]

Statistics help the seller focus on the best-selling products. The statistical module contains detailed and highly detailed activity logs (publishing, auditing, deleting on each channel), which can be viewed daily / weekly / monthly according to the requirements we set ourselves.

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3. Creating a listing in Valigara software

3.1. Creating a gemstone

Creating a listing for a ring starts by first creating a gemstone, of course, if a ring or some other type of jewellery has it. Creating a Gemstone (gemstone) is shown in Figure 1. It starts by going to the top of the navigation part of the Inventory, then selecting the messages given in the vertical view on the left side of the Gemstone part.

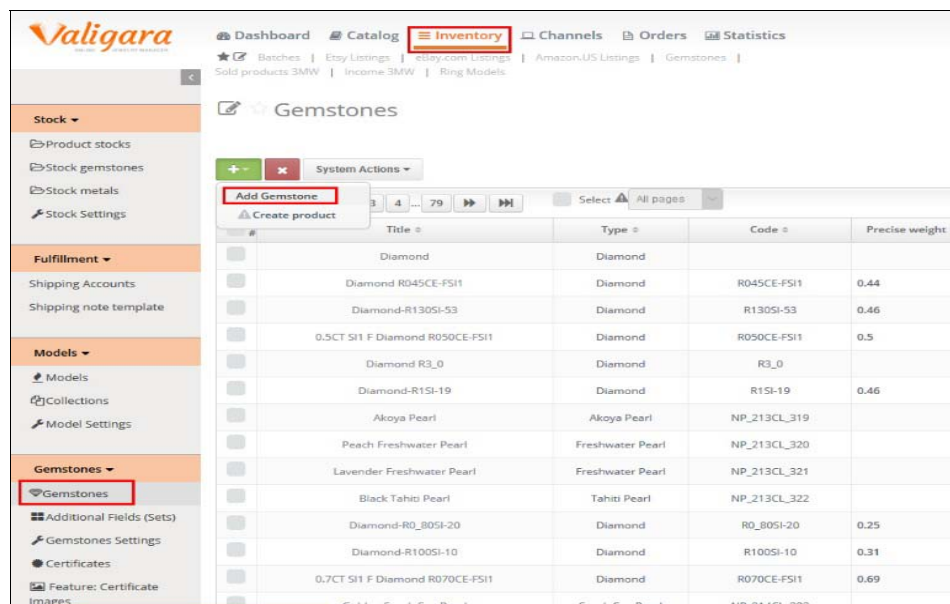


Figure 1. Navigation to the part of creating a precious stone

Source: manager.valigara.com

Clicking on the plus sign (+) opens a drop-down menu where the first option (Add Gem-stone) is selected. The second option offers the possibility to immediately offer the created gemstone as a pro-product for sale. [19]

By selecting the first option, you get a window in which all the listed data are available. The data entry part consists of 4 parts, which are:

1. Main
2. Stock

3. Certificate

4. Parameters

1. The main or main part is the essential part for entering the necessary data, and these are:

- Title - the name of the precious stone;
- Code - serves for easier connection of the model with the precious stone, it is mostly the same as the Title;
- Type - a type of precious stone;
- Comments - if there is a comment or remark related to a specific gemstone;
- Gemstone price - the price of a precious stone
- Carat Price - price per carat
- Product - a listing of precious stones is made.

The first three fields are essential and must contain the appropriate data; other options are not necessary.

1. Stock - managing the quantity or quantity of precious stones. It consists of options:

- Unique - if the gemstone is unique and available in limited quantities, this option is selected;
- Quantity - the number of precious stones available;
- Quantity Alert - if there is a need to get a warning when the amount of precious stones at its disposal falls below a certain level, a notification is received to solve a possible problem with insufficient quantity in time. [1]

2. Certificate - this section allows you to enter a gemstone certificate to prove the authenticity and origin of the gemstone to potential buyers. Consists of:

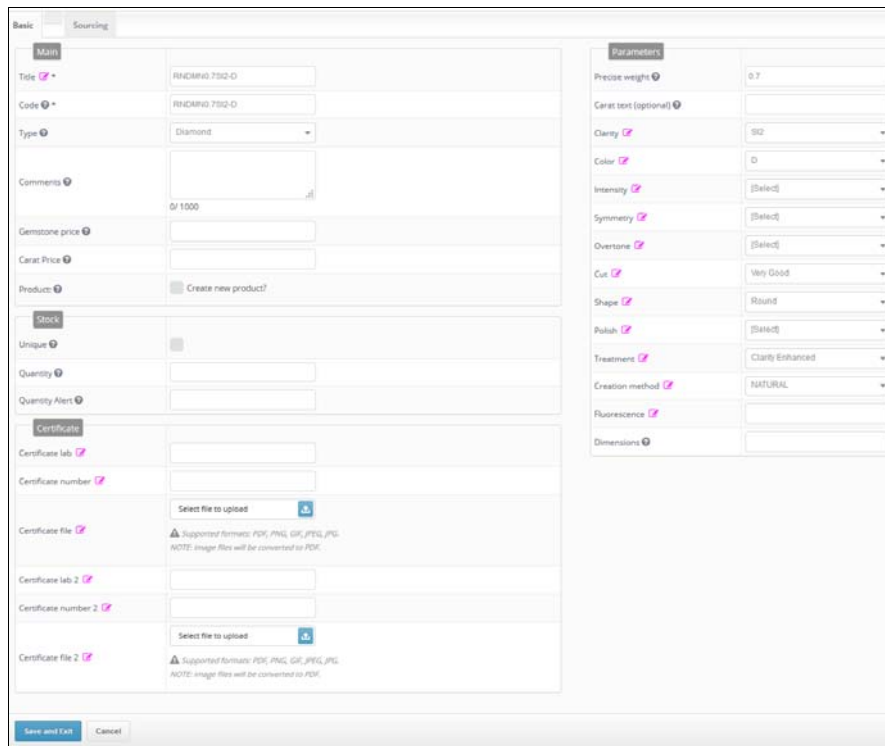
- Certificate lab - entering the name of the laboratory that guarantees quality and authenticity;
- Certificate number - certificate number;
- Certificate file - enter a certificate file (can be an image or a PDF file).

3. Parameters - the part where all the data for the precious stone are entered. Consists of:

- Precise weight - in carats
- Carat text - text of the weight of a precious stone (example: 1/3 carat, etc.);
- Clarity - purity of precious stones;
- Color - the colour of the precious stone;
- Intensity - closely related to colour (shows colour intensity);
- Symmetry - symmetry of the stone;

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- Overtone - describes the colour of the stone under different light intensities;
- Cut - method of processing, cut;
- Shape - the shape of a stone;
- Polish - whether the stone is polished and to what extent;
- Treatment - treatment to which the stone has been exposed (quality improvement using artificial methods)
- Creation method - whether and how the stone was made (natural or artificial, made in the laboratory)
- Fluorescence - is a phenomenon of minerals and precious stones in which light is absorbed and then emitted and is one of the quality indicators.



The screenshot shows a web application interface for entering gemstone data. The form is organized into several sections:

- Main:** Contains fields for Title (RNDMRO 7502-D), Code (RNDMRO 7502-D), Type (Diamond), Gemstone price, Carat Price, and Product (Create new product?).
- Certificate:** Contains fields for Certificate lab, Certificate number, Certificate file (with a file upload button and supported formats: PDF, PNG, GIF, JPEG, JPG), Certificate lab 2, Certificate number 2, and Certificate file 2.
- Parameters:** Contains fields for Precise weight (0.7), Carat text (optional), Clarity (SI2), Color (D), Intensity ([Select]), Symmetry ([Select]), Overtone ([Select]), Cut (Very Good), Shape (Round), Polish ([Select]), Treatment (Clarity Enhanced), Creation method (NATURAL), Fluorescence, and Dimensions.

At the bottom of the form, there are buttons for "Save and Exit" and "Cancel".

Figure 2. Entering the data needed to create a gemstone
Source: manager.valigara.com

Dimensions - the dimensions of the stone (can be in millimetres, centimetres, inches, etc.).

The example presented will have a gemstone to show all the possibilities provided by Valigara software. A diamond with the following data will be created:

- Name - RNDMN0.7SI2-D
- Code - RNDMN0.7SI2-D
- Stone - Diamond
- Weight in carats of 0.70
- Round shape
- Purity of SI2
- Rez - Very good
- Color D
- Treatment - Clarity Enhanced
- Origin of a diamond – Natural

Clicking on Save and Exit saves the created gemstone used to create a ring model.

3.2. Creating models and listings from models

After creating the gemstone, the model is created (shown in Figure 3). Model making is the central and most important part of taking advantage of Valigara software. The jewellery model covers all fields of the final product. This allows you to set field values that are identical for all products of a particular model. [11] When new products are created from a model, they can inherit the values entered. For example, eBay style, category on Etsy, quantity or how many cards a gemstone has, product location, etc. To set the default values, enter the data in the Basic and Commercial sections of the model creation page.

Creating a model can be divided into 3 phases, which are:

1. Models part,
2. Basics or essential part,
3. Commercial, i.e. the commercial part.

Model creation begins in the first phase. The process starts by entering the model name in the "Model Code" section. This code is unique for all products derived from a specific model. stone or a variation of gold, e.g. rose gold, white or yellow gold; all will have a different designation). [17] In the "Type" section, enter the types of jewellery (this can be a bracelet, pendant, necklace, chain, etc.) This will be a ring in this example. Then, the collection is selected, depending on how

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the division of the collection is imagined (this division can be, for example, a type of precious stone or according to the purpose of jewellery), in the specific case being processed, the collection is according to the purpose and Engagement rings option. The last part of creating a model is adding a description of the created model (a unique description that characterizes the model and the products created from the model). The entered data is shown in Figure 4.

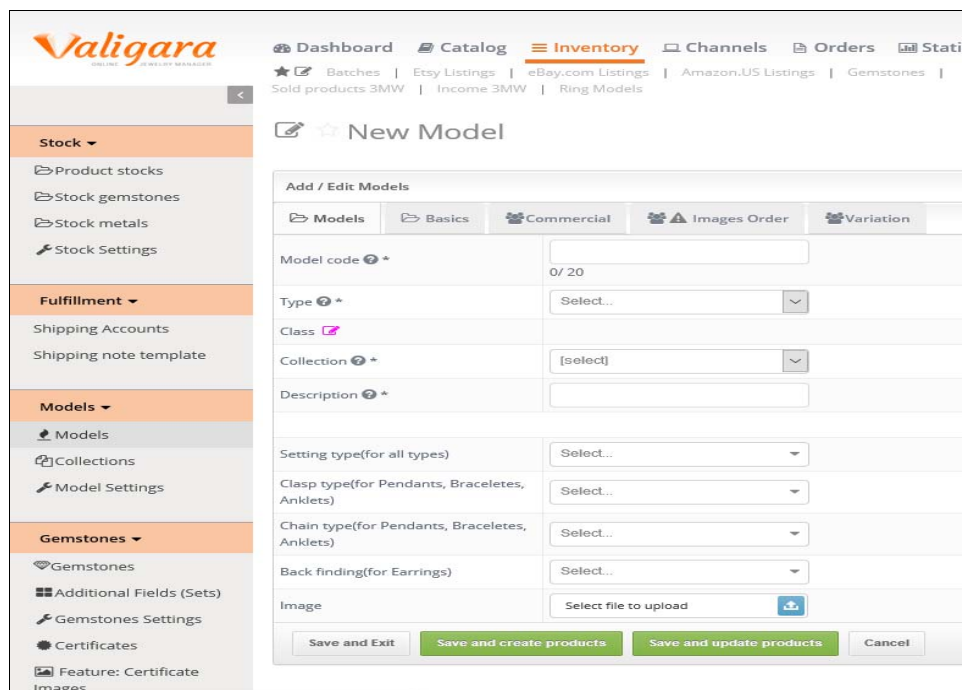


Figure 3. The appearance of the model creation page
Source: manager.valigara.com

After completing the first phase, it moves on to the second, perhaps most important phase. First, all data relating to the secreted product are entered (shown in Figure 5).

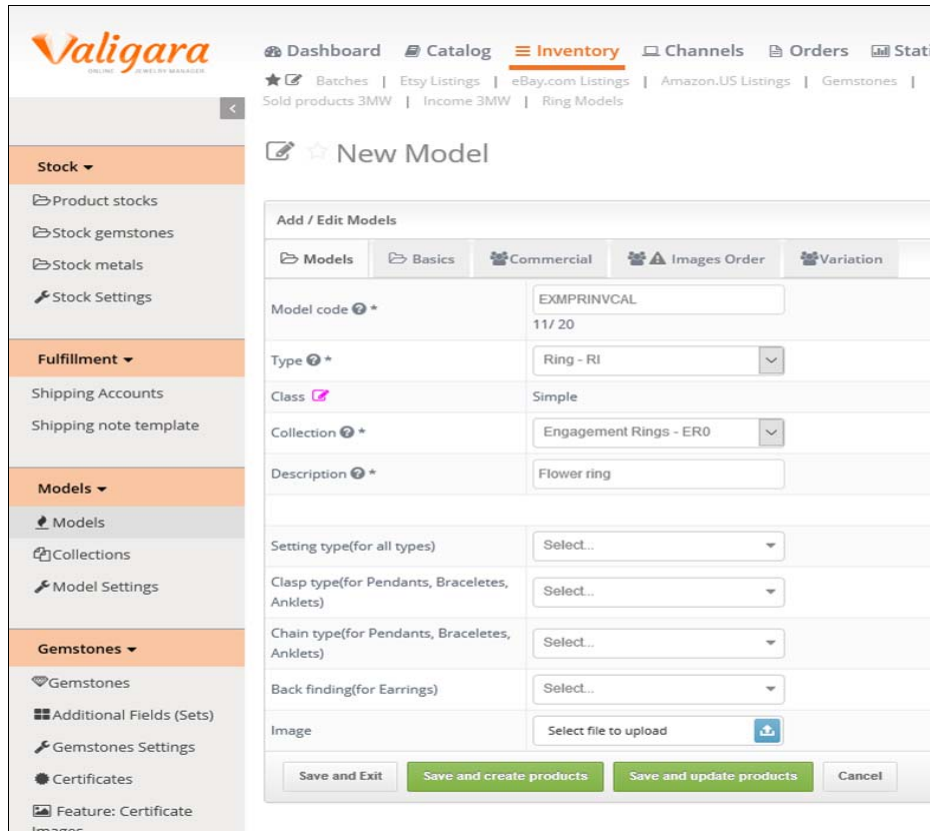


Figure 4. The appearance of the model creation page after data entry
 Source: manager.valigara.com

The type of metal is entered first (they can be precious, pink, white or yellow gold, silver, stainless steel, etc.) and the number of cards offered by the ring (14K, 18K, etc.). This example will have variations in yellow, white and rose gold of 14 carats (shown in Figure 6).

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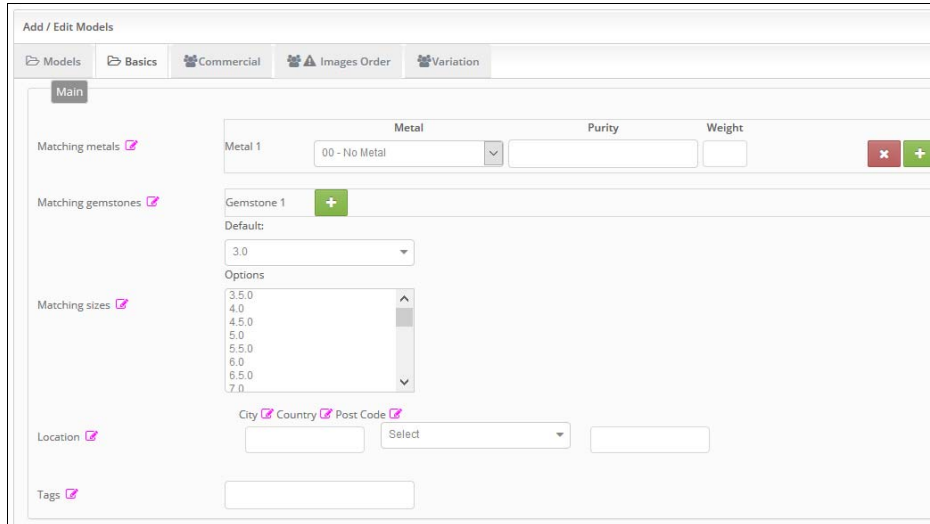


Figure 5. The appearance of the central part of the Basics page
Source: manager.valigara.com

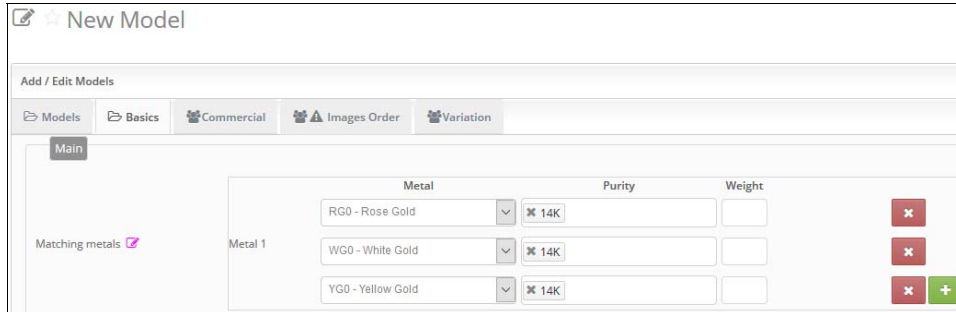


Figure 6. Determination of the precious metal variation of the model
Source: manager.valigara.com

After filling in the fields for variations of precious metals in which the product is offered, we move on to filling in the gemstone field. This is done by clicking on the plus sign icon in the "Matching gemstones" section (shown in Figure 7). [7]

1. Set stone parameters i
2. Set specific stones.

The first option offers the possibility to create a gemstone directly for the model on the model. This option is used less frequently because the data must be re-entered if another model uses the exact gemstone. The second option allows using a previously made gemstone, which allows using the same stone in several different models.

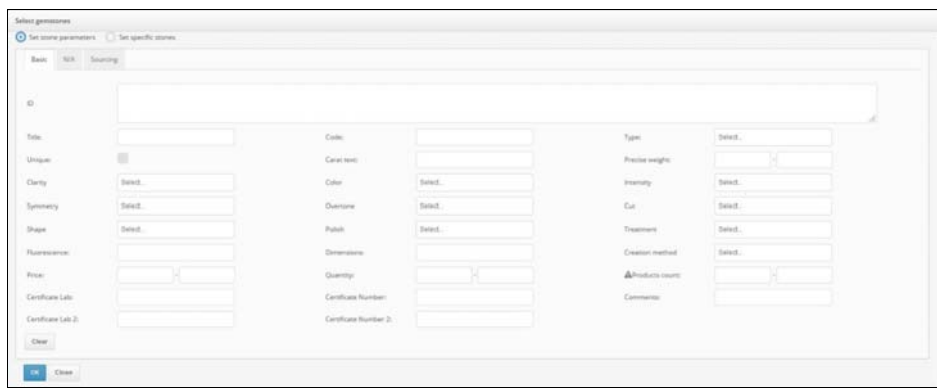


Figure 7. The appearance of the gemstone setting side
Source: manager.valigara.com

By going to the field "Set specific stones" and entering the name of the precious stone in the field "Code" and clicking the filter option as a result of the search, a previously made gemstone for this model is displayed (shown in Figure 8).

The desired gemstone is selected by checking the option next to the name of the previously created gemstone and clicking on the "OK" button. After that, the size in which the desired product is offered is selected. As can be seen from picture no. 5 Basics works, this part is located just below the option of specifying a gemstone. The example being processed will have an offer in sizes from 3 to 8. This completes the essential part of creating a new model. [16] A tag or tag can be added here, as well as the product's physical location, which will be used by all products derived from this model (shown in Figure 9). Product tags allow quick sorting, filtering, finding and commenting on the product. Each product can have as many labels as needed.

Figure 9. The appearance of the page after filling in all the data
Source: manager.valigara.com

The next part is "Quantity", and there are two options, which are also rarely used. Those are:

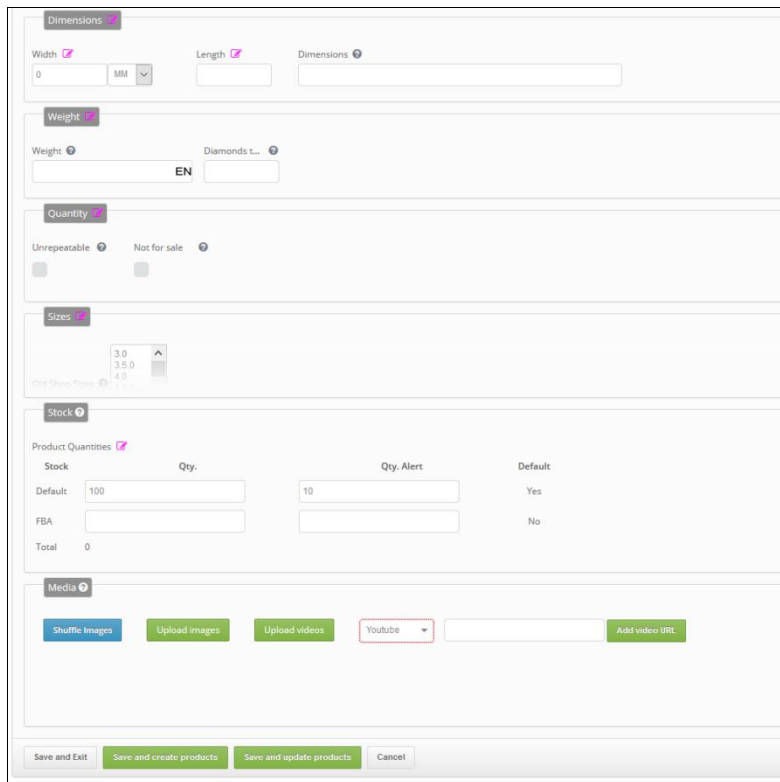
1. Unrepeatable (when a single product with a limited quantity is offered, at the time of sale of that quantity, the product is automatically removed from all markets) and
2. Not for sale (option is checked when unforeseen circumstances, e.g. currently lack materials for production, etc.).

The "Sizes" option is used for variations in the size of the ring in which it is offered.

By entering the data in the "Stock", the quantity of the product at its disposal is set. It is divided into two parts:

1. Default (in case you use your warehouse) and
2. FBA (Fulfilled by Amazon, when goods are shipped to Amazon warehouse).

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The screenshot shows a web-based form for product creation, divided into several sections:

- Dimensions:** Includes fields for Width (0), Length, and Dimensions, with a unit dropdown set to MM.
- Weight:** Includes a Weight field (EN) and a Diamonds t... field.
- Quantity:** Includes checkboxes for Unrepeatable and Not for sale.
- Sizes:** Includes a size selection dropdown currently set to 3.0.
- Stock:** Includes a table for Product Quantities with columns for Stock, Qty., Qty. Alert, and Default.

Product Quantities	Qty.	Qty. Alert	Default
Default	100	10	Yes
FBA			No
Total	0		
- Media:** Includes buttons for Shuffle Images, Upload images, Upload videos, a dropdown menu set to Youtube, and an Add video URL button.

At the bottom, there are four buttons: Save and Exit, Save and create products, Save and update products, and Cancel.

Figure 10. Other fields of the second phase of model creation
Source: manager.valigara.com

Both of the above options contain the same fields, "Quantity" and "Quantity alert". The "Quantity" part is the part with the number of goods at its disposal. In contrast, the "Quantity alert" field serves as a warning when the quantity of the product at its disposal falls to a certain level and thus reminds you to fill the warehouse. In the example, only the Default fields are filled in. [18]

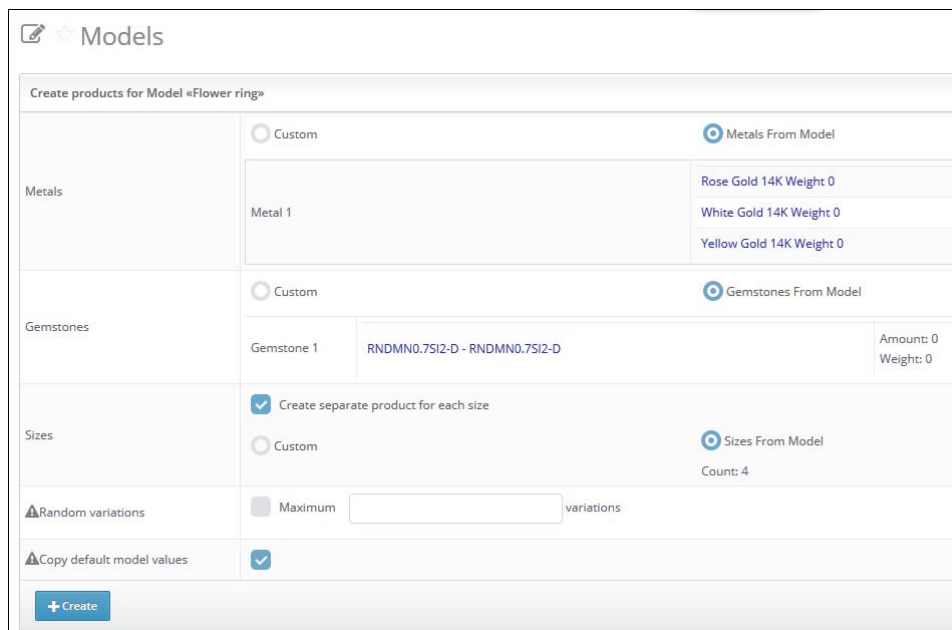
The "Media" section is used to enter images and video content related to the product. It is not used in this part of the production in the case of variations with different metals or precious stones. It is used only in the case of the same variation (same metal, same type, shape and size of the precious stone).

The third part of creating a model consists of the following phases:

1. Description and Title (description and name of the product),
2. Prices.

In addition, there are fields related to the categories in which the listings are published in different online stores, prices for each marketplace separately, and particular fields specific to each marketplace. This part is usually filled in when the pro-derivative has no variation, but it does not happen so often in practice. [13]

Clicking on "Save and create products" opens a new window in which more options appear, as well as options to confirm previously entered data.



Models

Create products for Model «Flower ring»

Metals	<input type="radio"/> Custom <input checked="" type="radio"/> Metals From Model
	Metal 1 Rose Gold 14K Weight 0 White Gold 14K Weight 0 Yellow Gold 14K Weight 0
Gemstones	<input type="radio"/> Custom <input checked="" type="radio"/> Gemstones From Model
	Gemstone 1 RNDMN0.75I2-D - RNDMN0.75I2-D Amount: 0 Weight: 0
Sizes	<input checked="" type="checkbox"/> Create separate product for each size <input type="radio"/> Custom <input checked="" type="radio"/> Sizes From Model Count: 4
▲ Random variations	<input type="checkbox"/> Maximum <input type="text"/> variations
▲ Copy default model values	<input checked="" type="checkbox"/>

+ Create

Figure 11. Confirmation and selection variation fields

Source: manager.valigara.com

Figure 11 shows the confirmation and selection variation fields. This section is divided into:

1. Metals,
2. Gemstones,

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- 3. Sizes,
- 4. Random variations
- 5. Copy default model values.




Code	Images	Title	Type	Collection / Model	Metal / Gemstone	Tags
354392 / EXMPRINVCAL-RG0-14K-RNDMN0.75I		EXMPRINVCAL: Rose Gold 14K RNDMN0.75I2-D Edit: EN / HE / RU / DE / AU / UK / FR / CA / SG / ES / MX / IN / JA / CN	Ring	Engagement Rings Flower ring	<ul style="list-style-type: none"> Metals Rose Gold 14K 0.00 gr. Gemstones RNDMN0.75I2-D x 0 pcs. 	tag_example
354393 / EXMPRINVCAL-WG0-14K-RNDMN0.75I		EXMPRINVCAL: White Gold 14K RNDMN0.75I2-D Edit: EN / HE / RU / DE / AU / UK / FR / CA / SG / ES / MX / IN / JA / CN	Ring	Engagement Rings Flower ring	<ul style="list-style-type: none"> Metals White Gold 14K 0.00 gr. Gemstones RNDMN0.75I2-D x 0 pcs. 	tag_example
354394 / EXMPRINVCAL-YG0-14K-RNDMN0.75I		EXMPRINVCAL: Yellow Gold 14K RNDMN0.75I2-D Edit: EN / HE / RU / DE / AU / UK / FR / CA / SG / ES / MX / IN / JA / CN	Ring	Engagement Rings Flower ring	<ul style="list-style-type: none"> Metals Yellow Gold 14K 0.00 gr. Gemstones RNDMN0.75I2-D x 0 pcs. 	tag_example

Figure 12. Created products from the model
Source: manager.valigara.com

In the "Metals" part of the "Metals from Model" option, select confirm previously entered in the first phase of creating the model. The same applies to the second part of choosing a gemstone. In the "Sizes" sections, the choice of creating a different product from the size variation. This option allows you to create an individual product of different ring sizes and is mainly used when there are not many products on offer. [10] In contrast, the "Random variations" section and the 90

"Maximum variations" option offer manually limiting the number of products created from the model. In the given example, this is not used. Only the previously entered data is confirmed by clicking on the "Create" option. Thus, three products are created from the created model (shown in Figure 12).

Conclusion

The paper presents the way of implementing Valigara software in one area of electronic business, and that is the market of business and jewellery trading, as materials from which the same product is made. It can be seen that Valigara software is a unique multi-channel online jewellery sales management system. Then, the creation of a precious stone is shown and models in which a previously created precious stone is used. Beyond the model, actual product variations, listing on online markets, best practices of SEO listing optimization, setting prices, creating various templates for automating various processes, etc.

The functioning of Valigara software on major online stores, and above all on ETSY and eBay, was presented. You can see how the software works, why it is desirable to integrate it, best practices in online stores, how to promote sales using promotions, and other opportunities provided by the software itself. The above makes Valigara software one of the most comprehensive and best tools for online business in the sales and jewellery market.

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PENETRATION TESTING OF WPA AND WPA2 SECURITY PROTOCOLS AND THE ANALYSIS OF SECURITY SOLUTIONS

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Abstract

This paper will discuss the security protocols of wireless computer networks. WEP, WPA / WPA2 encryption and the reasons for the existence of such protocols and how they are applied will be explained. The security of WEP and WPA / WPA2 protocols will be tested with practical examples and penetration testing in a secure environment, using Airgeddon and Pixiewps tools. The operating system to be used is ParrotOS.

Keywords: *network security; WPA; WPA2; security protocols; security solutions.*

JEL Classification: O30

Introduction

The growth and development of information technologies have contributed to the fact that technologies have become easy to use at people's fingertips.

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Nowadays, many devices facilitate human needs daily. Amongst these numerous devices, the most common are mobile phones; rarely anyone can function without them. As well laptops and personal computers are used every day in developed countries. Furthermore, Internet is being used in everyday business, and in addition to wired networks, quick adoption has been seen with wireless networks to the Internet. With the rapid development of these technologies, there has been a need to implement security protocols and adequate protection to ensure data integrity and protect against malicious attacks.

Given that the Internet is being used in every form of e-business and increasingly wirelessly, the data must be securely transmitted and preserved its integrity. Unfortunately, attackers became interested in wireless networks precisely because of the possibility of abuse and exploitation, and they began to develop techniques to exploit these security protocols. As a result, the security of all wireless technology users has become endangered. Various types of attacks on wireless computer networks are happening every day all over the world. Security protocols evolve, but not all users can keep up with the latest trends, and most users do not think much about security until their data is compromised. This paper discusses the testing of WPA and WPA2 security protocols and the analysis of security solutions.

1. WPA и WPA2 (wifi Protected Access)

WPA and WPA2 are new protocols, successors of WEP [6]. These new problems brought solutions to many problems that WEP brought, although WPA had some deficiencies initially. From the very creation of the WPA protocol, the WPA2 was being developed, which was much more complex and secure. A new security infrastructure was being tested, which was the latest standard in the field of security of wireless computer networks and brought many changes in function and authentication of users with access points and changes in data encryption. WPA2 is to this day the most widespread standard proven to be reliable in practice. However, new threats have emerged that have led to further improvements. Although they seemed perfect at first glance, both WPA and WPA2 have some weaknesses that put users at risk.

1.1 History and functionality of WPA

WPA standard became available in 2003, and it was supposed to replace the WPA security protocol [6]. This protocol was implemented within the existing

infrastructure and could be downloaded as an access point update. Unfortunately, most devices older than 2003 could not get this type of update, and users who had older devices were advised to switch to newer devices with the latest security updates.

WPA implements most IEEE 802.11i standards [6]. In addition, the Temporal Key Integrity Protocol, better known as TKIP, has been adopted [6]. This standard introduced packet-by-packet, a method that dynamically generates a 128-bit key for each packet released to the network and thus protects the access point from all known attacks on the WEP protocol [6].

TKIP is a security protocol used in the 802.11 standards [6]. It was designed by a group working on the 802.11i standard, a group of people put together by the wifi alliance. As the wifi Alliance is committed to spreading, promoting and certifying wifi products, they have organized a team of people who will be in charge of the security of these wireless computer networks.

TKIP and the latest WPA standard introduce three new security measures to protect wireless computer networks [6]. The first security measure is implementing a key mixing function that combines a secret root key with an initialization vector before sending it in RC4 [6]. Another security measure is the implementation of a sequence counter, which protects the network from repetitive attacks. This access point rejects all packets that are not sent in an adequate order. The third security measure is the implementation of a 64-bit data integrity check (better known as MIC - Message Integrity Check) [6]. TKIP uses similar mechanisms as WEP and is therefore vulnerable to similar attacks to which WEP is vulnerable. Message integrity checking, packet hashing, broadcast key rotation, and sequence counter are mechanisms that deter attackers' most known attacks. The key shuffle function also disables an attack in which a WEP key is obtained. Even with this implementation of the latest security measures, new attack vectors to breach networks have opened up, targeting even more specific weaknesses than the previous ones [6].

1.2 WPA2

Shortly after the usage of WPA, just a year later, WPA2 was also released. It was brought firstly certification by the wifi alliance and then a major innovation in encryption. Elements from the IEEE 802.11i standard have dominated this protocol [6]. Specifically, this standard introduced CCMP (Counter Mode Cipher Block Chaining Message Authentication Code Protocol), a version of the AES encryption mode [6]. Certification of this protocol began in September 2004. As of March 13,

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2006, WPA2 becomes necessary for devices to carry the original wifi tag. Until 2018, this system was the only set of security measures of wireless computer networks that have proven to be a good and reliable mechanism of security [6].

The CCMP was essentially designed to finally solve all those WEP encryption problems that were not solvable. It is an improved cryptographic data encapsulation mechanism designed for confidentiality and is based on the CCM mode of AES [6].

AES (Advanced Encryption Standard), also known as Rijndael, is a type of electronic data encryption provided by NIST (National Institute of Standards and Technology) [6]. This encryption standard is a subset of Rijndael block cyphers developed by Vincent Rimien and Joan Daemen [6]. They sent this standard to the NIST while selecting a new successor to the DES symmetric algorithm. Rijndael is essentially a family of cyphers with different keys and blocks dimensions [6]. For the AES algorithm, NIST selected three members of the cypher family, where each block size is 128 bits but with three different key lengths. Thus, the key lengths were 128, 192, and 256 bits.

What is very important for AES is that this is a very secure algorithm for data encryption and is also very popular and widespread in the world. AES also became the official standard for the U.S. federal government on May 26, 2002, which shows how secure this system is. It is also a part of the ISO / IEC 18033-3 standard [6].

1.3 System weaknesses

There are two very significant weaknesses in WPA / WPA2 systems that could compromise the security of wireless networks [6]. Moreover, new methods are emerging every day by which hackers try to compromise their security. The two main attack vectors we will discuss are the WPS pin recovery and the dictionary attack methods.

WPS (wifi Protected Setup) is a part of the WPA / WPA2 system where it is easier to connect various devices, most often a printer with one click on the device [6]. When this option is turned on on the router, a button on the printer is pressed while the printer connects to the router. The problem with this system is that this pin contains only eight numbers. This is not safe because eight numbers are a small set, and therefore, the device is being exposed to brute force attacks [6]. Most devices have this option enabled in advance, and if the default pin is not changed during the router configuration, the attacker can find out very quickly which pin it is and thus authenticate to the access point.

The problem with the dictionary-attack method is that the user provides sensitive data during the first authentication when handling the access point. Therefore, for an attacker to attack with a brute force attack, it is necessary to capture the information that contains this handling and authentication process. Therefore, the attacker usually performs the first attack by which he "removes" (*deauthorizes*) the user from the network and automatically waits for his new authentication. When this is done, he (*attacker*) saves the captured information on a file on the computer. Since this file is encrypted, the only way to find the password is to compare the captured information (*hash*) with the existing information (*hash*). Therefore we use a dictionary [6]. Even sites on the Internet have supercomputers that have huge lists of dictionaries that can compare a file that a user uploads to with their dictionaries. Once a match is found, the user has a password and can access the network.

1.4 A practical example of an attack on WPA / WPA2

The attack will be performed on the same router model with different settings. This time we will use WPA2-PSK for the security protocol, and the encryption will be AES. The WPA2 security protocol is the most widely used globally, and the highly used TP-Link router provides a very realistic overview of attacks on this security protocol. Figure 1 shows the router configuration settings. Enter the password "itspentest123" in the PSK Password field, which should be "broken" by a dictionary attack (Figure 1).

Before an attack is carried out, it is necessary to make an adequate dictionary for brute force. For the purposes of this paper, a dictionary was made, which is very short and contains only a few words, for the purposes of testing. Dictionaries can be generated independently, but also through tools like Crunch and some other online tools. As mentioned earlier, dictionaries are the size of a few terabytes of text on the Internet, which contain all the most common passwords and are collected and stored in a single file. These dictionaries are very dangerous and most likely contain most of the codes of wireless computer networks because users do not pay enough attention when setting up their routers. A slightly more difficult circumstance for breaking the password with this attack in the Republic of Serbia is that Serbian is different from English. Most citizens of the Republic of Serbia will not use foreign vocabulary to form their passwords. This can be useful, but there is still a risk of someone using this attack. The dictionary used in this attack contained the words: 12345678; 34567890; port1234; and123TS; itsjenajbolji;

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pentest123; admin123; password; username; document; code1234; car12345; luka1234; luka9700; itspentest123. All passwords were at least eight characters long because WPA has a requirement of a minimum of 8 characters.

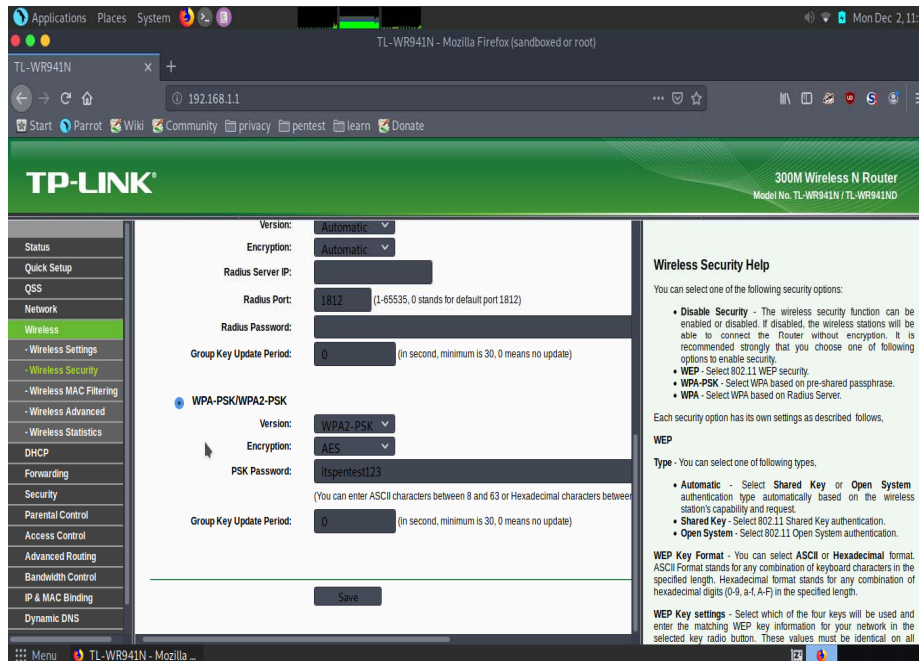


Figure 1. Setting up WPA2 in the Wireless Network Configuration Interface

After the dictionary is created, following the same procedure as in the previous practical example, we use the airgeddon tool, and the wifi card is switched to monitoring mode. After that, we select option number 5, i.e. the **Handshake tools menu**, where we find options for capturing the handshake packet. Using this option, it is possible to perform reconnaissance; we wait for any user to connect to the access point. If the user connects at eavesdropping, it is possible to successfully capture and save the encrypted handshake packet. What is an aggravating circumstance is just waiting for a user to connect to the network. What can speed this up by a deauthentication attack that will temporarily block the user from the network, and then the attacker will wait for the user to reconnect to the access point.

The “capture handshake” menu opens, and we select option number 5. Figure 2 shows that options 5 and 6 are the only options in the submenu. This option is logical since it is necessary to "catch the handshake" to carry out an attack. Option 6 is used to clean or optimize the captured file. This option will not be required to show a practical attack using this method.

```
Parrot Terminal
File Edit View Search Terminal Help
***** Handshake tools menu *****
Interface wlan0mon selected. Mode: Monitor. Supported bands: 2.4Ghz
Select an option from menu:
-----
0. Return to main menu
1. Select another network interface
2. Put interface in monitor mode
3. Put interface in managed mode
4. Explore for targets (monitor mode needed)
----- (monitor mode needed for capturing) -----
5. Capture Handshake
-----
6. Clean/optimize Handshake file
-----
*Hint* Obtaining a Handshake is only for networks with encryption WPA or WPA2
-----
> 5
```

Figure 2. Display option 5 for "handshake capture."

After that, we start in monitoring mode and capture packets of all networks in the vicinity. There are many networks in the scope, and we need to single out the network on which we will make the testing/attack. It is noticeable that some hidden networks can be seen, proving that it is possible to see the networks that should be hidden using monitoring mode. What is not known about these networks is their name, but the unique MAC address of the router can be seen. The menu also shows that only WPA2 networks are shown, which practically proves that this is the most

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widespread security protocol used today. Since we are working with a pre-configured router for practical testing of this network, long-term scanning of the surrounding networks is unnecessary. The router, which needs to be singled out here, is visible and does not have a hidden name; there is only one router named TP-LINK_997100 in the network range. The tool will automatically recognize networks and devices connected to the network, as seen in Figure 3.

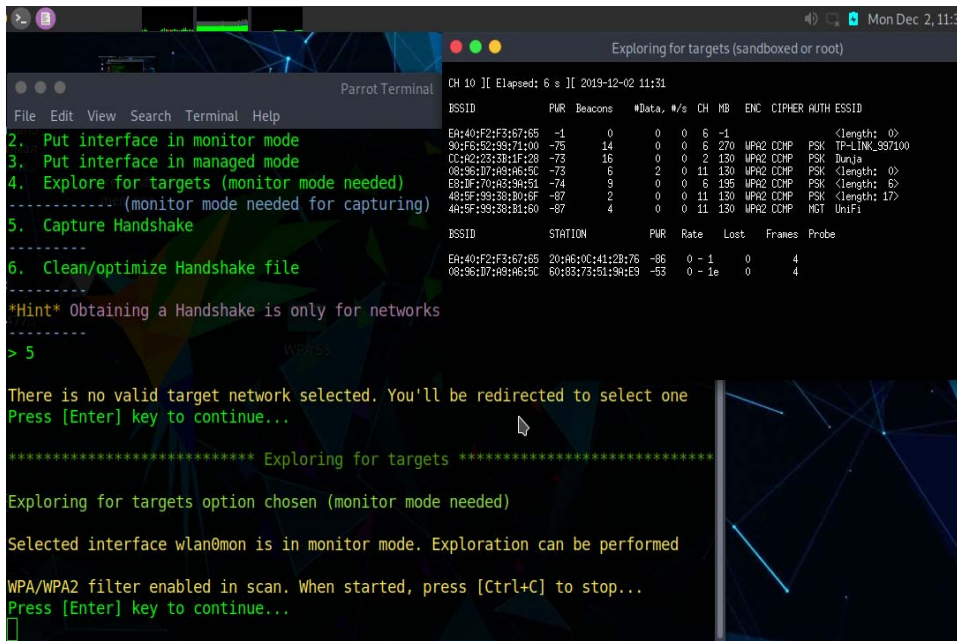


Figure 3. Finding access points and users on them

Before launching an attack, it is necessary to choose a target. The data shows that the network required for testing is at number 7. We then select this option. The window also displays the MAC addresses of all other networks in the area. In Figure 4, we can also see four hidden networks with no name (*SSID*¹).

¹ SSID - *service set identifier* - [https://en.wikipedia.org/wiki/Service_set_\(802.11_network\)](https://en.wikipedia.org/wiki/Service_set_(802.11_network))


```

N.      BSSID          CHANNEL  PWR  ENC  ESSID
-----
1)      7C:76:68:ED:15:68   4      14%  WPA2  ameba
2)      CC:A2:23:3B:1F:28   2      26%  WPA2  Dunja
3)*     EA:40:F2:F3:67:65    6       0%   WPA2  (Hidden Network)
4)*     08:96:D7:A9:A6:5C   11     29%  WPA2  (Hidden Network)
5)      48:5F:99:38:B0:6F   11     14%  WPA2  (Hidden Network)
6)      E8:DF:70:A3:9A:51    6     28%  WPA2  (Hidden Network)
7)*     90:F6:52:99:71:00    6     30%  WPA2  TP-LINK_997100
8)      4A:5F:99:38:B1:60   11     14%  WPA2  UniFi

(*) Network with clients
-----
Select target network:
> 7
You have a valid WPA/WPA2 target network selected. Script can continue...
Press [Enter] key to continue...
  
```

Figure 4. network interfaces and target selection

The signal strength is highest on our test network where we perform an attack, proving that the router being tested is the closest physically to the location from which the scan is performed. We can move on as the scan has been successful. The next step is where we select the attack that will compromise the security of the access point.

```

Interface wlan0mon selected. Mode: Monitor. Supported bands: 2.4Ghz
Selected BSSID: 90:F6:52:99:71:00
Selected channel: 6
Selected ESSID: TP-LINK_997100
Type of encryption: WPA2

Select an option from menu:
-----
0. Return to Handshake tools menu
1. Deauth / disassoc amok mdk4 attack
2. Deauth aireplay attack
3. WIDS / WIPS / WDS Confusion attack
-----
*Hint* If the Handshake doesn't appear after an attack, try again or change the
type of attack
-----
> 1
Type value in seconds (10-100) for timeout or press [Enter] to accept the proposal [20]:
> 20
  
```

Figure 5. User deauthentication options

We select the attack that will elicit a handshake between the users and the access point. Figure 18 shows the options for de-authentication attacks. A mobile phone and

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its MAC address are connected to the network, and all other data are visible in Figure 5. This file needs to be saved and a brute force attack to be launched.

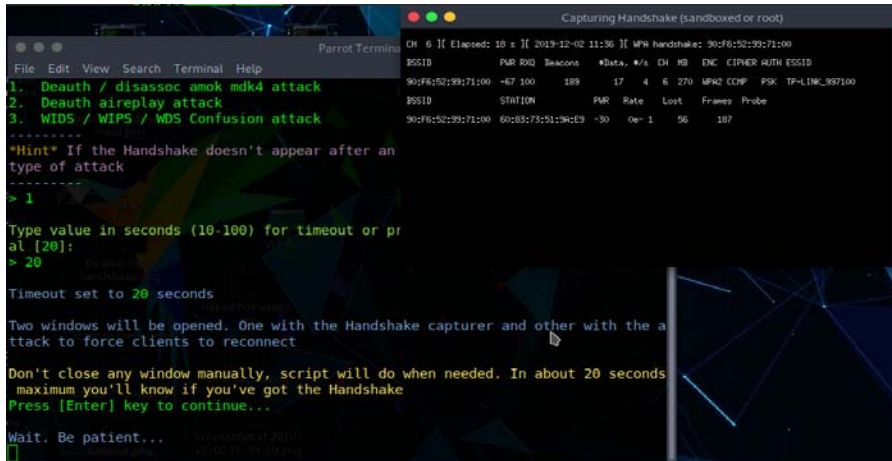


Figure 6. Re-authentication of users

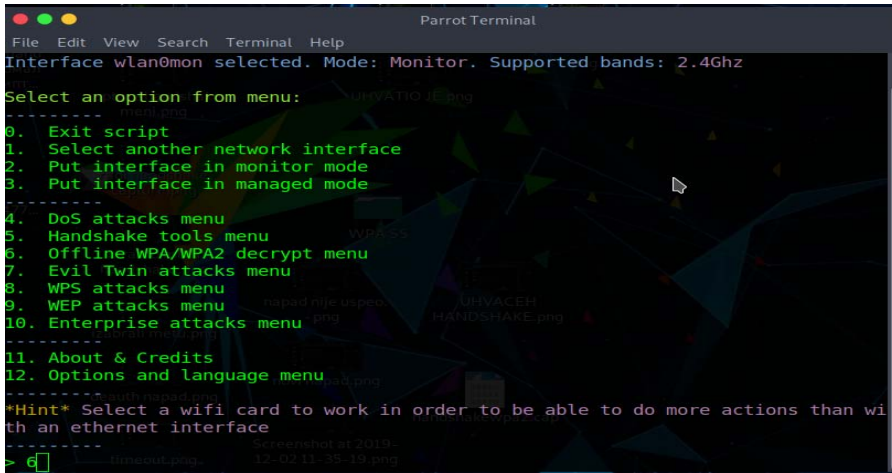


Figure 7. Option for offline decryption

It is necessary to open the decryption menu and select offline decryption since the file with handling is saved. Figure 7 shows these options, and Figure 8 shows after this option has already been selected and attacks to decrypt the captured and saved file.

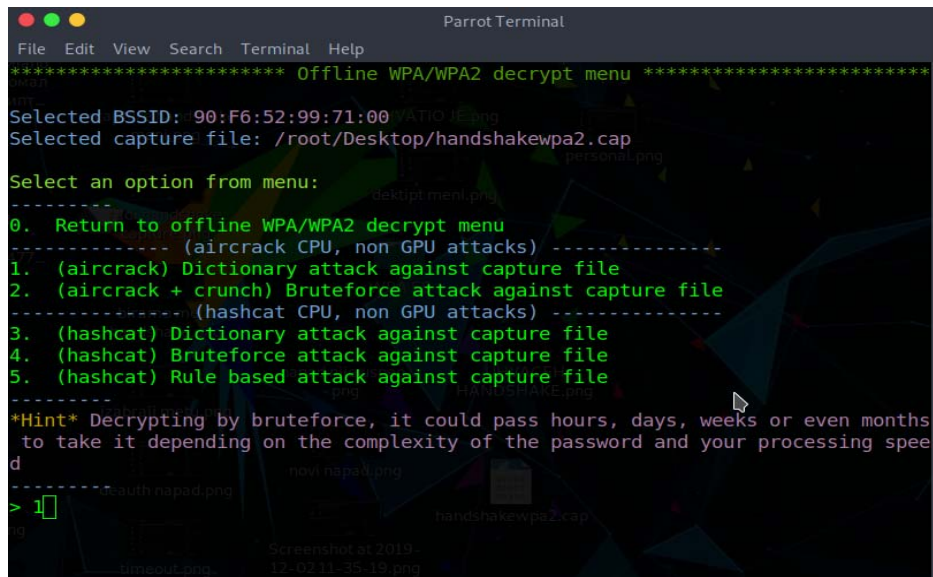


Figure 8. Attack vectors using a dictionary on captured packets

The attack is performed using an arbitrarily created dictionary. Hash values are compared. Since the file is saved, the program offers the option to use that file immediately. The file in which this data is stored is has a .cap extension, and it's the standard extension for captured packets. We select the default option to save and use it, and it's shown in Figure 9.

The dictionary that will be used for the attack is loaded into the program (Figure 10). The dictionary used in this attack is a dictionary that we generated in a regular .txt file.

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```

Selected capture file: /root/Desktop/handshakewpa2.cap
Select an option from menu:
-----
0. Return to offline WPA/WPA2 decrypt menu
   (aircrack CPU, non GPU attacks) -----
1. (aircrack) Dictionary attack against capture file
2. (aircrack + crunch) Bruteforce attack against capture file
   (hashcat CPU, non GPU attacks) -----
3. (hashcat) Dictionary attack against capture file
4. (hashcat) Bruteforce attack against capture file
5. (hashcat) Rule based attack against capture file
-----
*Hint* Decrypting by bruteforce, it could pass hours, days, weeks or even months
to take it depending on the complexity of the password and your processing speed
-----
> 1

You already have selected a capture file during this session [/root/Desktop/handshakewpa2.cap]

Do you want to use this already selected capture file? [Y/n]
> y
  
```

Figure 9. File selection options

```

> 1

You already have selected a capture file during this session [/root/Desktop/handshakewpa2.cap]

Do you want to use this already selected capture file? [Y/n]
> y

You already have selected a BSSID during this session and is present in capture file [90:F6:52:99:71:00]

Do you want to use this already selected BSSID? [Y/n]
> y

Enter the path of a dictionary file:
> /home/tasmanian/Desktop/recnik.txt
  
```

Figure 10. Entering the path of the file with the created dictionary

The recnik.txt file will be used solely to demonstrate the weaknesses of the WPA2 network protocol and will have no other purpose. When the file path is entered, the program will automatically recognise which data (*hash*) file we captured we need to compare it to. The file path is / home / tasmanian / Desktop / recnik.txt. (Figure 10). After pressing the enter key, decryption is performed.

After a successful attack, it took less than a second to compare the keys and get the result. The password was found successfully, and it is **itspentest123** (Figure 11). After this, the password can be saved in another file or memorized.

This successful attack showed that WPA2 has major shortcomings and that wireless computer networks must be protected from such attacks. WPA2 does not currently provide adequate protection, and this can compromise data integrity. The results can be seen in Figure 24. The attack was successfully performed, and the result obtained is exactly the password set during the route configuration. Figure 11 also shows the keys (*hashes*) that were compared.

```

Aircrack-ng 1.5.2
[00:00:00] 1/7 keys tested (11.86 k/s)
Time left: 0 seconds 14.29%
KEY FOUND! [ itspentest123 ]

Master Key      : 6B 1F 01 6C A1 9F 96 30 6A 89 3D 7C 55 70 85 48
                  EA 40 B1 A7 BB 26 0A 56 03 C8 42 D4 32 65 99 4A

Transient Key   : 93 EF 49 CB CE BC 37 D1 DC A7 0A 58 37 F7 8F C2
                  D3 56 EF E1 AB C4 2F EF 77 6F DB C3 62 ED 99 5E
                  83 98 31 BD A5 D1 7E 20 BF 0B 2F 45 42 CA C5 AF
                  15 1A 72 0B CE EF D4 DD 97 F9 B9 A9 32 A7 43 A9

EAPOL HMAC     : 60 39 95 B8 E2 73 26 06 5D D9 8C B6 A8 72 DE CD
Press [Enter] key to continue...
  
```

Figure 11. Successful WPA decryption

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1.5 Solution to a security issue

A specific solution to protect the wireless network from the previously described and performed attack is to set a strong password. When we talk about a strong password, we mean a password that contains a capital letter, a sign, letters and numbers in combination. Since the attack itself is practical because it guesses the words that the user can enter as a password, for security purposes, it is simply better to generate a password that does not have a special meaning and connect numbers, capital letters and characters with it. The problem with these passwords is that they are harder to remember, but they are significantly safer than just a few letters of an ordinary common word. Given that it was previously mentioned that users often choose a word that is close to them, it is very likely that the word will be contained in the dictionary used for the attack. On the other hand, there is the possibility of "capturing" an encrypted key, and with the help of very powerful computers, it is possible to "break" even a hashed key. The attack is made more difficult by more complex codes, which is why this is considered the only solution.

Complex passwords and adequate settings will protect every user from these types of attacks. Also, suppose you do not need to add new users to the network often. In that case, it is possible to include an option on the router where the router will deny access and authentication to any new user, even those that know the password. If the company needs to use a wireless computer network, it is preferred that they be handled by a professional, i.e. a system administrator. For companies, a network system via wired cabling is otherwise recommended, as it is a structured approach that makes it easier for company administrators to do the job.

Wireless computer networks have lower data transfer speeds than networks that use cables, so we should use wired computer networks for better speed and greater reliability. However, using a network via cable is certainly far safer because eavesdropping is, in this case, possible only through a cable attached to the existing network; that is why this type of connection to the networks is best if it is company business. It is best to set a strong password, turn off older encryption systems, and update the network device regularly for individual use. The last option is to upgrade is to use the latest WPA3 protocol, which significantly improves the encryption of all data.

2. WPA3 and the future of network protection

WPA3 is the latest security protocol that appeared in January 2018. [7] The wifi alliance identified it as the official deputy for WPA2. It is not yet globally applicable, but some manufacturers have already started making routers with this

type of encryption. Some manufacturers are working on releasing new updates for older devices that can use this new protocol.

Given that technology is evolving at high speed, it is noticeable that security protocols are also evolving at high speed. Problems that arise with newer technologies should be adequately remedied, and newer types of data protection should be introduced. The fact is that some new types of attacks appear every day, which seriously endangers the safety of users. For example, the KRACK attack on the WPA2 network is now well known [9]. Exposure to this attack also led to the immediate release of a new technology that should completely replace WPA2. The KRACK attack is a highly destructive recurrence attack on the WPA2 network discovered in 2016 by Belgian researchers Mattie Vanhoeff and Frank Piessens [9]. They demonstrated this attack at the University of Leuven. The group that discovered this attack published the details in October 2017. The weakness in this system comes from the wifi standard itself, not from the way the product works or because of the implementation [9]. This contributes to the fact that any correct implementation of WPA is incorrect because it can eavesdrop on such a network due to a bad version of the standard itself. This eavesdropping attack is feasible on all operating systems, and it is currently impossible to regulate this problem with this standard. That's why the wifi alliance started making a WPA3 security protocol before this attack was eased, so in practice, it could endanger a potentially huge number of users.

2.1 Functionality of WPA3

The new WPA3 standard, like the previous one, has two modes: WPA3 Personal and WPA3 Enterprise. However, WPA3 Personal uses AES-128 in CCM mode while WPA3 Enterprise comes with an additional AES-256 in GCM mode and SHA-384 as HMAC data encryption [7]. This type of encryption is the most modern standard in the field of cryptography. In addition, this system guarantees confidentiality, so that session keys will not be compromised even when the server key is compromised. The wifi Alliance also states that this protocol will address security issues with weak passwords and make it easier to configure devices without a display interface [7].

Due to advanced secrecy, this standard allows the establishment of an individualized network in the sense that even when someone has a wireless network code, they will not be able to eavesdrop on other people's traffic. Advanced privacy will be enabled by wifi Enhanced Open technology, allowing

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users maximum privacy [7]. In addition, this network will be open, which means that no password will be required to access the data. This feature, in itself, can bring quite widespread use, but there are already potential drawbacks associated with this particular mode of operation.

The latest technology that should replace the already known WPS is wifi Easy Connect, which enables easier connection of devices that do not have an interface and many other devices. This will make it much easier to connect to IoT devices and significantly improve their functions. Furthermore, when installing WPA3, it will be possible to scan the QR code for easier connection to a secure computer network [7]. These options represent new aspects in security and will certainly be of great importance to users.

2.2 New problems in the latest technology

As WPA3 technology emerged very soon after the successfully demonstrated attack on the WPA2 protocol, it was noticeable that it came on the market rapidly. Unfortunately, when it comes to technology and security, this is not the best practice because attacks can occur at an early stage of implementation, and errors in the system can be easily found in the system that is not well developed [8]. Therefore, good and advanced systems are developed over a longer period. Although the real situation is that WPA2 is already quite outdated, as it has been on the market for more than fourteen years, it is still in use, as many updates have been made, in the meantime, that have fixed the problems that existed.

The biggest threat under the WPA3 protocol is an attack called Dragonblood. This threat can cause downsizing attacks, side-channel attacks, brute force password passwords, and DOS access point attacks. Mattie Vanhoeff discovered these attacks from the New York University in Abu Dhabi and Eyal Ronen from the University of Leuven. Their scientific work explained these attacks and a theoretical review of the shortcomings in the latest protocol [8].

The big danger comes from the wifi Enhanced Open mode in which WPA3 works. This mode should instil confidence in users that the use of public open networks is now really safe. However, in practice, this does not work best. This type of connection is limited because it still does not solve the problem of fake access points. Attackers can create a fake network with the same name, such as the latest WPA3 protected network, and by an already known method can lead users to their fake access point. Suppose users are not connected to the access point used by the attacker. In that case, the attacker will simply "download" those users from the

access point with de-authentication attacks, and the users will automatically connect to a malicious network. It is concluded that the security of the public network is very debatable, so users must be careful how they approach this idea. The attackers will surely try to use the latest and most diverse methods to determine how they will further violate the integrity of this latest technology.[10]

It has been a while since WPA3 appeared, and several theoretical attacks have already emerged that threaten to virtually compromise the security of wireless computer networks. This could potentially lead to discoveries and may change the way we look at wireless technology today.

Conclusion

The future of wireless computer networks will face major changes, as has been the case before. Wireless frequencies must achieve a high level of reliability to make average use and e-commerce safer. In addition, the rapid development of information technologies has also led to rapid development in wireless computer network security. As a result, they can expect numerous changes at the same level, as is the case in all other areas of information technology.

What is important for all users is to follow the trends and take advantage of every new technology available with the latest standards. What is outdated should be replaced, and what is a newer trend should be carefully studied and only then used. When it comes to security, the fact is that no security system can ever be said to be perfect and impenetrable, and even in this area of security protocols, on the examples of attacks, it can be seen that they are not completely safe. Therefore, it is up to the users to decide how they will use these technologies, how careful they will be, and how they will protect themselves from the malicious actions of individuals or groups.

The security of wireless computer networks is compromised, and you should think about it more often. To approach these problems, first of all, you need to be aware that this problem always exists, and only then should you use the knowledge gained by following new trends. The security protocols of computer networks have never been more diverse. However, the great development and availability of information technologies have led to their integrity being compromised. This topic could be very interesting in the future because there is great potential for improving knowledge in this area. Many types of different attacks occur from day to day, and therefore it would be good to perform practical tests as much as possible. Also, there is potential to test WPA3 in the future, and it will surely be realized very soon.

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THE CONNECTION OF THE REPUBLIC OF MOLDOVA TO THE CIRCULAR ECONOMY CONCEPT¹

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Abstract

European legislation on the circular economy has registered an accelerated promotion in recent years. The European Commission has adopted a package of measures and legislative proposals to stimulate sustainable growth and help Europe make the transition to a more circular economy. The transition to a circular economy involves abandoning the linear economic model and focusing on reducing energy and raw material consumption. However, the pandemic generated by COVID-19 calls into question the importance of circular economy legislation at European level and in particular the need to achieve its objectives in reality. Thus, the new action plan for the circular economy adopted on 11 March 2020 by the European Commission is part of the main blocs of the European Green Pact, a new European agenda for sustainable growth and an EU growth strategy to achieve climate neutrality until 2050. It presents a forward-looking agenda for the circular economy, aimed at achieving the goal of a cleaner and more competitive Europe, in collaboration with economic actors, consumers, citizens and civil society organizations. In this article, the authors aim to report on the actions

¹ This study was developed within the State Program 20.80009.0807.22 Development of the mechanism for the formation of the circular economy in the Republic of Moldova.

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of the EU and the Republic of Moldova in the field of circular economy from a legislative perspective and analysis of international experience, but also the impact of existing programs and projects to produce lasting effects in society. At the same time, the main barriers to the circular economy transition in the Republic of Moldova are highlighted, as well as the first progress made. This study was developed within the State Program 20.80009.0807.22 Development of the mechanism for forming the circular economy in the Republic of Moldova.

Keywords: *circular economy, green economy, recycling, reuse, repair, sustainability, waste hierarchy.*

JEL Classification: Q54, Q57, Q58

I. Introduction

Moldova in 2015, committed to implement the *2030 Agenda for Sustainable Development*. Solution SDG no. 12 directly represents the transition to the circular economy. At the same time, the transition to the circular economy will allow the Republic of Moldova to find solutions for SDG no. 6,7,11,13,14,15, all these are directly related to quality of life, environmental protection, sustainable economic growth, modern innovations and technologies, objectives that are also found in the *National Development Strategy "Moldova 2030"*.

The transition to the circular economy is also part of the priorities stipulated in the *Waste Management Strategy in the Republic of Moldova for 2013-2027*, in the *Concept of cluster development of the industrial sector of the Republic of Moldova, Program for promoting the "green" economy in the Republic of Moldova for 2018-2020*.

Sustainable development and the promotion of the green economy are development priorities for the Republic of Moldova as well. These can be found in the main policy documents of the Government, especially in the *National Development Strategy Moldova 2030, Energy Strategy-2030, Development Strategy of the SME Sector for 2012-2020, Roadmap for Improving Competitiveness, Agriculture Development Strategy 2013 –2020, Environmental Strategy 2014–2023, Program for the Promotion of the Green Economy in the Republic of Moldova for 2018-2020*. They are also part of the Republic of Moldova's commitments to the country's development partners abroad.

The Association Agreement with the European Union expressly aims to ensure sustainable development and promote the green economy in the Republic of

Moldova. By signing the Agreement, the Republic of Moldova undertakes to harmonize national legislation with European legislation and to ensure the integration of environmental protection provisions, through rational use of resources and energy efficiency, eco-labelling, eco-innovation, in all sectors of the national economy and social life. In order to achieve the objectives of promoting the principles of the green economy, environmental management in enterprises, eco products and services, the Ministry of Economy and Infrastructure and the Organization for Small and Medium Enterprise Sector Development (ODIMM) developed the *SME Greening Program* (approved by the Government in November 2019), and launching its practical implementation started in the first half of 2020 and was presented at the Launch of the SME Greening Program Conference on June 3rd, 2020.

Thus, the *SME Greening Program* provides information support, consulting and mentoring and ecological training. Through Greening economies in the Eastern Partnership countries (EaP GREEN) program, the Organization for Economic Cooperation and Development published in 2018 the *Environmental Policy Tool for greening SMEs in the EU Eastern Partnership countries*, in which they are presented policy recommendations for the Republic of Moldova. As a result, within the Inter-Ministerial Working Group for the Promotion of Sustainable Development and the “Green” Economy, the Program for the Promotion of the “Green” Economy in the Republic of Moldova for 2018-2020 and the Action Plan for its implementation were developed.

ODIMM is in the process of implementing several projects in this field where SMEs will practice this component or will contribute to greening or will implement this sustainable economic model in its activity. A special compartment is reserved for the non-reimbursable financing of greening actions for SMEs and the development of access and expansion capacities on international markets. At the same time, in the process of promoting the green economy, the Ministry of Economy and Infrastructure joined international programs and platforms in the field of green economy, such as the EU Program "Greening the economy in the Eastern Neighborhood", the Eastern Partnership (Greening economies in the Eastern Neighborhood Countries, EaP GREEN Program (2014-2017), Platform for Green Industry, UNIDO Country Program (launched in 2019), participates in the GREEN Action Program, OECD and, in partnership with the Ministry of Agriculture, Regional Development and Environment, is the coordinator and beneficiary of EU Action - EU4Environment - European Environment Union (2019-2022).

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II. Promoting the circular economy in the Republic of Moldova by adjusting to European legislation

The subject of the circular economy in the Republic of Moldova is a topic of imminent importance. In front of researchers and decision makers is a task to create an effective transition mechanism. This transition is a difficult and systemic process, which cannot happen suddenly, overnight, so the awareness of the whole society of its essence is paramount.

The main objective for the researchers and practitioners is to develop a national model of the circular economy, which will be based on a complex exercise, starting from the analysis of the main pillars of the circular economy and identification of the main innovation instruments, which will allow reducing the existing knowledge gap regarding the mechanism of circular economy formation.

In order to meet the challenges of the transition to the circular economy, active involvement in public policy and political commitment is needed. At the same time, incentives are needed to facilitate and stimulate the transition from linear to circular production models.

The analysis of the European experience allowed the highlighting of some categories of policy instruments promoted by Governments to stimulate the transition to the circular economy. First of all, these are *regulatory tools in the form of strategic documents or roadmaps* that are very effective for obtaining strategic goals, or specific results.

First of all, in the Republic of Moldova **there is a need for a strategy for the development of the circular economy accompanied by a roadmap**. This manifesto should not be part of another more general strategy, but should be a separate circular economy strategy.

At European level, the implementation of strategies or action plans for the circular economy is achieved through a process of consultation of all stakeholders being coordinated by the central public environmental authority. For example, in the Netherlands, Spain, in this regard, inter-ministerial working groups have been set up to implement the concept of the circular economy. In 2017, the Italian government published a strategic document on the circular economy, which is accompanied by a “manifesto” of support signed by several private companies. In Finland, the national plan for the circular economy was adopted in 2017, which started the development of regional plans for the circular economy. In 2018, France adopted a roadmap on the circular economy. This approach has stimulated the emergence of strategies at regional and local level (for example, the Paris Circular Economy Strategy).

Other tools that are useful in promoting the mechanism of a country's transition to the circular economy may be **the prohibitions imposed by law.**

The European Commission is guided by the so-called *mini-package on the circular economy*, the first major action of which was the adoption of a European strategy on plastics: *Communication: A European strategy on plastics in a circular economy Brussels* - this strategy lays the foundations for a new plastics economy, in which the design and production of plastics and plastics products fully meet the needs of reuse, repair and recycling and where more sustainable materials are developed and promoted. The strategy contributes to achieving the priority set by the Commission on an energy union with a modern, low-carbon and energy-efficient and resource-efficient economy, and will make a tangible contribution to achieving sustainable development goals for 2030 and in compliance with the Paris Agreement.

Also, in 2018, other ambitious initiatives were developed in the context of the Circular Economy Action Plan, including the *EU Directive on reducing the environmental impact of certain plastic products*. The Directive proposes main actions for specific disposable plastic articles, taking into account consumer behaviour as well as consumer needs and opportunities for businesses. Other measures include appropriate labelling, raising awareness, voluntary action and establishing extended producer responsibility schemes that would cover the costs of landfilling [17].

In the Republic of Moldova from January 1, 2021, it is prohibited to use and sell plastic bags and utensils, as well as disposable chopsticks, except for biodegradable ones, according to the new amendments that came into force in Law no. 231/2010 on internal trade (art. 20). According to the new amendments, the article has been supplemented by paragraph 4 with the following content: "It is forbidden to use / sell plates, glasses, other tableware accessories and disposable chopsticks, made of plastic, except for biodegradable ones, starting with January 1, 2021."

Also, at the end of 2016, the Law on Internal Trade no. 231 of September 23, 2010 was supplemented with a new article, art. 20 prim, which establishes restrictions in the field of retail trade by prohibiting the use / sale at points of sale of goods: 1) Bags made of plastic, with or without a handle, with a wall thickness equal to or greater than 50 microns, provided to consumers at the points of sale of goods, starting with January 1, 2019. 2) The use / marketing of thin plastic bags with a wall thickness of less than 50 microns is prohibited, except for those used as packaging, from 1 January 2020. (3) The use / market very thin plastic bags with a

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wall thickness of less than 15 microns, except for those used as packaging, from 1 January 2021.

Previously, the Parliament approved amendments and additions to the legislation, which banned in stages, starting with January 1, 2019, the use and sale of plastic bags, and, starting with January 1, 2021 a total ban is established. The Contravention Code of the Republic of Moldova provides for the sanctioning of the use and sale of plastic bags and crockery, the fines being from 3,000 to 4,500 lei for individuals and from 6,000 to 12,000 lei for legal entities.

In addition to the ban on the use of plastic bags and utensils, other examples from foreign experience include **the obligation to use recycled resources and reusable parts in the production process of new products**, such as Japan. Thus, producers are obliged to use recycled resources. The Government of Japan also promotes research and development, mass implementation of educational and advertising programs, and uses a sustainable public procurement program.

The use of tax incentives or the promotion of specific types of business or investment in economic activities is very popular in supporting green economic activities. Regions and cities, within their local taxation system, can apply tax incentives to promote investment in business and circular technologies. For example, tax incentives for incorporating clean technologies into the production process are practiced in the Netherlands, the United Kingdom. In the policy of applying financial incentives, attention should be paid to reducing labour taxes and value added tax on recycled products and, on the other hand, to increasing taxes on virgin raw materials in favour of secondary raw materials.

Environmental taxes are not only a tool of taxation, but also an economic lever with a significant role in solving environmental problems and reducing the negative impact on the environment. Increasing revenues from environmental taxes should be a priority for the Republic of Moldova, especially in the context of the budgetary crisis of recent years and EU recommendations to shift the focus from labour taxation to consumption and pollution taxation. It is a source of revenue in the budget that should not be neglected. For example, the countries with high shares of environmental tax levies in the budget in 2018 were: Latvia (10.9%), Bulgaria (9.8%), Greece (9.5%), Slovenia (9, 4%) and Croatia (9.3%). In the Republic of Moldova in 2019, the revenues from environmental taxes to the state budget were 4.9 billion lei or 2.3% of GDP, and state expenditures for environmental protection were only 200 million lei, or 0.1% of GDP, which means the country with the lowest average investment, relative to GDP, in Europe.

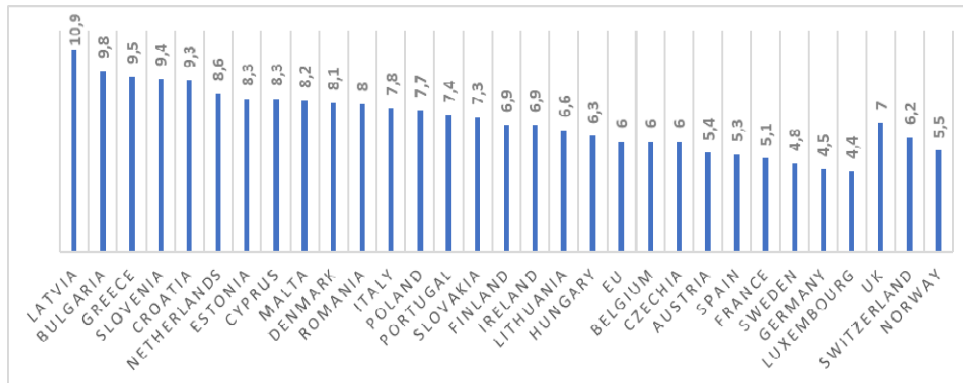


Fig. 1. Environmental tax revenue in EU, as total revenues from taxes and social contributions

Source: data selected from Eurostat statistics

It is important for governments to increase taxes on resources, taxes on air pollution, building materials, energy, food production factors, fossil fuels, metals and minerals, traffic, waste, VAT. Considering the fact that the European Union has developed *the European Ecological Pact* in order to become, by 2050, the first climate-neutral bloc in the world, the Republic of Moldova should not be an exception, if it still declared intention to align with European standards. Achieving this goal requires a joint effort from all actors involved. And if the mechanism for collecting these taxes is inefficient, then solutions must be found to optimize the withdrawal of budget revenues from these taxes. According to the extended producer responsibility, if the damage to the environment has been caused by an operator, the latter must, without delay, inform the competent authorities and take all possible measures to control immediately, limit, eliminate or manage the relevant contaminants; or any other harmful factors, to limit, or prevent further damage to the environment and adverse effects on human health, or subsequent deterioration of services and is obliged to take the necessary remedial measures. The operator shall bear the costs of the preventive and remedial actions [18].

In 2019, the European Commission comes with new important actions for the circular economy, the most important measures are:

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1. Report on the implementation of the Circular Economy Action Plan (2019). The Report sets out adapted sets of measures, which are in the final stages of the legislative process on disposable plastic articles and fishing gear, such as:

- measures to reduce the consumption of food containers and beverage cups, plastic, as well as the specific marking and labelling of certain products;
- the target of including 30% of recycled plastics in beverage bottles from 2030 and 25% for PET bottles from 2025, as well as the target of separate collection of 90% of plastic bottles by 2029, as well as the introduction of design requirements for connecting caps to bottles;
- measures aimed at reducing plastic waste from ships, such as the establishment of a flat rate for waste from ships, etc.

The Commission proposes that EU countries, in order to accelerate the transition to a circular economy, need to invest in innovation and provide support for adapting the industrial base. Over the period 2016-2020, the Commission has stepped up efforts in both directions, providing public funding for the transition totalling more than € 10 billion [20].

2. Communication The European Ecological Pact. The European Commission is proposing a European Green Pact for European Union countries with the aim of: transforming the EU into a fair and prosperous society, with a modern, competitive and resource-efficient economy, with no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use. A roadmap with the main policies and measures is also proposed.

2020 was a year of severe challenges for the entire planet, shaped by the COVID-19 pandemic crisis, with a negative economic and social impact with isolation measures, but which revealed the vulnerability and dependence of the population on raw materials. Thus, the competent institutions must find the necessary measures to transform this crisis into an opportunity for an ecological restart and a sustainable society.

Below there are presented chronologically the actions of the European Commission in 2020:

- January 14, 2020 - The European Commission presented the Investment Plan of the European Green Pact and the Mechanism for a Fair Transition;
- March 4, 2020 - Public consultation on the European Green Pact, which brings together regions, local communities, civil society, businesses and schools. Proposal for a European Climate Law to guarantee Europe's climate neutrality by 2050;

- March 10, 2020, the European Industrial Strategy was adopted, a plan for an economy ready for the future.
- March 11, 2020 - proposal of the EU action plan for the circular economy, focused on a sustainable use of resources;
- May 20, 2020 - Presentation of the EU biodiversity strategy for 2030, which aims to protect the fragile natural resources of our planet;
- July 8, 2020 - Adopt EU strategies on energy system integration and hydrogen to pave the way for a more carbonized, more efficient and interconnected energy sector;
- September 17, 2020 - Presentation of the Plan on climate objectives for 2030.

The new action plan for the circular economy, adopted on 11 March 2020 by the European Commission, is part of the main blocs of *the European Green Pact*, a *New European agenda for sustainable growth* and an *EU growth strategy to achieve climate neutrality by 2050*. It presents a forward-looking agenda for the circular economy, aimed at achieving the goal of a cleaner and more competitive Europe, in collaboration with economic actors, consumers, citizens and civil society organizations.

An important objective of the EU legislation on circular economy is to improve waste management according to the waste hierarchy in the EU. The waste hierarchy and the protection of the health of the population and the environment are obligations and not options. Failure to do so will result in severe fines. Waste managers at the level of producers or waste owners must take concrete steps to respect the waste hierarchy and protect the health of the population and the environment when designing, applying, verifying and analysing the effectiveness of the waste management system in the community or organizations.

According to studies, in Europe, 16 tons of material per person are used annually, of which 6 tons become waste. Thus, the economy loses secondary raw materials, such as metals, glass, paper, etc. Transforming waste into resources is essential in a circular economy. Improving waste management helps reduce health and environmental problems, reduce greenhouse gas emissions and improve local impact.

The European Commission has proposed, in 2020, new targets for municipal waste - the recycling target of 65% of municipal waste generated by 2030 and a target to reduce landfill waste by a maximum of 10% of municipal waste by 2030. These proposals are part of the Commission's package of measures on the circular

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economy, in order to maintain the value of products, materials and resources in the economy for as long as possible [20].

Waste management is one of the important problems facing the Republic of Moldova in environmental protection activities. Currently, the problem of waste is manifesting itself, more and more acutely, due to the increase of its quantity and diversity, as well as of its negative impact, more and more pronounced, on the environment. The urban and industrial development of the localities, as well as the general increase of the living standard of the population, entails the production of more and more quantities of waste (fig. 1).

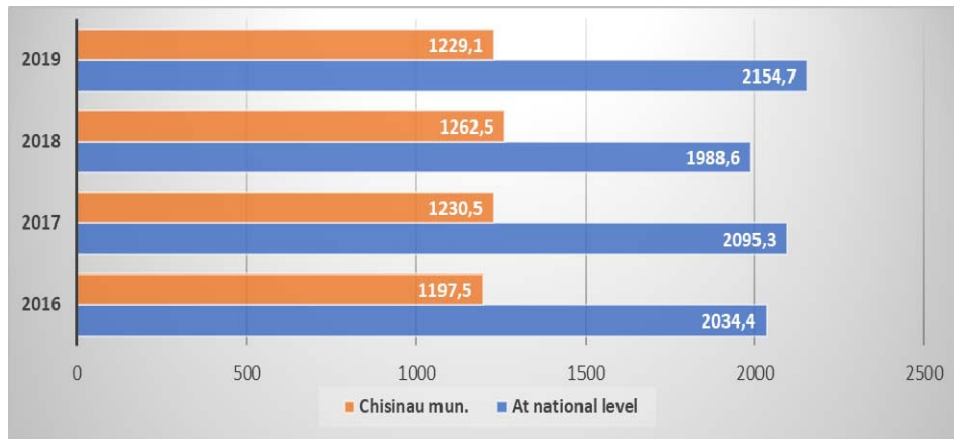


Fig. 2. Municipal waste collected from population, in thous. c.m.

Source: in base of data from National bureau of Statistics

In accordance with Article 91 of the Association Agreement (Chapter 16 - Environment) The Republic of Moldova brings its national legislation closer to EU normative acts and of the international instruments referred to in Annex XI to this Agreement, in accordance with the provisions of that Annex. The European directives to be transposed into Moldovan law determine a new one addressing the waste problem, paying attention to the need to protect and save resources reducing management costs and finding effective solutions to reduce pollution. Thus, in Annex XI to Chapter 16 (Environment) of the Association Agreement are listed EU normative acts to be implemented, as a matter of priority, in national legislation.

The National Waste Management Strategy of the Republic of Moldova 2013-2027 states that waste management is still a problematic issue in the country, that should be better organized and for which legislation should be improved. Although environmental protection is governed by 35 legal acts and more than 50 Government Decisions, the regulatory framework for the management of waste is far from being satisfactory. Further are listed the main legislative acts regulating waste domain:

- Law on environment protection, no.1515-XII of 16 June 1993;
- Law on the ecological survey and estimation of impact on the environment, no.851-XIII of 29 May 1996 ;
- Law on natural resources, no.1102-XIII of 6 February 1997;
- Law on the charges for environment pollution, no. 1540-XIII of 25 February 1998;
- Law on the regime of hazardous products and substances, no.1236-XIII of 3 July 1997;
- Government Decision no. 1296 of 20 November 2008 on the procedure of charging environmental payments for import of goods in the process of use, causes environmental pollution and for plastic and /or tetra pack packaging of import goods.
- Government Decision no. 637 of 27 May 2003, approving the Rule on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, and as such transposing the Basel Convention.

The Law on the Waste of Production and Consumption has been replaced by the Law on Waste, which entered into force as of 23 December 2017. The law reportedly aligns the national legislation to EU provisions as stipulated in the Moldova-EU Association Agreement [3].

Promoting the regional approach in waste management planning is essential both for attracting investment necessary, as well as to ensure recovery high costs allocated for the implementation of Waste management strategy in Republic of Moldova for the years 2013-2027. According to the document, waste management should be done through methods and procedures that do not endanger the environment, public health and other living organisms. The competent authorities shall authorize the collection, transport, recovery and disposal of waste, ensuring that it does not present risks to water, air, soil, flora and fauna, does not cause noise pollution or odor and does not affect landscapes or protected areas. The measures provided in the Law on Waste shall contribute to the implementation of the

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commitments assumed by the Republic of Moldova following the ratification of international treaties establishing waste regulation requirements, including by regulating and establishing measures to ban and / or restrict hazardous substances in products or articles. The law also contains provisions that shall contribute to the optimization of the functions of the responsible institution in the field of environmental protection, related to waste management [3].

The general objectives of the Strategy are the following:

1) development of integrated systems household waste management through harmonization of the legislative, institutional and normative to EU standards, based on regional approach and territorial division of country in 8 regions of management of waste;

2) development of regional infrastructure of disposal of solid household waste and transfer stations in accordance with the practices of EU Member States;

3) development of collection systems and treatment of specific waste streams (waste electrical equipment, tires, batteries, etc.) by promoting / implementing the principle of "producer responsibility".

In the Republic of Moldova still persists the problem of low coverage area of localities with sanitation services. Thus, at national level, only 50% of the population benefits from sanitation services, the share in urban areas being about 80% and only 20% in rural areas.

As regarding the recycling process, as long as the foundations for waste sorting are not established, it will not be possible to achieve this goal, which is important in a circular economy. Currently, in the Republic of Moldova, only in Chisinau waste is sorted and recycled. However, more than half of the volume of waste in Chisinau ends up in landfills. During waste transportation process the sanitary norms are not respected, both the soil and the groundwater are polluted.

The same problem is for toxic waste. At present, waste from medical institutions is burned, even by institutions, on their territory, without respecting the rules of environmental protection. At best, the waste is burned in stoves, and some burn it directly on the ground. Such combustion methods are inadmissible because they pose risks to air, water, soil, fauna and flora.

Medical waste is also disposed of in landfills, which is very harmful to the environment because it is very toxic. In some landfills, waste is burned or self-igniting, entering into chemical reactions, emitting harmful smoke, emitting toxins dangerous to health and the environment.

SWOT analysis for the implementation of the Waste management strategy objectives in the Republic of Moldova

Strengths	Weaknesses
<ul style="list-style-type: none"> ➤ financial support and technical assistance granted to country through international donors; ➤ the existence of the National Ecological Fund; ➤ the existence of a functional system capable of ensure the implementation of a sufficient number of programs / projects. 	<ul style="list-style-type: none"> ➤ poor collection, transport and disposal of waste infrastructure; ➤ increased amounts of waste produced and stored; ➤ low level of selective waste collection; ➤ insufficient development of the recycling market and recovery of waste ➤ low level of information of the population and economic agents regarding the integrated waste management.
Opportunities	Threats
<ul style="list-style-type: none"> ➤ developing long-term investment plans, in the conditions of a durable development; ➤ creating an integrated management system of waste; ➤ use EU funds for the improvement of environmental standards. 	<ul style="list-style-type: none"> ➤ difficulties of organizational, political and financial nature, determined by the process of regionalization; ➤ high costs for compliance with European standards for the exchange of waste management technologies and use of "best available techniques"; ➤ difficulties in allocating land for environmental infrastructure development, construction solid waste landfills.

Source: [3]

Although we have a regulatory framework on waste, it must be linked to the legislation of the European Union, through the correct functioning of the legislation in force. The law on waste only provides an overview of waste management but it must provide concrete and workable regulations. Therefore, according to the Waste Law, the targets we had to reach in 2020, according to Article 14 Reuse and recycling of waste, such as at least paper, glass, metals and plastics from household products is increased to a minimum level of 30% of the total mass, by 2020. That is, preparation for re-use and other recovery operations, including backfilling, which uses waste to replace other substances, non-hazardous waste from construction and demolition activities, with the exception of natural geological

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materials, it is increased to a minimum of 55% of the total mass. Unfortunately, these actions were not fully realized in 2020 but will follow in 2021 [5].

Another alarming problem comes with the outbreak of the Covid-19 epidemic on the territory of the Republic of Moldova, which represents an enormous risk to public health and the environment. Concerns are growing both about hazardous medical waste generated in health care facilities and about household waste. And environmental protection authorities must monitor the environmental components in epidemic areas and control bodies to carry out verification actions on how to manage medical waste. There should be a National Action Plan on waste management resulting from medical activity, which will also include regional plans. The authorities must create a functional system for waste collection and then the population will sort it correctly. The most effective way to solve this problem is proper waste management through the existence of a legislative framework that establishes a series of rules on efficient waste management.

Conclusions

The Republic of Moldova has a lot of work to do in this regard related to the circular economy, many objectives have not been achieved even though we are in 2021. Because the pandemic forces us to adapt our daily lives to a regime we would not have imagined until now, it also challenges the authorities to find new solutions for rethinking economic development models. Although there is no doubt that addressing the consequences for public health is a priority, the recovery of other sectors, but at the same time taking into account the principles of circularity, is also important. One concern remains: Will the European Commission's ambitious goals be met in the coming years, when the global economy will have to deal with the consequences of this pandemic crisis?

We see that even in this difficult period, the European institutions have reaffirmed their firm commitment to the long-term goals set out in the European Green Pact. Certainly, it will be necessary to rethink and completely redesign the essential systems - the way we produce and use energy, produce and consume food, produce and reuse waste. It will take a lot of patience, but also civic involvement.

One way to build a sustainable economy is by ensuring a socio-economically equitable transition process that is designed and implemented in the long run. In addition, the investments that will be made to mitigate the economic impact of this crisis should be, and can be, fully aligned with the EC's long-term sustainability objectives.

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CRYPTOCURRENCIES AS AN ACCELERATOR OF SUSTAINABLE DEVELOPMENT

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Abstract

Globalization and the changes that have affected the world economy conditioned the development of new models of thinking, investing, trading and payment methods in the world economy. The end of the 20th and beginning of the 21st century was marked by rapid technological progress, which has not bypassed any economic sector, and all households have experienced the change. Cryptocurrencies represent a new trade and payments model and a way for making some form of earnings. It is a form of property that is used as a digital asset exchange using new cryptographic algorithms.

Keywords: *economic development; finances; cryptocurrencies; informatics development; investing.*

JEL Classification: E22, E42, E44, F31, O33.

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Introduction

A world economy without borders is undoubtedly the dream of almost all developed countries in the world. Here we are talking about the desire and the possibility that the world's most extensive global powers will manage global financial and international processes (Kocić, 2010, pp.146).

The cyclical movement of the economy has been processed and explained in detail. Cyclical capital movement leads to periodic ups and downs of the economy in individual countries, leading to financial disturbances locally. However, due to globalization, shocks are not local and cause far more complex global consequences (World Economic Crisis 1929-33, 1970-1971, 2001, etc.) (Erić, 2003). These phenomena are related to the cyclical movement of capital, which led to changes in our social lives. Therefore, we are ready to accept any explanation of the present crisis in our civilization except that the current state of the world may be the result of our own mistake (Hajek, 1944, pp.13), which is the desire for rapid wealth.

All imperial countries of the world desire to influence and control world trade, current events, goods and services with their monetary instruments and currency. The influence of the United States on financial flows in the 20th and 21st centuries was dominant. Historically, instability was reflected in the fact that money, prices and production were most affected, where the most dramatic periods were between wars (1920-1921, 1929-1933, 1937-1938) (Fridman, 2002, pp. 56). Economic crises that occur periodically but frequently undoubtedly lead to large macroeconomic shocks, which are widespread globally. To explain the topic at hand, it is necessary to point out that when the most significant economic crisis began, it was called The Great depression 1929-1933. (Fridman, 1963).

Due to the dramatic character, the stock market crash in October 1929 is often considered the beginning of the financial crisis. However, this is not true; the collapse was caused primarily by the individual's willingness to spend, which led to the subsequent collapse of the stock market. This triggered numerous measures reflected in the harsh economic conditions to curb "speculation" (Fridman, 2002). The financial crises that have shaken the world economy periodically every ten years will undoubtedly continue with the authors predicting the next one, according to economic indicators and large oscillations in the stock market and global economy, most likely in the next two years. However, the next crisis will not lead to distortions in the goods and services market but in the financial sector, i.e. the banking sector, which is currently experiencing shocks due to speculation, especially in cryptocurrency trading.

1. Globalization and global processes

From the onset, it is necessary to explain the basics that have primarily shaped social processes in the last forty years of the 20th and 21st centuries, which have changed the world economy and thinking in general. The notion of globalization is derived from the word “global”, which means totality, and globalism is a way of looking at global events. Globalization would therefore imply a social process that seeks to comprehend the uniqueness of the world (Turek, 1999, pp. 159). When it comes to globalism, an expanded theory interprets globalism by including arguments of the modern microelectronic revolution (Rodin, 1999, pp. 83-100).

The concept of globalization can be understood and defined in different ways. One way defines globalization as an optimistic process that brings technology development, market expansion, higher profits, a more comfortable life, developmental progress, the breakdown of dictatorial regimes and increased consumer spending. The other interpretation of globalization is a necessary evil through the dominance of economics, politics, science and culture, which acts as a form of colonialism and imperialism over small nations (Martin & Schumann, 1997).

As a result of globalization, relationships between people and countries are intensifying. People are beginning to think globally as a whole and view the world in a new light. Globalization has specific requirements as continuous investment in knowledge, technology, research and development. Whoever starts to lag in globalization or does not get involved in modern processes will be left significantly behind. Today’s world is increasingly open, and hence a well-known reference to the world as a “global village” has been created. Globalization as an idea refers to “reducing” the world and raising awareness about the world as a whole (Robertson & Milordović, 1999).

The emergence of the globalization process was favourable for the post-World War II situation in Europe. The European countries, some of which were destroyed but financially supported by the United States (Stanišić, 2000, pp.918-927), began the process of interconnection. The goal and fundamental aspiration were to create a Europe without borders, where goods, people, and capital would circulate freely (Todorović, 2007). Such an aspiration allowed Europe to expand and influenced the trend that helped create a world without borders. When it comes to globalization as a process, it is necessary to mention the role of the General Agreement on Tariffs and Trade (GATT) and its influence and effect, i.e. the free flow of goods and services. The growing economic significance of transnational corporations and transnational flows of goods, capital, information and knowledge

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in the global market and the economic environment is the most crucial feature of trans-nationalization (Kocić, 2011). However, at the end of the 20th century, a downward trend in global inequality was witnessed. It is a characteristic of the declining distribution in the income levels of the middle. It lowers social classes in developing countries, both in relative and absolute terms, as shown in Table 1.

Table 1. Global economic distribution from 1960 to 1990

<i>Year</i>	<i>Percentage of global income that goes to 20% of the richest</i>	<i>Share of global income that goes to 20% of the poorest</i>	<i>The relationship between the richest and the poorest</i>
1960	70,2	2,3	30 : 1
1970	73,9	2,3	32 : 1
1980	76,2	1,7	45 : 1
1990	82,8	1,3	64 : 1

Source: Brown and Kane, *The Globalization of World Politics*, Oxford University Press, Oxford, 1997, pg. 456.

What we can present today as a consequence of globalization is also reflected in the financial world, including financial transactions involving the creation and enabling of payments by supranational currencies. The topic of this paper is the creation, purchase, sale, disposal and trading of alternative forms and methods of payment. The work itself will also present the thoughts of authors who consider this to be a trade that may introduce another cyclical problem of global financial ratios.

2. Cryptocurrency technology

Over the past years, faster integration of information and communication technologies has influenced many aspects of our lives (Popović et al., 2016). It is essential to mention Bitcoin. Bitcoin (Nakamoto, 2008) represents the first, and at the same time, the most popular cryptocurrency. It was created in 2008 and 2009 in open source software – cryptographic digital monetary and payment systems that exist online. They are based on decentralized, distributed networks, including a standard data transfer technology called the blockchain. The network data transfer relies on security data encryption (Hayes, 2017, pp.1308-1321). Cryptocurrencies are generally based on hash functions. A cryptographic hash function is a

mathematical function that takes any value of any size and creates fixed-size data blocks. With Bitcoin and all other cryptocurrencies based on Bitcoin technology, the block size is 256 bits, 512 bits or more. The Block diagram of SHA-256 is presented in Figure 1.

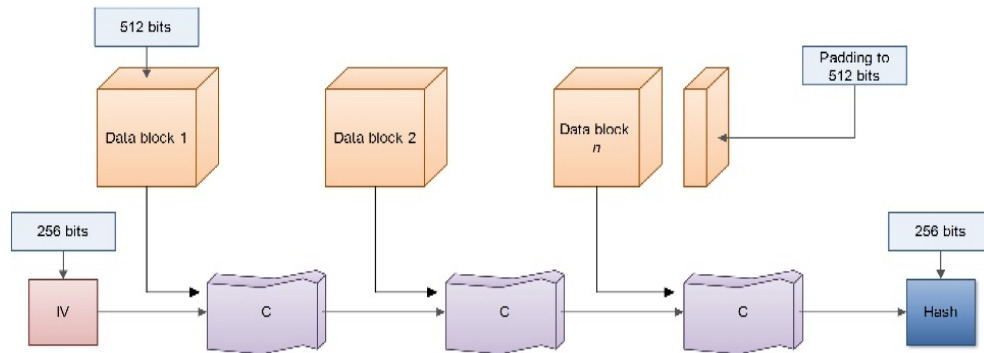


Fig. 1. SHA-256 hash function

Using the cryptographic algorithm SHA-256 (Gallagher & Director, 1995), anonymity in data transmission is achieved, specifically the anonymity of transactions.

The data structures used in these crypts are based on hash pointers, as illustrated in Figure 2. The pointer shows where specific data and cryptographic data are stored, which validates the original data.

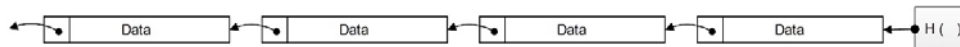


Fig. 2. Data structures based on hash pointers

If we have a hash pointer, we can get the data points and verify that these data have not been changed. Furthermore, for additional protection, hex pointers can be digitally signed. Digital signatures use public and secret key technology. For example, Bitcoin uses an ECDSA-based digital signature scheme (Pornin, 2013) algorithm. In this way, the cursor is digitally signed and the entire data structure that the cursor points to. With cryptocurrency, the public key is used as an identity in transactions. Identities in transactions are addresses where a certain amount of

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cryptocurrency can be found. For the transaction to be fully valid, all diggers in the network must confirm the transaction. This type of confirmation at Bitcoin is also known as Nakamoto Consensus (Bonneau et al., 2015, pp. 104–121). This is considered the most crucial innovation in Bitcoin and probably the critical part of the technology for which Bitcoin is booming. Therefore, any network participant can complement the chain by collecting valid pending transactions and forming a block. The critical part is to use a computer “puzzle” to determine which block will be the next blockchain. These computer puzzles are called “proof-of-work” (Aspnes et al., 2005).

Since there is no centralized control system, transaction data is shared by all diggers in such a P2P network. This publication and alignment of all blockchain data achieve complete consistency and avoid possible fraud in currency transfer and the possibility of double consumption of the same unit of currency (double-spending attack). The weight of the puzzles to be counted is calibrated so that the new block is found once every 10 minutes. For this system to be sustainable, the weight is adjusted once in 2016 blocks, approximately every two weeks, using the deterministic timestamp function in the previous 2016 blocks (Bahack, 2013).

3. Economic aspect of the financial market – cryptocurrency trading

Bank circles the world’s financial markets called the bubble of cryptocurrencies. All the forces of bankrupt neoliberal capitalism closed their eyes and tacitly allowed them to evolve on all sides of the hidden currency. Today there are over two thousand of them and new ones are opening each day.

The most crucial trading period for virtual currencies is the year 2017. Many of them experienced natural expansion and tremendous growth at 1000% per year. The end of 2017 was the high of cryptocurrency, especially bitcoins, and represented an excellent opportunity for citizens to make a quick return. The value of bitcoin was at that time high of \$19,099 at the beginning of 2018, and now it is worth under \$10,000. It is, however, necessary to point out that its value only a year ago was only \$1,000, which means that bitcoin rose 1909% in one year. Thus, profit rates in the real economy for 10-15% per annum.

4. Possibilities of application and cryptocurrency blockchain technologies

Cryptocurrency and blockchain technology can be used in different ways in business areas, such as tourism. When the popularity of cryptocurrency reaches its peak, the very promotion of certain services that cryptocurrencies can pay can

attract much attention. For example, cryptocurrency can be used now to pay for travel and accommodation costs in hotels and other facilities. On the other hand, Blockchain technology can provide operators with a system for sharing information about accommodation and the like. For tourism and services, some companies give circulated own cryptocurrency which can make payments. For example, JIO cryptocurrency is used to pay for various packages and membership fees at travel agencies TamTamTravel (<http://tamtamtravels.com/>). In addition to this, the Agency accepts other payment currencies, such as Bitcoin, Ethereum, Litecoin, etc. BitAir (<https://bitair.io/>) is another blockchain technology that allows payment of airline tickets and accommodation bookings. Another exciting idea is cryptocurrency Lif, announced by the Lufthansa Group (<http://lufthansagroup.com/>). The idea is to use the online market based on blockchain technology to skip mediators in booking accommodation and transportation. There are more examples of how the current popularity of cryptocurrency and blockchain technology can be used to popularise tourism and tourist destinations and how costs can be reduced in business.

Conclusion

Globalization is a process that has significantly changed the way of production, distribution, consumption, and investing in today's world.

One-time payments and universal currencies that served as a means of exchanging slowly began to lose their dominant role. The global distribution of income shows that today there are poorer in the world and that the wealth of the rich is increased by three times in the 20th century. Virtual currencies do not meet the essential criteria that one currency should have. It is expected that it will make sense for some investors to incorporate digital currencies into their portfolios in the future. In banking, cryptocurrencies do not meet the cash criteria, and they should continue to take a significant part to become a national currency. There are proposals to form a cyber-crypto-initiative. The Russian Federation has proposed a cyber initiative to create a new currency connecting developing countries to markets in Asia, Eastern Europe, Africa, and South America through blockchain and innovative technology. Today the currency market is volatile. The most famous and most traded cryptocurrency is under significant oscillations. Due to market failure, inadequate institutional protection, and the underpinning of speculative changes, cryptocurrencies and cryptocurrency markets today are not suitable for individual investors. A new financial crisis will be caused by

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investment in cryptocurrencies, and losses can even be measured in the billions of dollars. The influence of cryptocurrencies on the growth and development of different business sectors will be significant in investments and the speed and dynamics of payments. While the future of most cryptocurrencies is quite uncertain, on the other hand, more extensive use of blockchain technology can be expected in different business sectors.

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THE EFFECT OF OIL RECEIPTS AND FUEL SUBSIDY PAYMENT ON THE CURRENT ACCOUNT DEFICIT IN NIGERIA AND VENEZUELA

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Abstract

The study assessed the effect of oil receipts and fuel subsidy payment on current account deficit in Nigeria and Venezuela. Data collected were analysed using trend analyses, unit root, cointegration techniques and Autoregressive Distributed Lag (ARDL). The result showed that estimated oil revenue had a negative and significant impact on current account deficit in the short-run in Nigeria ($t_c = -3.42; P < 0.05$) and Venezuela ($t_c = -2.97; P < 0.05$). The estimated oil revenue had a negative and significant impact on current account deficit in the long-run in Nigeria ($t_c = -3.96; P < 0.05$) and Venezuela ($t_c = -3.83; P < 0.05$). Fuel subsidies also had positive and significant long-run impact on current account gap in Nigeria ($t_c = 3.40; p < 0.05$) and Venezuela ($t_c = 3.58; p < 0.05$). The study concluded that despite the positive contributions of oil receipts to the current account in the two countries, continues fuel subsidy payment would impose significant fiscal costs and undermine current account position in Venezuela much more than Nigeria.

Keywords: oil receipts; fuel subsidy payment; ARDL; current account deficit; Nigeria and Venezuela.

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JEL Classification: F32, H21, H71

Introduction

A prominent feature of oil sector in many oil-producing countries is the existence of fuel subsidies, which is designed to enhance accessibility and affordability to fuel commodities. Government expenditure on fuel subsidies – estimated as the gap between international and domestic prices of fuel is, on average, much higher in member countries of the Organisation Petroleum Exporting Countries (OPEC) than in other countries. Fuel subsidy is responsible for the high demand for petroleum products, it results in higher imports bills and rising deficits in most fuel subsidised economies (Lin & Liu 2011). These subsidies pose strategic challenges that lead to the perpetuation of corrupt regimes and worsening of external balance by encouraging consumptions at rates above those warranted by the opportunity cost of fuels in the global market. Low prices also distort energy allocation preferences while undercutting upstream investment and efficiency incentives which have effect on a country's competitiveness, fiscal and current account balances (Coady, *et al.* 2016).

Several studies have attempted to examine fuel subsidy effects in an economy (Clement *et al.* 2013; Parry *et al.* 2014; Balke *et al.* 2015; Araar, *et al.* 2015; Vera, 2015). Most of these studies mostly focused on quantifying the value of fuel subsidies (Davis, 2014; Coady *et al.* 2016; Commander, *et al.* 2015; Coady & Shang, 2015) and examined distributional impacts (Clement *et al.* 2003; Verme, *et al.* 2014; Adagunodo & Oladeji 2020). These studies largely ignored the impact of fuel subsidy payment on current account balance. Despite the fact that there are several studies examining the impact of oil price on economic performances (Alhassan & Kilishi, 2016; Iwayemi, & Fowowe, 2010, 2011), a limited amount of literature has linked its impact on current account balance (Chukwu *et al.* 2011; Araujo *et al.* 2013; Hassan & Zamak 2014; Allegret *et al.* 2014; Ikudaisi & Olomola 2019). Such studies do not, however, address the impact of domestic energy pricing policy on current account in Nigeria and Venezuela

Nigeria and Venezuela is interesting case study for comparative analysis to examine the impact of oil receipts and fuel subsidy payments on current account balance as they are currently facing fiscal and current account imbalances compounded by sharp and sustained decline in oil receipt and excessive government expenditure on fuel subsidy. These countries are not only rich in oil

reserves and production but also have the largest subsidy regimes targeting fuel consumption.

Literature Review

Several studies attested to the importance of fuel subsidies on macroeconomic performance. Balke, Plante, & Yücel (2015) applied Dynamic Stochastic General Equilibrium Model (DSGE) to examine the impact of fuel subsidy reform on oil market. Variables such as oil price, fuel subsidy, oil production, oil consumption, investment, household income and exchange rate were considered. The result showed that reform on fuel subsidy improved oil market in oil-exporting countries. However, the study suffers some drawbacks. Firstly, their model is static neglecting the dynamic aspects that influence oil market. Secondly, it is not detailed enough to provide necessary information on the relationship involving oil receipt, fuel subsidies and current account balance.

Fasanya, Adetokunbo & Ajayi (2018) employed Linear and Nonlinear ARDL on Nigeria quarterly data from 1987 to 2015 to examine relationship between oil revenue and current account balance. The study revealed that oil revenue has a significant positive effect on current account balance. Burniaux, Chateau & Sauvage (2011) conducted a study to find out the relationship between fuel subsidy reform and trade performance in developing and industrialised countries using a Computable General Equilibrium model (CGE). Variables such as GDP, government revenue, fuel subsidy payment, investment and household income were considered. Their finding indicated that fuel subsidy had little effect on trade deficit.

Adenikinju & Omenka (2013) used Computable General Equilibrium model to analyse macroeconomic effect of removal of petroleum product subsidy in Nigeria. The finding showed that fuel subsidy brought reduction in GDP, government revenue, investment, trade balance and household income by 4.3 percent, 27.2 percent, 2.7 percent, 9.6 percent and 5 percent respectively when there was increase in international price by 60%. Their study concluded that any negative consequences observed on the macro-economy could be addressed with a gradual reduction of fuel subsidy. Besel (2017) employed unit root test, cointegration and causality test to examine relationship between oil price and current account deficit in Turkey. Variables such as import, export, current account, oil revenue, oil export, interest rate, exchange rate, oil price, money supply and current account were considered. His finding indicated that there was long –run relationship between oil price and current account in the observed period.

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Allegret, Couharde, Coulibaly & Mignon (2014) employed panel smooth transition regression (PSTR) model to examine the impact of oil price on current account in oil exporting countries. Variables such as current account, measured as percentage of gross domestic product, money supply ratio to gross domestic product, private sector credit ratio to gross domestic product, market capitalization ratio to gross domestic product, financial saving ratio to gross domestic product, interest rate, exchange rate, oil price and money supply were considered. Their findings indicated that oil price influences current account in oil exporting countries but the influence was non linear depending on financial deepening. Hassan & Zaman (2013) applied ARDL model to examine the causal relationship between oil price, exchange rate and trade balance in Pakistan. Variables such as oil revenue, oil export, exchange rate, oil price, money supply and trade balance were considered. The study concluded that oil price and exchange rate influenced trade.

Theoretical Framework, Model and Estimation Techniques

The issue of fuel subsidy is a fiscal action; an interventionist stance with profound consequences on the responses of the private sector in the domestic economy, the foreign investors as well as imports and current account balance position of the country. The interventionist stance of the government necessarily warrants approaching the subject matter of this study from the angle of the Keynesian paradigm - a school of thought that accords a significant interventionists role of government. The reference, in this case, is government spending to shove up the policy of fuel subsidy and importation. The Keynesian absorption approach provides a robust background and the entry point to capture the relationship between current account balance and fuel subsidy as a fiscal tool. Using national income accounting equation: we have

$$Y = C + I + G + X - M \quad (1)$$

Where **Y**: National Income **I**: Private sector investment expenditure (**I**) **C**: Private sector consumption expenditure (**C**) **G**: Public sector expenditure, consisting of consumption (**G**) and investment expenditure by government (**G_I**) **X_n** = Net Export (**X - M**). **X**: Export of goods and factor services **M**: Import of goods and factor services. By definition (**X - M**) corresponds to current account

balance (CAB) when current account is consisting solely of import and export. This equation (1) can be expressed as

$$Y = C_p + I_p + G + X - M \quad (2)$$

$$Y = Y_p + Y_g$$

Where Y : National Income I : Private sector investment expenditure (I_p) C : Private sector consumption expenditure (C_p) G : Public sector expenditure, consisting of consumption (G_c) and investment expenditure by government (G_i)

Y_p = Income accruing to private sector

Y_g = Revenue earned by public sector (R)

If we decompose revenue earned by public sector (R) to oil receipts (Y_o) and non-oil revenue (Y_t), we have national income as summation of private income (Y_p), oil receipts (Y_o) and non-oil receipts (Y_t)

$$Y = Y_p + Y_o + Y_t \quad (3)$$

Public sector consumption expenditure can be separated into expenditure on fuel subsidy (G_{CF}) and expenditure on non-fuel subsidy (G_{CN}). Thus, public sector expenditure is adding up of public sector investment expenditure (G_i), public sector consumption expenditure on fuel subsidy (G_{CF}) and other consumption expenditure by the government (G_{CN}). Thus, the public sector expenditure is as follows:

$$G = G_i + G_{CF} + G_{CN} \quad (4)$$

Substitute equation (3) and (4) in equation (1), we have

$$Y_o + Y_t - G_i - G_{CF} - G_{CN} = -(Y_p - C_p - I_p) + X - M \quad (5)$$

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Expression (5) can rewrite as:

$$Y_o + Y_t - G_I - G_{CF} - G_{CN} + (Y_p - C_p - I_p) = X - M$$

$$X - M = (Y_p - C_p - I_p) - [(G_I + G_{CF} + G_{CN}) - (Y_o + Y_t)] \quad (6)$$

$$\text{Current account (CAB)} = f(Y_o, Y_t, Y_p, C_p, I_p, G_I, G_{CF}, G_{CN})$$

$\frac{\partial CAB}{\partial Y_o} > 0$ This mathematical relationship shows positive relationship between oil receipts and current account balance.

$\frac{\partial CAB}{\partial G_{CF}} < 0$ There is negative relationship between fuel subsidy payment and current account balance.

Equations (5) and (6) are enlightening and useful policy implications can be drawn. There is a clear link between government spending on fuel subsidy which has a large import component which reduces government savings and impact current account balance. The relationship between fuel subsidies and current account balance can further be explained using the information below:

i) Keynesian economists argued that fuel subsidy is an expansionary fiscal tool which increases public consumption as an element of effective domestic demand. The increase in public consumption will have multiplier effect on domestic income which results to increase in importation and current account deficit

ii) The linkage between fuel subsidy and the current account deficit is an automatic result of national income identity

$$(S_g - I) = (T - G) + (X - M) \quad (7)$$

A decrease in public savings (Resulting from a tax cut or an increase in the level of subsidy) implies a decline in national savings. The decrease of the national savings results to disequilibrium between savings and investment ($S \neq I$) which result to current account imbalances. This implies that:

$$\text{If } S < I \Rightarrow (G > T) \Rightarrow (X < M) \quad (8)$$

The fuel subsidy regime contributes to a widening current account deficit by artificially suppressing the domestic retail price of fuel, while also contributing to public sector dissaving as shown in equation (6) and hence to overall domestic saving deficit and current account deficit as in equation (7) and expression (8)

Thus, equation (9) form the basis of our ARDL model, and the effect of oil revenue and fuel subsidy payment on current account balances can be expressed as:

$$\begin{aligned} \Delta CAB_t = & \alpha_0 + \sum_{i=1}^n \alpha_1 \Delta CAB_{t-i} + \sum_{i=1}^n \alpha_2 \Delta DBT_{t-i} + \sum_{i=1}^n \alpha_3 \Delta FDI_{t-i} + \\ & \sum_{i=1}^n \alpha_4 \Delta INT_{t-i} + \sum_{i=1}^n \alpha_5 \Delta EXCR_{t-i} + \sum_{i=1}^n \alpha_6 \Delta ORV_{t-i} + \\ & \sum_{i=1}^n \alpha_7 \Delta FSP_{t-i} + \sum_{i=1}^n \alpha_8 \Delta DEP_{t-i} + \sum_{i=1}^n \alpha_9 \Delta INFR_{t-i} + \beta_1 CAB_{t-1} + \\ & \beta_2 DBT_{t-1} + \\ & \beta_3 FD I_{t-1} + \beta_4 INT_{t-1} + \beta_5 EXCR_{t-1} + \beta_6 ORV_{t-1} + \beta_7 FSP_{t-1} + \beta_8 DEP_{t-1} + \beta_9 I \\ & \varepsilon_t \end{aligned} \quad (9)$$

The ARDL model testing procedure starts with conducting the bound test, which states the null hypothesis of zero cointegration, that is:

$$\begin{aligned} \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = 0 \\ \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \beta_7 \neq \beta_8 \neq \beta_9 \neq 0 \end{aligned}$$

The statistic underlying the procedure is the F-statistic which is used to test the significance of lagged levels of the variables, in order to establish the existence of cointegration. The summary of the measurements of variables and sources of data can be found in Table 1.

Empirical Results and Discussion

The controversy surrounding intervening stance of government in the energy market through fuel subsidy has received serious attention in the recent times. These payments on subsidizing fuel not only affect fiscal deficit but also have implication on current account deficit. From the aforementioned, this subdivision is scrutinized through econometric findings.

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Table 1. The Measurements of Variables and Sources of Data

Variables	Measurements	Sources
Oil Receipts (ORV)	Oil revenue as a percentage of GDP	World Development Indicator(WDI)
Fuel Subsidy Payment (FSP)	Fuel Subsidy Payment as a percentage of GDP	Own estimate from IEA, US EIA,CIA World Fact Book, GIZ and IADB
Debt (DBT)	Public debt as percentage of GDP	WDI
Current Account (CAB)	Current account as a percentage of GDP	WDI
Exchange Rate (EXCH)	Exchange rate between the home country and \$US	WDI
Foreign Direct Investment(FDI)	Foreign Direct Investment (Net inflow as %GDP)	WDI
Interest Rate (INT)	Interest rate (Lending Rate)	WDI
Inflation Rate (INFR)	Inflation Rate	WDI
Dependency Ratio	Population (65+)/Population (30-64)	UN population

Note: IAE: International Energy Agency, IADB: Inter-American Development Bank, US EIA: United State Energy Information, GIZ: German Agency for International Cooperation

Source: Author's compilation

Unit Root Tests

Tables 2a and 2b show that the null hypothesis cannot be rejected for the level series of some variables in the two countries. However, the null hypothesis can be rejected for the first difference of all the series at a 5 per cent level of significance for the two countries. It was observed that while variables like fuel subsidy payments, oil receipts, and current account balance were not stationary at level in Nigeria using ADF approach, these variables were stationary at level in Venezuela. It was also observed that null hypothesis of unit root could not be rejected at level for fiscal balance in the two countries using ADF approach. The Phillip Peron (PP) result shows that the null hypothesis at level can be rejected for oil receipts and fuel subsidy payment in Nigeria and Venezuela. It implies these series are stationary at level in the two countries using Phillip Peron (PP) approach The

stationarity property of variables under consideration in Nigeria and Venezuela are mixture of I(1) and I(0), hence the ARDL technique is appropriate for estimation for the two countries.

Table 2a. ADF and PP Unit Root for Nigeria

	ADF				PP				
	Levels	First Difference	Critical Value	Remark	Levels	First Difference	Critical value	Remark	
CAB	-1.204	-3.992**	2.877	I(1)	-1.212	-6.299**	2.957	I(1)	
DEP	-2.475	-7.047**	2.877	I(1)	-1.177	-2.803**	2.957	I(1)	
FDI	-1.968	-3.675**	2.877	I(1)	-	-	2.957	I(0)	
EXR	-1.694	-4.354**	2.877	I(1)	3.612**	-2.74	-6.820**	2.957	I(1)
FSP	-	-	2.877	I(0)	-	-	2.957	I(0)	
INFL	3.746**	-4.428**	2.877	I(1)	3.541**	-1.924	-5.815**	2.957	I(1)
INTR	-2.181	-	2.877	I(0)	-1.369	-6.804**	2.957	I(1)	
OILR	2.967**	-1.520	-3.544**	2.877	I(1)	-	-	2.957	I(0)
DBT	-	-	2.977	I(0)	4.008**	-1.031	-4.029**	2.957	I(1)
	3.689**								

Sources: Authors Compilation (2021) , Note: ** Significant at 5%

Table 3a and b presents the result of ARDL co-integration test. The Table 3a shows that Pesaran F-statistic of 6.602666 for testing the joint hypothesis that no long run relationship exist between the variables under discussion is observed to be much more than the 5 per cent upper bound of the critical value (3.79) of Pesaran table. That is $6.602666 > 3.79$. Hence, there is enough evidence to reject the claim that no co-integration exist, so we can say there is co-integration among the variables such as current account balance (CAB), oil receipt (OIR), exchange rate (EXCR), interest rate (INT), inflation rate (INF), fuel subsidy payment (FSP), debt (DBT) and dependency(DEP) for the period under study in Nigeria. Also, Table 3b also revealed long-run cointegration relationship among these variables in Venezuela.

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Table 2b. Unit Root test for Venezuela

	ADF (3)				PP (3)			
	Levels	First Difference	Critical value (5%)	Remark	Levels	First Difference	Critical Value (5%)	Remark
CAB	-3.800**		2.877	I(0)	-1.208	-3.735**	2.957	I(1)
DEP	-1.042	-4.553**	2.877	I(1)	-1.249	-4.579**	2.957	I(1)
FDI	-2.597	-6.410**	2.877	I(1)	-1.527	-6.751**	2.957	I(1)
FSP	-3.047**		2.877	I(0)	-		2.957	I(0)
DEBT	-1.624	-6.048**	2.877	I(1)	-1.655	-9.888**	2.957	I(1)
INTR	-1.012	-6.123**	2.877	I(1)	-1.012	-6.125**	2.957	I(1)
OILR	-4.376**		2.877	I(0)	-		2.957	I(0)
EXCR	1.049	3.101**	2.877	I(1)	1.436	-5.311**	2.957	I(1)

Sources: Author Compilation (2021) , ** Significant at 5%

Table 3a. ARDL Co-integration Test (Nigeria)

Pesaran F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
Pesaran F-statistic	6.602666	10%	2.26	3.35
		5%	2.62	3.79
		2.5%	2.96	4.18
		1%	3.41	4.68

Source: Author (2021)

Table 3b ARDL Co-integration Test (Venezuela)

Pesaran F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
Pesaran F-statistic	4.90731	10%	2.07	3.35
		5%	2.42	3.79
		2.5%	2.96	4.18
		1%	3.41	4.68

Source: Author (2021)

Table 4 presents the long-run coefficients for the estimated equation using ARDL approach. The estimated oil revenue has a negative and significant impact on current account deficit in the long-run ($t_c = -3.96; P < 0.05$) in Nigeria.

The result reveals that a unit increase in oil revenue reduces current account gap by 0.8966 units in the long run. Also, the estimated coefficient of oil revenue has a negative and significant impact on current account deficit in the long-run ($t_c = -3.83; P < 0.05$) in Venezuela. The Venezuelan result indicates that a

unit increase in oil receipts reduces current account deficits by 0.4180 in long run. This result validates the theoretical position that there is an inverse relationship between oil receipts and current account deficits.

This result also corroborates the findings of Fasanya *et al.* (2018), Eberechukwu & Maxwell (2012) which revealed that oil receipt has positive and significant impact on the current account balance in Nigeria. The Venezuelan result is consistent with the findings of Reza (1989) which revealed that oil revenue is the major determinant of macroeconomic variables including external balance in

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Venezuela. This result is consistent with theoretical proposition that an oil exporting economy is expected to experience a positive current account balance during positive oil cycles as pointed out by Arezki & Hasanov (2013). This finding also agrees with that of Chukwu, *et al.* (2011), Hassan & Zaman (2013) that revealed that oil contribute positively to current account balance. This result explains the fact that oil has dominated the structure of export revenues in Nigeria and Venezuela for decades. The external sector dependence on oil in Nigeria and Venezuela is demonstrated in the share of oil exports in total exports which has remained high since oil boom of early 1970s.

Table 4 Long –run result

Dep Variable	MODEL A (Nigeria)			MODEL B(Venezuela)		
	Current Account deficit					
Variables	Coefficient	t. statistics	Prob	Coefficient	t. statistics	Prob
OILR	-0.8966	-3.9621	0.0011	-0.4180	-3.834	0.0009
FSP	0.7556	3.4015	0.0019	0.3011	2.0931	0.0192
EXCR	-0.1740	-1.5211	0.1081	-0.3104	1.6910	0.0781
INTR	0.2863	0.6878	0.4871	-0.4931	-2.724	0.0251
DBT	0.6197	2.8000	0.0126	0.3103	2.5618	0.0331
INFR	0.1494	0.8232	0.3810	-0.0918	1.6870	0.1017
FDI	-0.8133	1.1265	0.5331	-0.7312	-1.5662	0.1306
DEP	0.7210	2.5651	0.0086	0.1060	0.1149	0.6132
Constant	0.8371	2.7811	0.0401	1.9104	2.7883	0.0382

Source: Author's compilation

Fuel subsidy has positive and significant impact on current account deficit in the long run ($t_c = 3.40$; $P < 0.05$) in Nigeria. A unit increase in fuel subsidy payment increases fiscal deficit by 0.7556 in the long run in Nigeria. Correspondingly to what was obtained in Nigeria, fuel subsidy payment has positive and significant impact on current account deficit in the long run ($t_c = 3.58$; $P < 0.05$) in Venezuela. A unit increase in fuel subsidy payment

increases current account deficit by 0.3011 in the long run in Venezuela. This finding is in line with theoretical postulation that there is positive relationship between fuel subsidy payments and current account deficit. The long-run results in Nigeria is supported Adenikinju & Omenka (2013)'s finding that fuel subsidy payments were linked with poor macroeconomic performance including current account balance. This is not surprising because higher government expenditure on fuel will likely have adverse effect on current account. This result agrees with the theoretical position that fuel subsidy drains government revenue, affect the value of the currency and create exchange rate crisis, resulting in worsening current account deficits. The implication of Nigeria's result is that the impact of fuel subsidy payment on current account in Nigeria is not a short-term phenomenon but a long-term phenomenon.

Table 5 shows that the estimated oil revenue has a negative and significant impact on current account deficit in the short-run in Nigeria ($t_c = -3.42; P < 0.05$) and Venezuela ($t_c = -2.97; P < 0.05$). This

confirmed that oil receipts and fuel subsidy payments have implications on current account in Nigeria and Venezuela. This result corroborates the findings of Uneze & Ekor (2012) only in the short run. Interestingly, this result shows that while oil revenue has an impact on current account balance in the short-run, their impact is stronger in the long-run.

Unlike that of Nigeria, fuel subsidy payment has short run impacts on current account gap in Venezuela ($t_c = 2.503; P < 0.05$). This can be attributed to the

fact that fuel subsidy is financed through seigniorage in Venezuela which creates exchange rate crisis, resulting in the worsening of the current account deficits. This finding is as a result of escalating demand for imported refined petroleum products as against more directly productive investment that would have helped to sustain a steadier and longer-term economic growth. This pattern of expenditure on imported refined petroleum products in Venezuela drains foreign reserve from massive inflow of oil export earnings which has negative impact on current account balance. The increasing concentration of population in cities has resulted in an increased demand for petroleum products consumption as petroleum products is a required input into various activities such as manufacturing, transportation, construction and other service sector activities. One of the major concerns regarding the use of energy in Nigeria and Venezuela is dependent on conventional

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forms of energies such as petroleum products and while there has been abysmal success in tapping renewable energy, it is expected that the vast majority of increased energy demand is going to be met with subsidized fossil fuels. This has significant implications not only for the emission of carbon dioxide and consequential environmental degradation, but also implications for generating a huge petroleum products import bill and producing imbalances in current account positions. The estimated error correction term (ECT) is well signed and statistically significant, which implies that deviation from the long –run is restored by 59 and 41 percent in Model A and Model B respectively.

Table 5 Short-run Result

Dep Variable	Nigeria			Venezuela		
	Current Account					
D(CAB(-1))	-0.3577	-3.7801	0.0015	-0.0077	-0.5767	0.5717
D(OILR)	-0.5201	-3.4207	0.0372	-0.4096	-2.9710	0.0240
D(OILR(-1))	-0.0860	-6.4084	0.0000	-0.2012	-3.2436	0.0048
D(FSP)	0.1891	1.1457	0.1721	0.2827	2.1659	0.0529
D(FSP(-1))	0.0057	1.4626	0.1618	0.0643	0.5482	0.5991
D(DBT)	0.1042	2.5894	0.0472	0.0903	3.7361	0.0018
D(DBT(-1))	0.0645	1.5931	0.1703	-0.0718	-2.9712	0.0076
D(EXCR)	0.0183	0.0226	0.3104	0.0392	3.0714	0.0016
D(FDI)	0.2911	2.8815	0.0429	0.0216	0.1103	0.2719
D(INTR)	0.2018	2.5721	0.0370	-0.1091	0.0155	0.1820
D(INFR)	0.0522	1.5290	0.2813	-0.0322	-1.9101	0.0621
D(DEP)	0.2781	0.3421	0.3171	-0.3744	2.1011	0.0472
ECT_{t-1}	-0.5931	0.1055	0.5017	-0.4101	2.1544	0.0381
R. squared	0.874			0.7901		
F. Stat (Prob)	4.190(0.0000)			3.891(0.000)		

Source: Author's compilation

Diagnostic tests were conducted in order to ensure reliability and validity of the empirical result. The diagnostic test was conducted for serial correlation, functional form, normality and heteroskedasticity. The statistical properties of the model as indicated by the diagnostic probability value in Table 6 show that the model is consistent, efficient and feasible for forecast and policy making.

Table 6 Diagnostic Result

	Nigeria	Venezuela
Serial Corr(Prob)	1.6256(0.2148)	1.1650(0.6120)
Functional form(Prob)	1.4498(0.1058)	1.7109(0.2187)
Normality (Prob)	3.1274(0.2093)	2.8301(0.4821)
Heteroscedasticity (Prob)	0.9151(0.4977)	1.0385(0.1841)

Source: Author's compilation

Conclusion

The appraisal study of current account balance in Nigeria and Venezuela in the period 1980-2018 showed that current accounts in the two countries were largely more in surplus than deficit, accounted for by large oil receipts. Oil receipts had a negative and significant effect in Nigeria ($t_c = -3.96$, $p < 0.05$) and Venezuela ($t_c = -3.83$, $p < 0.05$). With regard to fuel subsidies payments, the impact on current account deficit was positive and statistically significant in the long run in Nigeria ($t_c = 3.40$, $p < 0.05$) and Venezuela ($t_c = 3.58$, $p < 0.05$). The study concluded that the issue of current account balance was not unconnected with oil receipts and fuel subsidies payment in Nigeria and Venezuela. However, despite the positive contributions of oil receipts to the current account in the two countries, continues fuel subsidy payment would impose significant fiscal costs and undermine current account position in Venezuela much more than Nigeria.

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THE EFFICIENCY OF APPLYING NLP PRINCIPLES IN COMMUNICATION BETWEEN THE INTERNET OF THINGS AND SMART CITY CITIZENS

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Abstract

Cities are expecting massive growth in the coming years; urbanization projects are looking at 2.5 billion more people living in cities. With that kind of growth, city government can no longer afford to lag behind in the digital landscape. Connecting, engaging and fulfilling of services between city and government will need to become increasingly digitized to keep up with rising demand while budgets remain tight, or in the near term, face deep cuts. Digital experiences can be made more efficient when complemented by NLP principles, image recognition and robotics, and these efficiencies translate to better experiences and reduced costs. In addition to larger smart city applications that cover utilities and traffic management, there are many opportunities to improve citizen engagement and city service delivery. Increasing citizen involvement in communication systems involving the idea of Smart City, automatically facilitates the population's access to the Internet of Things and determine assertive behavior, by applying the principles of neurolinguistics in communication between citizens and authorities through the cyber system that includes the citizen.

Keywords: *neuro-linguistic; NLP principles; IoT; sensors; neuro-linguistic programming; quantitative encephalogram.*

JEL Classification: B55, O39, O35

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Introduction

State and local government house myriad processes that require a great deal of human interaction to complete manual, repetitive tasks. Automating these processes could divert human energy to other tasks that require more thoughtful interaction, reducing costs while improving outcomes. However, the automation of certain services is not enough, as success depends on the citizen's openness to the use of these systems and thus, his involvement in the development of the smart city. In this regard, solutions like internet of things, computationally networked urbanism, product decision-making information systems, cyber-physical smart manufacturing systems, could be the key to the problem, but a key that must be doubled by a code to become effective. In our case, the code is actually neurolinguistic programming.

Neuro-Linguistic Programming was founded by behavioral modelers John Grinder and Richard Bandler to analyze and explore the patterns governing such complex processes of human behavior. The basic premise of NLP is that there is a redundancy between the observable macroscopic patterns of human behavior (for example, linguistic and paralinguistic phenomena, eye movements, hand and body position, and other types of performance distinctions) and patterns of the underlying neural activity governing this behavior.

If in the case of direct communication between two people the application of neurolinguistic principles and intuition or inculcation of certain behaviors is already possible and practicable, in terms of including the human individual in an extended cybernetic system, which involves communication through certain devices, we could talk about an innovative technique.

Several interconnected devices to which the human individual has access and is, in turn, connected, have been defined by the generic term Internet of Things.

The term "Internet of Things" was first used by Kevin Ashton in 1998, then officially introduced by the International Telecommunication Union (ITU) in 2005 through the ITU Internet Report.

Complete and correct is the definition offered by P. Guillemin and P. Friess: "The Internet of Things allows people and objects to be connected anytime, anywhere, with anything and anyone, using any path / network, as well as any service."

1. Some basic elements of the neurolinguistic programming process

According to the introduction to the volume translated into Romanian, "The Roots of Neurolinguistic Programming", author Robert B. Dilts, the goal of Neuro-

Linguistic Programming (NLP) is to integrate the macroscopic information about human behavior and experience available to each of us through our sensory experience with the unobservable microscopic information of the neurophysiology of behavior and experience into a useful cybernetic model. I believe such an integration is essential if we ever hope to understand or utilize the properties governing the complex human processes of learning, memory, communication, choice, and motivation and how these affect the social and ecological environments of human beings. Infact, there is a very interesting study in this regard, published in May 2020, which talks about "How discourse constraints influence neurolinguistic mechanisms during the comprehension of proverbs", proving that: " We use event-related brain potential (ERP) methodology to examine the influence of the linguistic markers literally speaking and figuratively speaking on the comprehension of proverbs (e.g., The cat is out of the bag). Our results show that slow cortical potentials at anterior electrode sites varied in amplitude across the proverbs as a function of the presence or absence of the markers, the presence and absence of discourse contexts, and the familiarity of the proverbs. The results demonstrate that the integration of literal meaning into context is easier than figurative meaning, and argues against models of figurative language processing that hold that comprehenders are obligated either to first process the literal or figurative sense of the trope."(Ferretti, T. R., Katz, A. N., Schwint, C. A., Patterson, C., & Pradzynski, D. (2020)

The mechanics of this process may be generalized into the following basic procedure:

a. An outcome is identified that is mutually acceptable to the facilitator (programmer) and the client (programme). Explicit criteria for the successful achievement of the outcome are delineated.

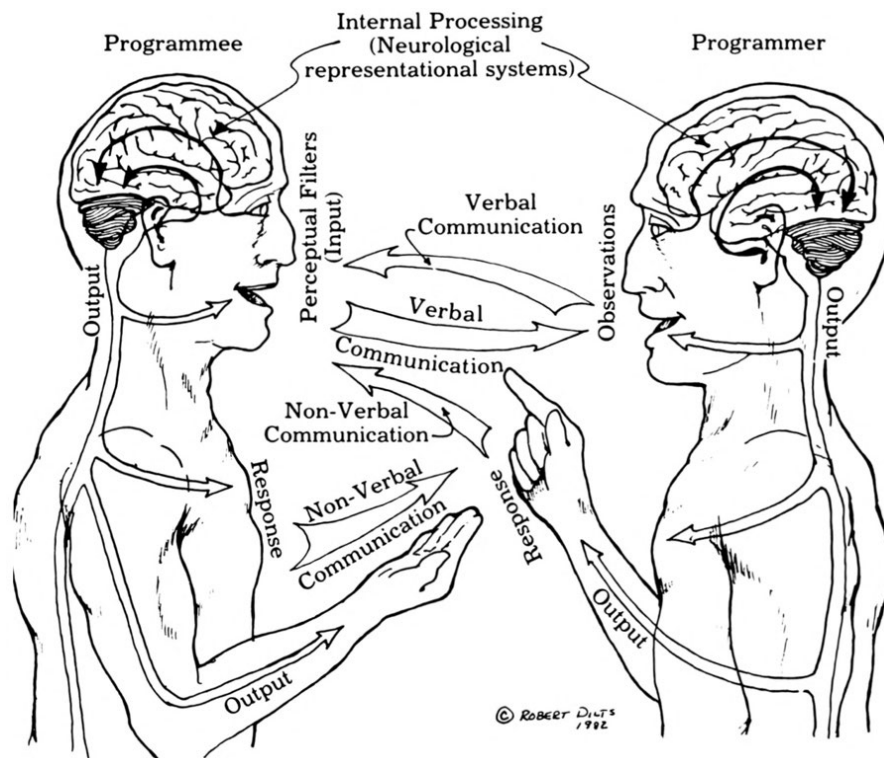
b. One individual (the programmer) generates a communication, in the form of verbal and non-verbal behavior, in an attempt to direct or propel the programme to the desired outcome. This communication elicits a response in the form of some access of information and return communication on the part of the other individual, the programme. The interaction will take place on both the verbal and nonverbal level of response.

c. The two individuals may then work together to make distinctions in the programme's experience and response, both internally and externally:

1. via the programmer's perception of the programme's external behavior within the specific contextual setting.

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2. via explicit discussion and questioning about the programme's internal experience.



1. Photo 1, source: volume "The Roots of Neurolinguistic Programming", author Robert B. Dilts

At the neurolinguistic level, communication between two subjects therefore presupposes both an interaction at a cognitive level and one at an affective level, an objective and subjective involvement of the co-communicators. Thus, the communication process becomes complete and complex and involves the transmission of messages both at the conscious level and at the subliminal level." The evidence reviewed suggests that emotion is represented in the brain as a set of semantic features in a distributed sensory, motor, language and affective network.

Also, emotion interacts with a number of lexical, semantic and syntactic features in different brain regions and timings. This is in line with the proposals of interactive neurocognitive models of language processing, which assume the interplay between different representational levels during on-line language comprehension.”(Hinojosa, J. A., Moreno, E. M., & Ferré, P. (2020)

But what happens when communication is not between two human subjects, or when the human subject becomes part of a communication system that involves the presence of devices, the body of the human subject, turning into a device in itself. Is it possible to apply the principles of neurolinguistics in this process? If so, how can the communication of the human subject with the Internet of Things be improved through neurolinguistics?

In order to find out the possibility of transmitting messages that involve sensory experiences and emotions, through an Internet of Things type system, we must first clarify what the new reality of the Internet of Things consists of and how it works.

2. What is the internet of things?

The Internet of Things (IoT) is a concept that defines a world in which all objects (cars, apps, lighting systems, mobile devices, laptops, etc.) are connected to each other via the Internet. (Marwedel, P. (2021.)

The Internet of Things doesn't just rely on computers to exist. Every object, even the human body, can become part of the Internet of Things if it is equipped with certain electronic components. These parts certainly vary depending on what the object needs to perform, but they fall into two broad categories:

- the object must be able to capture data, usually via sensors.
- the object must be able to transmit this data elsewhere via the Internet.

A sensor and a connection, therefore, are the two primary electronic parts of an object included in the Internet of Things.(Liu, L., Guo, X., & Lee, C. (2021.)

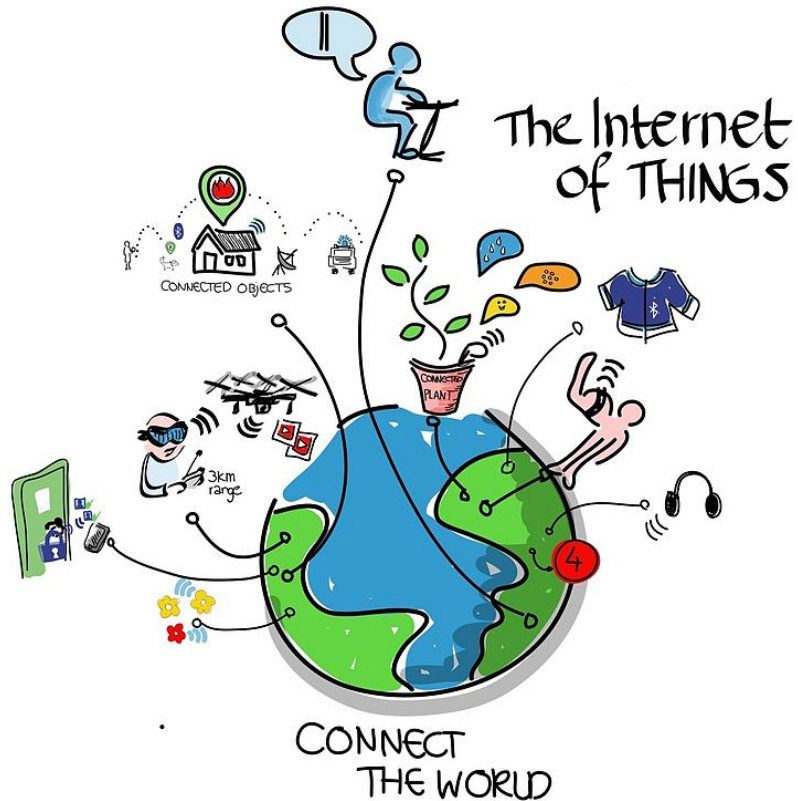
According to industry analysts, in 2015 there were between 10 and 20 billion objects connected to the Internet. This ecosystem of connected objects forms the foundation of the Internet of Things. The number of connected objects in 2015 was small compared to how many will be connected in 2020.

Estimates vary, but it is generally predicted that the number of connected objects by 2020 will be 40-50 billion, including everything from pens to housing, machinery and industrial equipment.

The graphical representation in figure 1 shows the objects that can be connected to each other via the Internet of Things, but it also shows that the Internet of Things

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not only includes, but places on a central position, the human subject. (Tun, S. Y. Y., Madanian, S., & Mirza, F. (2021)



2. Photo 2. Internet of things, Photo source: <https://nextgate.ro/internetul-tuturor-lucruilor-internet-of-things-iot/>

According to a study by RAND Europe, the annual global economic potential of the Internet of Things in all sectors concerned IoT has become one of the most challenging research topics in the field of ICT. The Internet of Things offers an amazing number of business opportunities, many of which are known only to

experts in the field. In general, the media focuses on the segment of the consumer Internet of Things.(Elghaish, F., Hosseini, M. R., Matarneh, S., Talebi, S., Wu, S., Martek, I., ... & Ghodrati, N. (2021)

There is no doubt that consumer products have an important place in the universe of the Internet of Things, but they still remain a niche. Businesses that are not involved in the consumer market may mistakenly believe that the Internet of Things does not has something to offer them. However, the Internet of Things will have profound implications for all levels of business operations, regardless of industry type. The problems that companies have been facing for decades will diminish significantly and, in many cases, disappear .(Ghaleb, T. A., da Costa, D. A., & Zou, Y. (2021)

3. The central position of the human subject

Always placing the human subject in a central position, as a beneficiary, but also as a coordinator of operations carried out using the Internet of Things, then we refer to the disappearance of certain problems that companies face in the current context, we actually refer to solving certain problems also of the human resource, as an increasingly precarious labor force, but also as a capital that can be used to the maximum parameters, if the process of selection, training and distribution of this resource were carried out correctly. (Nasar, N., Ray, S., Umer, S., & Mohan Pandey, H. (2021)

Here, too, comes the overwhelming role that the application of the principles of neurolinguistics could play in the communication between the human individual and the Internet, as an integral part of his life. But in order to be effective, it must also take into account the principles of neurolinguistics, infact to evaluate the emotional states, as well as the vast and deep cognitive experience of the subject).(Liu, Y., Zhang, W., Zhang, Q., & Norouzi, M. (2021)

Neurolinguistics is, in fact, a "humanistic" science, as it considers that each individual is "equipped" from the beginning with all the skills and abilities he needs in order to modulate his own behavior.(Chashina, Z. V., Mochalov, E. V., Gryzhankova, M. Y., Zetkina, I. A., & Emelkina, I. V. (2021)

Through this new "humanist movement", we return in other words to an era of absolute sincerity, in which the subject makes decisions based on strict and correct assessments, and the partner, even connected online, beyond a summary assessment, based on analysis of obvious data, can also perform a deeper analysis, including strategies developed at the mental level, translated by each individual

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who functions as an autonomous cyber system, through emotions, feelings and even, recording certain changes in the brain.(Aldhaferi, T. A., Kulkarni, S. B., & Bhise, P. R. (2021)

Basically, the biggest mistake is to place the human individual outside the paradigm of the functioning of the Internet of Things, when in fact he is an integral part and central element of the whole system.

What does neurolinguistics bring in this regard? It is this approach of the human body as a cybernetic system, or as an element of a cybernetic system, in the case of its integration in the cycle of communication with the Internet of Things, as well as the placement of the human individual at the center of this system.

4. Applications of neurolinguistics in improving the communication of the Internet of Things with the human individual

Any event in one part of a cybernetic system (the human being, integrated into the Internet of Things system) will necessarily affect, in one way or another, all other parts of that system. Or, extending the neurolinguistic experience to the functioning of the cybernetic system as a whole, which also implies the existence of an internet of things in human existence, we can deduce that the effects of different parts of the system on each other can be modeled, predicted and changed.(Marwedel, P. (2021)

Or from this hypothesis of modeling, prediction and change, can derive many possibilities of application of technologies that involve neurolinguistics in the process of communication between the human individual and the Internet of Things. For example, by eliminating the need to execute voice or preset commands, through cumbersome communication with an airtight and external system, the human individual, part of this system, could communicate through their own reactions, certain needs. (Zhan, K. (2021)

The temperature of the house could be regulated by a simple assessment of the level of energy comfort of the body of the individual or individuals living in that habitat("Internet of things is perceived today as a key opportunity for commercial development in different sectors of activities, the new IoT Smart home ecosystem, is based on a lot of sensors and actuators that can make life in the home more pleasant and more safety for its occupant, in this article we distinguish the communication protocols used in this IoT ecosystem, their modes of operation, and we analyze their performance.", Zemrane, H., Baddi, Y., & Hasbi, A. (2020). Internet of things smart home ecosystem), the assessment of physiological

reactions (blinking, response speed, changing physiognomy, etc.) could help implement systems, parental control (the child no longer has to simply confirm his age in order to have access to certain information that could negatively influence him, but will have to communicate with the device, responding to certain stimuli, without being able to and hide the conditions caused by viewing images or accessing games), or could help the staff selection process (comparative assessment of the candidate's reactions will help the employer to obtain important information about the veracity of the information provided) and last but not least, could help stop bank fraud.(Singh, S., Ra, I. H., Meng, W., Kaur, M., & Cho, G. H. (2019)

5. Opportunities and risks

The growth rate of e-commerce sales is expected to be at an incredible level of 265%. In 2017, e-commerce retail sales amounted to \$ 2.3 trillion, and by 2021 - just four years later - revenues are estimated to reach \$ 4.88 trillion.

All opportunities present a certain level of risk, and when it comes to the Internet of Things, the risks are just as important as the rewards. For example, any object connected to the Internet is an entry point through which cybercriminals can enter a company's system.(Bertino, E., & Islam, N. (2017)

In this context, stopping bank fraud could facilitate and encourage online commerce, protecting the individual and discouraging unwanted initiatives.

Making a virtual "fingerprint" of the individual will help the quantitative and comparative assessment of his reactions, in relation to various stimulus emitted by the cyber system of which he is part.(Sadeeq, M. A., Zeebaree, S. R., Qashi, R., Ahmed, S. H., & Jacksi, K. (2018, October)

The concepts of connected health system and smart medical devices have enormous potential, not only for organizations but also for the well-being of people in general. New types of tools for real-time health monitoring and improvement of medical decisions based on large patient data sets are some of the expected benefits.(Kishor, A., & Chakraborty, C. (2021).

In this sense, an application of overwhelming importance is the one that allows connecting the individual's medical file to the emergency system, interpreting the messages issued by his body and transmitting them to the emergency system, so that the life of the individual can be saved in extreme situations.

The predictability of the system refers to its possibility to block certain operations and certain subjects considered dangerous or suspicious, but also to the prevention of crisis situations, in the case of patients with chronic disorders.

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Here is how the intimate communication of the cybernetic system represented by the human body with the cybernetic system of the Internet of Things, can improve the virtual experience, leading to the creation of useful applications and control systems absolutely necessary for the continuation of life, in the form we imposes the present reality.

However, the obstacle of misinterpreting messages, both linguistic and neurolinguistic, should not be underestimated.(Ferreira, F. (2021)

From a linguistic point of view, for individuals from other parts of the globe, the obstacle is the obligation to have a thorough knowledge of English, this being considered a sinecvanon condition of using most applications.

It could be useful, in this sense, to represent functions through explicit icons and describe them in several universal languages, because we can only talk about the Internet of Things, in the context of the possibility of accessing this system globally, and therefore from individuals who they are not necessarily English speakers.

We do not deny that English is the language of modern technology and commerce, but this factor should not influence, in the opinion of the author of this study, the access of individuals to various facilities and the development of systems belonging to the future.(Li, Y. (2021)

6. Technological challenges

With all the advantages offered, which seem to come from a Sience Fiction movie script, the Internet of Things also faces a number of technological challenges.

Thus, according to the article “THE INTERNET OF THINGS - A NEW PARADIGM OF INTERNET CONNECTION”, published in the Romanian Journal of Informatics and Automation, vol. 27, no. 1/2017, there are vulnerabilities of a technical nature, identified as:

- Scalability: The Internet of Things has a wider potential global scope than the conventional Internet.

Things, however, cooperate mainly in a local environment. So, basic functionalities such as communication and service discovery need to work just as efficiently in both small and large-scale environments;

- Acceptance and operation: Smart objects used on a daily basis should not be perceived as computers that require their users to configure and adapt them to certain situations. Mobile things, which are often used only sporadically, need to

establish connections spontaneously and organize and configure themselves to suit their specific environment;

- Interoperability: just as the world of physical things is extremely diverse, in the Internet of Things each type of intelligent object has different capabilities for processing and communicating information.

- Software complexity: although smart object software systems operate with minimal resources, smart object management, as well as conventional integrated systems, requires a more extensive software infrastructure on the network and in the background servers;

- Data volumes: while some scenarios involve short, low-frequency communication, others, such as sensor networks, logistics, and large-scale "real-world awareness" scenarios require large volumes of data on central nodes or servers. network;

- Interpretation of data: supporting the users of intelligent objects involves interpreting as accurately as possible the context determined by sensors at the local level. In order for service providers to take advantage of the disparate data that will be generated, it must be possible to draw some generalizable conclusions from the interpreted data from the sensors.

However, generating useful information from raw data from sensors that can trigger a subsequent action is by no means an easy action;

- Security and confidentiality of personal data: in addition to the security and protection of the Internet, familiar to most users (such as the confidentiality of communications, the authenticity and credibility of communication partners, and the integrity of messages), there are other requirements that are important in the Internet of Things. For example, a user may allow things to have selective access to certain services or may prevent them from communicating with other things at certain times or in an uncontrolled manner; commercial transactions involving smart objects should be protected against unauthorized access by competitors to the market;

- Error tolerance: the world of things is much more dynamic and mobile than the world of computers, there are contexts that change quickly and in unexpected ways.

However, users want to rely on things that work properly. Structuring the Internet of Things in a robust and reliable way requires multilevel redundancy and the ability to automatically adapt to changed conditions;

- Power supply: things are usually not powered by the grid, so their intelligence must be powered by a self-sufficient source of energy. Although passive RFID transponders do not need their own power source, their functionality and range of

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communications are very limited. In many scenarios, mains batteries and power supplies are problematic because of their size and weight, and especially because of maintenance requirements. Unfortunately, battery technology is progressing relatively slowly, and "energy harvesting", ie the generation of electricity from the environment (using differences in temperature, vibration, air currents, light, etc.), is not yet sufficiently developed to meet the energy requirements of current electronic systems in most application scenarios. There is hope for future low-power processors and communications units for integrated systems that can run on much less power. Energy saving is an important factor not only in hardware and system architecture, but also in software, for example, the implementation of the protocol stack, where each transport byte will have to justify its existence.

7. Solutions

There are already wireless sensors without batteries that can transmit their information from a distance of a few meters. Like RFID systems, they get the energy they need, either remotely or from the measurement process itself, for example by using piezoelectric or pyroelectric materials to measure pressure and temperature; (Takahashi, R., Yukita, W., Sasatani, T., Yokota, T., Someya, T., & Kawahara, Y. (2021)

- Interaction and short-range communications: Wireless communications within a few centimeters are sufficient, for example, if one object is touched by another object. If such short distances are involved, very little energy is required, the approach is simplified (often there is only one possible destination) and there is usually no risk of interception. NFC is an example of this type of communication. Like RFID, it uses inductive coupling. During communication, one partner is in active mode and the other can be in passive mode. Active NFC units are small enough to be used in mobile phones; passive units are similar to RFID transponders and are significantly smaller, cheaper and do not need their own power source;

- Wireless communications: in terms of energy, wireless technologies such as GSM, UMTS, Wi-Fi and Bluetooth are much less appropriate; Newer WPAN standards such as ZigBee and others still under development may have narrower bandwidth, but they use significantly less power.

On the other hand, there are risks regarding the misinterpretation of the messages issued by the human individual at the neurolinguistic level.(Katan, D., & Taibi, M. (2021).

In this sense, there are risks related to the misinterpretation of body temperature and the transmission of the message that the evaluated organism is ill or feels a

state of discomfort. Here comes the need for quantitative evaluation of the collected data, because the frequent blinking or the change of breathing rhythm, can transmit different messages that induce the risk of an erroneous evaluation of the individual's condition. In the pandemic context, this initial online health assessment is becoming essential. (Salvatore, C., Roberta, F., Angela, D. L., Cesare, P., Alfredo, C., Giuliano, G., ... & Vittorio, M. (2021).

Conclusion

From a technical point of view, the correct application and capitalization of all the advantages that the involvement of neurolinguistics could bring in the complex communication that involves the integration of the human body in the IoT cybernetic system, the discovery of new methods to integrate the body in the cybernetic system that includes all the necessary elements and the security and improvement of the already existing communication systems, including the ways of evaluating the messages issued by the human individual, at linguistic and neurolinguistic level.

IoT is an emerging technology that creates a massive network of things communicating with one another. It encompasses a broad set of technologies, hardware and software stacks. Data, humans, devices and communication are critical elements of an IoT ecosystem. For a developing country such as India, which has quite limited technology penetration at the national level, an efficient architecture for IoT needs to be based on present technology advances, capabilities that provide affordable and sustainable solution, and entrepreneurial and social value. Smart city is an important concept for the development of any nation. It is crucial for government of India to offer different services to its citizens and IoT helps significantly to achieve this purpose. It will be possible to communicate transparently and seamlessly with large number of homogeneous and heterogeneous systems, while having selected access to data for designing numerous digital services.

The purpose of smart city is to enhance the optimal utilization of scarce resources and improve the resident's quality of live. The smart cities employed Internet of Things (IoT) to create a sustainable urban life. The IoT devices such as sensors, actuators, and smartphones in the smart cities generate data. The data generated from the smart cities are subjected to analytics to gain insight and discover new knowledge for improving the efficiency and effectiveness of the smart cities. Recently, the application of deep learning in smart cities has gained a

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tremendous attention from the research community. However, despite raise in popularity and achievements made by deep learning in solving problems in smart cities, no survey has been dedicated mainly on the application of deep learning in smart cities to show recent progress and direction for future development.

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REVIVING PRODUCTIVITY GROWTH IN URBAN ECONOMIES

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Abstract

The COVID-19 pandemic is affecting productivity growth in many ways (e.g. through human capital, investment, resource reallocation, frictions to global value chains, etc.) and is likely to leave scars. Fostering digitalisation and intangible investment can help the recovery thanks to their overall positive impact on productivity. Key policies to unlock productivity growth include: high-quality investments in innovation, human capital and infrastructure, well-functioning labour and product markets to facilitate resource reallocation also across sectors, to absorb the shock of the crisis, facilitating access to finance and liquidity, and a supportive business environment. There must be strong value added in international cooperation for productivity-enhancing policies: international cooperation can allow the sharing of information on lessons learnt and best practices. Moreover, common efforts and joint initiatives (for example, in investment) can maximise the impact of the measures and the positive spillovers.

Keywords: *productivity growth; intangible investments; digitalisation; innovation.*

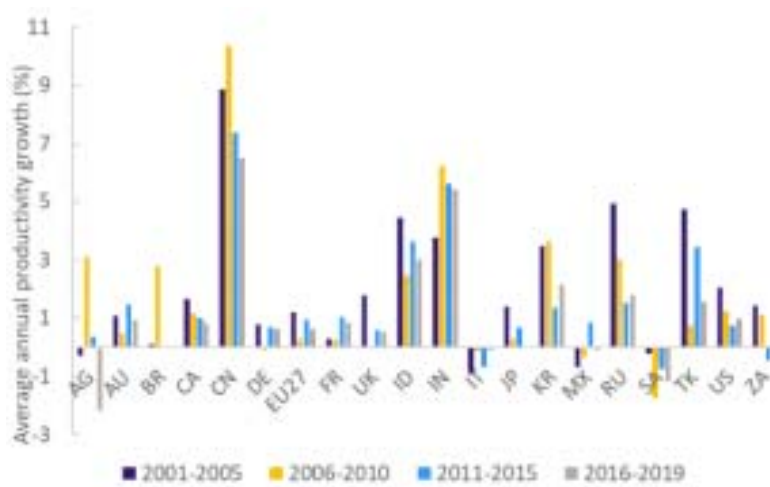
JEL Classification: E20, E22, E24, E30, E60, E66

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Introduction

Productivity growth has been slowing down in recent decades. Both labour productivity and total factor productivity (TFP) growth have been sluggish since the early 2000s, and in some regions, like the European Union, for even longer. Since labour productivity growth results from TFP growth and capital accumulation, the fact that also TFP growth has been declining implies that low labour productivity growth is not only due to weak investments. Across the G20 countries, annual average labour productivity growth has been trending downwards since the beginning of the 2000s in advanced and emerging market economies alike, although with somewhat different patterns (Graph. 1).

Graph. 1: Average annual labour productivity growth G20, 2000-2019



Source: World Bank

In addition, the COVID-19 pandemic and associated economic crisis might have a long-lasting impact on productivity growth, due to the related shocks on digitalisation, investment, labour, education and global supply chains, to name but a few, that will affect productivity with different signs.

Productivity growth is a key driver of prosperity and convergence. Increasing productivity is crucial from a policy perspective since it is the main driver of GDP

per capita growth. With ageing societies, the role of increasing productivity in improving living standards is even more relevant.

The economic literature has extensively investigated the reasons behind weak productivity growth, and no clear consensus has emerged. The jury is still out on how much of the slowdown can be attributed to structural as opposed to temporary factors. The main debated causes include a weaker impact on productivity of recent IT-driven innovation cycles, the gradual adoption of the new technologies – which would require complementary investments –, a slower pace of technological change, declining growth rates of skill acquisition in advanced economies (as the gains from better education run their course), and even measurement issues. Since the global financial crisis, these headwinds have been compounded by low investment coupled with high corporate saving. The COVID-19 crisis has increased uncertainty, placed a strain on corporate liquidity and led to a decline in corporate investment that might further depress productivity growth in the future. [Banerjee et al., 2020]

Whether the productivity growth slowdown is temporary or structural, or a combination of both, its implications are a cause of policy concern. Lower productivity growth is associated with lower business dynamism and an increased divergence between the most and the least productive firms. This divergence, in turn, is associated to higher wage inequality and market concentration and even more so in sectors providing information and communication technology (ICT) services and industries intensive in intangible assets. Population ageing comes along with increasing health and pension spending, putting a strain on public finances that productivity growth can mitigate (European Commission 2018). The COVID-19 shock and its impact on productivity, as well as the acceleration in the use of digital services by the private and public sector, make these challenges even more relevant. This explains the focus on the digital transition of the EU's long-term budget for the period 2021-2027, coupled with Next Generation EU - the temporary instrument designed to boost the recovery and facilitate the transitions towards a greener, more digital and just economy.

1. The COVID-19 pandemic and productivity growth

The greater take-up of digital technologies due to the COVID-19 pandemic may accelerate the structural change the pandemic has triggered and can provide both opportunities and challenges for urban economies.

COVID-19 crisis on productivity growth can be grouped into: (1) within-firm productivity growth, (2) resource reallocation across firms (e.g. firms in the same

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sector that can weather this crisis as opposed to the ones that will be forced to exit the market), and (3) resource reallocation across sectors (see below Table 1).

Table 1. Summary of the channels by which COVID-19 affects productivity growth

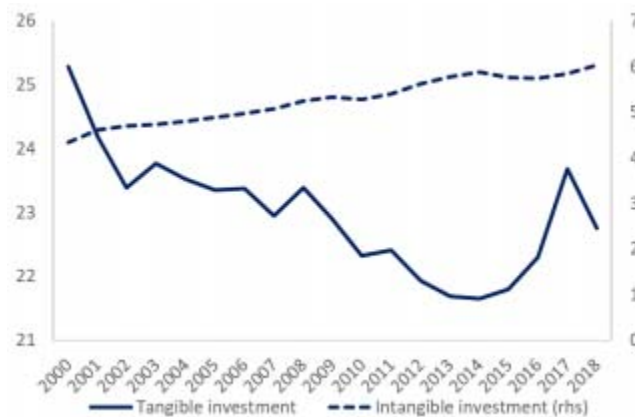
Channels	Potential positive drivers	Potential negative drivers	
<i>Within-firm reallocation</i>	Hysteresis and human capital	Increase in digital take-up by individuals; incentive to training from reduced working hours	Labour hoarding; erosion in firm-specific human capital; deterioration of workers' skills in case of slow reallocation; disruptions to schooling and training; missing positive spillovers in the workplace.
	Investment		Falling investment due negative macroeconomic prospects
	Business-specific intangible assets		Business closures destroy e.g. buyer-supplier trust, employer-employee relations, organisational effectiveness
	Innovation and digitalisation	Digitalisation, e-commerce, e-government and e-health, new business models, higher automation, teleworking diffusing at large scale	Distraction, addiction and other negative effects of digitalisation
	Frictions in global value chains		Higher transaction costs; repatriation of activities might reduce efficiency, curtailed cross-country labour mobility.
	Macroeconomic burden		Fiscal/monetary consolidation in the medium term
<i>Reallocation across firms</i>	Firm size	Composition effect (exit of smaller, less productive firms)	
	Firm churning	Higher firm churning as low-productive firms exit the market and more productive firms enter or expand.	Higher concentration/lower competition, decline in early-stage venture capital reduces innovative start-ups, sizeable public support might go to "zombie" firms
	Financial constraints		Credit crunch risk, viable illiquid firms becoming insolvent
<i>Reallocation across sectors</i>	Changes in sectors' shares	Cross-sector reallocation of economic activity as some sectors shrink and others expand. The sign is difficult to predict due to differences across sectors and countries.	

Source: European Commission

2. Digitalisation, intangible investment and productivity growth

One of the defining features of the digital economy is the shift away from physical capital towards intangible capital. Intangible assets include computerised information (software, databases), innovative property (R&D, mineral exploration, copyrights and trademarks, product development, architectural and engineering designs) and economic competences (advertising, market research, training, management consulting). [Corrado et al., 2009] Intangible investment is key to enhance firms' innovation performance and productivity growth (Bontempi and Mairesse, 2015). R&D investment and digital technologies are also at the core of the response to the COVID-19 pandemic, as also discussed in the previous sections. However, the ability of an economy to invest in intangibles and innovate depends on country-specific characteristics, including the countries' economic structure and economic policies, institutions and governance.

Graph. 2: Intangible vs. tangible investments in selected G20 countries



Source: OECD

Intangible investment in G20 countries has been increasing relative to GDP over the period 2000- 2018, and it was more resilient to the global financial crisis than tangible investment. Whereas, across the G20 countries for which data are available, intangible investment represents about 6% of GDP compared to 23% for tangible investment (i.e. dwellings, infrastructure investments, machinery and equipment), the share of intangible investment in GDP has been increasing

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between 2000 and 2018. The share of tangible investment, instead, declined markedly over the same period (Graph 2).

R&D investment, digital investment and skills acquisition are at the core of the productivity and competitiveness of an economy. R&D investment boosts innovation, by helping firms to develop new products, services or processes, or to improve existing ones (Crépon et al. 1998). ICT investment has a decisive effect on both the propensity to innovate and productivity gains. Once a new technology is produced, its diffusion throughout the economy and across firms is a key productivity driver, and skills acquisition is necessary for innovation absorption and diffusion (Diaz-Chao et al. 2015). It may be worth noting that half of the investment in intangibles is not accounted for in national accounts, e.g. advertising, market research and branding; design and product developments; purchased organisational capital; vocational training; and own-account organisational capital. Some estimates attribute to non-national accounts intangibles the bulk of productivity growth due to investment in intangibles in the business economy.¹

Intangible assets have some specific characteristics affecting their financing and their use. Since they present informational asymmetries and large sunk costs, and are harder to pledge as collaterals, intangible investments face more financial constraints than tangible assets, and rely more on internal rather than external capital. Easing financing conditions may thus spur firms' productivity and more efficient resource allocation in intangible-intensive sectors.

The combination of declining aggregate productivity growth and progress in ICT in recent decades has given rise to the "productivity paradox" (Solow 1987). Contrary to what one would expect a priori, in fact, economic studies, especially those using data at the aggregate or sectoral level, have failed to find a strong positive empirical relationship between digitalisation and productivity growth.²

Aggregate developments hide important dynamics at the micro level. The presence of strong economies of scope favours the development of digital networks and gives incumbents strong competitive advantage. Productivity dispersion across firms has increased, with a few frontier firms becoming more productive and a

¹ See section 4.2 in Sanchez Martinez et al. (2021)

² The economic literature has provided a number of explanations for this paradox. Van Ark (2016) suggested that productivity benefits from ICT-related innovations do not yet show up in aggregate figures, and productivity effects will show up in the "deployment phase". Ahmad and Schreyer (2016) mentioned possible measurement issues including prices in the services sector.

large mass of laggard firms with dismal productivity growth. This suggests that technological diffusion has been weak. Divergence across firms has been stronger in highly digitalised industries, where winner-takes-all dynamics have compounded the rise of global technological champions, with increasing market concentration and mark-ups.

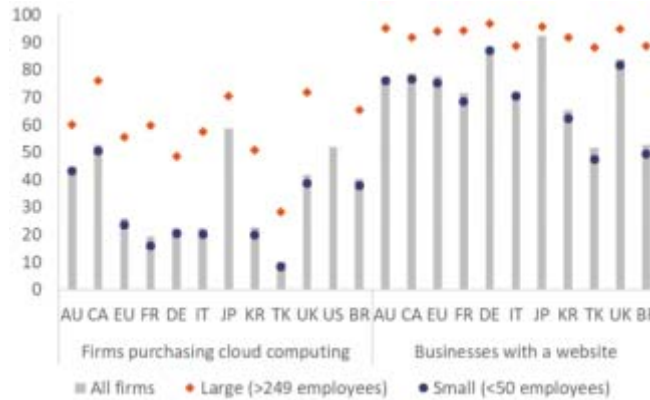
Digital technologies support productivity in combination with organisational capital, management skills, R&D and intangible investments, human capital and ICT related skills, and a supportive regulatory environment. Different digital technologies are complementary, and productivity gains from digitalisation can show up with a lag. The relationship between digitalisation and productivity also tends to be higher in manufacturing than in services. Industries that are intensive in routine tasks present a stronger effect of digitalisation on productivity, which suggests that digital adoption can streamline production processes, reinforcing the view that it is a substitute for routine labour input.

The productivity gains from digitalisation were captured by few, highly productive firms. Digital adoption is consistently higher in large firms than it is in SMEs (Graph 3). Economic research has also found that the relationship between the adoption of digital technologies and productivity is stronger for highly productive firms, which are likely to benefit from organisational and technical skills. This implies that digitalisation might exacerbate the dispersion in firms' outcomes. Moreover, it confirms the view that there is an issue of technological diffusion. The digital revolution is thus creating new markets and changing existing markets in a way that challenges both competition policy and data protection, though increasing corporate market power in recent years has been rather a feature of advanced economies than emerging market economies (IMF 2018).

Digitalisation affects the demand for skills, and the lack of such skills can prevent countries from reaping all the benefits of digitalisation. An immediate consequence of digitalisation is higher demand for digital and technology-related skills. In this respect, science, technology, engineering and mathematics (STEM) skills, including ICT skills, are crucial. The demand for digital skills created by the digital transformation is however higher, since the widespread use of digital technologies makes some level of digital skills necessary for most jobs. This is the case for certain routine tasks that are more easily automated (e.g. accounting and clerical work). In addition, to complement technology and to adapt to changes in tasks and jobs, workers need a broad set of skills, which include non-cognitive ones like communication, managing skills, creativity, and critical thinking, the shortage of which may hinder the positive effects of digitalisation on productivity.

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Graph 3: Digital adoption of businesses across the G20



Source: OECD

Higher penetration of digital technologies also has labour market implications. Increasing technological adoption, including the development of artificial intelligence (AI), can displace jobs, but is also able to create new jobs. The displacement effect is stronger in routine tasks-intensive industries. At the same time, on balance, new technologies do not necessarily destroy jobs, since the overall effects of technologies on productivity and the overall wealth also create jobs elsewhere. Instead, most likely digitalisation will have an impact on the distribution of earnings across sectors and skills, and the size of employment across sectors.

3. Digital platforms

Digital platforms contribute to innovation and productivity growth. They make learning, sharing, and profiting from good ideas and information easier and faster. A clear example is the app stores, which offer application programming interfaces and software development kits. By making it easier for developers to create and profit from ideas and innovations, app stores raise the incentive for app developers to invest in innovation. The platforms themselves can be major innovators too, including by generating new and improved business models. In addition, digital platforms enhance productivity by helping economies to allocate resources faster

and more efficiently, mainly because of the enhanced competitive pressure that they bring. Platforms have been proved to be efficient at matching one side of a market with another side, in so doing putting resources to more productive uses.

Via stronger innovation and productivity, digital platforms could contribute to economic growth. First, the greater market access for retailers made possible by digital platforms translates into those retailers being able to contribute more to GDP, notably to the benefit of small and medium-sized enterprises (SMEs). Second, the greater competition in both input and output markets leads to lower prices as well as greater production and consumption. But there is a fundamental difference between types of platforms. “Aggregator” platforms that connect existing service providers to consumers (e.g. Booking.com, TheFork) tend to push up productivity, profits and employment of existing service firms. In contrast, more disruptive platforms that enable new types of providers to compete with existing ones (e.g. Uber, Airbnb) were not found to have had a significant effect on the productivity of existing providers, but tended to reduce their mark-ups (which is positive for excessively concentrated markets), employment and wages.

The relative novelty of digital platforms raises a number of questions and challenges both on the demand and supply side. On the supply side, digital platforms affect the organisation of production, including the organisation of work (OECD 2016). Keeping transaction costs low, digital platforms enable new suppliers to enter markets previously dominated by few large firms. In addition, workers in digital platform markets often benefit from low entry barriers and high flexibility. On the flip side, pay, job security, social protection, and upskilling options tend to vary greatly and may be poorer for people in a digital platform environment than for people in the same or similar sectors in the ‘traditional’ economy. In connection with this, there remain questions about the employment legal status of such people. A number of rulings in European courts have deemed these to be ‘false selfemployed’. This might have consequences for those platforms’ business models which are found to be based on misclassification of workers as independent contractors, rather than employees. On the demand side, digital platforms have induced new consumption behaviours and fuelled trade in goods and services among peers. In contrast to traditional markets, consumers often take on a more active role in digital platforms, for example by providing reviews of or by producing and/or selling goods or services themselves. While ratings and reviews may support consumers’ choices, peer transactions challenge traditional consumer protection frameworks, raising additional policy questions (OECD 2017).

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Some platforms may raise competition and privacy concerns. Beyond delivering innovative services, algorithms and big data may be used to increase market power and enable anti-competitive conduct. Given the characteristics of platforms, digital networks, and the data economy, it can be claimed that a number of established concepts, approaches and methodologies might need to be adjusted, concerning e.g. market definition, the measure of market power, and the competition framework. At the same time, high market concentration alone does not necessarily imply less competition. By the nature of digital platforms, size may at times bring benefits to users. For example, the quality of a search algorithm increases as more people use it. Still, few times have new entrants displaced or seriously challenged major platforms, suggesting challenges to competition in the market once competition for the market has taken place. Competition issues due to abuse of dominant position have also been raised concerning the activity of app stores.³

3. Key policies for productivity growth

Appropriate and well-designed crisis and post-crisis policies are key to boost productivity and fully reap the gains from digitalisation. In the EU, the investments and structural reforms embedded in the national recovery and resilience plans under “Next Generation EU” will help Member States address key challenges. They will also support the digital transition, since a minimum of 20% of the funds under the Recovery and Resilience facility will be geared to this objective.

There is no single silver bullet policy for unlocking productivity growth, but rather there are productivity-friendly policy principles, requiring implementation at various government levels. Challenges to productivity growth and the optimal policy mix to enhance productivity. Broadly speaking, the key productivity drivers are (i) investments in innovation and infrastructure; (ii) human capital; (iii) digitalisation; (iv) dynamic and supportive business environment.

Investment in high-quality network infrastructure and innovation can have positive multiplier effects provided there is no overprovision (European Commission 2014). The transition towards greener and more digitalised economies will also require substantial investments. Lack of competition in network industries harms firms’ competitiveness and growth in the network industry and among providers and customers of the network. Public policies should thus support public investment, also through publicprivate partnerships, and leverage private resources

³ See for example https://ec.europa.eu/commission/presscorner/detail/en/i_p_21_2061

while improving the quality and the efficiency of infrastructure investment. Improving the quality and composition of public finance would be warranted.

Knowledge production and diffusion are key to boost productivity growth. Policies should foster intangible investment, while promoting a supportive business environment and an innovation-friendly regulatory framework. This includes striking a balance between promoting flexible and competitive markets and modernising intellectual property rights. In turn, investment in intangible capital, including education and life-long learning, can speed up knowledge creation and diffusion. Intangible investments could be fostered through direct public support (e.g. public R&D), tailored taxation schemes, public procurement and improving links between academia, industry, citizens and policymakers.

Policy should maximise the potential benefits of digitalisation on productivity. First, appropriate investments in digitalisation are important. These include broader access to broadband connection, as well as investments in cloud computing services and other resource management services, which can unlock firm productivity. Second, effective education and training that provide attention to developing all the relevant cognitive and noncognitive skills in education and training curricula at all levels contribute to the economy's readiness to adapt to technological transformations.

Adequate and efficient investment in education is key to innovation and productivity growth. As job skills requirements are on the rise, partly because of digitalisation, productivity will be more linked with education than in the past. Highquality and inclusive education programs, as well as lifelong learning, can equip the workforce with the skills needed for the digital transition, and reduce skills gaps and mismatches. Training should also target the management of SMEs to facilitate adoption of new technologies and adaptation of production processes. Investments in human capital will also be crucial to ensure that the educational fallout due to the COVID-19 containment does not turn into a permanent drag for some groups of students. This is relevant since the forced move to distance learning may have exacerbated inequalities. In July 2020, the European Commission launched the European Skills Agenda, which acknowledges the higher demand for digital skills.

The digitalisation of the economy and its acceleration due to COVID-19 present challenges that need to be addressed with the appropriate policies. These challenges are in particular the increasing market concentration in sectors with high digital content and the issue of data protection. The latter is even more important as

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both governments and firms have quickly increased their activities online due to the COVID-19 pandemic. The current crisis has especially benefitted some digital companies, which have increased their market shares and profits while most traditional businesses were struggling. In addition, also for a matter of fairness, ensuring that all companies, including digital multinational ones, pay their share of taxes is also a priority.

These issues also concern the development of online platforms. Digital platforms are increasingly important for the economy, as discussed in the previous section. Finding the balance between consumer protection, data privacy and access to data to foster competition is crucial. Policy should also ensure a fair relation between large platforms and their small business users to avoid abuses of dominance, where such market position exists, or to tackle behaviour by gatekeeper platforms that could undermine contestability of markets in the digital sector or is unfair. The Commission proposed the Digital Markets Act with a series of obligations and prohibitions on such gatekeeper platforms to address some of these issues. At the same time, the Commission will continue with the vigorous enforcement of EU competition rules, which the Digital Markets Act complements. It is also necessary to build up statistics that are able to capture the differences among digital platforms and their evolution, with a view to improving collective decision-making.

In December 2020, the European Commission proposed a comprehensive set of new rules for digital services that operate in the EU that will foster innovation, growth and competitiveness and will provide users with new, better and reliable online services. The Digital Services Act and the Digital Markets Act are two draft Regulations that aim at (i) a safer and fairer online environment for users; (ii) a level playing field that will allow innovative digital businesses to grow and compete globally. The draft Regulations provide a benchmark for regulating digital services with clear obligations tailored to the societal and economic importance of the online platforms and their availability and reach to consumers. The new rules support the scaling up of smaller platforms, SMEs and start-ups, facilitate access to customers across the single market while lowering compliance costs and prohibit unfair conditions; they also tackle dissemination of illegal content and the sale of illegal goods and services through platforms, expected to be partially substituted by legal activities and fostering growth for lawful businesses. They will therefore contribute to foster innovation and the growth of digitalisation across the EU while tackling unfair behaviour by gatekeeper platforms that could undermine

contestability of markets in the digital sector. Finally, the new rules provide a framework for the provision of data from very large online platforms to vetted researchers and public authorities, which is critical for investigations on the online systemic societal risks as well as for risk mitigation.

Conclusions

A supportive business environment facilitates business dynamism (Calvino et al. 2020). Reforms that can unlock productivity growth include lowering the barriers to firm entry, growth and exit, including regulatory red tape; promoting openness to trade and foreign direct investment; implementing strong competition law and policy, including wellcalibrated intellectual property rights, and making the labour and product market more responsive to economic conditions. Increasing public administration efficiency is also crucial, e.g. by promoting effective public procurement and legislative simplification, enhancing transparency, and increasing the availability of e-government services.

Access to finance is important, especially for young and innovative firms and to prevent liquidity issues to turn into solvency problems. Lack of sources of finance alternative to bank financing reduce investment possibilities, hindering innovation and firm growth. Facilitating access to finance also implies fostering the development of sources of finance alternative to banking (e.g. crowdfunding, venture capital, etc.). Financial systems should ensure efficient capital allocation and prevent bubbles. Easing access to finance and liquidity to viable firms is especially relevant to overcome the COVID-19-related crisis.

Productivity-enhancing policies have a strong country dimension but there are benefits from international cooperation. Challenges to productivity growth are, to a certain extent, country-specific and many of the policies described in this note are defined by national regulations and preferences. However, given the high international economic and financial integration and the borderless nature of technological progress, international cooperation can contribute to maximise the benefits from productivity-enhancing policies.

Here are some avenues to work on for international cooperation, in particular (i) knowledge sharing (i.e. sharing best practices); (ii) improved coordination (e.g. developing new and internationally comparable relevant statistics); and (iii) common efforts (e.g. joint initiatives for investment in R&D and frontier innovation, measures for knowledge diffusion).

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**A STUDY OF THE EFFECT OF OCCUPATIONAL
HEALTH AND SAFETY AND WORK ENVIRONMENT
ON EMPLOYEES' JOB PERFORMANCE
IN A MANUFACTURING ORGANISATION OF LAGOS
METROPOLIS, LAGOS, NIGERIA**

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Abstract

The study examined the effect of occupational health and safety and work environment on the employees' job performance using manufacturing organisation in Lagos Metropolis as the unit of analysis. aside this, the study identified the relationship among occupational health and safety, work environment and employees' job performance and singles out the dominant factor that contributed more in terms of potency to factors affecting employees' job performance. Research questionnaire was the instrument used in data collection which was administered to 189 respondents while convenience and random sampling techniques were applied. The result shows that each of the variables i.e. occupational health and safety and work environment are significant at $p < 0.05$ where $F_c = 39.494 > F_i = 2.821$ which was further supported by the result R^2 of 73% responsible for what happens in employees' job performance and work environment with the higher value of $\beta = 0.308$ was found to contribute more as a factor to explain variables with potency to affect employees' job performance. It

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was concluded that high premium should be placed on the work environment and occupational health and safety of employees and recommended that there is need to create a family-like atmosphere to work environment friendly and safe.

Keywords: *human resource; health and safety; work environment; job performance; Factory Acts; ILO.*

JEL Classification: J28, K32, L16

1. Introduction

Every business organisation is made up of people known as human resource who are expected to bring their skills and experience to fore in order to ensure high performance in the level of business activities such that the organisation will attain its primary objective of profit maximization. Increasing level of performance in the organisation will translate to increase in job performance on the part of the employees i.e., a situation where everyone will carry out various tasks assigned based on competence efficiently and effectively and this performance is a function of many variables (Akbar, 2013). Organisation can increase the level of their organisational output where there is industrial peace and harmony, good relationship between the management and employees, friendly or family - like atmosphere, conducive environment that is safe for everyone and where any of these are inadequate, it may serve as obstacle and inhibit the level of job performance.

It is true that job performance is affected by many variables, however, those that usually come to mind were the feelings of safety in the course of performing master's job and the atmosphere of enabling work environment. It is the dream of every employee to feel secured, comfortable and anxiety free in the workplace in order to display high level of confidence and commitment that will make them to put in their best efforts towards executing expected roles which invariably will lead to the attainment of overall objective of the organisation and where there are health and safety measures or programmes, it has effect on the feelings of employees towards their job and the environment of such organisation is usually beclouded with anxiety (Shadare, Anyim, & Tunde-Ojo, 2019). This explains why the desire of all the parties in the industrial world to ensure overall well-being of employees in workplace through adequate provision of health and safety measures or programmes is no coincidence rather a key element to achieving sustainable decent work conditions and strong preventive culture in the labour environment.

The Federal Government of Nigeria recognised the significance of employees' health and safety in the world of work and promulgated a decree to support this which was known as Factory Acts of 1987. The Acts has 12 subheadings as the major provisions and has undergone two major amendments in 2004 and 2010 in order to make the Acts better. By the virtue of the Acts, every work organisation in the manufacturing sector is expected to put in place adequate health and safety measures to forestall any form of occupational accidents. For example, health rules in work environment is not limited to but include cleanliness, ventilation and drainage as well as lighting, overcrowding and provision of sanitary conveniences. It therefore becomes a concern in view of the prevailing level of safety measures found in manufacturing organisations as manifested in the physical environment where employees will perform their assigned tasks. To this end, the study seeks to examine the effect of occupational health and safety and work environment on the employees' job performance, aside this, to identify dominant variable that will have more potent effect on employees' job performance (Chidi & Ayinla, 2019).

2. Conceptual Review

The review of the concepts was based on the independent and dependent variables involved in the study to include occupational health and safety, work environment and employees' job performance.

2.1 Occupational Health and Safety

This is described to mean the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment (Alli, 2008). It is all about safety in the workplace and the scope has evolved continuously in response to the dictate of social, political, technological and economic changes since inception of organisation dated back to Industrial Revolution era. The concern for occupational health and safety in the workplace has been at international, national and local levels, this explain why International Labour Organisation (ILO) has shown tremendous concern and support to ensure that organisations are safe for the conduct of business.

Many of the ILO Conventions had addressed the issue of safety in workplace and the main purposes of the ILO Convention are to ensure that higher priority is given to occupational health and safety in national agendas for labour environment

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and to foster political commitments in tripartite context for the improvement of occupational safety and health. The content of the Convention is promotional rather than prescriptive and it is based on two fundamental concepts i.e., the development and maintenance of a preventive health and safety culture and the application at the national level, a system management approach to occupational health and safety. Nigeria as a member of ILO and signatory to many of its conventions, promulgated an Act known as Factory Acts of 1987 although before 1987, there had been many occupational health and safety regulations, but the Factory Acts of 1987 represented watershed in the history of occupational health and safety regulation in Nigeria (Shadare et al, 2019).

The responsibility of occupational health and safety does not solely reside with the government, employers and employees have their own role to play. The responsibility of employers is to provide a safe and healthy working environment. That is employers should provide and maintain workplaces, machinery and equipment, and use work methods, which are as safe and without risk to health as is reasonably practicable. Also, ensure that chemical, physical and biological substances and agents under their control are without risk to health when appropriate measures of protection are taken, provide adequate supervision of work, the application and use of occupational health and safety measures. It is also part of the responsibilities of the employers to provide adequate personal protective clothing and equipment without cost to the worker. In a situation when hazards cannot be otherwise prevented or controlled, employer need to ensure that work organisation, particularly with respect to hours of work and rest breaks, does not adversely affect the health and safety of workers and where necessary to provide for measures to deal with emergencies and accidents. This including adequate first-aid arrangements while that of employees revolves around cooperation of workers within the enterprise which is vital for the prevention of occupational accidents and diseases.

In other words, employees should take reasonable care for their own safety and that of other persons who may be affected by their acts or omissions, comply with instructions given for their own health and safety, and that of others. Employees must take health and safety procedures seriously, use safety devices and protective equipment correctly and avoid rendering them inoperative, report promptly to their immediate supervisor if any situation which they have reason to believe could present a hazard and which they cannot themselves correct, report any accident or injury to health which arises in the course of or in connection with work (Alli, 2008; Chidi & Ayinla, 2019).

Empirical evidence abounds in confirmation of this fact. For example, a study on the effect of OSH (Occupational Health and Safety) and organizational culture on employee performance in Pamong Praja and Damkar Police Units South Bengkulu found occupational health and safety to have a significant influence on employee job performance (Bahari et al., 2022). In Ethiopian electric power corporation, another study was conducted on the effects of occupational health and safety strategies on the organizational performance. The study found occupational health and safety strategies have positive significant effect on organizational performance (Bitire & Chuma, 2022).

2.2 Work Environment

This is described as the physical environment where employees carry out any work assigned to them which is a collection of many situational factors that defines the corporate atmosphere. In the views of Adeogun and Okafor (2013) work environment is the element that comprise the setting in which employees work and impact workers' performance. It is said to have components made up of intrinsic and extrinsic elements such as but not limited to illumination, noise and vibration, temperature, humidity, and air quality, organisational politics and culture, architectural design, size, furnishings, layout and colour, peer relations, superior and subordinate relationship as well as leadership styles and communication. In essence, "a work environment is a place where employees carry out their activities, where it can bring positive and negative effects for employees to achieve their results" (Priarso et al., 2018). Therefore, a work environment may be realistic, investigative, artistic, social, enterprising or conventional and this explains why the understanding of individual personality and job compatibility is often necessary for employees' job performance.

Empirical studies have been carried out on work environment and employee job performance. For example, a study on the effect of transformational leadership style, work motivation, and work environment on employee performance that in mediation by job satisfaction variables in Pt. Gynura Consulindo, was conducted among 114 employees of PT Gynura Consulindo. The study was adopted descriptive research design. The data collected were analysed using Structural Equation Model Listrel version 8.8 software. The research found that work environment has positive and significant influence on employee job performance (Priarso et al., 2018). Also, Wang, Zhang and Chun (2022) in another study titled "how does mobile workplace stress affect employee innovative behavior? The role

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of work–family conflict and employee engagement” confirmed that work environment is a predictor of employees’ job performance. The study was conducted among 426 married male employees in the software and information industries. The study reported that mobile workplace stress (form of work environment) have significant but negative effect on employee innovative behavior but had positive significant effect on employee engagement (Wang et al., 2022).

Sri (2018) investigated workload, work environment and employee performance among 40 employees of the housekeeping section of LORIN Sentul hotel Bogor. The study adopted descriptive research design. The research found that work environment had positive and significant impact on employee performance (Sri, 2018). Another study on the role of work environment on Bank employees’ performance reported that work environment partially has a significant effect on employees’ performance (Tjahjaningsih et al., 2019). The study used multiple regression analysis. Samples were drawn using proportionate sampling technique from the employees of PT Bank Negara Indonesia (Persero), Tbk branch office Diponegoro University The with 130 sample cut across different categories of staff from supervisor, security staff, customer service officer to teller (Tjahjaningsih et al., 2019).

Likewise, a study was carried out on the influence of transformational leadership and the work environment on employee performance: mediating role of discipline. The sample for the research was 116 civil servants in the Ministry of Villages, Disadvantaged Regions and Transmigration of the Republic of Indonesia (Kemendes- PDDT). The study used partial least square in analyzing the collected data. The study found that work environment has significant effect on employee job performance (Riyanto et al., 2021).

Other studies that have reported positive significant effect of work environment on employees’ job performance include the one conducted among the PT. Nesinak Industries’ 88 employees who works in the production department. The company deals with automotive and electronic spare parts made from rubber (Badrianto & Ekhsan, 2020). Another one was conducted in health sector. It was on the influence of leadership style and work motivation on employee performance. The study found that work environment influenced employee job performance significantly (Nasir et al., 2021). Similarly, another study on the influence of work environment and Competence on motivation and its impact on employee performance in Health sector showed that work environment have significant influence on the job performance of employees (Parashakti et al., 2020).

2.3 Employees' Job Performance

This has been described as the total expected value to the organization of the discrete behavioural episodes that an individual carries out over a specified time period (Motowidlo, 2003). It can then be deduced that performance is an aggregated property of multiple of discrete behaviours that occur over time and the property of behavior to which performance refers is its expected value to the organization. The implication is that job performance relates to how individuals perform in their job duties i.e. work achieved by a person in carrying out the tasks assigned to him based on his skills, experience, and sincerity as well as time (Putri, Triatmanto, & Setiyadi, 2018). Job performance was seen in another way by Campbell (1990) when it was described as a means to reach a goal or set of goals within a job, role, or organization but not the actual consequences of the acts performed within a job and affirms that it is not a single action but rather a complex activity. This explains why employees' job performance involves many factors such as quality, quantity and effectiveness of work as well as the behaviours shown by employees in the workplace. It is a supporting factor of organisational performance.

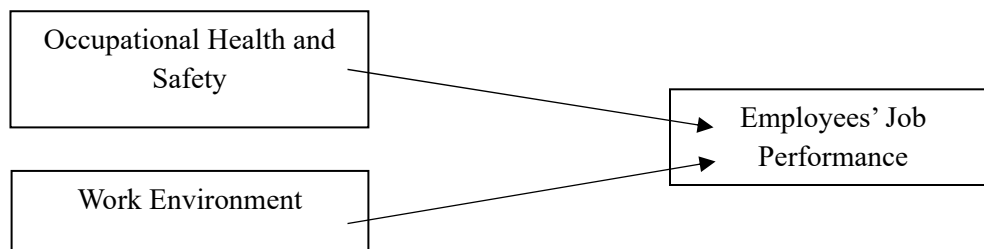


Fig. 1. Conceptual framework representing the variables and direction of the study

3. Methodology

The study was carried out in Lagos Metropolis using manufacturing organisations as the unit of analysis, adopted survey method in addition to secondary source of data collection and the sample size of 189 was obtained through Yamane's formula while convenience sampling was applied and the research instrument used was questionnaire. The questionnaire was designed along the variables of the study i.e. independent (Occupational Health and Safety and

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work environment) and dependent (employees' job performance) in line with Likert 5-point rater scales, subjected to validity test (Pearson product moment correlation) and reliability test (Cronbach's alpha) and the results were found to be adequate for the use of the study and linear regression was also used to analyse the data with the aid of SPSS software.

4. Results

The data collected were analyzed with the aid of SPSS software and the results were presented in Tables 1 and 2.

Table 1 has information on the outcome of the regression analysis showing the effect of the independent variables on the dependent variable. The value of $F = 39.494$ calculated is greater than the value of F tabulated which is 2.821, it shows that each of the independent variables is significant at $p < 0.05$. Also, the t test shows that every independent variable significantly affects employees' job performance at $p < 0.05$ where t calculated for all the variables is greater t tabulated which was 2.012. Coefficient Determination (R^2) = 0.734 representing 73.4% shows high level of accountability to explain the variation of independent variable in dependent variable i.e. among all the factors affecting employees' job performance, occupational health and safety and work environment could be singled out as major predictors or factors to watch out for.

Table 1. Summary of Linear Regression Analysis

<i>Variables</i>	<i>Unstandardized Coefficients B</i>	<i>t</i>	<i>Sig</i>	<i>R²</i>	<i>F</i>	<i>F-Sig.</i>
<i>Occupational Health and Safety</i>	0.242	2.302	0.026	0.734	39.494	0.000
<i>Work Environment</i>	0.286	2.311	0.026			

Since Table 1 showed that occupational health and safety and work environment $r^2 = 0.734$ represent 73%, hence the need to know which of the two factors contribute more. The analysis in Table 2 was used to identify which of the independent variables has the dominant effect on the dependent variable and the decision rule was that the independent variable whose standardized coefficient value is the greatest has dominant effect on dependent variable. From this table, work environment is the independent variable with the greater standardized

coefficient value at 0.308 among the other independent variables. The implication is that the better the work environment, the better is employees' job performance and work hazards as well as accidents rate will also reduce.

Table 2. Summary of Standardized Coefficients of all Independent Variables

<i>Variables</i>	<i>Standardized Coefficients</i>
<i>Occupational Health and Safety</i>	0.297
<i>Work Environment</i>	0.308

Source: Field Study, 2021

5. Conclusion

The study seeks to examine the effect of occupational health and safety and work environment on the employees' job performance in Nigerian business environment and identify dominant variable that will have more potent effect on employees' job performance. It was found that there was relationship between the independent variables (occupational health and safety and work environment) and dependent variable (employees' job performance) to be positive wherein the better the occupational health and safety programmes and conduciveness of work environment the better is employees' job performance. It was also established that occupational health and safety and work environment played significant role among factors affecting employees' job performance while between the two factors, work environment was found to contribute more as a factor to explain variables with potency to affect employees' job performance. It was concluded that maximum attention should be placed in terms of priority to both occupational health and safety and work environment in order to remove major factors that can inhibits efficient and effective employees' job performance.

6. Recommendations

On the basis of the findings and conclusion of the study, the following recommendations were made to enhance employees' job performance through adequate occupational health and safety and work environment. Organisations should ensure that there is health insurance for the purpose of accident or death. It is also recommended that policy towards occupational health and safety should be

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implemented and at the same time ensure compliance. There is the need for individual personality and job compatibility assessment as made available by the environment. Furthermore, there is the need to create family-like atmosphere that will make work environment friendly and safe. Managers need to pay attention to the health of employees from time to time and be abreast employees with details of occupational health and safety put in place especially procedure in case of accident or emergency. Lastly, there is the need to ensure work environment meets minimum standard of expectation in the world of work by taking cognizant of all the components of work environment.

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CONFLICT IN WORKING RELATIONSHIPS: AN OVERVIEW. THE CRISIS OF ROLES IN MODERNITY: THE MAN-WOMAN WORKING RELATIONSHIP

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Abstract

Conflict is a divergence of opinions which, as such, generates an emotional alteration in turn arising from a clash of mutually antithetical views. (Bonfanti, 2011).

I decided to start from this definition to emphasize how much, within a conflict situation, whether it be work or family, the factors in the field concern both the cultural aspect of a person and the emotional one. Speaking of conflict, therefore, without taking into account the socio-cultural substratum in which it has its roots, inevitably involves an emptying of those which are the fundamental ingredients of any type of relationship.

As already mentioned in previous chapters, the socio-cultural transformations that have occurred in recent decades have led to a complete redefinition of the roles that men and women respectively cover during their lives. In fact, in the era of modernity, many of the roles that had been at the basis of society for decades were gradually overturned.

Keywords: *potential; relation conflict; labor conflict; destructive conflict; constructive conflict.*

JEL Classification: JELM12, JELM15, JELM54

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Introduction

Man is in fact going through a phase of profound changes that go hand in hand with the socio-cultural changes of our time. The stereotypes that aim to relegate man to the narrow role of an always strong, dominant and self-confident figure have over time given way to more flexible models with which men can identify. Women, in turn, by overcoming cultural limits, are becoming more and more competitive. By not accepting the role of shoulder, over time they have acquired a critical sense that more easily reveals less standardized aspects of the masculine. The result of all this is that men lose the privileged position they previously enjoyed and find it more difficult to maintain dominance, power and trustworthiness in the eyes of the other sex and their own.

What emerges from this new condition is a man in crisis, frightened by the loss of the status that for decades he had considered the only possible one, a man who often tries to react by closing himself defensively, avoiding any form of confrontation or showing aggression and attacking, even before being attacked. Schematizing, generalizing, simplifying reality and pigeonholing the information of what one is experiencing in rigid categories can create an illusory sense of security and control over reality. Which is rigidity, but not strength.

In the same way the woman, finding herself in the position of someone who acquires a new status, runs the risk of approaching this new condition with an attitude of someone who owes something by virtue of a past that today she finds unfair; this idea risks leading the woman to assume that she is right in all the circumstances that see her confronting a man in one of the new contexts she is part of. To all this must be added the difficulties that this change of status has generated in the management of family dynamics that previously were the exclusive prerogative of women. In fact, it was the women who dealt almost entirely with all the matters concerning the management of the house and the children, and in general with all matters concerning the family ménage.

Finding having to delegate to a third party what until recently were their characterizing activities often leads women to experience a strong personal emotional conflict, torn between the desire to fulfill themselves by exploiting the new opportunities that modern society has given them, and the duties imposed by the cultural heritage with which they grew up.

With these premises, it is inevitable that men and women who now find themselves sharing a new space in their lives risk critically raising the threshold of conflict, risking losing the enormous opportunity for enrichment to which confrontation with a different model from ours inexorably leads.

1. The hidden potential of relational conflict

To better understand how to manage conflict, it is important to start with two brief considerations:

1) Conflict is an event that inevitably occurs within human relationships, especially in working relationships as they are strongly dependent on the personal opinions that people feel about each other, greatly influenced by power relationships, hierarchically determined to the point of determining not only the social visibility of the person who is the protagonist but also the level of self-esteem and the personal perception of the self as a valid person.

In fact, work represents a very important part of our life (both for the large amount of time invested and for the quality of the resources invested) and it is therefore absolutely impossible to consider it as if it were a marginal experience with no consequences for the perception of itself in the world.

2) Conflict cannot be identified exclusively as a painful event or as a regressive form, in fact, thanks to its onset, a change is often implemented, an evolutionary turning point: as Duccio Demetrio affirms, who supports the idea of the conflict understood as a creative force for change especially in adulthood: "The crisis, the conflict, the fracture (all implications of the metamorphic process, because there is no form of rebirth that is painless) are not regressive manifestations. Those who change rather return to growth. Renewing himself adds power to the previous adulthood (...). The change, experienced and suffered, becomes the emblem of a more fascinating adulthood, because it is the emblem of a superior synthesis that we have been able to achieve against all adversities ". (D: Demetrio1998). According to this vision, the conflict between adults contains within it a powerful transformative and emancipatory force as it inevitably leads its protagonists to question themselves, to get involved, to consider in any case the positions of others in order to understand them and then decide whether to support them. or less. Conflict also leads to a deeper understanding of relationships, increases their intensity and consequently generates ever greater emotional involvement. Moreover, it can often increase productivity if it manages to give light to new ideas, if new agreements and mediated solutions arise from the conflict.

For all these reasons, not only should the conflict not be avoided but rather it should be taken as a possibility of exchange, of confrontation, of growth while clearly sensing all its painful presence. Conflict should therefore be lived considering its most constructive aspects: (strengthening of relationships, growth of self-esteem, improvement of productivity, increase of stimuli, greater trust and openness in

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relationships) and at the same time "endured" in its heaviest aspects by manage (difficulty concentrating but also relaxation, increased irritability rate, problems in having a correct opinion of oneself and the surrounding reality up to extreme situations in which the individual who cannot cope with the conflict implements increasingly complex defense mechanisms up to avoidance and escape).

Conflict must therefore be seen as an opportunity for personal growth, as it contains our frailties and weaknesses that clash with those of the other. From the conflictual modalities that we put in place with the people with whom we enter into a relationship, we can in fact understand, by observing ourselves carefully, what our shadow areas are, and ask ourselves questions about the origin of anger and therefore of pain, that the relationship with the other he has discovered in us.

2. The labor conflict

Whenever you find yourself in group situations, you are exposed to conflict and you cannot try to avoid or ignore it, the only possible solution is to face it and maybe try to resolve it.

But in addition to this general relational condition, there are many other types of more specific conditions that determine its existence and feed it, making it unsustainable for the people involved.

R. J. Edelman, has long examined conflict situations in the workplace and argues that the most recurrent factors of conflict can be summarized as follows. (R. J. Edelmann 1996).

- Factors related to the nature of the job itself,
- Factors dependent on their role in the organization,
- Career-related factors,
- Factors related to relationships with superiors, colleagues, customers.

Conflict within a work group occurs when people, who depend on each other due to the nature of their work, bring different points of view, interests or different or even conflicting goals into the working reality. A good leader knows that conflict is a natural and potentially productive component within group relationships and interpersonal relationships. Indeed, conflict stimulates thought, causes various points of view regarding a situation to be considered, and stimulates various group members to better understand the key factors regarding the decision to be made. All this can happen in situations where the conflict is managed well through a conscious and constructive approach.

The key aspect is not to choose whether or not to stimulate the conflict, but how to manage it in order to make it productive for the goal that teamwork sets itself.

Depending on how the conflict is handled within the group it can be either constructive or destructive. Effective leadership facilitates communication dynamics which in turn stimulate constructiveness. Let us now look into these two sides of the conflict within working groups.

We speak of destructive conflict when this interferes with the effectiveness of the work done and with a positive working climate for the participants of the group. usually, this type of conflict is characterized by an excessively competitive way of communicating in which each member of the group tries to influence others with the sole purpose of being right about their ideas, their solutions and their points of view on the matter. This creates a type of win-lose relationship in which there are those who lose and there are those who win. The individual members of the group are convinced of the fact that only one of them (or a part of them) have the possibility of "winning" and therefore of affirming themselves over the others, leading them to accept their thinking.

One result to which these dynamics usually lead is the rapid deterioration of the corporate climate and consequently of interpersonal relationships. A context is therefore created in which most of the members of the group put themselves in a defensive position by limiting themselves to the expression of their ideas in order to run the risk of being aggressively evaluated (or judged with sarcasm) by others. Within this type of situation, we frequently witness personal attacks that inevitably end up well beyond the content of the topic in question.

This context emerges from a communication modality that leads people to get defensive and distracts them from the common goals that should be the core of the work group. We are therefore witnessing a communication characterized by: evaluating; judging; the superiority of one over the other; a way of thinking and considering things only from a perspective using an attitude of certainty and rigidity. This way of communicating undermines both interpersonal relationships and productivity, in the effectiveness and efficiency of teamwork.

Constructive conflict in turn occurs when members of a working group have accepted the fact that disagreement is a natural aspect of group dynamics, and that it can indeed be a factor that can facilitate the achievement of their goals. common.

This type of attitude is characterized by a communication modality based on cooperation: the ideas and opinions of others are taken into consideration with attention, interest and positivity. Communication is consequently used in order to highlight the common objectives of the group members and the factors that unite them. It is a communication method that encourages a win-win orientation in which everyone can feel like a winner and this leads people to be able to freely

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express and motivate their points of view by focusing on the content of the themes rather than on character or personal aspects.

In order to further stimulate constructive conflict, communication should clearly be geared towards highlighting the interest of group members in listening to each other's ideas and points of view, willingness to change their perspective on a topic, and respect for the integrity of other group members and the views they represent. It is in a context of this type that people are able to feel comfortable expressing their thoughts and actively and constructively participate in group activities.

For all these reasons, constructive conflict is a fundamental factor for the effectiveness of teamwork. Indeed, it allows group members to improve their understanding of the issues involved, enabling the group to develop a wider range of ideas and solutions.

Being able to create this type of context is not always easy because it is first of all necessary to go beyond the sources of individual pride and self-centeredness that are always present in these situations, and actively seek to understand the importance of the contribution of each individual person by stimulating their active participation in the activities of the group, driven by the awareness that only this type of dynamic will allow the group itself to reach the goal it had initially set itself in a fluid way.

Below it is possible to observe a summary table of the ways in which the two different types of conflict manifest themselves, the attitudes connected to each type of conflict, and finally the consequences of the different modes of conflict both from an organizational and personal point of view.

	Destructive conflict	Constructive conflict
Manifestation of the conflict	Not visible and hatched for a long time, so the conflict, being indefinite, is not manageable.	Visible and immediately identifiable, therefore being able to observe and "touch" it becomes manageable and resolvable.
Attitude of individuals	Hostile, therefore the parties: 1-they carry out a vague	Collaborative, therefore the parties: 1-they know the

<p>involved in the conflict Hostile, therefore the parties:</p>	<p>communication, they exchange information in an unclear way. 2-They carry out a lying and dishonest behavior within which there are factors such as slander and sabotage.</p>	<p>importance of dialogue and listening. 2-They implement clear and transparent behaviors, aimed at trust and respect.</p>
<p>Consequences of people's behavior</p>	<p>The parties remain fixed on their position, prey to emotion made unmanageable by personal involvement. In these conditions it is impossible to reach an agreement.</p>	<p>The parties manage to arrive at a joint solution having understood the reasons for the conflict.</p>
<p>Effects on the organization</p>	<p>Negatives: 1-Inside the workplace, confusion, insecurity and discontent reign. 2-Misunderstandings are created more and more often. 3-Economic losses occur and yield drops as does productivity. 4-The organizational climate becomes very bad.</p>	<p>Positive: 1-People are serious. 2-Company values and objectives are shared and accepted. 3-Increase the yield and with it the productivity. 4-The business climate is excellent. .</p>

3. Emotional intelligence as a "weapon" for conflict resolution

In the second axiom of communication, Watzlawick (1971) states that every type of communication contains within it an aspect of content and an aspect of

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relationship, where the second defines the first (to deepen the subject, we point out the article "The principles of communication: a panoramic view" by the same authors). Consequently every time we express a content, it also defines the relationship between the people who are communicating.

To convey the relationship is the non-verbal channel, therefore it would be appropriate to offer a reflection on the importance of paying attention to the communicative feedback that our interlocutors provide us, since the relational nature contained in the message classifies the content and could cause the interlocutor's reaction. It is precisely through the relational aspect contained in the communication that the perception we have towards our own of the person in front of us is transmitted.

To make relationships simpler and better by encouraging the emergence of a positive climate, based on mutual understanding, we can appeal to emotional intelligence. This is defined by Salovey and Mayer (1990) as the ability to monitor and understand one's own feelings and sensations and those of others, differentiating the various types of emotions in order to be able to act better and be able to achieve a common goal.

The use of emotional intelligence is based on the ability to understand the feelings and emotions of the people around us, managing to have a full understanding of their state of mind. This allows us to adopt appropriate behaviors in favor of individual or common goals.

Emotional intelligence consists of the following abilities: knowing emotions (what they are, how they differ from each other, how and why they arise and how they change), recognizing their own and those of others, knowing how to manage emotions and use them to face and solve a problem.

Daniel Goleman (1995) and Mayer and Salovey (1997) listed the five fundamental characteristics of emotional intelligence:

- ›Self-awareness: ability to produce results by recognizing one's emotions.
- ›Self-control: ability to use one's feelings for an end.
- ›Motivation: ability to discover the true and profound reason that drives action.
- ›Empathy: ability to feel others by entering into a flow of contact.
- ›Social skills: ability to be together with others trying to understand the movements that happen between people.

As soon as a conflict arises, emotional intelligence tries to understand whether the way to manage it is based on the problem or on emotions. In the first case, a

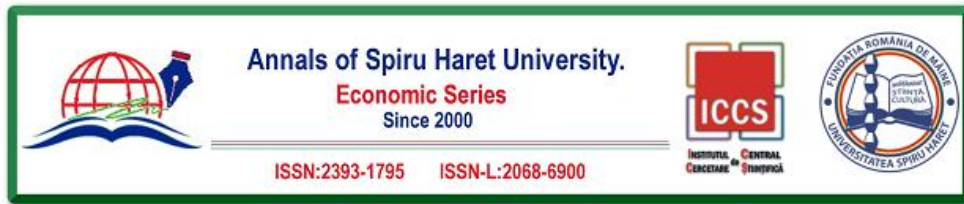
type of solution is sought that can resolve the matter in the best possible way; in the second case, since it is not possible to act directly on the conflict, one works on the negative emotions involved. It is of great importance to have the time available to understand negative emotions, and try to use different strategies and observe the effects of their use, without risking making hasty decisions, paying attention to the behavior and non-verbal communication of the other and, finally, don't talk more than you should.

In the workplace, emotional intelligence allows you to positively evaluate and appreciate differences, rather than considering them as a negative factor, and makes sure to strengthen work teams, thereby increasing profits. The concept of feedback is therefore fundamental, which allows for an exchange of information between workers.

Levinson (1992) suggests the best way to behave when feedback is exchanged in the company without annoying the interlocutor: to be as specific as possible: to communicate precisely what was done right or what was wrong, without being evasive, saying things as well as they are, always bearing in mind that a moderate tone is always highly appreciated; offer a solution: after making a criticism or giving advice, the most appropriate thing is to suggest a possibly constructive solution, otherwise you risk demoralizing and demotivating the other; be present: it is advisable to talk face to face with each other and in private. Although written communication can in theory "lighten" the task of the critic, this modality makes communication very impersonal, making it impossible at times for the critic to have a confrontation. Being empathic and sensitive: it is important to listen to the other, to identify with, to be a little bit in her shoes, avoiding being aggressive and offensive.

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THE SMART MANAGEMENT AND INDUSTRY 4.0, PROVIDERS OF POTENTIAL SOLUTIONS FOR IMPROVING THE IMPLEMENTATION OF THE OPERATIONAL PROGRAMME HUMAN CAPITAL

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Abstract

Regional Intermediate Body for Sectoral Operational Programme Human Resources Development Bucharest-Ilfov Region implements the 40Ready Interreg Europe project, “Strengthening SME capacity to engage in Industry 4.0”. Within this project, a research tool, a survey (“Industrial revolution 4.0 coming to our lives”), was developed and applied, designed to provide relevant information in the field of Industry 4.0 and also to provide thematic solutions (a new criterion to support SME digital competences through the Operational Programme Human Capital 2014-2020; a new evaluation criterion for the call “Digital competencies for SMEs’ employees”, designed to support the Managing Authority for OPHC in evaluation and, at the same time, to help SMEs acknowledge the main I4.0 domains to focus on their digitalisation path in general and specifically for developing employees’ digital competencies).

This paper, the result of an exploratory research, aims to present the relevant characteristics, trends and potential solutions for improving the

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implementation of the Operational Programme Human Capital 2014-2020, a topic that generated the need to start and, implicitly, to operationalize such a study.

Therefore, in the configuration of the research process, there were no strict rules.

Keywords: *industry 4.0; smart management; European projects; digital competences; human factor; Operational Programme Human Capital 2014-2020.*

JEL Classification: I25; I28; D22; D24; D25; D61; E24; G18; M15; O14; O15; O3

Introduction

The concepts of digitalization and Industry 4.0 are becoming a reality. Automation, artificial intelligence, the Internet of Things (IoT), other advanced technologies quickly capture and analyse a multitude of data that provide many types of information.

The current challenge is to change the way of thinking, training, working of economic agents, managing to create added value by digital technologies.

Romania has the necessary advantages (internet speed, IT sector development, state-of-the-art technology already present in large production facilities, specialized workforce) to make a leap towards *digitalization* and *Industry 4.0*.

The Fourth Industrial Revolution, known as *Industry 4.0 (I4.0)*, is fast becoming our new reality, the new *modus vivendi*, meant to revolutionize and transform the economies, jobs, mentalities, strategies and ways of action of the human capital. To materialize this goal, technologies, especially digital ones, combine elements and processes specific to data analysis, artificial intelligence, cognitive technologies and the Internet of Things (IoT). The main objective, assumed by *Industry 4.0*, is to create digital enterprises, which are interconnected and perfectly able to make informed decisions, to perform in a competitive environment, where the place and central role belongs to human resources. This new revolution interconnects and harmonizes smart technologies that go beyond organizations and end up interfering with our daily lives.

In essence, this is also the purpose of the *40Ready partnership* - to achieve, through collaboration, at interregional level, its main objective, namely, the

preparation of SMEs, at all levels - entrepreneurs, managers and staff - to adapt and make facing the challenges of the *Industrial Revolution 4.0*, in close connection with activities dedicated to public policy instruments, that support SMEs in their technological, organisational and cultural transformation.

The project is a collaboration bridge, a platform for experience exchange and joint learning between 8 partners from 7 countries. These countries are: Italy, Belgium, Finland, Poland, Spain, Lithuania and, last but not least, Romania. Our country is represented in the project by the Regional Intermediate Body for Sectoral Operational Programme for Human Resources Development Bucharest-Ilfov Region.

Also, Project 4.0 partners and stakeholders work together to understand the needs of SMEs in the digital skills development process, on the one hand, and how decision-makers can act, with public policy instruments, to address these needs, on the other hand.

Furthermore, according to Romanian Digital Authority latest analysis "*Romanian Digital barriers for public and private sectors*", the private sector's digital barriers (SMEs included) are mainly those related to human capital: work force' low digital competencies; absent management digital competences for SMEs owners; limited number of IT specialists for SMEs needs; lack of finances for adopting advanced digital technologies accompanied by support and consultancy.

Romania is at the bottom line of European ranking related to the number of SMEs planning/having a strategy for digitalising activity (for both basic/advanced technologies); Romanian SMEs are willing to engage in digitalisation, but making very few steps towards it; a significant part of Romanian SMEs don't have a solid analysis regarding their needs for digitalisation; SME's Romanian sector is positioned in a preliminary stage of the digital transformation; digitalisation and its key role in transforming SME's activity and management is very low understood by SMEs; the great majority of SMEs have a very low desire for digital transformation, or they are not informed/inconclusive informed.

The OPHC 3.12 call (*Digital competencies for SMEs' employees*) was launched giving total freedom to applicants to prepare a development plan for improving SMEs employees' digital competencies, on the following 3 categories: basic digital abilities, work related digital abilities and TIC specialisation digital competencies; also, the European e-Competence framework (e-CF) is mentioned.

The missing element here are: a homogenous approach, at national level, on how to assess employees' digital competencies and to create an objective development plan.

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The survey “*Industrial revolution 4.0 coming to our lives*” was developed and applied to provide relevant information in the field of Industry 4.0 and also to provide thematic solutions: a new criterion to support SME digital competences through the Operational Programme Human Capital 2014-2020; a new evaluation criterion for the call “*Digital competencies for SMEs’ employees*”, designed to support the Managing Authority for OPHC in evaluation and, at the same time, to help SMEs acknowledge the main I4.0 domains to focus on their digitalisation path in general and specifically for developing employees’ digital competencies.

To this end, the partners have developed an action plan in the project, with proposals on how public policies and, implicitly, European funds can better support SMEs in preparing I4.0.

Regarding the possibilities for improving public policies, identified in the thematic research, operationalized within the project, it should be remembered that they vary, from project funding for I4.0 skills development and digital maturation, to management approaches that create synergy between policy instruments, strategies that integrate both I4.0 and skills development for SMEs.

Added value, brought by this project, consists in the fact that its partners are managing authorities or implementing bodies of the selected policies, actors who have the power and want to make real changes.

In this way, the regions involved in this project will become, first of all, better prepared to implement successful, sustainable and profitable projects in I4.0. They, in turn, will support regional SMEs to become more competitive, maintaining and creating better jobs. Secondly, depending on the intervention needs of SMEs, potential sources of funding will be identified and presented. For example, substantial financial support to strengthen the professional capacity of human capital in SMEs can be provided by the European Social Fund (ESF). European Funding for Regional Development (ERDF) can be of real use in supporting technological and organisational development. Moreover, the improvement of these policies could guarantee the development of SMEs, both for the people working in them and for the technological support of digitalisation and industrial automation.

1. Potential solutions for improving the implementation of the Operational Programme Human Capital 2014-2020

According to the *Small Business Act Factsheet 2019 for Romania*, a report by the European Commission, SMEs represent 99.7% of companies in the economy

and employ 66% of employees. That is why it is essential that the digitalisation of these companies be guided, supported, coordinated.

Also, the analysis of the labour market in Romania, from the perspective of changes in the occupational structure, has revealed 3 major categories of occupations: the dominant ones, those that have significantly changed their content and the emerging ones. Regardless of their typology, most occupations have changed in the content of work, the main generating factors being the adaptation to customer needs, increased competition, and technological refurbishment.

Moreover, the development and expansion of the private sector and the requirement to stabilize certain market segments have led to the development of beneficiary/customer-oriented policies at the level of companies and, therefore, increasing the role of factors such as adapting to customer needs and increasing competition in the field.

Besides, according to *the DESI 2020 report*, Romania continues to have the lowest level of use of internet services among EU Member States, which corresponds to the lowest level of basic digital skills in the whole country (see previous chapter). 18% of people aged 16 to 74 years old have never used the internet (EU average: 9%). Only 3% of Romanian internet users sell products online and only 4% attend online courses.

Technological progress in the digital field has a special influence on existing occupations on the labour market. In this context, the need for permanent qualification among employees has become a constant variable in the business environment, companies being forced to ensure a continuous training process, especially regarding the digital skills.

The same report shows that, although there has been a slight increase in the percentage of ITC specialists in the previous year, they represent a much lower proportion of the workforce than in the EU (2.2% compared to an average of 3.9% EU).

The ITC specialists represent 1.2% of all employed women. On the other hand, Romania has good results in terms of ITC graduates, ranking 5th among the Member States, with 5.6% of all graduates.

The action identified and proposed, as a result of conducting the survey, refers to the Operational Programme Human Capital 2014 – 2020, Main Axis 3 - *Jobs for all*. Within Axis 3, the focus is *Specific Objective 3.12: Increasing employees' level of knowledge/competencies/abilities related to economic sectors/domains listed by National Strategy for Competitiveness and National Strategy for Research, Development, and Innovation*.

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The action improves the way in which thematic calls are organised and the way that projects are selected. It is based around inclusion of a new evaluation criterion for the call “*Digital competencies for SMEs’ employees*”. The new criterion is designed to support the OPHC Managing Authority in evaluation and, at the same time, to help SMEs acknowledge the main I4.0 domains to focus on their digitalisation path in general and specifically for developing employees’ digital competencies.

The *Applicant’s Guide for this specific call* includes *Annex 3 - Evaluation Criteria and Technical and Financial Selection*. Within this Applicants Guide, a new evaluation criterion is inserted under category 2 – *Effectiveness*, related to digital competences for SMEs. More, precisely the following text is included: “*The project has added value in the sub-category: Training/assessment and certification of digital skills is provided in the following technological areas specific to Industry 4.0: social media; mobile services; Cloud technologies; the internet of things; cyber security solutions; automated robots and machines; large data and data analysis; 3D printing; artificial intelligence; Bitcoin; Blockchain etc.*”

Also in the guide, *Chapter 1. Information on the call for projects, subchapter A1. General context*, the following text was approved by OPHC Management Authority and included: “*According to the study carried out within the "40Ready" project funded by the Interreg Europe program, a major interest of the respondents for the I40 field and for the development of digital skills was confirmed. Following this analysis, it turned out that most of the responding SMEs have little-moderate knowledge in the digital field (71%), are prepared to a small-moderate extent for the changes brought by the Industrial Revolution 4.0 (55%) and have initiated actions change, to a moderate extent. (60%). The overwhelming majority of respondents appreciated the Industrial Revolution 4.0 as an opportunity. The most important conclusion of the study is that, soon, SMEs need access to European funds as the main source of confidence on which to base their efforts to adapt to the Industrial Revolution 4.0.*”

Conclusion

The survey “*Industrial revolution 4.0 coming to our lives*”, carried out at the start of the *40Ready* Project, confirmed a major interest of respondents for I40 domain and for digital competencies development.

According to this analysis, most of the SME respondents have little-moderate digital knowledge (71%), are little-moderate prepared for 4.0 Revolution’s challenges (71%) and have started changing actions at a moderate level (60%).

The great majority of respondents evaluate *Industrial revolution 4.0 as an opportunity*.

The most important conclusion of the study is: *in near future, SMEs need EU funds attraction as main countable source in their adapting effort to Industry 4.0.*

Moreover, the report showed:

- that digitalization brings opportunities for all types of companies, including SMEs, but ensuring SMEs access to digitalization must be supported, coordinated and monitored;
- the current challenge is to change the way SMEs think, train and work to create added value by digital technologies.
- Romania has many advantages such as high internet speed, development of the ITC sector, state-of-the-art technology already present in large production facilities, as well as specialized labour force to benefit from *digitalisation* and *Industry 4.0*.
- the main areas for improving public policies regarding the digitalisation of SMEs are awareness of the need for SMEs digitalisation; appropriate technical solutions for SMEs digitalisation; increasing digital skills at all levels relevant for SMEs digitalisation; adequacy of digital solutions chosen by SMEs to market requirements.

The action identified and proposed, as a result of conducting the survey, improves the way in which thematic calls are organised and the way that projects are selected. It is based around inclusion of a new evaluation criterion for the call “*Digital competencies for SMEs’ employees*”. The new criterion is designed to support the OPHC Managing Authority in evaluation and, at the same time, to help SMEs acknowledge the main I4.0 domains to focus on their digitalisation path in general and specifically for developing employees’ digital competencies.

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WOMEN IN WORK CONTEXTS; SOCIOLOGICAL INVESTIGATION

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Abstract

In the world of work, the presence of women has been a very stable phenomenon for years now. Some factors, such as:

- the increasing level of education,*
- the progressive outsourcing of the national economy,*
- the diversification of employment contracts,*

have definitely favored an increase in the employed female population, which however still remains in a due minority compared to the figures regarding male employment. However, one factor outlines the importance of the presence of women in the labor market, and is that relating to female entrepreneurship, which has grown in recent years thanks above all to regulatory systems which, in fact, have progressively favored both its promotion and development. . However, this is a process that has not only affected Italy, but the entire sphere of the European Union, where it is estimated that almost a fifth of the annual GDP growth can be explained, in principle, precisely with the increase participation of women in the workforce. Although disparities continue to affect the employment market, the "gender segregation" element appears singular, with women concentrated in some types of employment and men, obviously, in others.

Keywords: *gender segregation; women's empowerment; prejudices; women's work; professional skills.*

JEL Classification: JELM12, JELM15, JELM54

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Introduction

The trend of "segregation by gender", which can be seen in several working sectors, also ends up affecting income differences deriving both from the professional qualifications held and from the positions taken on in the public or private company organization charts. However, the fact remains that, at the working level, women have always had a fundamental role in society since the past, when domestic work was typically intended for them, up to the present day, where the sociological concept of "double presence" in the family and on the job market has ended up defining its characteristics with increasing clarity.

1. Some factors for women's empowerment

In Italy, the increase in the presence of women on the labor market is generally traced back to a series of sociologically concomitant factors. First of all, the disappearance of the family, understood as the central nucleus and source of identification, which for decades has passed its baton to highly individualizing social processes and which, in our system oriented towards maximizing profit, have increasingly favored the drive to highlight the potential of the individual. The consequence of this is the evident polarization towards aspirations for cultural, economic and professional achievement, very distant from the ambitions manifested by the workers of just a few decades ago. This widespread "model of behavior", especially for women, has begun to represent an unparalleled incentive for emancipation, personality development and independence. These were therefore elements that, observed not so much individually, but as a whole, right within the labor market and the consultations that come to life in it, have allowed the development of concepts that were very innovative yesterday, such as:

- flexibility of working hours,
- the extension of new forms of contract (e.g. part-time),
- the sedimentation of facilitated rules (e.g. parental leave),
- the employee's alternative location (eg: teleworking),

who have been able to contribute to the increase in female employment, but also to the change in the sectoral composition of employment. Among other things, today the recent Jobs Act has also promoted the extension of the possibilities of using parental leave, strengthened the protection of self-employed workers, granted benefits to companies that use teleworking, favored the tax credit for female workers with minor children and, finally, the offer of services for parental care was integrated. However, there is another important factor that cannot be overlooked,

and it is linked to the change and increase in consumption and the economic needs of families. The birth of national and EU policies linked to equal opportunities has also succeeded in raising awareness of the promotion of positive and indispensable actions to tackle forms of indirect employment discrimination and, in large part, also to overcome segregation in low-profile occupations. What should not be forgotten about the policies linked to equal opportunities, is that these have at least had the merit of assigning and economically measuring the peculiarity of the value that female work, centered on home care, possesses, but not through concepts linked to direct remuneration, but through the provision of services for children and legal recognition for the protection of maternity at work. These preparatory confirmations to the female condition, and which in contemporary society have generated new "significant concepts", have been able, at least in part, to respond to the needs and tight times of contemporary women, providing her with guidance, information and training services. It was these who, after all, were able to allow women to enter the labor market, not only with a more careful preparation in terms of specific skills, but rather strengthened and convinced in the awareness of their ability to manage dynamics of:

- power,
- leadership,
- command,
- risk, and to support the confrontation with a context that, at times, did not fully legitimize them as work resources.

2. The disappearance of conditioning

It may seem established, but it is precisely with the launch of care services dedicated to both children and the elderly, that women have been able to start living their relationship with the labor market in a more serene and effective way, especially if involved – as has happened in many cases and still happens – in entrepreneurial work dimensions. Today, the female working segment is increasingly characterized by an inversion of trend that sees a preference for a technical-scientific and economic training, to a fundamentally humanistic one and this thanks, both to the advent of new technologies, and to a greater awareness of own means. In fact, if yesterday women entered the productive cycle of work driven by necessity or in view of personal affirmations with respect to the role to which marriage relegated them, today they come to propose and compete on the market with very high levels of education and therefore placing themselves as

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authentic competitors with strong and determined aspirations, with the firm intention of working even after marriage and motherhood. The contemporary woman is a distant relative of that “whole house and church” of the past and in fact she no longer appears discouraged, but ambitious and strongly willing to establish herself professionally. For obvious reasons, her participation model in the world of work has therefore changed a lot. Women once entered it quite early, only to get out of it just as quickly with marriage and the birth of children, while now their entry takes place at an older age, because they look for work longer and once found, they tend not to abandon it. Whether it is an employee or an entrepreneurial activity. This means that women too see and find significant elements of gratification in their work today, indispensable for achieving that complete self-realization, which yesterday was dear mainly to men and a characteristic of the “individual traction” society that was just mentioned. It can therefore be said that the labor market has therefore changed its perspective, thus demonstrating that it has long since disappeared from the cultural, historical and operational conditioning that hindered the relationship with the female component until a few decades ago. , on the other hand, it has been able to demonstrate that it has fully developed all its potential. The aspiration to autonomy, independence, greater social recognition, the quality of work, the acquisition of higher quality margins and direct control over one’s business and one’s life, have thus proved increasingly valid reasons. For all those choices and paths that, by removing prejudices, have finally been able to accompany the rise of women in the world of work both in Italy and in Europe.

3. Career as a life project?

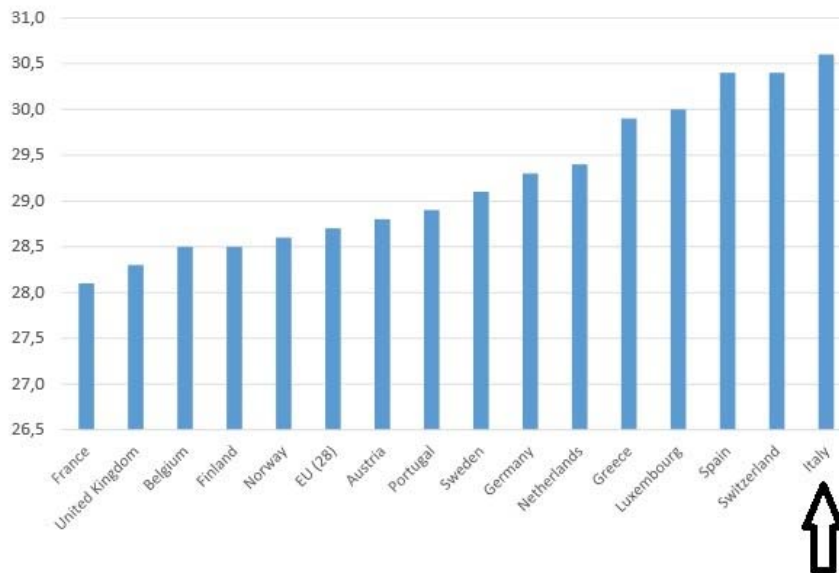
Compared to men, women show a strong predisposition for independent work, and in particular for entrepreneurial activity. Furthermore, both in the liberal professions and within companies, they love - or perhaps accept almost as a challenge - to engage in traditionally male activities. One of the major signs of a reversal of the trend with respect to the “sexist” work culture concerns, albeit to a not excessive extent, the increase in women in management and entrepreneurial roles. The areas that until yesterday were considered “monopoly of men”, today see female figures very advanced in their careers, highly autonomous in their decisions and motivated in assuming responsibilities that were unthinkable until yesterday. These are certainly not negligible characteristics, given that they allow women to land on the high “steps” of work organizations, to be identified as part of the elite,

to be morally and economically gratified and to ensure the charisma necessary for management, also in terms of power, of complex and hierarchically stratified work organizations. In this vision, however, two sides of the same coin coexist which must be considered sociologically and which many women do not neglect at all. If, in fact, high positions represent career goals and points of arrival for individual career paths that, in most cases, last as long as a person's working life, it is also true that all this has a price. A price that ends up paying through the conditioning of one's entire existence and, too often, with lacerating consequences and heavy responsibilities that derive from it. Beyond these observations, which are also closely linked to the personal sphere, the fact is that in the more educated women, a higher and lasting activity rate and a work behavior very similar to that of male colleagues was found. It can therefore be asserted that in female identity, since work is no longer a constraint, but something that is impossible to give up, this has ended up becoming an almost essential element for one's life, as well as a factor that forces rhythms, schedules, and sacrificial methods of performance that end up definitively deconstructing a woman's life project itself. So work, which until the expectation to assume its own family reproductive role, yesterday conditioned life as a transitory experience, today it has instead become the central dimension of the life project of Italian women who, to obtain it, invest resources, education and time, especially in the age period - as shown in Figure 1 - in which they could become mothers for the first time.

Even if the female family role continues to have its importance, what is certain is that today it has ended up being seen as a conditioning element for the professional career, and even if many women are committed to managing their spaces in such a way as not to having to sacrifice neither time nor career, new strategies in female behavior are now historicized. There is a tendency to never give up on the family, but it is better if, for example, the wedding is postponed, you can also start living together, but then motherhood is planned by making use of a whole series of domestic and childcare services. Eloquent in the change in approach to life, is the data with which for years there has been a decrease in the birth rate and in the number of children which, in industrialized countries, is in fact a recursive factor. It is true that this allows for greater female participation in work, but it is also true that something in our society is changing in meaning. The concept of "conscious motherhood" has disappeared to the advantage of that of "renunciation" or "postponement", since a desired motherhood essentially ends up making participation in work too difficult. Everything is therefore taking place the

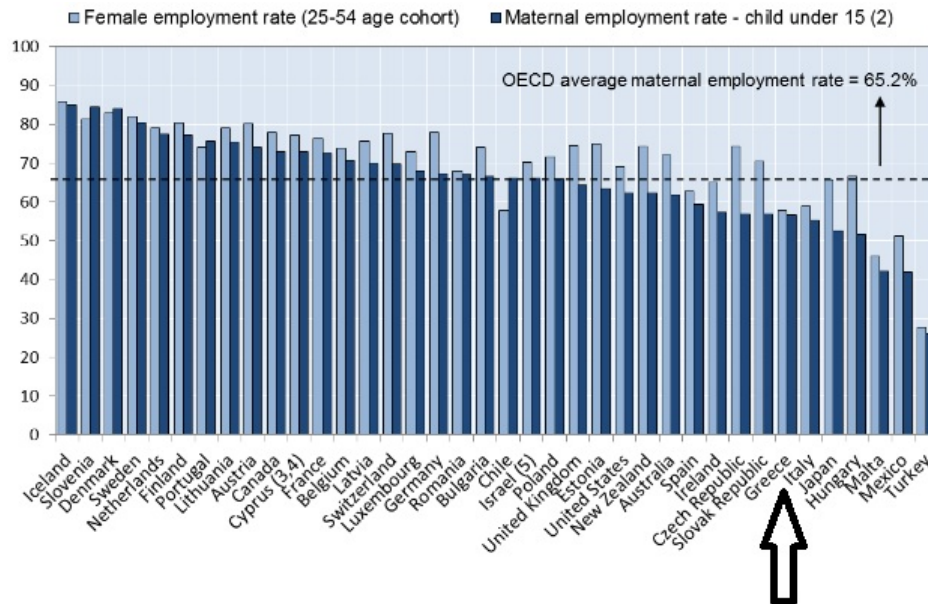
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other way around, given that once upon a time we first gave up work to have a maternity leave, while today we don't think about giving birth to babies, because we must first dedicate ourselves to work. As the graph in Figure 2 shows, women with children have lower employment rates than women without children.



1. Photo 1, source: OECD Family Database, 2015, „Average age of women at first maternity leave”

It then becomes natural to ask a question: but these "career women", ambitious, determined and full of responsibilities and commitments, once loaded with family burdens, will they feel satisfied or not satisfied with their choices? And will they be able to weigh their affections from professional satisfactions in terms of distinction? The data on life choices will tell us that, beyond how they can be analyzed, always provide a recurring certainty: women now choose their life project independently and alone. They are, for the most part, satisfied with their professional career, they positively evaluate the activity they carry out and the way in which they reconcile it with other commitments and, very importantly, they are fully aware of the "price paid" on maternity work.



2. Photo 2, source: OCSE Family database, 2015, The crucial role of motherhood

4. Goffman and Roenbau: between “face time” and tournaments

Daily life and future, innovation and conservation, modernity and tradition, impatience and patience coexist in every woman. And, in some ways, these dichotomies represent the strength of the female universe as well as ritually favoring entrepreneurial creativity, the ability to face unexpected events, the propensity to work together, the ability to analyze one’s working condition and continuous research. Of ideal solutions to avoid the excess of both family and social conditioning. To consolidate the knowledge related to the structural aspects and the functioning of productive initiatives involving women, it becomes appropriate to highlight the existence of the strengths and critical areas that belong to this universe, in order to investigate a hierarchy of the needs that emerge in the evolution of relations between business and development and between business and family, without neglecting those between the times of work and the times of life. Analyzing different working realities with these survey perspectives, a clear fact always emerges immediately: women, precisely because of their high level of

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education, bring with them strong expectations in terms of opportunities for professional growth and are hardly willing to put part of their development aspirations. They do not give up on professional activity even in the period considered to be of the maximum parental commitment, that is, the one that would go from 25 to 49 years. In the model that, generically, we define “career woman”, in fact two strong elements always recur:

- the request for almost total availability,
- confirmation of the investment of one’s time, both during the day and throughout the entire working life.

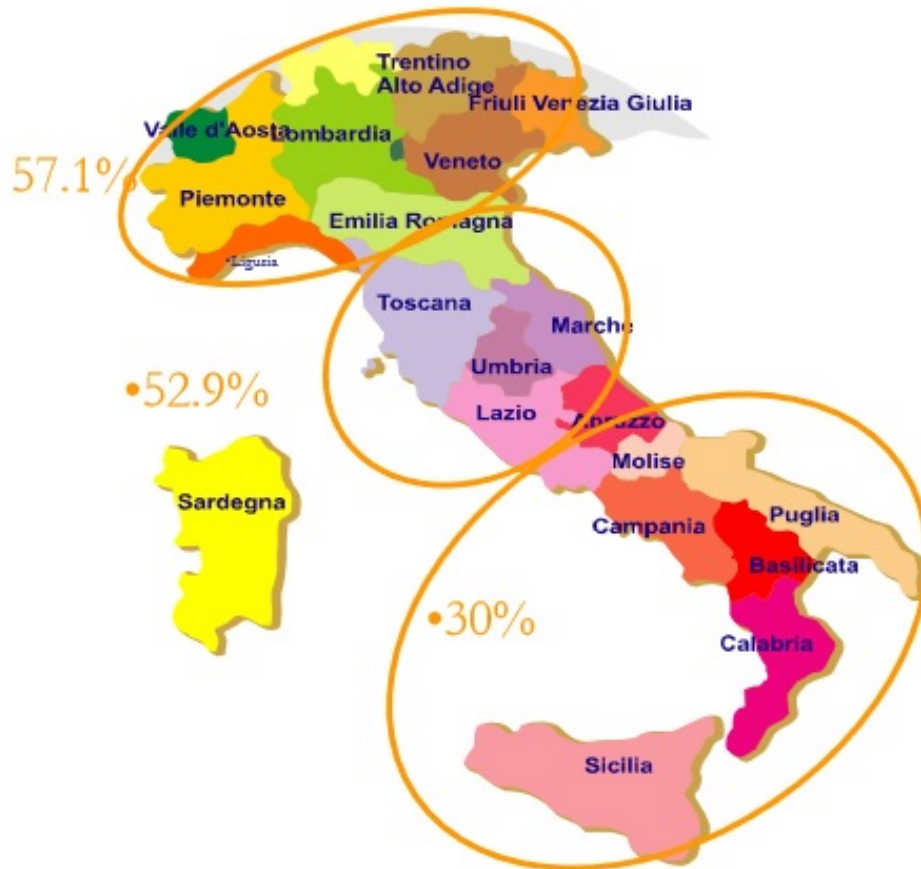
Sociologist Erving Goffman defined this total availability with the term “face time”, by which he meant the hours spent in the office – the so-called façade time – both to meet pressing deadlines and to ensure visibility in the eyes of management. In short, a strong signal of availability that is codified as a cultural trait typical of the Italian managerial culture, but extraneous to the reality of other European countries. The need to be present in the office as much as possible, even when this is not directly useful for carrying out one’s work, does not heavily affect men as much as it does women. In fact, when both men and women are engaged in work and both aspire to forms of professional development, domestic responsibilities are often not shared equally, so much so that, in crucial moments of transition, this dynamic ends up being sacrificed. Often her career. But given that today, careers have lost their reassuring temporal scheduling to acquire more discontinuous rhythms and can have sudden accelerations, as well as sudden stops, they can even be interpreted no longer with the metaphor of “climbing”, but with the explanatory comparison of the tournament. This provides, depending on the moments of corporate life, that the recognition or promotion is assigned only to those who are ready at the moment, leaving out all the others who will inevitably not be considered. This is a cumulative mechanism in which, however, no one is able to recover any selection errors and to have second chances. Open instead to the possibility of a reversal of the trend, and therefore to changes useful for the recovery of a career, it is the metaphor of small differences. According to this approach, the inequalities that occur in promotion opportunities are linked to cultural models, to some failures at the start of work, to subjective reactions of discouragement or small discriminations which, accumulating and influencing each other over time, end up by produce career differences and gaps. However, these can become changeable and produce adjustments and repositioning within the organization, even if the professional path of women always seems to run the risk

of major negative events. If, as unfortunately often happens, errors of assessment are based on gender discrimination, they tend to systematically disadvantage the future working of women, preventing them, despite possessing suitable personal characteristics, from having the same probability of success compared to their counterpart. Male. Unfortunately, it has always been true that motherhood at the wrong time has made many women lose the chance to hold a certain position. However, there are also resistances of a purely female matrix concerning the lower availability to geographic mobility – mainly due to the dynamics linked to family ties – and the greater difficulty in developing networks of contacts that are decisive for career advancement that are often subject to mechanisms corporate engagement internals.

5. Women's work and professional skills

Also for the female world, the professional career development model is defined and concretized around the concept of competence. Making a career in this perspective pushes to acquire greater centrality and visibility in the professional community which, it is good to observe it, remains in any case external to the organization, and in fact constitutes one's reference group in which one is accredited and in which one systematically checks. The ambition for career advancement thus takes the concrete form of acquiring specializations and positioning oneself with a greater reputation, strengthening experiences that contribute to improving and making one's profile attractive. To push women to enhance their skills are also negative factors, such as dissatisfaction at work, but also the possible opportunities offered by the market which, however, represent - at least yesterday - the positive factor. In any case, the general policies continue to appear, however, still linked to a social conception of work, according to which it is the duty of men to invest in work and women in the family. This is a focus - decidedly very restrictive - which within the work organizations is reflected in the maintenance of the functions of greater prestige and power by male principals and, for those of support and less centrality, by the concentration of the female gender. Unfortunately, we end up witnessing the maintenance of a traditionalist vision that is still strongly crystallized and which, by locking on a fixed idea that continues to distinguish between masculine and feminine, risks wasting the potential, resources and human capital that one has. available, as shown by the female employment rate shown as a percentage in Figure 3.

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3. Photo 3, source: Istat, 2014, The percentage of the female employment rate in the three areas of Italy

Companies and organizations driven by result and performance constraints, even with the same educational qualifications or other conditions, see the female component still underrepresented within management despite Italy having today reached participation rates of women graduates, equal to those of other European

countries. This actual lack of recognition of the decision-making weight of women becomes a critical factor for a large part of the labor market, because it confirms the presence of gender stereotypes that are still widespread and well rooted in organizational cultures. It is, in fact, in these interstices of knowledge that the selective mechanism of co-optation insinuates itself, considered the basic element on which the widespread male homologation is based in the world of work, sociologically defined homosociability and which we could translate as "male reproduction in society" . Therefore a definition that captures with great clarity how much male management is more inclined to facilitate and sponsor the entry of other elements of the same sex, to compact "sexually driven" management structures and thus strengthen single-gender ropes. A habit in which, on the other hand, women are perhaps not so interested, above all due to the lack of female solidarity, but also due to the smallness of their presence in top positions. Two factors that in fact do not allow them to weave informal networks of influence and therefore establish real leadership networks. The result is that the distribution of women in work involves professions, cadres and professional qualifications, even of significant ones, but still encounters difficulties in crossing the boundaries of management. In fact, it is no coincidence that women's careers are slower than men's and, often, more stranded in intermediate positions. This is because organizations reward unconditional time availability and a continuous presence in the workplace, both in daily life and for the entire cycle of working life. And in fact, one of the most important factors to be put in place in the career competition is precisely that of flexibility in extending working hours which ends up putting women in conditions of greater difficulty than men, especially at the moment. which they choose not to give up their private life. The model of tournaments, indicated above, confirms that an element such as maternity or the sudden illness of a family member, often falls on women and this, in the context of work, risks making them lose progress or definitively exclude them from the possibility of access. to what we can define the "successive play-offs".

6. A look at the "mare nostrum"

Despite the ethnic, cultural and religious diversity today between the two shores of the Mediterranean Sea is certainly not a secondary ingredient of misunderstandings, socio-economic antagonisms, ideological conflicts and episodic fratricidal wars, to give hope for the countries of the South from where one emigrates, while in those of the North it arrives, it is precisely women. It is they

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who, in recent years, have continued to demonstrate that they look to problems, hopes and opportunities, with a view to sharing the "mare nostrum", despite the differences linked, for example, to the indicator of human development (HDI), recorded by the United Nations in the 2015 Human Development Report. The strategy to make gender equality operational and effective on a purely economic level continues to pass only through women. Equality of pay in carrying out an identical job, which Pope Francis also recently mentioned, continues to be evaded, if not even evaded, even if it is guaranteed, for example, in Italy by the Constitution or by the rules of the Treaties Europeans. The laws on equal pay are calculated exclusively on the compensation per hour worked by employees. But the wage difference between men and women - measured in percentage terms with respect to the male wage - is for example in Italy only 5.2%, while it rises to 6.6% in Greece, even 16.7% in Spain, for then drop to 3.9% in Turkey. Equality of earnings by gender is also disregarded among self-employed workers and among earners of capital income, where the differential between the male and female employment rate seems to be decreasing, unlike that concerning dependent work. In this context, the Gender-GEDI index (Gender Global Entrepreneurship and Development Index, 2015), aimed at identifying and comparing the elements that favor the entrepreneurial potential of women in various social contexts, sees for example Spain in 9th place. , Turkey in 18th - 19th place, Egypt in 27 - 28th place, out of 30 countries examined. More generally, the Global Gender Gap, used by the World Economic Forum, records the examination of the overall difference in participation and economic opportunities offered to men and women in the world, registering the 84th position of Spain, the 87th of Greece, the 114th Italy, the 130th, 131st and 132nd respectively of Tunisia, Egypt and Turkey, out of a total of 142 states. Even if the work is not at all equal, due to the horizontal and vertical segregation of women's jobs compared to men's, it should be noted that equal pay by gender is established by very clear rules. Yet the activities typically assigned to women result in a less satisfactory social but also economic status. The metaphor of the so-called "glass ceiling" makes us understand how equal career progress continues to be prevented, even in the public sector, where equal pay for equal work is more respected. Although essentially focused on the European dynamics of work, numerous researches reveal in any case and forcefully how the two shores of the Mediterranean face qualitatively similar problems, even if quantitatively diversified in the avoidance and evasion of equal pay by gender.

Conclusions

Promote development and multiply the well-being of all within the European Union which, never as today, has bonds of solidarity that are strengthened daily with dynamics of consolidation of the reception of migratory flows from the Mediterranean countries of the East and from the Africa also implies the need to fight in a coordinated way for greater justice and social equity in favor of women. The female universe today, scarcely or poorly occupied, is in fact a reservoir with a higher average productivity than that of men. Assuming then that the distribution of talents can be the same between the male and female population, an identical division of available jobs becomes necessary, as much as indispensable. The Mediterranean countries which, up to now, have favored and continued to favor men, will only continue to be very far from this vision. Women, on the other hand, with their demands and battles for equality, will be able to contribute well to what will be, not only the future of their civil societies, but also that of each of us.

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YOUTH ECONOMIC EMPOWERMENT AND POVERTY REDUCTION IN WEST AFRICA (REFERENCE TO THE AMNESTY PROGRAMME IN THE NIGER DELTA)

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Abstract

The growth of an economy needs to have a great impact on the citizens of that economy and thus help reduce poverty which is one of the main purposes of the millennium development goals. Nigeria has one of the largest populations in Africa and regarded as wealthy in terms of natural resources but with high levels of poverty. The government in their effort applied many policies in eradicating poverty through many empowerment programmes. This study attempts to examine if the empowerment programmes implemented by the government really helped in reducing poverty with focus on the youth who are the future of the economy. Focus was laid on the Amnesty Programme implemented to empower the youth in the Niger-Delta, highlighting the financial commitment of the programme and challenges encountered. The study uses the qualitative research approach which was exploratory and

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descriptive in nature with information leading to deduction of conclusions derived from journals, books and previous papers. It was realized that the Amnesty programme has helped to prevent the militant youths from their bad deeds and succeeded in equipping them with technical training in various fields of endeavour. It was also concluded that there has been a lavish expenditure on the programme but still encounter many challenges such as unpaid or irregular payment of allowances to beneficiaries, inappropriate training provision, and limited employment prospects and so on. The challenges hinder the achievement of the expected goals and thus do not yield any effective result in reducing poverty. The study recommends that The Federal government should provide funds to the beneficiaries of the programme to establish their own businesses or provide them with job opportunities since unemployment of the graduates can push them back to the creek.

Keywords: youth economic empowerment; poverty reduction; West Africa; Niger Delta.

JEL Classification: I25, I32

Introduction

Economic growth needs to have a greater impact on poverty reduction if the Millennium Development Goals (MDGs) are to be met and the effects of the multiple global crises overcome. Poverty connotes a condition of human deprivation or denial with respect to the basic necessities of life: food, shelter, and clothing. It is a symptom of embedded structural imbalance, which manifests in all domains of human existence (Hamdok, 1999). The author also believes that poverty is highly correlated with social exclusion, marginalization, vulnerability, powerlessness, isolation, and deprivation. In Nigeria, the pandemic of poverty is under-grinded by multifarious manifestations and dimensions. A major trajectory of some of these manifestations according to Afigbo (1989) and Mashi (2009) are economic dependence, individual or family inability to provide for the basic needs of life, occasional or permanent joblessness, lack of individual or collective freedom, over-indebtedness, inability to own assets or save, access to land and credit facilities and vulnerability to food insecurity etc. From UNDP (2004), causes of poverty in Nigeria is associated with poor governance, corruption, lack of accountability in management of public affairs, gross violation of human rights,

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nepotism and skewed income distribution, poor infrastructure and impaired access to productive and financial assets especially by women and the vulnerable groups.

In response to the pervasiveness of poverty in the country, the Nigerian government over the last four decades have introduced several programmes, some of which were sector specific and others non-sector specific, with poverty reduction as its centre-piece. Additionally, several poverty reduction approaches have also been utilized in attempt to grapple with the beleaguered poverty situation of the country's citizens. Some of these bothers on economic growth approach, the basic needs approach, the rural development approach and the target group approach and a whole lot of others (Ogwumike, 2005). The problem of poverty is seemed to be often linked strongly with the issues of unemployment.

Unemployment is one of the major challenges faced by young Nigerians. In 2006, the National

Census reported the country's total population to be constituted by about 60% young people and children under the age of 25. According to the 2007 General Household Survey Report, the unemployment rate for youth aged between 15 and 24 was 30.7%. Further, 23 million out of 40 million unemployed youth are considered to be unemployable. This staggering statistic is often attributed to a weakening educational system including out-dated curricula, insufficient resources in schools and training institutions, and a lack of focus on training the youth in certain skills that are required by employers such as communication, leadership, and problem solving, as well as the ability to take initiative and professionalism. In 2008, the inactivity rate for youth aged 15 to 24 was 69.8% and 32.6% for youth aged 25 to 34.

The more disturbing fact is that rather than decrease, these problems have become increasingly complex and intractable in the last decade. The general out look of the country is reflected in the situation of the youth. According to the National Policy, Nigeria, youth comprises the age group between 15 and 35 inclusive and in the last population census constitute the largest proportion of the country's population; some of which are not educated while others are jobless. One might imagine what would happen to the future of the country if the main constituents of its population are facing economic hardship. These have also led many of the youths of the country to stand out in a struggle to benefit from the oil wealth of the economy which is largely situated at the Niger Delta state of Nigeria. The youth thus formed militant groups that often-orchestrated violence in the industry and the country as a whole which effects oil production and other trade activities of individuals.

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The federal government in its efforts tries to calm the situation by instituting the Amnesty Programme aimed at empowering the youth to give end to their actions and thus establish peace. It is therefore the desire of the study to examine how far the government has come with this empowerment programme and how best the programme has helped in economic improvement and hence reducing poverty in the country.

1.3 Objectives of the Study

1. To examine the impact of economic youth empowerment (Amnesty Programme) on poverty reduction.
2. To determine the extent to which the Amnesty Programme has addressed the Niger-Delta conflict and highlight the financial commitment of the federal government to the programme.
3. Identify the challenges and critique of the Amnesty youth economic empowerment programme and come up with some possible solutions
- 4.

LITERATURE REVIEW

2.1 Economic Empowerment

Economic empowerment is the capacity of individuals to exercise control over their livelihoods through their ability to make choices on what productive activities to engage and invest in, to decide how and when to engage in markets and to influence the terms on which they do so. Governments and development partners can play an important role in helping strengthen economic empowerment. They can do this through economic and social infrastructure investments and regulatory measures for decent work (paid and unpaid) through cash transfers and other social protection measures; through policies and programmes for people in poverty to gain access to and control assets, both individual and collective; and through making markets work for people in poverty. Economic youth empowerment can therefore be referred to as a way of equipping the youth through many economic policies and programmes to provide for themselves and thus reducing youth unemployment and social vices inducing a reduction in poverty.

2.2 Conceptual Issues of Poverty

There is no externally fixed poverty standard applicable to all social circumstances. This means that one can hardly find an unambiguous and a universally acceptable definition of poverty.

Because the phenomenon is situational, one can only meaningfully explain it in the context of the historical setting and prevailing circumstances of a particular society. And because poverty is multidimensional in meaning, magnitude and scale, we can also understand it from economic and sociopsychological dimensions. From the economic perspective, poverty can be viewed as a situation of low income and/or low consumption. This approach has often been used for constructing poverty – line; line which represents the values of income or consumption necessary to purchase the minimum standard of nutrition and other necessities of life (Obadan, 1997). Going by this definition, people are said to be poor when their measured standard of living, calculated in terms of their incomes or their consumption patterns, fall below the poverty - line. The poverty - line, according to Adams (2004) is an imaginary index that is used to separate the poor - those who cannot afford the basic necessities of life from the non-poor - those who can afford the basic needs of life such adequate healthcare, good nutrition, education, etc. From a socio-psychological perspective, poverty is seen in terms of deprivation, lack of access to property such as land, inadequate medical facilities, poor living conditions, lack of access to educational facilities, and the inability to realize one's potentials and aspirations. Thus, people here are classified as poor if they cannot afford the basic needs of life; are not employed, dwell in poor living conditions, are illiterate, are lacking in adequate healthcare and social amenities that can give them decent living.

2.4 The Concept of the Amnesty Programme in Nigeria

Armed groups, many affiliated to the Niger Delta-wide political organization MEND, the Movement for the Emancipation of the Niger Delta, proliferated throughout the oil producing states, particularly from early 2006 onwards. In January 2006, MEND declared war on the oil industry pending the resolution of long term political grievances relating to poverty and underdevelopment, the poor regulation of an environmentally polluting oil industry, and the alienation of local people from rights to land and resources in the Niger Delta. Attacks on oil industry infrastructure, the kidnapping of expatriate oil company personnel and the illicit tapping and sale of crude oil became stocks in trade of armed militia, many with political as well as pecuniary objectives. Their actions significantly dented the Nigerian government revenue base, which relies on oil and gas sales for some 90 percent of its foreign exchange earnings. Some estimates point to losses of 100 billion dollars to the Nigerian treasury between 2003 and 2008 as a result of

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conflicts. By April 2009, crude oil exports had fallen to 1.6 million barrels per day (bpd) in March 2009, down from 2.6 million in 2006, in April 2009 the idea of an amnesty for armed ‘militants’ was first mooted by the late Nigerian President Umaru Musa Yar’Adua in power since May 2007, but met with a less than positive response from most militant quarters. It was followed up in May 2009 by a full scale aerial military bombardment of Gbaramatu and Escravos in Delta state, a key militant stronghold and close to offloading platforms of Shell and Chevron. The attack left up to 1,000 people dead, most of them ordinary civilians and many more injured or rendered refugees.

The Background of Amnesty

Neutralizing the nuisance capacity of MEND and its many affiliates, by paying them off, was the principal target of the amnesty deal. The dramatic emergence of MEND in 2005 had changed the character, cohesion and effectiveness of what had been a fragmented set of armed attacks on the oil industry. MEND-an organization with its main support drawn from the Ijaw ethnic group provided the possibility for greater horizontal cohesion. This was done across the variety of affiliated youth militia groups and secret cults / gangs, operating throughout towns and villages in the oil producing states of the Niger Delta, with a multitude of aims and ambitions, since the late

1990s. Whilst initially explicitly political in orientation (MEND’s first statements called for the release of two high profile Ijaw political figures, imprisoned towards the end of 2005, the former governor of Bayelsa State, Diepreye Alamiyeseigha and Alhaji Asari Dokubo, the former militant leader of the Niger Delta People’s Volunteer Force/Service), many of its affiliates and what became known as simply ‘militants’ or ‘warlords’ were less so. The scaling up in the efficacy of Delta wide militancy since 2006 was also facilitated by the dramatic expansion and accessibility of mobile telephony over inhospitable terrain, facilitated greater coordination amongst increasingly better funded and highly mobilized groups. The federated nature of MEND, whilst a source of strength, also meant the absence of a high command structure leaving it open to fragmentation and making negotiations difficult with the potential of exclusion of some and inclusion others.

2.4.2 What the Amnesty Programme Entails

In July 2009, a budget of N50-52 billion (\$145 million), later N68 billion was controversially announced for the Amnesty program intended for 20,192 registered

militants. The actual size of the budget was a constantly shifting target, with different amounts being quoted in the national and international press at different times and the subject of continuous upward revision. Exactly how the budget was to be spent, and the proportion which was to be allocated to monthly allowances versus the proportion allocated to a broader reintegration and rehabilitation package, was also unclear.

Over a 42 month period of training, reintegration and rehabilitation in government designated residential training centers, ex-repentant militants who registered were to receive monthly allowances of N65, 000 over the same period. This was three times the average salary for a young public sector worker in Nigeria but just a little higher than the foot soldier salary, which stood at 50,000 naira (US\$400) in 2006, and substantiates the claim that the amnesty was an attempt to replace an economy of violence with an economy of peace. This could only hold true if militant numbers were accurate. Yet the criteria used to establish eligibility for inclusion were also unclear, with the numbers of intended 'beneficiaries' widely believed to have been inflated.

Methodology

The approaches used in this study are qualitative research design. According to Creswell (2003), "qualitative procedures" stand in stark contrast to the methods of quantitative research. Qualitative inquiry uses different knowledge claims, strategies of inquiry, and methods of data collection and analysis. Although the process is similar, qualitative procedures rely on the text and image data, have unique steps in data analysis, and draw on diverse strategies of inquiry. The study in a bid to achieve its objectives adopted both exploratory and descriptive methods of design. The study also uses exploratory approach of design since it uses *literature search and case analysis* which are forms of exploratory design techniques.

Data collected for the study was from both primary and secondary sources. Primary source of data was collected through telephone interview conducted for the management of the programme in order to have an insight on the progress and challenges encountering the programme. Secondary source of data (information) was also obtained from internet, journals and other forms in completing the study.

Financial Commitment of the Federal Government to the Programme

Every empowerment programme aiming to the achievement of a complete success rightfully depends on the amount of money pumped into it. This subsection

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of the study therefore provides insight in to the financial commitment of the government to the Amnesty programme.

The proclamation of amnesty in the Niger-Delta by former President Yar'Adua, on 25 June 2009 received commendation from the National Council of States, which is the highest nation's advisory body. The Nigerian government has demonstrated commitment to the programme through financial allocation to the programme, which amounts to N127 billion between 2009 and 2011. See table 1 below. The Ministry of Niger-Delta Affairs also got the sum of N181 billion during the same period (see Table 2).

Table 1: Budget Receipt by the Niger-Delta Amnesty Programme, 2009-2011

Year	Budget receipt (N)	Purpose
2009	30bn	Program take-off grant
2010	30bn	Feeding stipends and reintegration for ex-militants
2011	90bn	Feeding stipends and reintegration for ex-militants
Total	N127bn	

Source: Author's compilation from media source

Table 2: Budget receipt by Ministry of Niger-Delta Affairs, 2009-2011

Year	Budget (N)
2009	97bn
2010	46bn
2011	39bn
Total	N181bn

Source: Author's compilation from media source

Following the disarmament, demobilization and reintegration processes, including arms collection, oath of renunciation, presidential pardon, and registration for reintegration, the 60-day amnesty lapsed on 4 October 2009. A total of 26,358 ex-militants registered for the amnesty programme. As at 28 November 2012, 12,000 had been trained in different fields like pipeline welding and crane operations.

The Presidential Amnesty Office in Abuja also reported that 113 former militants had been offered employment in maritime, welding and fabrication companies at home and abroad. This is a pointer to the level of success recorded in the reintegration component of the amnesty programme. Sadly, however, the lavish expenditures on the amnesty programme have been described in the popular media as a ‘political liability’ to the Nigerian government. The year 2012 budget proposal allots a whopping \$450 million to the amnesty programme, which is more than what the government spends to deliver basic education to children. Table 3 shows the 2012 budget of N305 billion for projects execution in the Niger-Delta and running of its interventionist agencies.

Table 3: Federal government’s budget for Niger-Delta for year 2012

Amount (N)	Purpose
N116.5 billion	South-south region-based federal projects (29.6%) of all regions
N54.89 billion	Statutory transfer to NDDC
N60 billion	Statutory transfer to Ministry of Niger Delta Affairs
N74 billion	Amnesty program for ex-militants

Source: Author’s compilation from media source

On their parts, the South-South states also proposed to expend the sum of N1.7 trillion for year 2012. The six South-South states, in addition to the other oil producing states, namely: Abia, Imo and Ondo, make up the Niger-Delta. See table 4 below.

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Table 4: South-South States budget for year 2012

State	Population	Budget (N)
AkwaIbom	3.9m	397.1 bn
Bayelsa	1.7m	222bn
Cross River	2.8m	144.6bn
Delta	4.1m	383.39bn
Edo	3.2m	150.9bn

Source: Author's compilation from media source

Having envisaged the palpable lack of employment for all in the region, the Presidential Amnesty Office has also embarked on entrepreneurship scheme for ex-militants who have completed their training in various vocations in the entrepreneurship pilot scheme. As part of the reintegration component of the amnesty programme, the entrepreneurial scheme is intended to prepare beneficiaries for self-reliance. The scheme comprises a three-week intensive training, preparatory to start their businesses. It enables the beneficiaries create business outlets that are branded, and equipped with seed money. An interesting element of the entrepreneurial scheme is the 12-month monitoring and evaluation period. Within this period also, beneficiaries are expected to maintain log books and monthly reports at least to measure the growth in their choice business. To achieve proper funding and monitoring of the scheme, the Presidential Amnesty Office collaborates with banks. The scheme does not give cash to beneficiaries, it pays for business locations and equips the place with tools or items that would enable them operate their choices business.

Challenges of the Amnesty Programme

The Amnesty programme since its time of commencement was realized to have faced many problems and challenges in accomplishing its objectives successfully

and effectively. These are discussed by the study through observations, personal interviews and internet search.

Economy of peace still far-off

It was realized that there were challenges of allowances unpaid or not regularly paid, huge disparities between payment made to foot soldiers and former militant commanders, limited access to rehabilitation training and allowances for those who surrender weapons after the deadline, inappropriate training provision, limited employment prospects, the absence of a broader political settlement involving the boarder Niger Delta population that has born the cost of conflict, and the politically motivated staffing of bodies responsible for implementing and coordinating the amnesty programme; all these are among the numerous flaws of the Amnesty. These flaws have also been the subject of violence protest throughout the Niger Delta states and beyond, many accompanied by threats of resumption of attacks on the oil industry and on key Federal Institutions by disgruntled ex-militants. The highly politicized nature of the amnesty process, over which political personalities form the Niger Delta fight, has also meant that although the flaws are real enough, protest have also been deliberately orchestrated to political purpose.

Rehabilitation but no reintegration

There are questions that often remain unanswered about the usefulness of the rehabilitation program's skills training and career advice with wide spread complains that training falls short of expectations for high status internationally recognized qualifications that will equip former militants for employment opportunities on the production side of oil and gas industry.

Defective demobilization

It has also come to realization that during the 60 days demobilization and disarmament period, despite the spectacular displays orchestrated by the Rivers state and Bayelsa states governors, no independent verification of arms surrendered actually took place and many arms caches remain intact. Independent verification would have indicated provenance and may have raised more difficult questions about official suppliers. As in the past, arms for cash style pay offs may encourage further arms proliferation in a region of high porous badly policed borders. The possession of small arms continues to be common place throughout the Niger Delta and is linked in part to the poor regulation of oil and gas sector and the manner in

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which oil companies and politicians have for decades, armed youth groups to defend their interests. This has now backfire with devastating consequences on oil companies and the wider population. The decision to retain a sizable quantity of arms, in a context in which militants enjoyed little room for man oeuvre was a means of holding on to the tittle negotiation power they enjoyed, i.e. their ability to inflict damage on the oil industry.

Oil bunkering

Current estimates suggest the much expanded, but not new industry in stolen oil, is worth some 60 million USD / day. This includes small scale bunkering i.e. the illicit tapping of pipelines and wellheads for local refinement and sale, larger scale bunkering for sale to international partners, and the ‘legally lifted’ under invoiced oil that understates the amounts of oil actually lifted by faking bills of laden. Militant activity had provided an ‘enabling environment’ for this illicit activity, which had long been a feature of Nigeria’s oil economy, to thrive (though the scale of losses to the Nigerian treasury suggested it had got out of control – whose control?). The amnesty package, in targeting one layer of a highly intricate web, the ex-militants, has not even begun to tackle what is effectively a hornet’s nest. Whilst the oil theft trade has been reined in to some extent, it still continues. The chairman of the Amnesty panel, in May 2010, lamented losses of 1 million barrels per day since May 2009, costing the industry sources also note a sharp rise in bunkering the theft of industrial quantities of crude oil and illegal refining. In a speech in September 2012, the former Chairman of the Amnesty program, the Defense Minister, Rtd Major General Abbe, claimed that an amnesty for militants did not mean that the JTF would spare oil bunkers (as if militants could be separated out from oil bunkers as wheat from chaff). The amnesty in paying off militants, essentially took them out of the oil bunkering equation, giving the JTF, freer rein in controlling and policing access to the oil theft economy. Yet relying on the JTF to rein in the oil theft industry appears to overlook the role of the JTF in the oil bunkering business itself, and the centrality of oil bunkering to the conflicts between the JTF and armed groups in the Niger Delta.

Competing Notions of Security in the Niger Delta

The insurgency ‘situation’ sharpened and institutionalized long established heterodox forms of ‘security provision’ (or ‘protection’) by local youth to oil companies. War, insurgency and the militarization of youth groups were indeed an

attempt to use force to secure claims for the awarding of contracts to those designated by the leadership of the armed group in question, and to permit access to the lucrative illicit oil economy that they both afford. As stated in the official amnesty program website, among its desirable benefits was an increase in 'revenues accruing to the

Federation account', 'business activities and foreign direct investment'. Reinforcing the role of the

JTF was seen as the principal vehicle for guaranteeing security for the oil and gas sector. The amnesty was a confirmation of Nigeria's military supremacy over militants (as evidenced by the Gbaramatu adventure a month earlier), and of its desire to carve out its niche in security provision for the oil and gas sector.

Conclusions

It can be concluded from the study that the amnesty programme has succeeded in the prevention of youth militants from attacking the oil industry, kidnaping of expatriate's oil company personnel and tapping and selling crude oil from the stock. The programme has also succeeded in providing technical training to the youth as a form of economic empowerment through different forms to ensure proper means of livelihood for the beneficiaries. This has brought a relative peace to the oil industry of the country leading to the increased generation of revenue. The oil production index which is a good indicator of the Amnesty programme also gains an increment through the declaration of amnesty resulting in development in the region. Several criticisms and challenges of this empowerment, it does not purely eradicate poverty as expected. This means the federal government has a lot at hand to do.

It can further be concluded that the government is financially committed to successful implementation of the integration component of the programme. However there has been too lavish expenditure on the programme which is attributed to the dimension of political liability to the government.

The programme was also coupled with many challenges such as incomplete peace maintenance in the region. This is due to the challenges of allowances unpaid or not regularly paid, limited access to rehabilitation training and allowances, inappropriate training provision, limited employment prospects, the absence of a broader political settlement and politically staffing of the bodies responsible for implementing and coordinating the programme which have been subject of violence protest throughout the region (Niger Delta). Other important challenges

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hindering the programme included the problem of rehabilitation but no integration, defective demonization, oil bunkering and competing notions of security in the Niger Delta.

In general a successive and effective implementation of an economic empowerment programme would yield effective results but should be paid the much attention in its implementation else it might lead to waste of resources.

Recommendations

The Federal government should provide funds to the beneficiaries of the programme to establish their own businesses or provide them with job opportunities since unemployment of the graduates can push them back to the creeks. There should also be a fair selection of personnel constituting the bodies responsible for the programme to ensure non-political issues in the successful implementation of the programme.

A well research should be carried out in to the labour market to identify sectors of the economy especially the manufacturing sectors who needed more labour force so as to design training courses of the programme that suite such sectors for ease in employment.

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WHAT WILL THE FUTURE OF CREATIVITY AND INNOVATION IN PUBLIC RELATIONS LOOK LIKE?

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Abstract

In this paper we talk about creativity in public relations, that is clear that we need. For us, creativity in public relations can be a mean, a novel way to accomplish an objective more easily, more efficiently and more quickly. It is clear that every client appreciates creativity, but in many situations it does not translate into events or visible messages for a mass audience and then it is not visible. We also talk in our paper about the profile of a creative relationalist, that must be: involved, informed, avid after work, possessing theoretical knowledge, having flexible and positive thinking, being visionary. In this paper

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we will try to demonstrate that creativity can occur in one of the following situations: either in strategy (positioning, planning), or in execution (tactics, presentation materials, information).

Keywords: *public relations; creativity; innovation; IoT; tactics; digital storytelling.*

JEL Classification: M14, M31, M37

Introduction

Public relations itself is a creative job: it asks daily to the public relations specialist to find specific communication solutions to specific situations. We often wonder if there is a place of creativity in the world of corporate communication?! Sure it is, just as it is in the corporate environment, because this environment is addressed to it. Creativity must always emphasize the message we have to communicate, and not eclipse, or, even worse, trivialize it. As an extreme, we remember corporate presentations or events that we could not track because of boredom, and in the other extreme we have examples of sparkling presentations from which we have not learned too much.

What is tried every time is to find the optimal balance (not dare to say perfectly) between the message, the form and the delivery, in such a way that PRist's words reach the target, be understood and assumed. It is not spectacular at all, but this is reality. Because the information transmitted by all these modern means can be made available to the public, the target of the organizations requires communication professionals and requires a lot of creativity, too.

Creativity in public relations can also be defined as the ability to create something new by joining two or more elements in a novel context in order to create value added to a task. A creative act is not just about initiating added value, but also about evaluating it. It must produce a value to be recognized by a third person.

Public relations in innovative companies can strengthen brand value by communicating innovation processes and adding value to innovation by developing narratives for new products and services in parallel with technological and business development. The development of innovation communication and PR will benefit from the emergence of independent innovation journalism.

Literature review

Creativity varies through seduction

Public relations are seen as a managerial function that establishes and maintains mutually beneficial ties between an organization and the public on which its success or bankruptcy depends. This process takes place in a public space bombarded with messages on both ordinary and novel ways. Creativity in public relations intervenes in the dialogue between the organization and the public with elements of originality, ingenuity, novelty, value, efficiency, meant to highlight the messages emitted (Dilenschneider, R. L. (Ed.), 2022).

Actors who disputed positions in public space are sensitive to creative actions. They help the customer to better position themselves in a dynamic, dense, agitated, overcrowded field. Companies that communicate professionally in public space adopt public relations strategies to help them differentiate, stand out, attract attention. They know that public relations is a field of activity where creativity is visible and immediately judged.

Creativity in public relations is not available for sale at the corner of a street. It is born out of reading, education, imagination, talent, inner freedom, attention, experience, qualification. Creativity makes the difference between a well-done event and a memorable one. People remember the new, eccentric sometimes, which impresses, shock, stimulate, capture the imagination. Creativity makes the message of the organization not being just there, but to seduce. Seduction can have as a vehicle humor, celebrity (usually an endorser), complicity, ingenuity, surprise, etc. (Dilenschneider, R. L. (Ed.), 2022).

1.The need for creativity in PR

PR activities are very diverse and require a lot of skills. The Public Relations Specialist is both the one who thinks of an unprecedented communication strategy as well as the one who documents, plans, monitors, and measures the results. Because of this, there are many people who see in public relations a work made by an organized person than a creative person. So the question is, do we need creativity in public relations or not ?! (Dilenschneider, R. L. (Ed.), 2022)

We have to agree that a good and efficient public relations activity cannot be done unless it is conceived and made by a creative person. Especially in the online environment (Dodd, M. D., Mundy, D., & Heffron, E. R., 2022). And research and planning also require creative spirit. According to DEX, creativity is defined as an ability to create, producing values.

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We often ask ourselves whether research in public relations is creative. We started with research, because it is probably the least loved work a public relation specialist has to do. In summary, research involves gathering all data about the company, product, employees, public, market, competition, media and community that a PRist needs in developing a communication strategy (Elgueta-Ruiz, A., & Martínez-Ortiz, J., 2022).

Research, however, also involves flair. The PRist must collect information from the surrounding world, not just from the databases. It has to show the fine observation, the ability to analyze the human nature, to make subtle connections, to have insights that no one has. And this is also a side of creativity. Valuable research means without stereotypes, a view beyond what is put before the eyes and the overlapping of the contours drawn precisely. At the same time, valuable research means finding information beyond the data, not seeing the public as just a demographic statistic, but going beyond it and observing their unobstructed behavior in figures. (Mehmood, K., Jabeen, F., Iftikhar, Y., Yan, M., Khan, A. N., AlNahyan, M. T., ... & Alhammadi, B. A., 2022).

Planning in public relations is associated by most people with an activity that is more about organizational capacity than about creativity. But the big ideas, the brilliant campaigns we see on the specialized sites, are not shining just because someone has chosen the right words, not only through the images they use, but through the strategy behind them, the one that gives them life and set in motion.

The way to link goals with communication media and how to implement it is the one that determines whether or not a public relations campaign is ingenious and whether it will be remarked. The online environment and the pressure to be creative are those that made it very clear that being creative as a public relations specialist is a necessity and not a caprice (Cronin, A. M., & Edwards, L., 2022).

Beyond the traditional aspects, the digital environment has come up with new opportunities to test the creativity of the public relations specialist. And this is because specialists in public relations needs to think about gaming mechanisms, build useful and fun applications, interact with consumers and, more than that, distinguish themselves among millions of voices. He needs to know his audience in detail, anticipate his reactions and be permanently prepared with an articulated message in the sense he formulates as he would like to hear from a friend. Therefore, the online environment is the one that has made it very clear that being creative as a public relations specialist is a necessity and not a caprice. Good creativity is equal to efficiency (Fisher, J., 2022).

And yet, if creativity in public relations is a necessity, then we ask ourselves: Why are not we surrounded by creative campaigns? We rarely see a brilliant campaign made by a freelancer for a small business client (Maiorescu-Murphy, R. D., 2022). But why all this? There are, however, some possible reasons, among which we can recall: 1. *The first of these concerns to budgets.* This one follows the model "we have ideas, but there is little financial resources to put into practice." There is not much to say here. Unfortunately, such things happen, too. But to be creative means to know how to adapt, to do much of it. Because it can. Hard, but it is possible. Especially in the digital environment; 2. *Education that is received in schools, high schools and universities does not stimulate creativity.* The second reason is that public relations creativities are missing. The education that people receive in schools does not stimulate creativity. Thinking out of the box is still punished in many schools, even in some faculties; 3. *The problem of creativity is improperly understood.* On the other hand, the problem of creativity is poorly understood. That trendy creativity. I'm talking here about the pseudo-PR-ists who think that if they take a shimmering hat and put their straps on their pants, they are creative. Or things do not, as we all know. Creativity comes from a lot of work, careful documentation and passion (Zhou, A., & Xu, S., 2022).

2.The importance of creativity in public relations

Public relations work is based on creativity in almost all its approaches. As in other areas of communication, PR success does not have a specific recipe, it is the result of associating appropriate tools at the right time. The various communication campaigns run by a company or brand obviously have as a starting point an applied approach to the company philosophy, but their success depends on the ability of specialists to be creative. (Cronin, A. M., & Edwards, L. , 2022).

As public relations has a rapid spread, public relations specialists have to bring elements of originality, to look for new angles of approach and to prove in each image campaign creativity and professionalism. To attract attention to the company they work for, public relations specialists often turn to events. Some special events target employees and others are external. These events can take the form of picnics, teambuildings, birthday parties, sporting events, "open day", public demonstrations, etc. It takes a lot of ingenuity to surprise the people concerned and for the organized activities to not become anything banal, repetitive. That is why public relations specialists are trying to explore their creativity by using ideas stimulation techniques, such as brainstorming, ideas evaluation, individual creativity, focus group (Tench, R., & Willis, P., 2009).

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Of course, documenting and informing about a particular issue, a particular product must pre-empt any creative approach. In public relations, however, everything must have a practical purpose, measurable in image capital or money. That's why creative talent is not appreciated for itself as long as there are no tangible results. This is why some firms avoided hiring highly creative people who might become unprofitable. But other firms have found a more productive solution. They have each person in each team to temper the creative momentum when they move away from the target. The creative power of a team of public relations specialists is reflected, among other things, in the degree of customer satisfaction or the number of clients in the case of public relations firms. Unfortunately, the quality of work is not the only criterion that motivates or discourages people from resorting to services provided by specialists (Tam, L., Kim, J. N., Grunig, J. E., Hall, J. A., & Swerling, J. , 2022).

3. Guerrilla public relations - an increasingly appreciated branch

Many companies find the prices of PR firms fairly restrictive and they are forced to give up this kind of service. But the imagination of practitioners has managed to overcome this obstacle. Thus, the guerrilla public relations (PR guerrilla) appeared, an increasingly appreciated branch. The reason why guerrilla public relations is becoming more and more appreciated by both clients and the public is a very simple one. Guerrilla PR means, above all, creativity in public relations. It means applying surprising tactics, with maximum effects and minimal costs. It means sending messages in a clever way, more personal and aggressive than classical practices. In guerrilla public relations the key to success is not to do more and more public relations activities that consume more and more money, but to find ways to establish solid links and trust the audience, using the resources that a company already has (Álvarez, A. M., 2022).

Of course, in public relations, creativity also involves taking a risk because the message of a company may not reach the target audience or be misunderstood. However, it is important to note that public relations specialists must have the courage to free creativity. There is no need for someone to be a magician of the word to use the force of guerrilla creativity. The PR specialist does not have to be an exceptional writer, a perfect artist, a great photographer or a great playwright (Tench, R., & Willis, P., 2009).

Creativity is also important in drafting public relations materials. Even though most of the texts used in the field must strictly follow the editing rules, creativity

does not become redundant. On the contrary, it is all the more difficult to be original, to attract attention when you are restricted by rules and templates. Such conditions require even more the originality and inspiration of the author. The audience does not take into account that the PR specialist have written 100 or 1,000 company-related releases, for public every text is a testimony of the engagement, professionalism and appreciation the PR-ist has for the company he represents (Vollero, A., Yin, J., & Siano, A. (2022).

Therefore, a public relations specialist must always come up with a new and interesting "coat" to embody the same defining message of the company. We also want to mention that a public relations specialist can demonstrate his creativity through the way he builds his own image. It is known that the audience tends to overlap the image of the spokesperson with that of the company. If the person appearing in front of people is a confident, positive, vivacious person, the company will also be perceived as strong, open and communicative, but if the spokesman is refractory, inexpressive and laconic, the public will think the company has something to hide, is outdated and not involved in community issues.

The creativity of public relations specialists is and will be difficult to test for what we call "peace PR". This new and ambitious concept aims to increase the value of peace news to make it more visible in the media at the expense of war. But peace is a very difficult "client", which means that reaching this goal will require a call to creativity to develop awareness and education strategies for the public (Guiora, A., Cotton, A. M., & Sebastião, S. P. , 2022).

This topic is insufficiently explored, probably because of the fear of practitioners not to "mistaken". It is very important to keep in mind that the field of public relations is very generous and that it allows and demands the broad and uncensored manifestation of creativity. We can be sure that whenever campaigns and public relations actions are based on creativity, we will have something surprising, different, funny, something that will stop us, something that will make us want to see what it follows. (Tworzydło, D., Gawroński, S., Opolska-Bieleńska, A., & Lach, M. , 2022).

4.Reasons why innovation is communication in digital economy

Today, companies in all industries need to find new ways to innovate and reinvent themselves to survive in the digital economy. People who run innovation programs at major companies often ask: *What is the most important factor in developing the latest innovations? Is it a great idea or a great deal of funding?*

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Inspiration or sweat? Imagination or discipline? Taking risks or following certain processes? Of course, all of the above, but none of the above is the only major factor. Transforming a brilliant concept into a product, solution or service sought with a great impact on the public, requires another vital ingredient, and after decades of experience in developing solutions and in conducting co-innovation programs, PR leaders consider communicating as the most important factor in innovation. Innovation is, in fact, communication (Pinsdorf, M., 2022).

Communication, including rare art of listening, is more necessary than ever in our digital age, as the pace of change accelerates exponentially, technology becomes more complex and the entire industry is disturbed overnight with unforeseen business models (Clark, T., Dodson, S., Guivarra, N., & Hunt, Y. W., 2022). People listen to respond, rather than understand. However, digitization requires active listening to the ecosystem to survive and develop collaboration strategies with companies, partners and customers around the world.

We totally agree with the viewpoint of journalist and editor *Chris Anderson*, the curator at *TED Talks*, who said that "any significant element of human progress only occurred because people shared ideas with each other and then collaborated to turns these ideas into reality. " Thus, bidirectional communication can mean the difference between success and failure when it comes to innovation. Here's what we're going to say about the three key reasons why innovation today is communication. (Willis, P., & McKie, D., 2011).

First of all, ***inclusion and diversity must be considered***. Today's most innovative organizations recognize that ideas that change the game can come from anywhere and from anyone, encouraging greater diversity and inclusion (Mehmood, K., Jabeen, F., Iftikhar, Y., Yan, M., Khan, A. N., AlNahyan, M. T., ... & Alhammadi, B. A., 2022). In "Why diversity matters," *McKinsey & Company* found that the most diverse ethical companies in their industry had 35% more chances to overcome their colleagues' performance, while those of a wide variety of men and women have only 15% more chances to get better financial benefits. *Cisco's* own research shows that inclusive practices have been the second biggest advantage of IoT innovations, with immediate importance to the quality of the technology infrastructure (Willis, P., & McKie, D., 2011). Greater inclusion places enormous importance on the ability of different organizations and teams to communicate clearly, consistently and with mutual respect. For example, *Cisco* is launching annually an innovation challenge for all its employees (over 74,000 employees), encouraging them to cooperate and co-innovate, form different teams,

take advantage of their own passions and bring their ideas to life (Sebastião, S. P., 2022). If someone tries to become more innovative then communications should support their entire effort from start to finish. Each company has to collaborate with employee communications, human relations, business leaders and top management, including the CEO, to strengthen the importance of employee innovation in the strategic direction of the company. It is essential to improve the key messages sent by executives and others to meetings and events organized by the company in video, articles and presentations (Vuillermin, F., & Huck-Sandhu, S. (2022)

Secondly, it is very important *to create a solid and innovative team*. For example, in *Silicon Valley*, startups are based on almost everyone to contribute with the best to develop true player leaders at the level of working teams. In the big companies, the process tends to be rather bureaucratic, heavier and with some political influences, which hinders communication and open progress. First of all, a creating an (Willis, P., & McKie, D., 2011). team is at least as important as the idea itself. Innovation is more like a team sport with different players than a traditional approach with the help of engineers who have the same beliefs as a result of a rigid learning processes and a narrow perspective of the outside world. Winning innovations come from inter-functional teams that exploit their members' information on marketing, sales, human resources, operational development, engineering, or business development. With the mind open to communication, innovators challenge each other, validate and develop together truly tradable solutions - not scientific experiments. (Joshi, B., 2022) And here we have to agree with *Elon Musk*, the pioneer of innovation, who said that talent is extremely important, like a sports team. The team that has the best individual player will often win, but then there is a multiplier of how these players work together and the strategy they use (Suárez-Monsalve, A. M., 2022). Therefore, companies should invest in a strong communication platform to encourage team innovation. Repeated messages must empower and inspire decision-makers, take risks without fear of being prosecuted or penalized. Guided by HR, any company can communicate through their multimedia channels their innovative attitudes (Rashidovna, A. F., 2022).

And last but not least, *emphasis should be placed on hyper-co-development*. The days of the lonely innovator who work alone at night in a room behind the house or in a garage are long gone. Today, no one can innovate alone because of the complexity of the technology and applications that appear on the market. Today everything is about hyper-co-innovation, where solution providers, customers, partners and even employees learn, collaborate and develop together (Joshi, B.,

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2022). Many companies have created innovation centers to present and co-develop solutions with their ecosystems. It is essential for companies to have global and local innovation centers serving as labs and outposts of listening. Here, employees can work with partners to share best practices and failures to develop and, most importantly, market solutions directly on the market. Finally, everyone wins.

We cannot, however, overestimate the importance of listening. Greek philosopher *Diogenes* said that "we have two ears and a tongue, so that we listen more and speak less." *Peter Drucker*, the father of management, also said, "To improve communication, you do not have to communicate with all, but only with the final recipient." In all innovation programs, whether internal or external, good things only happen through listening, understanding and evaluation and other perspectives (Shen, H., & Jiang, H., 2022). Without the power of bidirectional communication, few innovations that improve our lives and livelihood would go beyond an idea.

5. Innovation in PR: Digital Instruments

Innovation in PR is seen as a new method, a new process, a new product, etc. Innovation has been called a basic word in business, but essentially it's nothing but change, and the benefits it brings do not only apply to the product industry. It's a matter that has been debated several times over the last few years - "*What is the future of Public Relations and how do we get there?*" There have been demands for innovation, new ways to think and do things, to keep up with a forward-looking economy in terms of digital technology, staff resources and consumer involvement (Zhou, A., & Xu, S., 2022).

5.1. Innovation in service offer

Demands for innovation in public relations have been requested, partly due to *advancing content marketing or inbound public relations*. Content marketing is simply when media, like blogs, social channels, images, speeches, videos, e-books and so on are used in a cohesive plan to publish content in specific places to target certain audiences and to get a specific result (Joshi, B., 2022)

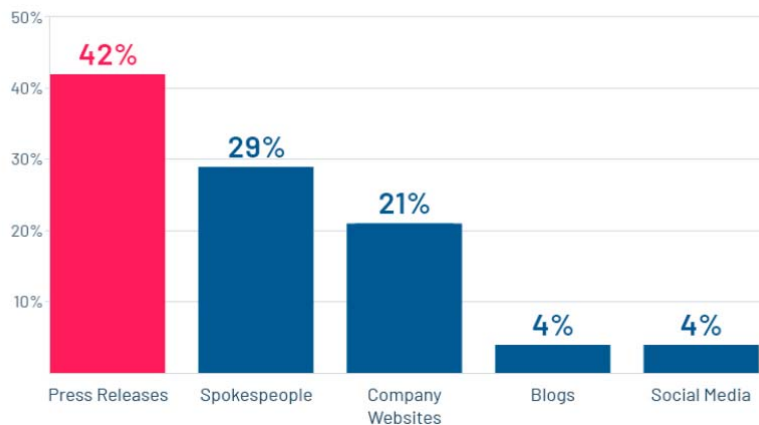
Realistically, this tactic is new only by name. It could be argued that the content marketing industry has been around for over a century. *John Deere's American Farming Company* is often recognized as a pioneer with their publication "*The Furrow*," being first printed in 1895. Whatever the term used, the proactive creation of media opportunities is important. Website optimization and press

releases, meaningful engagement with the public in social media, and increased search engine rankings are just some of the results that PR agencies currently offer as part of their offer services. (Badham, M., & Mykkänen, M., 2022).

The problem for the PR industry - and the great opportunity for the business community - is that the relationship with the media remained their ‘bread and butter’. And the online media landscape is drastically different from the old days of printing information. Journalists do not call on PR officers, and even when they do, they would prefer to talk to business owners or founders anyway.

Finding, staging and building relationships with the media is now available to anyone. With this in mind, digital marketing agencies are moving forward, offering not only content production and media relations, but also more technical and more lucrative online advertising. PR vendors must remain at the forefront of digital tools and abilities to help future customers as well (Zhou, A., & Xu, S., 2022).

The Most Trusted Media Sources in the US



Source: Cision

Top Digital Instrument: As content moves more and more to the visual side, free tools such as **Infogr.am** make it easier for organizations to communicate better, from statistics to stories, in an attractive design format suitable for social and digital channels. Mass media also increasingly incorporates this type of content in

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their news coverage, thus reinforcing press releases. Press releases are ranked as the most trustworthy channel for media. People have low trust in news sources in general, and media professionals are no exception. Traditional forms of PR like press releases, however, still stand strong, and with 42%, are ranked as the most trustworthy source by media in the US. They outrank company websites (21%), blogs (4%), social media (4%), and spokespeople (29%). (Source: CISION)

5.2. Innovation in delivering services

The least-favored area of innovation in PR is *the supply of services and pricing models*. Modern PR agencies treat products and services in an outdated fashion, perhaps because they feel comfortable, but do not necessarily match the way modern businesses work. By giving them what they might want, but not necessarily what they need. And here, technology advances the way some PR agencies deliver customer information (Joshi, B., 2022).

Independent subcontractors, 24-hour teams and global network alliances allow even the smallest agencies to do their deliveries worldwide, over continents. Let's take the example of *The PR Network*, from Northern Ireland, using online project management systems, independent professionals and personalized services. The local *Serious PR Agency* has been offering the same approach for a few years (Mairescu-Murphy, R. D., 2022).

Unfortunately, this innovative model is quite unique. For the most part, the industry continues to operate with a generic provider that offers: hourly invoiced personnel costs, setting hours per month with additional bills, unnecessary management levels that only have the task of drinking wine and getting dinner to win new customers. In a modern age of daily social media, with a community less and less able to take initiatives that can do much of the core business, requiring only sporadic top-level strategic advice; this old model of action is outdated, is no longer fit for the original purpose, and virtually does not deserve the investment. For the same reasons, this model will soon become unprofitable (Vuillermin, F., & Huck-Sandhu, S. (2022)

The PR industry will have to look at their colleagues, such as: *FinTech*, *Digital Marketing* and beyond, to find out how well it can use the digital landscape and the various tools and abilities within it if they want to offer a personalized service, adapted to the next generation of companies. Otherwise, they will constantly be accused of over-valuation and under-delivery (Hanlon, A., 2021).

Digital Top Tool: There are many automation tools available to streamline PR processes from social programming software such as *Hootsuite*, *Sprout Social* and

Buffer to tools like *Coverage Book* to save time even for the basic task reporting to customers (Bashirzadeh, Y., Mai, R., & Faure, C., 2022).

5.3. Innovation in the service team

Of course, every company needs more than products and services to offer to their customers. Companies need good people to support their interests. The needs of the modern workforce and the growing skill set needed to produce **high-quality content and technical skills to attract customers**, also require the innovation of the PR industry. PR agencies have a bad reputation when it comes to people's management. From "slavery" internships, accessible only to wealthy students, to the "first-come-last-out" mentality, overworked employees have become mentally fatigued before the age of 30, career development in an in-house job, not being a dream to touch for them (Joshi, B., 2022).

Public relations is an industry that will strive to attract the best writers, digital marketers and data scientists. Even once recruited, a beginner digital specialist does not fit easily into the structures of any project team. Let's add that PR agencies either require candidates to have a digital diploma or look for a lot of skills, from graphic design to advanced PPCs, all wrapped up in an inexperienced graduate so they can pay him very badly. Recruiting, retaining and developing staff can be said to be an area that could certainly benefit from innovative thinking in the future. (Bashirzadeh, Y., Mai, R., & Faure, C., 2022).

Top Digital Instrument: ASANA is one of the many project management and teamwork programs that allow for flexibility across teams. At *UtilityBear.com*, they use it for design, eCommerce, digital marketing and social media, the team being geographically dispersed, so half of staff work outside of the office and out of office hours (Denga, E. M., Vajjhala, N. R., & Rakshit, S., 2022).

5.4. Assess innovation in services

Despite the traditional argument that *PR is "part-art-part-science,"* public relations was predominantly filled with quality writers, qualified communicators, and people with a healthy and innovative way of thinking. There has been and remains a shortage of qualified staff in database analysis. And this is a problem because data analysis has become the foundation of the modern PR campaign (Zakharchenko, A., 2022).

In the most advanced thinking of agencies, digital is now the cornerstone of performance control. We can try to measure the public's feelings, we can even try

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to prove awareness raising, but the modern business desires more. Modern businesses want concrete evidence of value. Beyond traditional PR services such as media coverage, modern agencies are still on the way of learning to measure blog rankings, search engine optimization (SEO), technical improvements in areas such as video production, social media measurement, and finding ways to automate as much as possible to free up time for creativity, content production, and long-term campaign planning. With innovative tools, modern PR can try to bridge the gap between outputs and inputs and show the true core value for companies (Mairescu-Murphy, R. D., 2022).

Top Digital Tool: Answer the Client connects to a *Google Analytics* account and makes great things for a PR report. Once online media coverage URLs are entered, the tool binds the traffic source to visitors to the site, generating an instantaneous snapshot of traffic generated by PR coverage, as well as any goal or value of the created transaction.

But all these innovative practices are far from being widespread. Of course, the PR industry is in the process of learning and innovation, but not as fast as the business community deserves and needs. Regardless of the industry in which a company is located, digital technologies enlighten us all with a wide variety of innovations in products, service delivery and processes (Mairescu-Murphy, R. D., 2022).

We know, for example, that innovative companies using these technologies work better and ultimately have more success. Moreover, in the future, lack of innovation can lead to total loss of business models.

6. The future of public relations

The guiding principle of public relations refers to the use of news and content to present a message about anything - a product, a business, an organization, an effort - using any effective means of reaching the audience. Over the years, public relations has taken many forms, depending on the most effective means of communication at a time (Mairescu-Murphy, R. D., 2022)

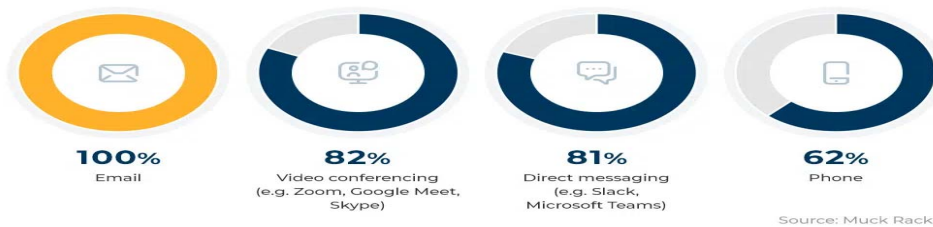
Public relations does not deal with advertising. Public relations tell stories. PR is an image trainer. But with technological advances that turn almost every aspect of communication and interaction, leaving nothing intact, we might ask: "*Is the PR in essence a tool for modeling stories, not advertising, but also an image modeling tool that we have ever known?*" It goes without saying that public relations is still a continuous influence that has managed to withstand the test of time. From our perspective, the law of supply and demand gave the PR a new impetus, with

companies having more and more ambitions to impress and attract customers, with a much more precise focus on building and winning an audience (Zhou, A., & Xu, S., 2022).

There is always a new battle, a new editor, a new editorial calendar, a new PR store etc., which makes PR a very interesting and opportunistic landscape for brand building. To keep up to date, it is essential that PR and communication people always read articles and news from the target market to attract the attention of new publishers, writers, columns of publications, etc., and then take the right step align the requirements and impress the audience. Whenever PR people meet a new writer or publisher, it's a good idea to send an introductory email, even if they have not yet prepared a news story that immediately matches the audience needs of the target audience (Allagui, I., & Breslow, H., 2016).

The most popular communication tool among PR professionals is *email*. Sure, we all expected PR professionals to spend their working hours constantly communicating with others, especially journalists, but who would have expected that all of them spend most of their time using emails? Other commonly used tools among PRs include *direct messaging*, *phone*, and *video conferencing software*, as evidenced by the latest public relations statistics. (Muck Rack)

The Most Popular Communication Tools Among PR Professionals



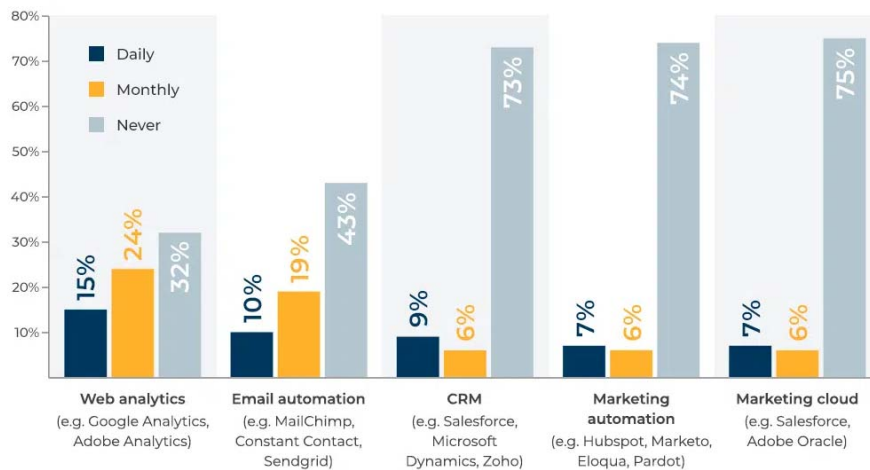
The highest percentage of PR professionals choose *web analytics* as their top marketing tool. On the list of the most popular marketing software are *marketing automation*, *web analytics*, *marketing cloud*, *email automation*, and *CRM software*. Interestingly, about three-quarters of PRs never use marketing clouds, CRM, and marketing automation software. (Muck Rack)

Twitter was voted the best platform for following journalists by over 90% of PR pros. One of the most common forms of PR is finding good journalists and

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following them on social media. That's why 54% of PR professionals follow journalists on their social media sites before pitching to them. 91% of them say that Twitter is the best platform to do this. Meanwhile, when it comes to social media platforms for developing communication and social media strategies, PR statistics show *LinkedIn* is the top choice among PR pros. Twitter comes in second, with 77% of PRs voting for this platform. *Instagram*, *Facebook*, and *TikTok* close the top five.(Muck Rack)

The Leading Marketing Solutions Among PR Professionals and Their Usage Frequency



Source: Muck Rack

Industries evolve and PR is no exception. Here are the responses to *Where do you see the focus of the PR profession in the next 2-3 years?*:

Some of these predictions may have been on our radar already while others might come as a surprise.

Here are six trends that are going to define the conversation about PR in the years to come (Prowly, 2021):

- Moving closer towards content regulation on social media
- A greater emphasis on social responsibility & business ethics
- The rise of Artificial Intelligence and data science

- Digital events are the new norm
- Soon, everyone will have a podcast
- Paid exposure is likely to replace earned media.

Business strategy	43%
Purpose-driven initiatives	51%
Digital-only	10%
Artificial Intelligence	7%
Integration with Internal Communications	25%
Reputation management	43%
Crisis management	40%
Change management	32%
Technology proficiency	18%

Source: Ragan Communications, 2020

8. What's going on in PR right now?

While there are many widely used public relations procedures to choose from, 88% of leading PR professionals believe that one of the new PR strategies, **digital storytelling**, is the way to go. They state that digitalization has found its way into just about any sector and that the PR industry is no different. (USC Annenberg)

The Top PR Strategies That Will Shape the Industry's Future

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Source: USC Annenberg

Less than 50% of large US companies engage in PR activities. According to Statista's public relations industry analysis, 46% of large US enterprises (with 500+ employees) recognize the importance of public relations and utilize it in their business strategies. Additionally, 19% of them have hired an external agency to do the job for them.(Statista).

The public relations industry growth has been skyrocketing since 2016 when the market was valued at \$14 billion. That number jumped to \$63.8 billion in 2018. According to Statista, the global public relations industry is expected to reach \$93.07 billion next year.(Statista)

The function of *writing a press release* is no longer a priority in PR. As it turns out, writing is one thing, and relevance and attraction is another thing. Now the PR function begins to focus more on *return on investment (ROI)*, so we see two major disciplines that begin to line up: public relations and marketing. In simple terms, it is not just about creating content, but rather about "content marketing" - and today it means a whole world of difference (Watson, T., 2005).

Influencer marketing is an essential PR and marketing tool for 93% of marketers. Influencer marketing is one of the new PR strategies. It consists of a product or service promotion by an influencer who has a significant impact on the decision-making of your target audience. With the rise of digital channels, particularly the importance of social media, this form of marketing has bloomed. Aside from the obvious benefit of reaching your target audience, influencer marketing has excellent ROI. (Marketing Dive)

Then, in public relations, the most important player in the rules of the game is, in our opinion, the Internet of Things (IoT). Even though the Internet has always been involved in PR, the number of users is steadily growing, with more technologies designed, making it more convenient for humanity to access anything online. For public relations, this means one thing: the internet is the largest communication medium and will remain so until the next technological revolution. (Amodu, L., Odiboh, O., Usaini, S., Yartey, D., & Ekanem, T. , 2019).

Over 73% of journalists look for press releases online. This and other similar PR facts stress the importance of digital PR and online outreach (Fehrer, J. A., Baker, J. J., & Carroll, C. E. ,2022). Among other things, online press releases drive organic traffic toward websites, particularly if it relies on keyword optimization. (Isynergy)

Conclusions

Given the current trends, we think it's safe to predict that PR will remain in general lines, steady in the years to come. Inevitably, more emphasis will be placed on online content and less on print. As far as the future of public relations is concerned, in our opinion, we are looking at an increasing number of people heading to the online media as a source of real-time stories and responses. There is and will be a considerable transition from public relations based on journalists / writers to a customer-focused approach.

Public relations has turned over the past years towards a more customer-oriented structure, with consumers playing a more important role in how agencies give their information to the press. We think it is an important factor to consider, and PR business strategies should be changed easily nowadays to reach target customers of content companies that will ultimately create a rapid and beneficial change for the customer, either through the purchase of products or services, or through impressions, etc. It is important now that PR specialists of companies to focus more on what the writer / journalist wants to write, but most important on what the consumer hopes to read.

Public relations refers to stories and, as people and activities evolve, so will the stories. Today, people spend more time surfing online than reading a book, and when they read online, only 28% of the words are likely to be retained. To optimize their attention, the more condensed is the content, the better.

For public relations, the direction is now directed to visual content - infographic, GIF content, and short videos that can be shared. From our perspective, the public of the future will require short, condensed, appealing and visible content from a company's PR specialists. As a PR agency, careful planning and brainstorming of visual content are essential.

PR-ists must be careful to keep what is current and potentially viral to attract the audience. In view of these realities, we also add that statistics show that the largest population of Internet users is made up of people aged between 18 and 49, most of whom are millennial. So, we are talking about a growing population in the world, people tired of old public relations tactics. Do you think they read longer articles? Do you think they're watching commercials? What kinds of influences do you think that determines their purchasing decisions now? To answer these questions, the future of PR will pay more attention to future analysis processes.

Any organization that does not take into account the power of analysis capacity will be clearly disadvantaged compared to the rest. However, the good news is that

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we can now identify a number of reliable analytical tools for market-testing. Compared to printed matter, it's easier to measure ROI for any PR article published online, with more sophisticated tracking tools at hand.

Public relations is and will remain the story and construction of the images, which will remain a constant. In the following years, in the PR vocabulary, we will probably hear terms such as "data techniques", "data analysis" and "geo-location" added to existing PR terms. Companies must be armed with statistical data as the basis for reliable and influential stories to rise above the competition.

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CORPORATE SOCIAL RESPONSIBILITY COST AND SUSTAINABLE GROWTH OF LISTED MANUFACTURING FIRMS IN NIGERIA

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Abstract

The study examined the effect of corporate social responsibility cost on sustainable growth of listed firms in Nigeria. The study adopts ex-post facto research design. Fourteen (14) out of the 56 listed manufacturing companies on the Nigerian stock exchange as at 2021 were selected for the study. Data was analyzed using panel regression and Autoregressive Distribution Lag (ARDL) model. Findings from the study reveal that, corporate social responsibility cost denoted as social responsibility cost and environmental cost has a long run relationship with sustainable growth of listed manufacturing

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firms in Nigeria as measured by the bounds test using the Wald statistics. Furthermore, the results also reveal short run relationship with a speed of adjustment to long run equilibrium at 77.95% significant at 5% level of significance. It is thus recommended that manufacturing firms should continue to invest in corporate social responsibility as this has a significant effect on their sustainability. Firms must sustain the current corporate social responsibility strategy and improve on ways to be cost efficient while still maintaining an effective corporate social responsibility strategy that will put the firms in good light with consideration to environmental responsiveness.

Keywords: *social responsibility cost; environmental cost; sustainable growth; stakeholders; autoregressive distribution lag.*

JEL Classification: M4

1.1 Introduction

Sustainable growth and or development have become an important phrase in contemporary research discourse and in all economies of the world today. It centres around three dimensional, distinct but interconnected pillars. These pillars are the environment, economy and the society. Firms and decision makers are showing more concern for this relationship, how they complement, the trade-off among these pillars and ensuring responsible human behaviour and actions at national, community and individual levels. Sustainability has become an imperative as a result of internationalization. Internationalization of businesses is a global trend that has emerged over the past decade (Olaf & Razaul, 2020). The fundamental concept of business globalization therefore is hinged on the precept of equal ethical rewards to the diverse stakeholders of the firm (Hirigoyen & Poulain, 2015). According to Akinpelu, Ogunbi, Olaniran and Ogunseye (2013), the stakeholders of a firm encompass all shareholders, potential investors, government, employees and the host communities. As observed by Najeb and Awni (2017), the various stakeholders of a firm have diverse interest that the firm must satisfy based on the available resources of the firm. It is an established economic preposition that firms' resources are scarce and firms must plan within the available scarce resources how they will satisfy the various stakeholders interest (Garriga & Mele, 2004) and also remain sustainable. Premised on the preposition of firm scarce resources and the need to satisfy diverse interest of firms' stakeholders has necessitated the argument for and against the

adoption of corporate social responsibility as a firms' fundamental strategy to satisfy the diverse interest of various firm stakeholders and attain business sustainable growth. While scholars like Milton Friedman argued against corporate social responsibility and environmental strategies of firms, Edward Freeman argued in favor of firms' corporate social responsibility and environmental strategies.

Amole, Adebisi and Awolaja (2012) suggest that social responsibility of firms is necessary for the following reasons: it helps firms to extend aid to societies need as well as being responsive to environmental protection; it helps firms to use business resources to promote the interests of all stakeholders affected by a company's operations; social responsibility helps the firm to respond to changing public needs and expectations; it helps the firm or business to recognize its moral obligations; and facilitates a firm's correction of some problems caused by the business, for example, pollution of the environment. On the other hand, Nnamani, Onyekwelu and Ugwu, (2017) argued that corporate social responsibility adds cost burden to the firms. Nnamani et al., (2017) further encouraged that firms should make strategic plans while carrying out corporate social responsibility activities to minimize the cost implication of corporate social responsibility to the firm in order to achieve sustainable business growth in terms of financial performance. A defining factor however in today's economy is uncertainty. Uncertainty not only about the big challenge of finance but also in the growing social and environmental concern which puts the wealth maximization interest of the shareholders at risk. Notably, Najeb and Awni (2017) stated that, the reasons enterprises embark on social responsibility varied and four reasons were identified for firms' engagement into social responsibility activities. Firstly, many societies realized that companies have ethical duty to take part in activities for the interest of all; whether these activities are profitable or not. Secondly, the sustainability concept pressures the need for the company's stewardship of non-financial services to the community and the environment. Thirdly, governments, communities and regulators provide firms with license to carry out business operations establishing a social contract. Finally, the company's reputation can be enhanced through engaging in corporate social responsibility. The big question however remains that is how the growth can be sustained. The argument for and against the need for firms to be socially responsible to bring about sustainability has therefore necessitated this study. As a result, this study will examine the effect of corporate social responsibility cost (social responsibility cost and environmental cost) on sustainable growth of listed manufacturing firms in Nigeria.

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2.0 Literature Review and Theoretical Framework

Concept of corporate social responsibility

Corporate social responsibility has no single commonly accepted definition (Abdulrahman, 2013). In literature the concept has unclear boundaries. It generally refers to business practices based on ethical values, with respect for people, communities and the environment (Amole, Adebisi & Awolaja, 2012). Hilda, Hope and Nwoye (2015) argued that corporate social responsibility comprises varying degrees of conceiving and trustworthy actions of ethical obligations to customers, employees and the community. Luper (2013) defined social responsibilities as the long range goals of an organization inevitably focused upon its contributions to the needs of society tangible or intangible, its contribution may be in terms of goods or services or both. Again, Abdulrahman (2013) asserted that social responsibility are management's decisions and actions taken for reasons at least partially beyond the organizations direct economic or technical interest. Okegbe and Egbunike (2016) defined social responsibility as the obligation of corporate decision-makers to take actions, which protect and improve the welfare of the society in which the organization does business. That is to say in addition to their economic and legal obligations, they also owe the society some responsibilities. Shruti (2014) defined corporate social responsibility disclosure as the process of communicating the social and environmental effects of organization economic actions to particular interest groups within the society and to society at larger. Furthermore, Shruti (2014) stated that disclosures about the firm corporate social responsibility strategy enhance corporate reputation through gaining trust and support from various stakeholders. Corporate social responsibility strategy assists to evaluate the congruence between the social value implied by corporate activities and social norms (Amole, Adebisi & Awolaja, 2012).

In Nigeria, the introduction and application of corporate social and environmental accounting is still at the voluntary stage, as companies especially those in manufacturing industry are taking more proactive steps towards the promotion of a sustainable environment.

Sustainable Growth Rate

Sustainable growth refers to a rate of growth which a country or a firm can maintain without creating other significant economic problems, especially for generations to come. Rapid economic growth today is great, but it often comes with a trade-off regarding future economic and financial health. Higgins (1977)

describes sustainable growth in the business context as the maximum platform or benchmark for the company to grow their company revenue without reducing its financial resources. The combinations of a company's operating element (i.e. profit margin and asset efficiency) and financial elements (i.e. capital structure and retention ratio) into a single measurement become a very valuable financial performance indicator for every company. To demonstrate the interdependencies between growth and financial policy, it must be understood that increase in annual revenue must be adequately supported by annual sources of corporate capital. A firm's sustainable growth rate (SGR) is the fastest growth rate or maximum rate of growth it can sustain at its current level of financial leverage. In other words, a commercial enterprise's SGR is how much it can grow before it has to get further into debt (Todd, Javal & Grossman 2014). The SGR involves maximizing sales and revenue growth without increasing financial leverage. Achieving the SGR can help a company prevent being over-leveraged and avoid financial distress. Sustainable growth therefore is that growth that is possible to sustain an organization in perpetuity without causing economic or environmental problems. A firm that grows quickly may find it difficult to fund such growth while that which grows too slowly or not at all may stagnate and eventually dies. In calculating the sustainable growth rate of a company it is expedient to know the profitability level of the company in terms of its return on equity (ROE) and its retention policy. The sustainable growth rate is the rate of growth that the company can expect to see in the long term, calculated by multiplying a company's earnings retention rate by its return on equity. The concept of sustainable growth can be helpful for planning healthy corporate growth. However conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth.

Corporate social responsibility and sustainable growth

The emergence of CSR has been an intense issue of debate among scholars. However, until recently, most of the literature has considered CSR practices as a "black box" of external requirements which need to be justified from a purely economic perspective (Brammer et al, 2012). This discussion has been heavily driven by Milton Friedman's argument which considers calls to be socially responsible as theft, or stealing money and resources from the real owners of enterprises otherwise known as the shareholders. CSR has long been seen as an activity entailing two major risks for corporate resources: the misappropriation to unrightful claimants and the misallocation to inefficient activities (Margolis and

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Walsh, 2003). However, in order to find an antidote against the CSR scepticism, empirical research has largely focused on searching for a positive relation between corporate social performances (CSP) and corporate financial performance (CFP). In other words, the idea is to know if CSR was value-enhancing for the company or not. Some have argued that a higher level of corporate social responsibility provides a competitive advantage. Others have pointed to reputation gains and yet still others see public relations benefits and positive signals towards customers, investors and employees; which will turn into positive economic outcomes in the long run. The research result linking corporate social responsibility and financial performance has been mixed. While some have been positive others have shown negative relationship. This may have varied as a result of variables and methodology employed. This study therefore seek to empirically provide evidence of the relationship subsisting by employing not just financial performance variables but using sustainable growth rate to understand the implication for future generations. The study therefore hypothesize that corporate social responsibility cost (social cost and environmental cost) has no significant effect on sustainability of listed manufacturing firms in Nigeria.

Theoretical Framework

Many researchers have used several theories to examine or explain the relationship between corporate social responsibility and sustainable growth mostly from the financial performance perspective. The present study relies heavily on the Stakeholder Theory in explaining corporate social responsibility and sustainable growth of listed firms in Nigeria judging from the three pillars of sustainability. Freeman (1964) criticized the Milton Friedman stockholder's theory with the stakeholder's theory. He posited that management is responsible to protect the interests of other groups, beyond investors. Freeman defined stakeholder as any group or individual who can affect or is affected by the achievement of the organization's objectives. He included other groups such as customers, suppliers, community, and environment as the stakeholders. Friedman (1970) had argued that the first and foremost goal of a firm is profit maximization and as such the only social responsibility firms should engage in is maximization of profit to the shareholders and not engage in other aspects of corporate social responsibilities outside the scope of profit maximization in order not to incur extra cost that will counter the profit maximization goal of the firm. The justification for the use of the stakeholder theory in this study is premised on the fact that while stakeholder

approach aims at creating mutual interests and value for all stakeholders, sustainability emphasizes the links between societal, environmental and economic goals more explicitly. Therefore since these stakeholders have vested interest in the company's strategies and plans, they will also all be affected by the company's sustainability efforts and those efforts affects society and the environment as a whole.

Empirical review

To better situate this study in the line of discuss and deepen understanding of the issues at stake we look at Olaf and Rezaul (2020) who analysed the connection between the sustainability performance and financial performance of Bangladeshi banks by examining the effect of the Bangladesh environmental risk management guideline. They analysed all fifty-six listed commercial banks that are operating in Bangladesh below the guidelines of the Central Bank of Bangladesh. They gathered sampled data from publicly available reports such as annual, sustainability, and corporate social responsibility (CSR) reports, disclosed sustainability and financial data on the banks' websites. Using panel regression, they discovered that higher sustainability performance creates a greater financial performance and that better banks operate better with regard to sustainability than smaller banks. Kyungtag and Hyunchu (2019) investigated how CSR activities affect sustainable growth and value of Corporations in Korea. The relationship between corporation social responsibility (CSR) activities and their sustainable growth and valuation was explored. The nonlinear quantile regression was used. The result indicated CSR activities increased corporation value exclusively in the middle range groups of Tobin's q . Further findings showed that CSR activities affect the valuation of Korean listed corporations in a nonlinear way rather than linear way. Mohammed and Kabir (2019) examined the impact of corporate social responsibility on financial performance of listed non-financial services companies in Nigeria. They used *ex-post* factor research design and utilized secondary data collected from the annual report and accounts of twenty three (23) sampled listed non-financial services companies in Nigeria for a period of 10 years (2008-2017). The study data were analyzed using descriptive statistics, correlation and regression analysis (GLS Fixed Effect) Robustness tests, namely multicollinearity, heteroscedasticity, normality of residuals, Hausman specification and F-Test were conducted to validate the results. The finding of the study reveals that CSR has significant positive impact on financial performance.

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Erhirhie and Ekwueme (2019) took a look at the impact of sustainability reporting on the financial performance of listed oil and gas corporations in Nigeria. They assessed the impact of company social sustainability reporting on return on assets, return on equity, and return on capital employed of oil and gas companies listed on the Nigeria Stock Exchange. Ten (10) oil and gas firms were sampled for the study. The study utilized secondary data gathered through financial ratios and accounts of the companies and content analysis. The findings showed that social sustainability reporting exerts a negative effect on all three overall performance proxies, howbeit only its effect on return on equity was statistically significant.

Omoike, Uwalomwa, Olubukola, Ilogho and Ajetunmobi, (2018) investigated corporate social environmental reporting and its association with stock prices (using market price per share as at the financial year end) among listed firms in Nigeria. The study used a cross-sectional research design comprising 50 publicly listed companies across various sectors for the period of five years (2011–2015). For the selected firms, the annual report was used to collect the data. They utilizes the panel data regression in analyzing the influence of the independent variable (measured by corporate social and environmental expenditure) on the dependent variable measured using the market price per share) for the respective years. Also, in an attempt to examine the relatively market price per share across the sampled industries, the study made use of the one-way analysis of variance; while the Granger causality test was also conducted to ascertain whether bi-directional relationships exist between explanatory variable and the dependent variable (i.e. corporate social and environmental expenditure and market price per share). Findings from the study revealed that the association between corporate social and environmental expenditure and the market price of the firm (when considered in aggregate) is not significant. The result from the Analysis of Variance (ANOVA) showed that the market price per share is significantly different across the industries. Mehwish (2018) examined corporate social responsibility and its effect on financial performance, using the banking industry in Pakistan. Finding from his evaluation which was achieved using the Ordinary Least Square (OLS) regression method to determine the comparative reputation of individual variables to recognize which independent variable impacts the dependent variables represented by the sign of beta coefficients revealed that CSR has a positive influence on ROE and ROA.

Yigit and Mukhtar (2017) studied the impact of corporate social responsibility dimensions on corporate financial performance of commercial banks in emerging

economies, namely Turkey and Nigeria. Content analysis is performed to extract financial and corporate social responsibility disclosure records from annual reports and corporate social responsibility associated reports of banks listed on the Borsa Istanbul (BIST) and the Nigerian Stock Exchange (NSE). Panel data multiple linear regression analysis is performed to analyze the relationship between corporate social responsibility dimensions and corporate financial performance. The findings, in line with the stakeholder theory, indicate that corporate social responsibility has a positive effect on corporate financial performance in Nigeria. However, there is no statistically significant relationship between corporate social responsibility and corporate financial performance in Turkey.

3.0 Methodology

The study adopts *ex-post facto* research design. Using judgmental sampling, 14 out of the 56 listed manufacturing companies on the Nigerian stock exchange as at 2021 were selected. The study adopts data from manufacturing firm because they are the firms that engage in activities capable of degrading the environment. As such it is expected they become more corporate and socially responsive. Time series and cross sectional data were extracted from the audited financial statements of the sampled firms for the period covered by the study i.e 2013-2020 and analysed using descriptive statistics and panel data regression estimator using the ARDL model. Diagnostic tests were carried out on the data set to ascertain its stationarity to avoid spurious results.

The study formulates the following model to be used;

$$SGR_{it} = \alpha + \beta_1 EVC_{it} + \beta_2 SRC_{it} + U_{it} \dots\dots\dots i$$

$$SGR_{it} = \alpha + \beta_1 EVC_{it} + \beta_2 SRC_{it} + \beta_3 ECT_{it} + U_{it} \dots\dots\dots ii$$

Where:

α = Constant

SGR = Sustainable growth rate (The reported retained earnings divide by net income multiplied by net income over total equity of the firm at a given time) or (retained earnings divide by total equity of the firm at a time)

SRC = Social responsibility cost (The log of reported cost incurred in carrying corporate social responsibility by the firm at a time).

EVC = Environmental cost (The log of reported cost incurred in carrying out environment conservative activities by the firm at a time).

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ECT = Error correction term (computed residuals of the variables under study)

U = Error term used in the model.

$\beta_1 + \beta_2$ = Beta coefficient of the independent variable

4.0 Results and Discussion

Table 1. Descriptive Statistics of Variables

	SGR	SRC	EVC
Mean	0.437507	7.158621	5.560035
Median	0.364509	7.343470	5.619080
Maximum	0.994300	7.946958	6.791370
Minimum	0.026802	5.795185	4.425583
Std.Dev	0.304016	0.579266	0.590711
Skewness	0.475924	-0.432750	-0.220994
Kurtosis	1.767784	1.938391	2.370564
Jarque-Bera	11.21272	8.676989	2.735884
Probability	0.003674	0.013056	0.254630
Sum	48.56325	796.6069	617.1639
Sum Sq. Dev.	10.16685	36.91043	38.38331
Observation	112	112	112

Source: E View Output 2022

The descriptive statistics as shown in table 1 presents data of all the variables employed in the study. The total number of observation for the study denoted as N is 112. To test for normality of the data, the general rule of thumb for measurement of skewness (-3 to +3) was applied. The study variables (SGR, SRC & EVC) data Skewness statistic values fall between the range of -3 and +3; indicating that the data are within the normal skewness level thus qualifies for further analysis. The probability of the Jarque-bera statistics also reveal that the data set is normally distributed.

The reported sustainable growth (SGR) has a mean of 0.437507 with a standard deviation of 0.304016. The SGR also revealed a minimum and maximum value of 0.026802 and 0.994300 respectively. For Social Responsibility Cost (SRC) the minimum value is 5.795185 while the reported maximum value is 7.946958. Again the mean value recorded is 7.158621 with a standard deviation of 0.579266 for

SRC. Furthermore, environmental cost (EVC) reported a minimum value of 4.425583 while the reported maximum value is 6.791370. Again the mean value recorded for EVC is 5.560035 with a standard deviation of 0.590711. This shows that the manufacturing companies in Nigeria incur more cost in sustaining the social need of stakeholders than the cost incurred on being responsive to the environment.

Having established the normality of the data set used in the study, further diagnostic test was done to ascertain the stationarity or order of integration of the variables being a cross sectional time series data. Diebold and Kilian (2000) asserts that it is important to test for stationarity as it is useful for forecasting and to provide information about the kind of processes to build into economic models for accurate predictions. Unit root test was therefore carried out. The result is as shown in table 2

Table 2: Augmented Dickey fuller Unit Root Test

Variable	ADF-Statistics	Probability	Order of Intergration
SGR	82.47	0.0000	1(1)
SRC	39.53	0.0433	1(0)
EVC	52.59	0.0033	1(1)

Source: Eviews Output 2022

Table 2 shows the result of unit root tests using the ADF unit root. The result reveals that the three variables in the study are integrated in the order of one 1(1) and zero 1(0). This order of integration therefore confirms the choice of empirical analysis to use in estimating the relationship among the variables which is the Autoregressive distribution lag (ARDL) regression model. This choice is premised on the fact that the ARDL model is able to produce the short and long run dynamic relationship and coefficient of the mixed order of the selected variables. The result is as shown in table 3.

From table 3, the R-square of approximately 45% (0.448) shows a moderate relationship between the dependent variable (SGR) and the explanatory variables of SRC and EVC with the rest unexplained by the variables not included in the study at hand. A further look at the Adj. R^2 of 36% (0.36) also confirms the relationship and its extent. The extent of variation in the dependent variable of sustainable growth is explained by the regressors (SRC and EVC) at the given percentage. The F-statistic of 5.241 at a p-value of 0.000033 and significant at 5% reveals that the model as expressed in study is statistically significant and that

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sustainable growth of manufacturing firms in Nigeria are jointly explained to a great extent by the explanatory variables used as proxy for corporate social responsibility cost (SRC and EVC). The DW statistics show clearly the absence of autocorrelation at 1.91 close to the rule of thumb of 2. We further proceed to test for the long run relationship of the variables using the Bound test (Wald Statistics).

Table 3. ARDL Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.054821	0.493666	-0.111048	0.9120
D(SGR(-1))	-0.224718	0.164989	-1.362020	0.1785
D(SGR(-2))	-0.090835	0.133341	-0.681223	0.4984
D(SRC(-1))	0.205787	0.350115	0.587770	0.5590
D(SRC(-2))	0.585275	0.370078	1.581493	0.1192
D(EVC(-1))	-0.035887	0.112858	-0.317984	0.7516
D(EVC(-2))	-0.020902	0.110766	-0.188702	0.8510
SGR(-1)	-0.685835	0.187546	-3.656896	0.0006
SRC(-1)	0.062004	0.096796	0.640568	0.5243
EVC(-1)	-0.021442	0.096533	-0.222119	0.8250
R-squared	0.448491	Mean dependent var		0.005097
Adjusted R-squared	0.362912	S.D. dependent var		0.380940
S.E. of regression	0.304057	Akaike info criterion		0.591853
Sum squared resid	5.362156	Schwarz criterion		0.918251
Log likelihood	-10.12300	Hannan-Quinn criter.		0.721182
F-statistic	5.240670	Durbin-Watson stat		1.908008
Prob(F-statistic)	0.000033			

Source: E-views output 2022

Table 4 show the result of the bound test using the Wald test. The F-stat at 4.574 is compared with the Pesaran critical value at 5% level of significance. Where the F-statistics is more than the upper bound critical value, we reject the null hypothesis implying that $C(8) = C(9) = C(10) = 0$. Comparing the Pesaran critical value table at $K=3$ and $n=70$ at 5% level of significance shows that lower bound statistics is 3.370 and upper bound statistics is 4.545. Therefore since the F-

statistics compared with the critical value is greater than the upper bound critical value i.e $F\text{-statistics} > \text{critical upper bound}$, we reject the null hypothesis of $C(8)=C(9)=C(10)=0$ and conclude that there is long run cointegration relationship among sustainable growth rate and the explanatory variables (social responsibility cost and environmental cost) selected in this study this implies that all variables move together in the long run. After estimating the long run relationship we will further estimate the short run error correction model (ECM) relationship to ascertain the speed of adjustment by which the variables return to long run equilibrium.

Table 4: Result of Bound test for Long run Relationship

Wald Test:

Equation: Untitled

Test Statistic	Value	Df	Probability
F-statistic	4.574439	(3, 58)	0.0061
Chi-square	13.72332	3	0.0033

Null Hypothesis: $C(8)=C(9)=C(10)=0$

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(8)	-0.685835	0.187546
C(9)	0.062004	0.096796
C(10)	-0.021442	0.096533

Source: E-views Output, 2022

Table 5 reports the results of the short-run dynamics. The cointegrating equation (-0.779510) as expected is negative and significant. A negative sign implies that any shock that occurs in the short-run would be rectified in the long-run (Bannerjee et al., 1998). The results show that mathematically, variables employed in the study adjust partially by about 77.95% in the short-run toward its long-run equilibrium. This confirms the long-run equilibrium relationship running from the dependent

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variable (SGR) to the independent variables (SRC and EVC). The ARDL regression for the underlying equation fits very well and the selected model is very significant. The model satisfies other specification and diagnostic tests. Finally, the statistical properties of the regression are low as indicated by adjusted R^2 of 27.53% and the estimates of t-statistics displayed in Table 4.5. However the overall statistical properties of the regression are significant with an F-statistics of 3.876 at a p-value of $0.002 < 0.05$ level of significance. Therefore, the model could be accepted as approximating the relationship being tested.

Table 5: Short run dynamics model using ARDL

Dependent Variable: SGR

Selected model: ARDL

Sample: 2013-

2020

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	-0.011510	0.046510	-0.247473	0.8056
D(SGR(-1))	-0.104581	0.273879	-0.381851	0.7043
D(SGR(-2))	-0.080512	0.181569	-0.443425	0.6595
D(SRC(-1))	0.271163	0.501002	-0.541241	0.5910
D(SRC(-2))	0.100633	0.415068	0.242449	0.8095
D(EVC(-1))	-0.020364	0.122776	-0.165864	0.8690
D(EVC(-2))	-0.001723	0.130850	-0.013168	0.9896
ECT(-1)	-0.779510	0.317409	-2.455852	0.0179
R-squared	0.371045	Mean dependent var		-0.014818
Adjusted R-squared	0.275334	S.D. dependent var		0.381527
S.E. of regression	0.324784	Akaike info criterion		0.724639
Sum squared resid	4.852283	Schwarz criterion		1.019303
Log likelihood	-11.56524	Hannan-Quinn criter.		0.838279
F-statistic	3.876739	Durbin-Watson stat		2.249341

Source: E-views output 2022

Discussion of Results

Table 2 reports the ADF unit root tests and shows that all the variables are integrated of a mixed order, 1(0) and 1(1) allowing the use of the ARDL as the elected model for analyses for the study. The ARDL bounds testing established a long-run relationship among the variables as reported in tables 3 and 4. While table 5 reports that in the short-run, SRC lag 2 impact sustainable growth rate (SGR)

positively and moderately. However, EVC at lag 2 has an inverse relationship with sustainable growth rate. The results show that statistically, the significant determinants of sustainable growth rate adjust partially by about 77.95% in the short-run toward its long-run equilibrium. This confirms the long-run equilibrium relationship running from sustainable growth rate to its explanatory variables. The model fits well with the regressors of sustainable growth rate explaining 45% of the variations in the sustainable growth rate. Tests conducted show that the selected model satisfies other specification and diagnostic tests.

The results show that in the long-run there is a positive relationship of sustainable growth rate to SRC. This variable exhibited the expected sign. SRC relates positively with sustainable growth rate. The result is consistent with Mehwish (2018), Kyungtag and Hyunchu (2019) who found positive relationships between CSR activities, firm performance and firm value. Secondly, the environmental cost coefficient showed a negative relationship with sustainable growth rate. Our study confirmed the empirical findings of Omoike *et al* who revealed that association between corporate social and environmental expenditure and market price is not significant on the aggregate.

Conclusions

In employing the time series cross sectional empirical strategy and ARDL estimation techniques to examine the effect of corporate social responsibility costs on sustainable growth rate of listed manufacturing firms in Nigeria, the following results were reported. The results indicate that significant determinants of sustainable growth rate are SRC and EVC. Also that SRC and EVC are cointegrated at both long run and short run and that the speed of adjustment of short run to long run equilibrium is about 77.95% which is significantly above average. The paper contributes to literature by providing a justification for the need for corporate entities not only of the manufacturing sector to increase investment in social and environmental activities that will enhance sustainable growth of firms. The Implication of this study for Nigeria and other emerging economies is cogent in that corporate social responsibility is still very much voluntary and companies have options to do it or not yet empirical backups provides positive picture of its outcome both for now and for the future. Policy makers should do more from the angle of stricter enforcement of compliance to policies that promotes social and environmental responsiveness of firms in Nigeria. Firms must sustain the current corporate social responsibility strategy and improve on ways to be cost efficient

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while still maintaining an effective corporate social responsibility strategy that will put the firms in good light with consideration to environmental responsiveness.

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NIGERIA-CHINA BILATERAL RELATIONS: THE CURRENT CHALLENGES, 2015-2020

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Abstract

The year 2020 marked the 50th anniversary of diplomatic relations between Nigeria and China. Despite the functioning of Sino-Nigerian bilateral relations, Nigerians have resented and criticized every socio-economic interaction. Concern was raised about the alleged disadvantages on Nigeria's fragile economy by the dumping of inferior Chinese industrial products in Nigeria. Some scholars claim that Nigeria's investment in China has less opportunities to survive due to the restrictions on employment and visa restrictions faced by many Nigerians to explore business opportunities in China. It is against this backdrop, this study examined the relationship between Nigeria and China, accessing their strategic relevance and the current challenges in their bilateral relations. The study also pinpoint into Sino-Nigeria relations during the novel corona virus. This work adopts the historical method of discuss and analysis in understanding the Nigeria-China bilateral relations from 2000 till the covid-19 era. In other to properly do this, this paper looks at primary and secondary sources such as books, newspaper reports, interviews, journal articles among others. The study adopted the Neoliberal Institutionalism theory to explain Sino-Nigeria bilateral relations. The findings from the study showed that the bilateral relations benefited China more in terms of trade, its unwillingness to assist Nigeria curb unemployment challenges and the failure to transfer technology to Nigeria. Given that the relationship is lopsided, the study concludes that

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Nigeria's problems cannot be solved by China as the former must learn from China's hard way to industrialization.

Keywords: *Covid-19; economic relations; strategic relevance, China, Nigeria.*

JEL Classification: F50, F63

Introduction

Inter-governmental relations are often the most common practice in “international relations between nation states. Such relations politically enable countries to speak with one voice in international forums, form an alliance to waive aggression, amongst other issues; help countries to seize the opportunities available both in terms of human and material resources within their frontiers, promote trade and investment and provide support; promote their common cultural values” (Dauda, Idagu & Obiageli, 2018:95). The Nigerian-China diplomatic gates were opened for the government and the citizens of both countries in 1971 and the opportunities to access international relations and benefits of common humanity in a multilateral manner. While interactions between Nigeria and China date back half a century, on 10 February 1971 Nigeria and China formally concluded a diplomatic pact and its substance grew in leaps and bounds (Agyeno, 2021). China and Nigeria are demographically destined giants respectively in Asia and Africa. China is the world's most populous country with a population of over 1.4 billion. The world's biggest concentration of black people and the most populous in Africa is Nigeria, with about 200 million population (Adigbuo, 2019:923). Nigeria and China are blessed with huge mineral resources. Although, the two countries have no colonial link, Nigeria historically shares a great deal with China. Just as China was trampled upon by Western powers, in the 19th century, Nigeria is burdened with its colonial past. China was made a semi colony with unfair treaties so far as it had been forced to give up its sovereign claims on the outer borders of Mongolia in Burma, Korea, Vietnam, parts of Central Asia, and Siberia, the Ryukyu Islands. Also ceded to India, the Soviet Union, Vietnam, Burma and other States were substantial parts of Chinese territory (Adigbuo, 2019:924; Agyeno, 2021).

While China's Communist People agreed to give up its claims in many of these territories, there were nevertheless border wars between it and the Soviet Union, Vietnam and India. China's claims on certain islands, especially with Japan and its Asian neighbors, continue to remain unresolved. China has changed over time into

a communist ideology, but it must model its ideals according to the Western world view sometimes (Adigbuo, 2019:924). The survival was central to China, the Communist Chinese Patriarch Mao Zedong followed in the footsteps of Josef Stalin of Russia, with his loyal colleagues. Land belonged collectively and workers organized into communes. The proceeds used to create state-owned industries, while returning profits to further industrial investments, were extracted by Mao Zedong, through his centrist party state. After the patriarch's death in 1976, economic reforms were implemented (Ayoola, 2013: 98). Deng Xiaoping began economic reform and labeled “reform and opening” his strategy. Reform was meant to bring economic and administrative changes within the domestic realm, especially in freeing peasant communes from farming as well as the local industry itself. Foreign investment was attracted by liberalization in China (Ayoola, 2013:98). China was one of the world's biggest trade nations with the reform and as it became necessary, it must join the World Trade Organization, which sets the rules for world trade. Presently, China has displaced Japan and has the potential to overtake America, to occupy the status of the second largest economy in the world. However, this assumption is cloaked in watchful optimism. To date, China has recognized that its participation in the market economy is new and cannot be totally deregulated. It sees itself as a developing country; China's economy remains under governmental control and economic liberalization is underway (Adigbuo, 2019:22).

The Chinese financial system was sound and stable followed by agricultural reforms. While six special economic areas, including Shanghai, were initially established to attract foreign investment. Foreign policy in China is designed to reaffirm the domination of China in the world. To this end, the country accepts past humiliations as a chance to reinvent itself. China's foreign policy is an instrument for improving its economy (Raji & Ogunrinu, 2018: 124). In addition to re-claiming lost territory, the foreign policy objectives are also directed to reaffirming its historical global domination. The creativity of China inspires Nigerians to confront with courage and renewal of the challenges they face. The foreign policy drive of Nigeria, which is now called economic diplomacy, focuses on achieving the country's key economic interests. In this context, as well as political and other considerations, economic interests are raised in foreign policy priorities (Raji & Ogunrinu, 2018: 124; Adigbuo, 2019:924). Contrary to the laissez faire attitude of some regimes, the Nigerian diplomatic body uses economic diplomacy to actively pursue the economic interests of the country. Nigeria's

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colonial experience and civil war show that the preservation of national sovereignty and territorial integrity is important to both countries (Raji & Ogunrinu, 2018: 124). It's on the above note this study will examine the historical background to Nigeria-China relations, strategic relevance and the current challenges faced by Nigeria and China in their bilateral relations. It also examines Sino-Nigeria relations during the Corona virus pandemic.

Historical Background to Nigeria-China Relations

The Chinese delegation, on the invitation of the Nigerian Government, took part in the independence celebration held in Nigeria during the first contact with China in 1960 (Ogunsanwo 2018, 7). The delegation conveyed a message of congratulations from Chinese leaders to Nigeria for the victory of Nigerians against colonialism. More than a decade after independence, in February 1971, Nigeria established diplomatic relations with China the same year the Communist People's Republic of China obtained the right of place in the United Nations Security Council. In each other's capital, the two countries opened embassies within the same year. Since then, bilateral relations between China and Nigeria have developed quite slowly (Agyeno, 2021). The year 1971 also coincides with the expulsion of the nationalist government in Taiwan from the United Nations, which had previously occupied the UN Seat. With its continuing presence in the Security Council, China began to exercise the veto from 1971, participating effectively in UN agencies' deliberations such as the IMF and in special fields, such as the International Atomic Energy Agency (IAEA) (Pease 2010, 13). China's foreign policy has been centred on fostering relations with many countries, asserting its sovereignty over Taiwan and reprimanding any country that embraces diplomatic dealings with the later.

General Gowon visited China in 1972 shortly after the Nigerian civil war to seek for financial assistance in post-war programs for reconstruction where China supported Biafra (Pease 2010, 13). Other Nigerian Presidents also visited China for over 25 years without the Asian power reciprocating such visits. General Abacha also supported Chinese politics in Beijing following the crackdown on Tiananmen Square on Chinese political opposition, leading to China's international isolation in 1977. Li Peng, then Premier of China, also visited Nigeria in 1998 to boost China's renewed interest in Nigeria with a view to reverse China's trade decline (Reno 1999, 6). However, a deeper relation between Nigeria and China began in President Obasanjo's second tenure (2003-2007). Chinese President Hu

Jintao and Premier Wen Jinbao returned to Nigeria following a number of Obasanjo visits to China in 2000 (Egbula & Zheng, 2011). Obasanjo's visit was to encourage Chinese manufacturers to come and invest in the Nigerian economy. The two countries concluded a bilateral agreement during their visit to the oil, gas and petrochemical industries of Nigeria, which culminated in active participation by Chinese firms in upstream and downstream economic arrangements. Indeed, in exchange for their compulsory investment in the petroleum and transportation sectors, in particular the exploration and construction of roads and railway lines (Davies, 2007). The 2006 round of the bidding block China was awarded four petroleum blocks and two licenses in exchange of China's \$2 billion investment commitment for the regeneration of Kaduna's Nigerian oil refinery to the China's National Petroleum Commission (CNPC). The two countries also implemented the Oil-for-Infrastructure exchange program where China was contracted for \$5 billion in road and rail construction and collected crude oil equivalent to its cost (Davies, 2007).

In 2006, Nigeria and China also established a strategic partnership that permits free access to each other's markets for both countries' goods and services. The degree of corruption of the bidding process for oil and poor or failure to implement projects by many Chinese investors has led to the cancelation and replacement of the oil for infrastructure program with oil for cash policies, enabling China to pay the equivalent cash of oil imported from Nigeria, while petroleum infrastructure projects were carried out under a private public arrangement. Both companies jointly signed a \$23 billion contract with Sinosure and China Exim Bank, for the refurbishing of the three refineries in Nigeria and the construction of the crude oil refined fuel complex. 80 percent of the costs were provided by the CSCEC and 20 percent of the funding remaining was released by the NNPC. Nigeria was also helped by the Chinese company to build the 2007 NIGCOMSAT-1 satellite (Raji & Ogunrinu, 2018:130).

Under Late President Umar Musa Yar'Adua, who revised Nigeria and China's "oil for infrastructure" agreements leading to contracts being suspended as the Chatham House report revealed that Nigeria lost up to 6 billion dollars to failing oil agreements with China, because no follow-up mechanisms were established for the enforcement of contracts that resulted in partial implementation or the total abandonment (Adeniyi, 2011:136). In addition, the report of the Committee of Inquiry revealed that many of the oil blocks were awarded to Chinese bidder with a strong connection with Nigeria's corridor but with little industry experience

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(Umejei, 2013). Whereas the Chinese demanded that Yar'Adua be offered an alternative \$50 billion in infrastructural development financing in Nigeria to sell a large amount of oil and gas assets estimated to contain six barrel of oil reserves, the government refused (Adeniyi, 2011:136). The China Petroleum and Chemical Corporation (SINOPEC) has also picked up, which was one of the largest oil manufacturers in West Africa with expanded offshore operations in Nigeria (Umejei, 2013).

Nigeria signed three loan agreements with China's Exim Bank during Goodluck Jonathan's administration. The agreement is 500 million dollars for Abuja Light Rail, 500 million dollars for the building of the country's four airport terminals and 100 million dollars for the expansion of Galaxy backbone network between government ministries in Nigeria (This Day Newspaper, 2010). Goodluck Jonathan's 2013 State visit to the People's Republic of China expressed interest in Chinese companies' investments worth over 25 billion dollars in Nigeria, including 20 billion dollars signed by the Energy Ministry of China and the Energy Ministry for the implementation of the agreement (This Day Newspaper, 2010). The Buhari administration signed the currency exchange agreement between Nigeria and China in which China also lends a loan of 6 billion dollars to Nigeria for infrastructure development projects and a loan in the amount of 1.5 billion dollars to infrastructure development in Nigeria, including expanding its four Lagos, Kano, Abuja and Port Harcourt airports (Onuah, Blanchard & Ohuocha, 2016; DMO, 2021). Indeed, the effort has reduced import costs from China to Nigeria and vice versa, thereby reducing the selling price for goods in both countries.

Nigeria-Sino Economic Relations

Trade between Nigeria and China increased at low levels, until fast growth made China the world's second biggest crude oil importer in 1993 (Utomi, 2007). The volume of trade between the two countries has increased by almost 300% from 2004 to \$7.2 billion in 2008. Trade between the two countries amounted to 7.3 billion dollars in 2009 and 7.7 billion dollars in 2010 respectively. With this level of trade, after South Africa, Nigeria is now Africa's second largest China trading partner (Ayoola, 2013:99). In Nigeria, the import of Chinese goods relative to Nigeria's exports to China resulted in trade deficits with China, with increased trade relations expected to significantly increase until Nigeria can offer domestically-created alternatives at competitive prices to its industrial producers (Utomi, 2007).

However, China has pursued a strategic approach by initiating the China-African cooperation in Beijing from 10-12 October 2000 to strengthen its interest in Nigeria and other African countries. The forum was designed by China to provide its 'African friends' with a formidable platform to form a new strategic development partnership, which would, over the long term, speed up China-Africa collaboration in the 21st Century (Ayoola, 2013:99). Besides the first Beijing 2000 Forum, other forums were held in Addis Ababa in 2003, Beijing in 2006, Cairo in 2009 and Johannesburg in 2015. It was on the Forum in 2015 that President Buhari witnessed that “China remains a strategic and reliable ally” with a desire to “change the direction of governance and its content, which includes managing national resources, with responsibility, transparency and governance results priority” Buhari (2015) cited in Adigbuo (2019:927). While China is ironically regarded as a 'dependable ally' by Nigerian President Buhari, China bases its economic relations on shrewd timeless principles. This is apparent in 1999 that President Jiang Zemin recalled the Chinese negotiators on accession to the World Trade Organization (WTO) to the core foreign policy principle of their country that was driven by interest (Lai, 2001: 245). China has undoubtedly helped it to achieve its economic ambitions through its political ingenuity. China is an exporter of finished production products to Nigeria in this economic exploit. Gu Xiaojie, Ambassador of China to Nigeria, declared proudly at a recent conference that 'Nigeria is China's leading engineering market, export number two, trading partner number three and a major African investment destination” (Akinterinwa, 2016)

In combination with little export, Nigeria exclusively imports more from China than from the U.S. and India. China imports from Nigeria only unprocessed agricultural commodities, such as cotton, wood and minerals. With over 200 Chinese companies operating in Nigeria, China has added mechanical, human, and investment capital to its list of Nigeria exports. Nigeria’s Railway is almost entirely re-habilitated by the Chinese Civil Engineering Construction Corporation. Nigeria has a deep-water petrol field and has savvy projects and enviable inroads through the Chinese National Petroleum Company (CNPC) and the Chinese National Petroleum and Chemicals Corporation (CNPCC) (Adigbuo, 2019). In the Akpo oil field in Nigeria, the Chinese National Overseas Oil Company (CNOOC) won a stake of 45% in OPL 246 in Nigeria. In this transaction, the CNOOC is expected to earn 70% while the NNPC in Nigeria is 30%. CNPC was awarded a 4-oil block license for OPL 471, 721 732 and 298, which would help in the rehabilitation of the Kaduna refinery, estimated at \$2 billion. In Nigeria, China also has interest in

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liquefied gas and some Nigerian crude oil have been signed by Petro China and other Chinese companies (Adigbuo, 2019:927). China's main focus in these efforts is to maintain its economic boom back home by expanding the market and by accessing raw materials. China does not just work in federal employment; Nigerian countries such as Lagos and Ogun, and business men such as Aliko Dangote do some projects together with China. The Lagos state Blue Rail Line has long been awarded to the Civil Engineering Construction Corporation of China-CCECC; it is also responsible for the modernization of the 1,215-kilometre rail line Lagos-Kano and the CECC Lagos-Badagry road expansion. Aliko Dangote signed a \$3.9 billion cement agreement in partnership with a Chinese company Sinoma. The aim is to help the Dangote Group increase its cement production in Africa to more than 50 million tons (Mbamalu, 2015).

In addition to its strength in the Nigerian economy, China's strategic initiatives have enhanced its stronghold so much that Asians are currently known to be "re-colonizing" (Blair, 2007) as a scramble (Rice, 2011). Nigeria and China's bilateral economic ties increased by almost 300 percent since 2004 and by the balance of trade strongly in favour of China in 2015 to a tune of 14.94 billion dollars (Premium Times, 2016).

The Strategic Relevance of Nigeria-Chinese Relations

Nigeria-Sino bilateral relations have eight main objectives. These include the "guarantee to supply China with raw minerals and agricultural materials in return for increased exchange income for Nigeria, the creation of a market, in exchange for technical assistance and the lending of loans to both Chinese and Nigerian products, the acquisition of land for agricultural purposes and the provision of diplomatic support to China's international interests by Nigeria" (Ian 2006, 11). China's "responsibility for presenting a credible alternative to the Western model of development through foreign direct investment and teaching of the Chinese model of development, largely based on middle-class technologies for Nigeria, unhindered Chinese migration to Nigeria and vice versa, is another focus of China-Nigeria relations. Another key element of the China-Nigeria relationship is to provide optimal information about potential investment opportunities in both countries and how to use them through conferences, lectures and other forums" (Raji & Ogunrinu, 2018:131).

Nigeria's bilateral relations with China have overwhelming strategic relevance to both countries. China is currently the second largest economy in the world and has

successfully brought about the lifting out of poverty of around 400 million Chinese (Ian 2006, 11). This success brought the attention of Nigeria and its huge population to learn lessons from China's social protection experiences to help bring about the lifting of some 80 million Nigerians out of poverty through its own poverty eradication programmes (Berhe & Hongwu, 2013: 215). Nigeria, which could support China's industrial growth, with her huge deposits of natural resources reserves in Africa. China is the world's most populous country with a global growth of an average of 10% each year, the fastest in the last three decades, and has made it a world leader. Its economy is now larger than Japan's, or combined EU countries. Nigeria was able to learn how China achieved this economic feat and then to replicate it in the country (Berhe & Hongwu, 2013: 216). Nigeria is Africa's most populous country, having huge reserves of petrol and gas, but China needs financial and technical assistance to foster value-added products that can increase the value of Nigeria's foreign exchanges in the international markets for these primary raw products. To propel its growing industries, China needs Nigeria's oil and gas, while Nigeria is the world's largest industrial product market in Africa, as China's imports are more than a third of its total trade with West Africa (Ian 2006, 11).

The growing policy of diversification from oil to gas and other energy alternatives by the US and Western countries which might impact Nigeria's oil sales to these countries has resulted in the need to diversify Nigeria's oil exports to China, whose larger potential for long-term support is due to the enormous increase in the number of people in Nigeria (Ian 2006, 11). The increasing China demand for Nigerian oil has made up for the slack in Nigerian oil demand by the US, as Chinese alone accounted for more than 40% of Nigeria's world oil demand in 2017, was also met by the increase in Chinese demand for petroleum from Nigeria (Raji & Ogunrinu, 2018:133). Enhancing Nigeria and China's economic cooperation is therefore, of great significance for Nigerian oil sales. Nigeria is also looking for favourable external markets for its goods and services, which China can provide with more than one billion population. While China is the de facto leader in the developing world, Nigeria is part of the continent of Africa, with China being the largest developing nation able to help in cash and kind (Ian 2006, 11; Raji & Ogunrinu, 2018:133). Despite the benefits inherent in Nigeria's bilateral relations with China and their strategic significance, the scale of Chinese activities in Nigeria brings anxiety, especially as regards its appetite for energy resources, which are undermined by the poor environmental record at home. Chinese companies' fear of possible environmental degradation has raised environmental

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concerns among Nigerian consumers about the impact of Chinese investments on the safety of the country's environment (The Conversation, 2021). Thus, Chinese investment is seen as both a threat and potential for Nigeria.

Research Methodology

This work adopts the historical method of discuss and analysis in understanding the Nigeria-China bilateral relations from 2015 to the covid-19 era. In other to properly do this, this paper looks at primary and secondary sources such as books, newspaper reports, interviews, journal articles among others. It was discovered that the Nigeria-China relations has been an uneven relationship with one partner benefitting more, which is emphasized in Linklater (2007) when he opined that the international system has created a hegemon, that has tended to benefit more in the uneven capitalist market which has created losers and winners in the capitalist mode of production.

Theoretical Framework

Reno (1999) in her work views bilateral relations through customs and convenience, countries handle relations with individual foreign states, she went further to infer that state-to-state process as bilateral diplomacy. Therefore, on the basis of this, the work is based on the premise that in the discourse of international relations, cooperation amongst states has been the central topic from time immemorial, infact, the works on cooperation, sees actors mutually adjusting their behaviour in order to accommodate the actual or anticipated preferences of others in the pursuit of a common goal. In light of this, international cooperation can come into play when states follow a particular behaviour that is consistent with other states preferences so as to achieve their common objectives (Reno, 1999).

Thus, Neoliberal institutionalism addresses the issue of cooperation, even though they expect that states will often cooperate, they often do so in their own selfish interest. This is born as a result of the continuous interactions, which paves the way for reciprocated cooperation or non-cooperation. In lieu of this, Sino-Nigeria bilateral relations plays an important role in fostering reciprocity between both states, as long as the cooperation is sustained. In light of this Folker (2019) asserts that the central concern of neoliberalism centres on the achievement of cooperation among states especially when states adjust their behaviour to the actual anticipated preferences. However, despite the objectives of liberal institutionalism, that sees states interaction with each other in the international system as reducing

friction, it has favoured one state against the other and invariably created intensified exploitation of the dependent state. It is observed that the international system is a struggle between bourgeoisie and the proletariat has been the central focus of the capitalist society.

In light of the forgoing, Opusunju (2020) sees the relationship between Nigeria and China as beneficial because of the abundant Chinese raw materials, also, the relationship between both countries can be beneficial if one country can produce two goods at a lower absolute cost. No wonder Steven Jackson (2019) sees the Nigeria-China relationship as one of missed opportunity and rivalry, however the author concludes that the relationship happens to be changing, it however remains to be seen if the current momentum will be sustained. Igbokwe (2020) sees Nigeria as one of China's biggest market in Africa, he however raised the alarm because of the negative effects of China's influence on Nigeria especially in her energy sector. Therefore, Igbokwe (2020) concludes that rural development is sine qua non to sustainable national development.

The Current Challenges

Nigeria's relations with China have developed into one of the major bilateral relations of any country since diplomatic relations were established on 10 February 1971. In addition to high-level visits, Chinese companies and money found their way into Nigeria, the largest economy in Africa (The Conversation, 2021). It is imperative to note that the relationship between Nigeria and China is not without any challenges. Notwithstanding, several analysts has called for a re-examination of the relations between Nigeria and China, especially as China is seen as a scrambler, invader, and colonizer of the 21st century. This is because China's concern is only with the export of its manufactured products and less with the added value of the Nigerian primary products, which are exported as raw materials into China. China, railways, hydrocarbons, telecommunications, agriculture and roads invaded almost all Nigerian economic sectors in 2016 (Adigbuo, 2019). The floods of the market with cheap Chinese products have led to untold consequences for the weak industrial sector of Nigeria by local manufacturing companies. As Nigeria strives to produce low-tech products, such as textiles and detergents, Chinese products are in stifling competition (The Conversation, 2021).

One of the current challenges in Nigeria China relations is the negative impact of China's imports on Nigerian industries, in which the biggest casualty has been textiles. For example, an estimated 28,000 Nigerians lost their jobs to Chinese

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imports in Kano state alone, which is considered to be one of the main textile cities in northern Nigeria in 2015 (The Conversation, 2021). Furthermore, Chinese engage in illegal textiles trade in Kano which Nigerian laws forbids. In Nigeria, Chinese trade in textiles with Africa is an emotive problem. Many Nigerians have been blamed for Chinese cheap imports in recent decades for the decline in local textile mills (The Conversation, 2021). Chinese firms have been known to stifle local products by pushing non-standard goods to Nigeria. But part of China's strategy, an economic measure that Nigerian government invented, is a complete rejection of import substitution. Indeed, the inconsistent perception of import substitution between the two States is a worrying challenge (Adigbuo, 2019:928). Under this condition, Nigeria may explore the most appealing features of Chinese companies and encourage them to develop their manufacturing equipment in the country. The pursuit of industrialization in Nigeria leads to the concept of technology transfer. Technology transfer is the process by which science findings from scientific research are tailored to solve social needs, which is highly practiced by the less advanced nations like Nigeria. China is not a Santa Claus and is persuaded that its bases for relevance in the international system should be protected. China is only willing to launch Nigeria's orbit satellite after some payments have been made. Before then the Chinese scientists and the Asian monarch are not ready to disclose the modalities to Nigeria (Adigbuo, 2019:928; The Conversation, 2021).

Another current issue that is yet to be met is trade. Before opening its borders to foreigners, China took the road of isolation, like the United States. There is no doubt that Nigeria favours trade. But should Nigeria now participate in the general free trade move with developed economies? There is a need for protection if Nigeria needs to develop and its slender industry beginnings (Adigbuo, 2019:929; The Africa Report, 2020). The Nigerian market is flooded by an unprotected market with any kind of Chinese products including toothpicks, exercise books, domestic bulbs, textiles and cutleries. Unprotected trade has huge consequences (The Africa Report, 2020). Many Nigerians are unemployed, and social crimes about which China is worried are caused by unemployment. Although some argue that Chinese companies now operate in Nigeria, there were thousands of Chinese visitors in Nigeria who were not able to work in Nigeria. These Chinese visitors are protected by Chinese companies and are employed in Nigeria (Adigbuo, 2019:929). While Nigerians languish in prisons in China because of violations of basic immigration laws; every Chinese is an expatriate in Nigeria who sometimes needs to be protected by the Nigerian Immigration Service (Adigbuo, 2019:929).

Foreign aid poses a further challenge, whether by grants, low-interest loans or other cultural achievements, such as teaching Chinese in Nigerian schools and

awarding Nigerians scholarships to study in China. Underdeveloped countries, such as Nigeria, rely so heavily on capital flows that terminology is difficult to make; on the other hand, rich nations, such as China, are keen to make as “help” as possible their contacts with poor countries like Nigeria, even when it is simply a profitable enterprise that matters (Gold, et al., 2017: 1203). The patterns in which much of the Chinese “aid” or granting to bilateral programmes, instead of helping the Nigerian economy, has greatly enhanced Chinese exports. What is worrying is that Chinese “assistance” is passed through officials, like most western aids, that do not involve themselves directly in the running of the Nigerian economy (Gold, et al., 2017). There are numerous stories of corrupt tendencies among these government officials, making “aids” counterproductive. In fact, the flow of Chinese development projects that reach these undeveloped countries is dictated by politics instead of poverty and economic potential (Adigbuo, 2019:928).

The fourth problem is Chinese loans to Nigeria, which are often of concern to the public. These include those who believe they are unsustainable to those who say that they allow Nigerian assets to be acquired by China (The Conversation, 2021). This explains further on what the minister of transportation stated in August 2020: “We must learn to pay our debts and we are paying, and once you are paying, nobody will come and take any of your assets,” he said. Which simply means that if Nigeria can’t service debits given by China, Nigeria asserts can be taken over. This is a serious challenge facing the country. According to the Debt Management Office in 2021 “Nigeria’s public debt was N32.9 trillion, or \$86.3 billion” respectively (Adebayo, 2020; DMO, 2021; Okpi, 2021).

Covid-19 and the Nigeria-China Relations

For Akinterinwa (2020) covid-19 genesis can be traced to a book publication in 1981, what it means is that the virus has been in existence since 2019. What this means is that the renaming of the virus cannot but be partly to underscore the novel character of the virus, as distinct from the old ones.

Nigeria -China relations in the covid-19 era raises controversial questions especially during the extended invitations of Chinese doctors to come to Nigeria to assist the anti-covid struggle because of its rating as the African country with the highest number of covid-19 infection. The Nigerian government requested for the assistance of the Chinese doctors in order to combat the virus, which they responded favourably as a result of the years of trade and interactions between these countries. The Nigerian people however had mixed feeling about the involvement of China in Nigeria, reason being that the pandemic originated from China.

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Going further, Onochie (2020), stressed on the attacks and discrimination of Nigerians in China. Citing Onunaiju (2020), asserts that the glaring cases of discrimination and assaults of Nigerians in China should not be dismissed. He however went further to state that the relationship between China- Nigeria was essential to be distracted by the exigencies and nuances of transitional rules in epidemic control. He however blamed such acts on the works of overzealous Chinese citizens who had no government consent to carry out such actions. In his conclusion, he reaffirmed the strong Nigeria-China bilateral relations which started since 1971 that has grown over the years, which now stands at its best, even during the covid-19 pandemic.

The Nigeria-China relations during the Covid-19 era became strained as a result of the treatment of Nigerians in China. The Nigeria government however debunked this claim and blamed it on stubborn Nigerians who refused to get tested or take the vaccine. However, Nigerians debunked that assertion on social media. The publicity between the Nigeria China relations became negative that the minister for foreign affairs, Mr Onyema Ogochukwu had to travel to China in order to quell the situation (Onochie, 2020).

The Covid-19 era also affected the business relationship between Nigeria and China. This is so because China is the business hub of Nigeria businessmen, however, the lockdown in China affected a lot of businesses especially in Nigeria. Infact, during my interaction with some Igbo spare parts dealers in Delta state, they complained as a result of their delayed goods due to the lockdown, coupled with hiked price in the products and commodities sent from China (Akintarinwa, 2020). However, the end of the lockdown and the opening of China's borders to guests have seen an increase in the relationship between China and other countries including Nigeria. However, a lot still has to be done with regards with the bilateral relations between Nigeria and China.

In all of the issues raised, there are areas of strength Nigeria can learn from China. The question of ideology is another area in which Nigeria can learn from China. As a means of social control, China has a strictly Confucian religion with a communist ideology. This has led Chinese people, whether China, Taiwan, Hong Kong, Singapore and Indonesia and Malaysia where the population of China is rather insignificant, to work hard. For the so called "Giant of Africa" not to have a guiding ideology is a puzzle. In order to develop our industrial sector, China gives Nigeria a better template. China never compromised its expatriate quota for foreigners in joint ventures when it established economic industrial zones

(Adigbuo, 2019:929). China has agreed to train and empower Chinese workers with those expatriates. China encouraged foreign firms not only to empower Chinese workers, but also to train people in Western higher education institutes; it improved the nation's economy in return. Nigerians' best brains are in other countries, and Nigeria is in tatters. China is unwilling to replicate it in Nigeria that forced foreign firms into the sphere of affirmative action. Some of the challenges at the moment are quasi-ethical and legal. However, the ethical values have never guided international politics. Nigeria can only make moral appeals to China; import replacements, technological transfers, compliance with Nigerian immigration laws, etc. while the Monarch in Asia is guided by his interests (Adigbuo, 2019:929).

Conclusion

The findings in this paper were that the diplomatic relations between Nigeria and China have been benefiting, but the relationship is more tilted towards China. The disparity in relations between the two countries increased Nigeria's dependence on China and undermined its economic security. China flooded Nigeria with its manufactured commodities. On the contrary, Nigeria is subject to the rents of crude oil and certain non-processed agricultural products exported to countries such as China. The relationship between Nigeria and China the major obstacles are the current challenges discussed in this study vis-à-vis the Covid-19 era. With China's disproportionate favour over Nigeria, the economic and trade gap between China and Nigeria is growing, the possibilities are remote, particularly in a globalized economy. As countries are developing alternative energy sources, Nigeria's distress is worsened technologically. Even as a reliable ally, China cannot address Nigeria's challenges. Nigeria must address issues such as corruption, insecurity, deteriorated infrastructure, capacity building, functional education and economic diversification. China cannot solve Nigeria's problems unless it wakes up to the occasion by confronting those challenges that have over the years affected its industrialisation.

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TERMS OF TRADE, TRADE RESTRICTIONS AND REAL EXCHANGE RATE IN NIGERIA

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Abstract

This study examined the determinants of real exchange rate in Nigeria. To achieve the stated objectives, several empirical tests were conducted to ascertain the relationship among the variables under study. They include the descriptive statistics test, the ADF unit root test, the serial correlation and stability tests, the ARDL bound test and ARDL short run ECM test as well as the cointegration test. Analyses of the results revealed that real government expenditure has a negative but significant relationship with real exchange rate. Both domestic money supply and nominal exchange rate both have a positive and significant relationship with the real exchange rate. The results further revealed that real trade restrictions and technological progress both have a positive but insignificant impact on real exchange rate. In conclusion, both real and nominal variables are the core fundamentals that determined real exchange rate in Nigeria mostly in the short run. Consequently, the study recommended that regarding the real terms of trade; since capital accumulation appreciates the real effective exchange rate, there is need for the creation of enabling environment that encourages investment in the tradable goods sector, rather than the non-tradable goods sector.

Keywords: *real exchange rate; ARDL; Nigeria.*

JEL Classification: F31

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1. Introduction

A study on Real Exchange Rate (RER) will not be complete without an explanation of exchange rate. Obadan (2006) refers exchange rate as a key macroeconomic variable in the general economic policy making and economic reform programs which governments take active interest in. It is made up of two concepts; Nominal Exchange Rate (NER) and Real Exchange Rate (RER). Edwards (1988) defined the focus of this research “Real Exchange Rate” under two main theoretical headings; in external terms, it is defined as the nominal exchange rate adjusted for price level differences between countries. That is, as the ratio of the aggregate foreign price or cost level to home country’s aggregate prices or cost level measured in a common currency. The appropriate definition adopted varies for different policy issues; however, both definitions rely on the assumption that the home country has only one trading partner, which within the real world is an invalid assumption.

The two exchange rates are connected in the sense that changes in the nominal exchange rate can cause short-run changes in the real exchange rate. For instance a nominal exchange rate devaluation/depreciation can have the effect of depreciating the real exchange rate. Over several years, countries are increasingly opening their borders to expanded international trade making the economies of the world to be increasingly linked and dependent on each other in services as well as in primary and manufactured goods. This brings out the very importance of real exchange rate which cannot be ignored in international trade.

Most economies (developed and developing) of the world have experienced high real exchange rate volatility, which translates into high degree of uncertainty in the attainment of major macroeconomics and monetary policy objectives in the area of price stability and economic growth. Volatile real exchange rates are associated with unpredictable movements in the relative prices in the economy. Hence, exchange rate stability is one of the main factors influencing foreign (direct and portfolio) investments, price stability and stable economic growth. Ever since the breakdown of the Bretton-Woods system in 1973, the exchange rates of many countries have been fluctuating considerable overtime, and there has been more interest in predicting exchange rates.

Exchange rate policy in Nigeria has substantial transformation since post-independence era when the country operated a fixed exchange rate system that was in alliance with the IMF per value or fixed system. The currency was subjected to administrative management. The exchange rate was largely passive as it was

dictated by the fortunes or otherwise of the British pound sterling (Obadan, 2006). Following the breakdown of the IMF per value system in December 1971, the naira was adjusted in relation the dollar. It can be said throughout the 1970s the exchange rate appreciated every year in order to source imports for developments projects and service imports substituting industries. When oil price collapsed in the world market, the policy of gradual depreciation of the naira against the dollar of pound sterling was adopted from 1981.

In 1986, Structural Adjustment Programme (SAP) was introduced, naira was floated and an institutional framework for trading in a market determined environment was established. This was pursued under the framework of the Second-tier foreign Exchange Rate Market (SPEM). The essence of SPEM was to evolve an effective mechanism for exchange rate determination and allocation of foreign exchange in order to guarantee stern stability and long-run balance of payment equilibrium. SPEM began as a dual exchange system, the official first tier exchange rate and the free market exchange rate. The essence of the dual exchange rate system was to avoid a deliberate uniform and sizeable depreciation of the naira but to allow it to depreciate in the SPEM while at the same time the monetary authorities would continue a downward adjustment of the first-tier rate until the two rates converge to a realistic exchange rate. SPEM later evolved into the foreign exchange rate, Autonomous Foreign Exchange Rate Market (AFEM), Dutch auction system and currently the wholesale Dutch auction system.

A dual exchange rate emerged with the reintroduction of AFEM in addition to the official exchange rate. It is obvious Nigeria has been moving from one exchange rate policy to another, in most cases a mixture of policies in other to achieve the main objectives of balance of payment balance, stable exchange rate for external and internal macroeconomic balance. But the various exchange rate policies have not been able to stabilize the value of the naira instead naira has to depreciated in value consistently. These calls for an understanding of the factors that are driving the movements in the exchange rate as there affect the real exchange rate.

Nigeria continues to face serious depreciation of the naira against major currencies in the world and in a bid to stabilize it; monetary authorities have adopted one exchange rate policy to another. The difference policies have not helped in stabilizing the naira. Naira has depreciated so low in value from 0.6159 in 1975 to over 596.00 in 2020. This has had major constraints to economic growth and development in areas of investments in-inflow, competitiveness of the tradable sectors, and the high cost of doing business. The ability to have a stable and viable

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currency is a solid foundation for growth and sustainability in key sectors of the economy especially as Nigeria focuses on shifting its position from being the 39th economy in the world to becoming one of the 20th economy in world by the year 2020 (Vision 20:2020). This study therefore seeks to answer the following research questions:

- i. What is the effect of real terms of trade on real exchange rate in Nigeria?
- ii. What is the effect of real trade restrictions on real exchange rate in Nigeria?

2. Empirical Literature

The following regarding the determinants of real exchange rate has been mixed. For instance, Chowdhury (1999) noted that in Papua Guinea, nominal devaluation, net capital inflow, foreign aid, trade restrictions and macroeconomic policies impacted positively on real exchange rate while Patel and Srivastava (1997) revealed that investment-GDP ratio, overall fiscal deficit and nominal exchange rate were the most important determinants of real exchange rate in India. Odedokun (1997) examined the impact of macroeconomic policies, devaluation and fundamentals on real exchange rate movement in a group of 38 African countries. The author concluded that the factors that led to real exchange rate appreciation included public sector fiscal deficits, growth of domestic credit, domestic absorption-GDP ratio, the government consumption-GDP ratio the private consumption-GDP ratio, improvement in terms of trade, income per capita and black market exchange rate premium.

In another panel analysis, Imed and Christophe (2003) analyzed the main determinants of the real exchange rate in the Middle East and North Africa (MENA) countries, their findings proved that government consumption, real interest rate variances, output per capita, as well as the degree of openness of the economy stimulate the real exchange rate. Mkenda (2001) used a co-integration analysis in estimating the long-run determinants of the real exchange rates for imports and exports, and of the internal real exchange rate in Zambia. Their analysis showed that real exchange rate for imports is characterized by terms of trade, government consumption, and investment share while terms of trade, central bank reserves and trade taxes impact real exchange rates for exports in the long-run. The internal real exchange rate is affected by terms of trade, investment share and rate of growth of real GDP in the long-run.

In South Africa, MacDonald and Ricci (2003) found that real exchange rate differential, GDP per capita, terms of trade, overall fiscal balance, degree of

openness and net foreign assets impact on the real exchange rate. Gelgard and Nagayasu (2004) also investigated the determinants of Angola's real exchange rate and concluded that oil prices and foreign interest rate are the most significant factors. They further argued that a flexible exchange rate is more expedient than a fixed exchange rate regime. Duffrenot and Yehoue (2005) analyzed the correlation between real exchange rates and economic fundamentals in 64 developing countries; their analysis shows that exchange rate dynamics is not likely to be determined by fundamentals such as productivity, terms of trade, and trade openness for middle-income countries than for low income countries.

Obadan (1994) also found that the improvement in terms of trade and the increase in net capital inflows led to appreciation in the nominal and the real exchange rates, respectively, while the increase in monetary aggregates resulted to real exchange rate depreciation. In Angola, Takaendesa (2006) established that terms of trade, the real interest rate differential, domestic credit, the degree of openness of the economy and technological progress have long-run impact on the real exchange rate. Terms of trade, domestic credit and degree of openness of the economy have significant influence on the real exchange rate in the short-run.

In a similar study for Venezuela, Yu-Hsing (2006) concluded that broad money supply, world interest rate country risk, and the estimated rate of inflation have adverse effect on exchange rate while government deficit appreciates the exchange rate. Quite a number of studies have also been conducted to investigate the determinants of real exchange rate in Nigeria and the extent of real exchange rate misalignment. Mapenda (2010) also used the Johansen approach and the vector error correction model (VECM) to evaluate the long-run determinants of the exchange rate in Ghana and Nigeria, using the terms of trade, trade restrictions, domestic interest rates, foreign aid inflow, income, money supply, world inflation, government consumption expenditure, world interest rates, capital controls and technological progress.

Otapo (2020) examined the determinants of exchange rates in Nigeria for the period 1982 to 2018. The Ordinary Least square method of regression estimation was adopted for analyses. The study's model related changes in exchange rates to changes in reserves, domestic credit, foreign inflation, real income, domestic bond and foreign bond. None of the exogenous variables at 5% level of significance had significant effect on exchange rate, their joint effect was also not significant with an F statistics of 1.123, 21.2% of changes in exchange rate were accounted for by changes in the models variables. Domestic credit, foreign prices, reserves and real

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gross domestic product had negative coefficients respectively, while foreign bond and domestic bond had positive coefficients respectively. Reserves, domestic credit and foreign bonds contradict theoretical expectation while foreign prices, real gross domestic product and local bonds were in agreement, furthermore, real gross domestic product had the highest effect on exchange rate. Monetary and fiscal policies that engenders investment in productive sectors should be implemented to bring about economic growth and a progressively appreciating exchange rate

Oke and Adetan (2018) examined empirically the determinants of exchange rate in Nigeria using the ARDL Bounds test approach to co-integration for the period spanning 1986-2016. The result of the analysis shows that the gross domestic product (GDP), Interest rate (INT) and inflation rate (INF) have positive effect on exchange rate in Nigeria while degree of openness (DOP) recorded a negative effect on exchange rate (EXR) in Nigeria. The Error Correction Mechanism result appeared to be correctly signed and significant. The study therefore concluded that gross domestic product, interest rate and inflation rate are the major determinant of exchange rate in Nigeria under the study period. It is therefore recommended that government should focus more on production of goods and services that can be exported and also introduce policies that can discourage importation of goods into the country. The government must pursue a realistic and pragmatic exchange rate policy in the less free trade areas that would stem capital flight and ensure more investment in the Nigerian economy.

Ajao (2015) investigated the determinants of real exchange rate volatility in Nigeria from 1981 through 2008. Having obtained the volatility of exchange rate through the GARCH (1,1) techniques, the ECM was used to examine the various determinants of exchange rate volatility in Nigeria, while the co-integration analysis reveals the presence of a long term equilibrium relationship between REXRVOL and its various determinants. Our empirical analysis further shows that openness of the economy, government expenditures, interest rate movements as well as the lagged exchange rate are among the major significant variables that influence REXRVOL during this period. This study recommends that the central monetary authority should institute policies that will minimize the magnitude of exchange rate volatility while the federal government exercises control of viable macroeconomic variables which have direct influence on exchange rate fluctuation.

Victor and Dickson (2012) investigated the determinants of the real exchange rate in Nigeria, where their main objective was to present a dynamic model of real exchange rate determination using data from 1970 to 2010. They considered

government spending, GDP, terms of trade, capital flow, price level, technological progress and nominal effect exchange rate. The Johansen co-integration test they applied suggested that a long relationship existed among the variables. In the same vein, Udousung and Umoh (2012) analyzed exchange rate determinants in Nigeria from 1971 to 2000. Six variables were included in the exchange rate model, including openness of the economy, import tax, balance of payment, the fiscal deficit, exports tax and trends. Their result revealed that import tax, openness of economy and export tax had positive coefficients, implying a direct positive relationship between these variables and the real exchange rate

Ajao and Igbekoyi (2013) investigated the determinants of real exchange rate volatility in Nigeria from 1981 to 2008. Using generalized auto-regression condition heteroskedasticity (GARCH) techniques and the error correction model (ECM) to examine the various determinants of exchange rate volatility in Nigeria. However, the result of their analysis suggest that the openness of the economy, government expenditures, interest rate movements and the legged exchange rate among others, were the significant variables that influenced real exchange rate volatility during the period reviewed. In terms of real exchange rate misalignment, Edwards (1988, 1989) studied about twelve developing countries and found that those with less real exchange rate misalignment performed better (in terms of growth of output) than those with more real exchange rate misalignment. He also observed that the nature of exchange rate misalignment in developing countries has more of overvaluation, which negatively affects the tradable sector by reducing producers real prices.

Aliyu (2008) investigated the impact of exchange rate volatility on non-oil exports trade in Nigeria and the findings revealed that the naira exchange rate volatility decreases non-oil exports while the same estimate for the dollar volatility increased export of non-oil trade in Nigeria. Odedokun (1997) examined the effect of a wide range of macroeconomic policies, devaluation and fundamentals on real exchange rate behavior. The evidence suggests that such macroeconomic policies appreciate the real exchange rate while devaluation, investment-GDP ratio, consumer-wholesale price ratio in trading-partners countries, and boom in industrial countries are found to depreciate real exchange rate.

Ricci, Ferretti, and Lee (2008) presented reduced-form estimates of equilibrium real exchange rate in a sample of industrial and emerging markets, using a new measure of commodity terms of trade, and analyzed the Balassa-Samuelson effect through fairly detailed measures of labor productivity in tradable and nontradable

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(relative to trading partners). The empirical results show the long-run relation between real exchange rate and the proposed set of underlying fundamentals to be significant and economically meaningful; real exchange rate are found to commove positively with a country's net external positions, the productivity of tradable versus nontradable relative to trading partners, the commodity terms of trade, and government expenditure.

Habid and Kalanova (2007) investigated whether oil price has an impact on the real exchange rates of three main oil exporting countries and the results vary for the three countries. It is evidence from the above review that studies on the real exchange rate have no dominant approach. Real exchange rate being a very important macroeconomic policy objective with diverse influence on other macroeconomic variables and objectives, each author studies area of interest with different data sets and methods. We therefore seek to assess the determinants of real exchange rate in Nigeria to see whether it conforms to previous studies in the same area in other African countries.

3. Methodology

3.1 Model Specification

The regular method of modeling RER equilibrium is to convey the theoretical bond between RER and its major determinants. This was corroborated by the findings of (Edwards, 1988; Elbadawi, 1994). The normal formula has been employed in several research works (Ghura & Grannes, 1993; Bashir & Luqman, 2014). The estimates of this study follow the relationship found in investigating the causes of real exchange rate behaviour in Nigeria.

The estimation technique adopted for this study was the autoregressive distributed lag (ARDL) test. The ARDL approach to co-integration as first developed by Pesaran and Pesaran (1997), Pesaran and Shin (1999) and Pesaran, Shin and Smith (2001) has been applied with the help of unrestricted vector error correction model. The aim is to investigate the long run and the short run relationship between real exchange rate and its determinants in Nigeria.

$$RER = f(TOT, TRT, DMS, EXC) \quad 1$$

Its linearized version is given below:

$$\log RER = b_0 + b_1 \log TOT + b_2 \log TRT + b_3 \log DMS + b_4 \log EXC + U_t \quad 2$$

Where; RER is stands for Real Exchange Rate, TOT is the External Terms of Trade while TRT is Trade Restrictions. Also, DMS means Domestic Money Supply while EXC and Ut are Nominal Exchange Rate and Error Term respectively. The ARDL model version of equation (2) is stated below:

$$\begin{aligned} \Delta \text{LogRER}_t = & \alpha_0 + \sum_{i=1}^n a_1 \Delta \text{LogRTOT}_t + \sum_{i=1}^n a_2 \Delta \text{LogRTRT}_t + \sum_{i=1}^n a_3 \Delta \text{LogRGEXP}_t + \sum_{i=1}^n a_4 \Delta \text{TRCHP}_t + \sum_{i=1}^n a_5 \Delta \text{LogEXC}_t + \sum_{i=1}^n a_6 \Delta \text{LogDMS}_t + p_1 \\ & \Delta \text{LogRTOT}_{t-k} + p_2 \Delta \text{LogRTRT}_{t-k} + p_3 \Delta \text{LogRGEXP}_{t-k} + p_4 \Delta \text{TECHP}_{t-k} + p_5 \\ & \Delta \text{LogEXC}_{t-k} + p_6 \Delta \text{LogDMS}_{t-k} + \text{et} \end{aligned} \quad 3$$

4. Results and Discussion

4.1 Descriptive Analysis

Table 1. Result of Descriptive Statistical Analysis

	RER	RTOT	RTRT	RMP	EXC	TECHP	RGEXP
Mean	8.266974	10.89532	4.423117	44.4553	88.82697	29.89000	0.723481
Medium	8.894097	8.733894	4.091356	11.68348	111.9433	27.70000	0.661333
Maximum	23.38905	32.83271	11.98141	197.2820	253.4923	1148.8300	2.333952
Minimum	0.080955	0.763082	0.630086	0.068522	2.020575	-3.640000	0.107985
Std. Dev.	7.463534	8.420858	2.898461	61.16078	70.29011	24.32332	0.536926
Skewness	0.361697	0.787210	0.738643	1.277165	0.209984	1.366749	1.286377
Kurtosis	1.842744	2.950895	3.052552	3.394506	1.996446	5.957848	4.439376
Jarque-Bera	2.405782	3.204894	2.822470	8.628641	1.528680	20.95197	11.22570
Probability	0.300325	0.201403	0.243842	0.013376	0.465641	0.000028	0.003651
Sum	256.2762	337.7548	137.1166	1368.815	2753.636	926.5900	22.42792
Sum Sq. Dev.	1671.130	2127.325	252.0322	112219.2	148221.0	17748.72	8.648692
Observations	31	31	31	31	31	31	31

Source: E-views 10.0 Econometric Software

Table 1 revealed the result of the descriptive analysis of the data used in this study. The Jarque-Bera (JB) test measures the difference of skewness and kurtosis of the series with those from the normal distribution. The JB values of 8.629, 20.952 and 11.226 for DMS, TECHP and RGEXP respectively and their corresponding probability of less than or equals to 0.05 percent confirms the normality of the series and suitability for generalization. It indicates the absence of outliers in the data.

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4.2. Augmented Dickey-Fuller (ADF) Unit Root Test

Table 2. Unit root test using the Augmented Dickey-Fuller (ADF) Statistics

Variables	At Level	At 1 st or 2 nd Difference	Order of Integration
RER	-1.6744	-5.8372	I(1)
RTOT	-2.0942	-5.9779	I(1)
RTRT	-2.7899	-5.3489	I(1)
TECHP	-5.0656	-	I(0)
RGEXP	-4.3927	-	I(0)
EXC	-2.4948	-5.4706	I(1)
DMA	-0.6755	-4.4781	I(1)

Test of Critical Values: 1% = -3.6793; 5% = -2.9677; 10% = -2.6229

Source: E-views 10.0 Econometric Software

The analysis of the ADF unit root test revealed that not all the variables was found to be stationery at levels (I(0) except for RGEXP and TECHP, hence, it becomes impossible at this stage to reject all their null hypotheses. This is so because the test statistic values at level for (RER, RTOT, RTRT, EXC and DMS) variable using the ADF test were below the critical values at one percent, five percent and ten percent levels of significance. However, when these variables (RER, RTOT, RTRT, EXC and DMS) were differenced once, they were stationery. This is because the tests statistic values were found to be greater than the critical values at one percent, five percent and ten percent levels of significance. Having that all the variables are integrated in order 1(1) for (RER, RTOT, RTRT, EXC and DMS) and order 1(0) for RGEXP and TECHP, hence, all their null hypotheses are rejected.

4.3 ARDL F-bound Test

The result of the ARDL result conducted revealed that, the coefficients of determinant (RTOT), RTRT, RGEXP, TECHP, EXC, DMS) are not jointly co-integrated with the dependent variable, RER, hence, the absence of long-run relationship between the independent variables and dependent variable. This is because the calculated F-statistic is 0.58 compared with Pesaran critical value at all levels of significance is lower than the lower bound (2.12) and the upper bound (4.43). This result indicated that there exist no evidence of long-run co-integration

between (RTOT, RTRT, RGEXP, TECHP, EXC, DMS) and RER. As a result of the insignificant long run relationship between (RTOT, RTRT, RGEXP, TECHP, EXC, DMS) and RER, there is need to assess and estimate the effects of the long run coefficients. The long run coefficients measure the long run effects of the independent variables on the dependent variable.

Table 3. ARDL F-bounds Test

Hull Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	0.581711	6
Critical Value Bounds		
Significance	10 Bound	11 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Source: E-view 10.0 Econometric Software

The result of the long run estimates showed that the long run effect between RGEXP and RER was negative (-10.0861) and insignificant (0.9639); the long run effect between RTOT and RER was negative (-18.4109) and insignificant (0.9639); the long run effect between RTRT and RER was positive (16.3261) and insignificant (0.9625); the long run effect between TECHP and RER was positive (0.1188) and insignificant (0.9631); the long run effect between EXC and RER was negative (-16.3222) and insignificant (0.9631); the long run effect between DMS and RER was positive (15.5723) and insignificant (0.9633). With the absence of a long run cointegration between the variables, further tests are conducted to ascertain whether the model is free from serial correlation and problem of stability.

4.4 Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test was conducted to determine whether the model was free serial correlation and to accept or reject the null hypothesis that,

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Table 4. ARDL Cointegration and Long Run Effects Result

Long Run Coefficients				
Variable	Coefficient	Std. Error	T-statistic	Prob,
	-			
LRGEXP	10.086149	218.867789	-0.046083	0.9639
LDMS	15.572304	332.030340	0.046900	0.9633
	-			
LRTOT	18.410944	399.097971	-0.046131	0.9639
LRTRT	16.326186	340.869864	0.047896	0.9625
	-			
LEXC	16.322272	369.458234	-0.044179	0.9654
TECHP	0.118862	2.523207	0.047108	0.9631
C	40.835869	946.175434	0.043159	0.9662

Source: E-view 10.0 Econometric Software

Table 5. Breusch-Godfrey Serial Correction LM Test

F-statistic	0.062961	Prob. F(2, 12)	0.9393
Obs*R-squared	0.301150	Prob. Chi-Square(2)	0.8602

Source: E-view 10.0 Econometric Software

There is no serial correlation in the ARDL model. Based on the Breusch-Godfrey serial correlation LM test result, it is shown that F-stat and Obs*R-squared probabilities are greater 0.05, hence, we accept the null hypothesis that, there is no serial correlation in the ARDL model. It is therefore concluded from the Breusch-Godfrey Serial Correlation LM Test statistics result that, the model is free from the first and second order serial correlation. Hitherto, the stationarity of the ARDL analysis is present. The implication is that, the ARDL model is sufficient enough to capture all the dynamics of the model considering the fact that, the pre-sample missing value lagged residuals were set to zero.

4.5 CUSUM Stability Test

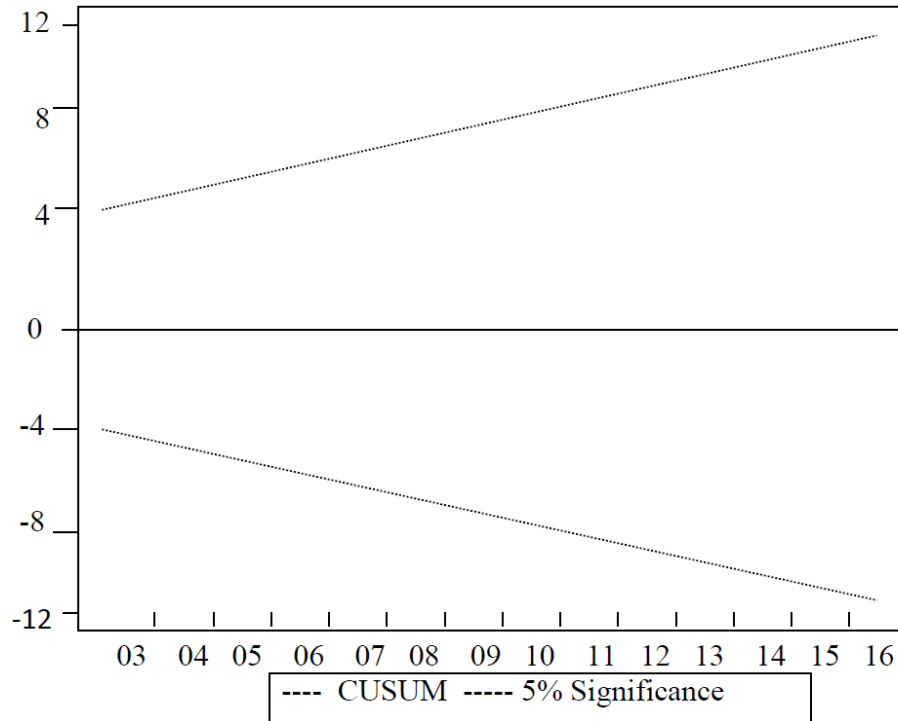


Figure 1: Cusum Stability Test
Source: E-view 10.0 Econometric Software

This is a test to ascertain the stability of the model. This was done using the CUSUM stability test analysis. The condition of the CUSUM stability test holds that, the middle line (trend) must not lie outside the set-region, bordered by two slant lines. The CUSUM stability test revealed that this condition has been met satisfactorily, hence, it is concluded that, the ARDL model is stable or has stability at five percent level of significance.

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4.6 Variance Inflation Factors

Table 6. Variance Inflation Factors Test

Variance Inflation Factors			
Variable	Coefficient Variance	Uncentered VIF	Centered VIF
LRER(-1)	0.066315	1173.135	787.6969
LRER(-2)	0.071094	1175.268	852.0231
LRGEXP	0.011254	47.44944	27.50606
LRGEXP(-1)	0.009725	39.72434	23.70268
LRMP	0.038825	1638.431	946.1525
LRMP(-1)	0.091567	3608.853	2279.666
LRMP(-2)	0.079191	2835.856	1922.108
LRTOT	0.009609	19.0394	45.69845
LRTOT(-1)	0.019676	384.1340	92.58864
LRTRT	0.010579	89.91598	28.05952
LEXC	0.017922	1280.991	97.39721
LEXC(-1)	0.077531	5235.951	468.7632
LEXC(-2)	0.076890	4905.156	548.3457
TECHP	9.04E-07	5.305650	2.044692
C	0.895829	3568.826	NA

Source: E-view 10.0 Econometric Software

Variance inflation factors (VIF) measure how much the variance of the estimated regression coefficients are inflated as compared to when the predictor variables are not linearly related. It is used to explain how much amount multicollinearity is dangerous because it can increase the variance of the regression coefficients. Variance inflation factors range from 1 upwards. The numerical value for VIF tells you (in decimal form) what percentage the variance (i.e. the standard error squared) is inflated for each coefficient. A rule of thumb adopted for interpreting the variance inflation factor in this study is:

VIF less than or equals to 1	=	not correlated.
VIF between 1 and 5	=	moderately correlated.
VIF greater than 5	=	highly correlated.

From Table 6, the VIF Tolerance values of the variables are consistently smaller than 1. This shows that there is absence of multicollinearity as inferred by Tobachnick & Fidell (1996) and Musa (2005). The VIF values, moreover, reaffirm the absence of multicollinearity among the variables considered since the values are consistently lower than 1 ad suggested by Neter, Kutner, Nachtsheim & Wasserman, (1996), Cassey & Anderson (1999) and Musa (2005).

4.7. Test for Heteroskedasticity

One of the important assumptions of linear regression is that, there should be no heteroskedasticity of residuals. In simpler terms, this means that the variance of residuals should not increase with fitted values of response variable. It is customary to check for heteroskedasticity of residuals once you build the linear regression model. The reason is to heck if the model thus built is unable to explain some pattern in the response variable (dependent variable), that will eventually shows up in the residuals. This would result in an inefficient and unstable regression model that could yield bizarre predictions later on.

Table 7: Heteroskedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.905304	Prob. F(14,14)	0.5725
Obs*R-squared	13.77933	Prob. Chi-Square(14)	0.4663
Scaled explained SS	2.549246	Prob. Chi-Square(14)	0.9996

Source: E-view 10.0 econometric software

4.8 ARDL Short Run Test

The short run dynamics of the ARDL as shown in table 8 revealed that the ARDL model has a good fit on the data in the short run. This is given by the high value of the R-squared of 0.9985 (99.85 percent) and the adjusted R-squared of 0.9966 (99.66 percent). Based on the value of the adjusted R-squared, about 99.7 percent of the systematic variations in the real exchange rate in Nigeria has been determined by changes in real terms of trade (RTOT), real trade restrictions (RTRT), real government expenditure (RGEXP), technological progress (TECHP), nominal exchange rate (EXC) and domestic money supply (DMS).

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Table 8. ARDL Short Run Dynamics Result

Dependent Variable LRER				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LRGEXP(-1)	-0.246843	0.115287	-2.141111	0.0535
LDMS	0.739269	0.212300	3.482181	0.0045
LRTOT(-1)	-0.210293	0.161488	-1.302218	0.2173
LRTRT	0.192783	0.121134	1.591482	0.1375
LEXC	0.919039	0.151581	6.063032	0.0001
TECHP	0.001317	0.001028	1.281413	0.2243
C	0.421502	1.051406	0.400894	0.6955
ECT(-1)	0.028530	0.478002	0.059686	0.9534
R-squared	0.998528	Mean dependent var		1.473336
Adjusted R-squared	0.996688	S.D. dependent var		1.593376
S.E. of regression	0.091697	Akaike info criterion		-1.645096
Sum square resid	0.100900	Schwarz criterion		-0.883836
Log likelihood	39.03134	Hannan-Quinn criterion		-1.412371
F-statistic	542.6997	Durbin-Watson statistic		1.972348
Prob(F-statistic)	0.000000			

Source: E-view 10.0 Econometric Software

On the same note, the high value of F-statistics (542.6997) shows that the overall model is statistically significant. The overall significance of the short-run model implies the joint significance of all explanatory variables in explaining short-run changes in the real exchange rate position in Nigeria. The result for the variables shows that the unexpected positive sign of error correction term (ECT) is highly insignificant. The highly insignificant ECT further confirms the existence of an unstable and insignificant relationship between real exchange rate and its determinants in Nigeria with their various lags. The coefficient of ECT (0.0285) imply that deviation away from the long run real exchange rate (RER) is uncorrected by 2.85 percent by the following year. This positive sign signal a non-oscillating convergence in real exchange rate (RER) and a movement away from equilibrium.

Analysis of the short-run estimates revealed further that, changes in the previous lagged period of real government expenditure (RGEXP) have a negative but significant impact on the current value of real exchange rate (RER) in Nigeria. The

negative value (-0.2468) revealed that, a percent increase in real government expenditure will negatively impact real exchange rate determination in Nigeria by 0.24468 in the short run, *ceteris paribus*. Further analysis of the short-run estimated revealed that, changes in the current period of domestic money supply (DMS) have a positive and significant impact on the current value of real exchange rate (RER) in Nigeria. The positive value (0.7392) revealed that, a percent increase in domestic money supply will positively impact real exchange rate determination in Nigeria by 0.7392 in the short-run, *ceteris paribus*.

Analysis of the short-run estimated revealed further that, changes in the previous lagged period of real terms of trade (RTOT) have a negative and insignificant impact on the current value of real exchange rate (RER) in Nigeria. The negative value (-0.2102) revealed that, a percent increase in real terms of trade will negatively impact real exchange rate determination in Nigeria by 0.2102 in the short run, *ceteris paribus*. Analysis of the short-run estimated revealed further that, changes in the current period of nominal exchange rate (EXC) have a positive and significant impact on the current value of real exchange rate (RER) in Nigeria. The positive value (0.9190) revealed that, a percent increase in real terms of trade will positively impact real exchange rate determination in Nigeria by 0.9190 in the short run, *ceteris paribus*.

Finally, the analysis of the short-run estimates revealed further that, changes in the current period of technological progress (TECHP) have a positive but insignificant impact on the current value of real exchange rate (RER) in Nigeria. The positive value (0.0013) revealed that, a percent increase in technological progress will positively impact real exchange rate determination in Nigeria by 0.0013 in the short run, *ceteris paribus*.

4.9 Discussion of Findings

The study empirically examined real exchange rate determinants in Nigeria. The study also adopted the ARDL model technique as a result of the ADF unit root test orders of integration (1(0) and 1(1)). The ARDL bound test revealed the absence of a long run existence in the model. This was as a result of the F-statistics value being lower than the Pesaran lower and upper critical bound values. The ARDL model was also subjected to the serial correlation and stability tests. The results revealed that the model satisfied both the no serial correlation and stability requirements and conditions. The stability test was conducted using the CUSUM stability test.

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The ARDL short run dynamics test was conducted to attempt to correct the existing disequilibrium position in the short run. The error correction (ECM) factor did not have a negative sign and was not statistically significant as theoretically expected. The highly insignificant ECT further confirms the existence of the long run insignificant relationship between real exchange rate and its determinants in Nigeria with their various lags.

Further analysis of the ARDL results revealed that, the coefficient of real government expenditure (RGEXP) is both correctly signed and significant statistically. The implication of the negative sign of the coefficient is that increase in government spending relative to GDP induces real exchange rate depreciation. This is because in the long run, higher government spending most likely according to Maesofernandez, Osbat and Schnatz (2001) undermines confidence in a currency thereby leading to distortions and consequently exerts a negative effect on the real exchange rate. This is, however, not to deny the fact that an increase in real government expenditure which increases the demand in the nontradable sector stimulates higher productivity, conserves foreign exchange, which otherwise would be used for imports, and improves real exchange rate. Perhaps this condition is not likely to hold for Nigeria given the low level of capacity utilization, high energy and other operating costs, among others, in the nontradable sector.

This was also supported by Bouakez and Eyquem (2011) that an unexpected increase in public expenditures leads to a fall in the risk-adjusted long-term real interest rate causing the real exchange rate to depreciate. In their study, they proposed a small-open-economy model that features three key ingredients: incomplete and imperfect international financial markets, sticky prices, and a not too-aggressive monetary policy. The coefficient of the RGEXP has the expected negative sign with respect to the RER in the model but it does not have any significant effect in the long run but does in the short run at the conventional five percent level of significance.

The role of macro policy as proxied by domestic money supply is found to be significant in affecting the RER in the model in the short run. A one percent increase in domestic money supply will insignificantly appreciates the RER by 15.57 in the long run though, however, domestic money supply will appreciate RER significantly by 0.739 in the short run. Unsustainable macroeconomic policy, in terms increased domestic money supply, raises the domestic price of nontradables and appreciates the RER, confirming the theoretical analysis of the RER. Furthermore, Yu-Hsing (2006) concluded that broad money supply, would

interest rate, county risk, and the estimated rate of inflation have adverse effect on exchange rate while government deficit appreciates the exchange rate.

Theoretically, the sign of coefficient of terms of trade is ambiguous. It depends on whether the substitution or income dominants. Here, the positive income effect of a change in terms of trade dominates and hence the coefficient's sign is positive. Although Nigeria is a price taker in the world economy, faces quantity restrictions from the organization of oil producing states (OPEC) and crises in the oil producing region, which adversely affect supply, yet changes in its terms of trade results in appreciation of real exchange rate. This development and indeed those in the above could, however, spur more imports into the economy.

The result indicates that an improvement in RTOT does not have any significant short run and long run impact on the real exchange rate. With the coefficient indicating a negative sign in relation to RER, it is not statistically significant in either the short run or the long run at conventional five percent level of significance. The finding of this study disagrees with Victor and Dickson (2012). They investigated the determinants of the real exchange rate in Nigeria, where their main objective was to present a dynamic model of real exchange rate determination using data from 1970 to 2010. They considered government spending, GDP, terms of trade, capital flow, price level, technological progress and nominal effective exchange rate. The Johansen co-integration test they applied suggested that a long relationship existed among the variables. With respect to trade restrictions, it is seen that due to more trade restrictions and import barriers on the nation, it would lead to exports and it appreciation of real exchange rate. From the results of this study, real trade restrictions have an insignificant positive effect on RER. The result indicates that the introduction of restrictive trade policies from the mid-1980s appreciated the RER in the long run as well as in the short run. Trade restrictions tend to have appreciated the RER in Nigeria by 16.32 percent in the long run and by 0.19 percent in the short run. Thus, the trade regime has an important bearing on the movement of RER in Nigeria.

The coefficient of the nominal exchange rate is statistically significant and positive, as expected by the theoretical model. The result indicated that there is a close link between nominal exchange rate and the real exchange rate in Nigeria. A one percent nominal devaluation causes the RER to depreciate by 16.32 percent in the long run, while one percent nominal appreciation causes the RER to appreciate by 0.91 percent in the short run as the conventional five percent level of significance. This finding agrees with Ajao and Igbekoyi (2013) who investigated the

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determinants of real exchange rate volatility in Nigeria from 1981 to 2008. Using Generalized Auto-regression Condition Heteroskedasticity (GARCH) techniques and the Error Correction Model (ECM) to examine the various determinants of exchange rate volatility in Nigeria. However, the result of their analysis suggest that the openness of the economy, government expenditures, interest rate movements and the lagged exchange rate among others, were the significant variables that influenced real exchange rate volatility during the period reviewed.

5. Conclusion and Recommendations

Real exchange rate has been erratic, fluctuating and highly volatile over the years. The unabated problems of high unemployment, inflation and overall economic hardships have been attributed to the unstable real exchange rate/ the purpose of this study has been to examine real exchange rate determinants in Nigeria and evaluate whether it follows the theoretical expectations postulated by the theoretical framework of the study.

The theory of real exchange rates states that, while the long run equilibrium value of the real exchange rate is determined by real variables, the actual or observed real exchange rate is determined by both real and nominal variables in the short run. Movement of the equilibrium RER from its original position does not necessarily represents disequilibrium since the long run equilibrium is affected by real variables.

This study has examined the extent to which real and nominal determinants can explain the behaviour of the real exchange rate in Nigeria in the short run. The ARDL result concluded that, at the long run level, the real variables alone that influences real exchange rate in Nigeria were insignificant. However, real exchange rate in Nigeria was determined by both real and nominal variables are the core fundamentals that determined real exchange rate in Nigeria mostly in the short run.

Based on the findings of this study, the following measures are recommended.

i. Regarding the real terms of trade; since capital accumulation appreciates the real effective exchange rate, there is need for the creation of enabling environment that encourages investment in the tradable goods sector, rather than the non-tradable goods sector. This can be done by reforming the Nigerian agricultural and industrial sectors to attract investment for the purpose of export and reforming the mining sector for increased investment.

ii. A guided trade liberalization is needed to minimize the depreciating effects of the openness on the real effective exchange rate in the country. Given the fact

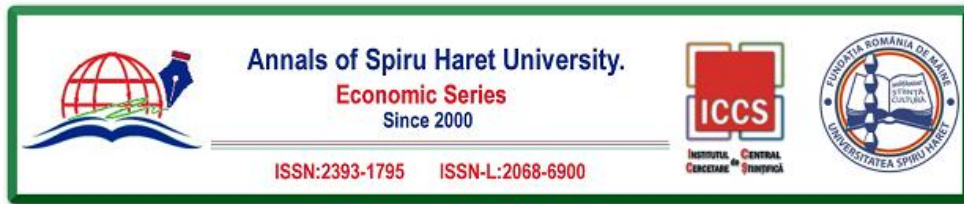
that trade restrictions appreciate the real exchange rate, there is need to encourage Nigeria's increased integration with other economies in the West African sub-region as well as out of the sub-region.

iii. Government expenditure should be directed on the issue of investible goods and how spending on imported good should be drastically reduced to avoid the danger of worsening the current account balance that may cause real exchange rate depreciation.

iv. Since output growth rate (TECHP) has a positive impact on the real effective exchange rate, to generate substantial real exchange rate depreciation, supply side policies that will improve productivity will be useful in Nigeria. This will include human capital development in form of education and health as well the improvement in basic infrastructural facilities like electricity amongst others.

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KYRGYZ ETHNOGRAPHIC TERMS IN CONTEMPORARY PUBLIC ADVERTISING

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Abstract

The usage of the variety of the stylistic and lexical means makes the language of advertisements colourful, rich and bright. Language of advertising is been created with an aim to attract customers' attention and provoke them to the further actions. This paper covers the examples of the advertisements taken from the Kyrgyz language in order to demonstrate the structural traits of the advertising discourse; the analysis of the advertisements in Kyrgyz assist to reveal the main contextual notions represented in advertising. The paper hypothesis is that the advertisements in Kyrgyz can greatly influence the views of the ordinary people. The paper has been accompanied by the examples taken from the mass media sources functioning in Kyrgyzstan.

Keywords: *terms of advertisement; the Kyrgyz language; translation; commercial; structure.*

JEL Classification: M37, Z13

Introduction

Contemporary society may be characterized by the great number of social networks and digital achievements which makes the process of information

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exchange easy, fast and available. In the world of high technologies and virtual communication the advertisements play the significant role; in other words the advertisement is considered to be a main “weapon” of entrepreneurs and businessmen. Based on both the old and contemporary advertising texts the ads are to be short, expressive and contain catchy phrases. The real advertisement should be able to make a recipient see all the shapes and colours, motions and sounds, tastes and smells, emotions and feelings; and provide a recipient the maximum of reliable and useful information. The main component of the advertisement is a word, every word in its turn is supposed to be the linguistic unit expressing the definite meaning, thus selecting words in the process of advertisement making is delicate and reasonable activity.

What helps the advertising language to be so impressive and effective? If to consult dictionaries and see the definition of the word “advertisement” they give us the following: *a piece of information in a newspaper; on television, a picture on a wall, etc. that tries to persuade people to buy something, to interest them in a new job, etc.; something (such as a short film or a written notice) that is shown or presented to the public to help sell a product or to make an announcement.* Thus, the advertisement makers try to use all the possible means in order to attract people’s attention and make the customer be interested in the advertised product or service.

If to mention about the types of the advertising means they can be divided into the following categories: a) billboards – usually huge outdoor advertising structures put in main roads or top of buildings; b) advertising slogans – professionally created expressions with an aim to draw people’s attention, *f.e. “Life Tastes Good” (Coca-Cola), “Think Different” (Apple)*; c) television commercials – advertising texts or clips broadcast on television. Nowadays all types of advertisement are considered to be widespread and productive in the modern business society. Sometimes the creations of advertisement makers become the places of sightseeing due to their originality and scope.

Literature Review

Nowadays it is impossible to succeed in business without the advertising means. According to the historical sources, the origin of the very first advertising billboard has deep roots in 1593 [Serdobintseva E.N., 2010], so we can say that the past generations also realized the importance and effectiveness of advertisements. In the process of revealing the structural characteristics of the advertising texts in Kyrgyz

the number of papers has been taken into consideration. The language of advertising can be composed of different language genres (colloquial, informal), the variety of language (slang words, jargons, dialects), different stylistic means of language (metaphor, epithet). “In advertising the effective way of imbibing the thought in the minds of viewer is to create a ‘hit catch-line’ which will be easily remembered” [Balaji Natkare, 2012]. In some cases the advertising text may be able to change the models of social behaviour and attract people’s attention to the most significant issues [Karadeniz, M., 2009, Yukina E.Y., 2017. Frolova. S., 2014]. Sometimes the creations of advertisement makers become the places of sightseeing due to their originality and scope [Presbrey, F. 2009].

In Kyrgyzstan the advertisement has been developing and rapidly increasing since our country gained its independence in 1991. If to compare the Kyrgyz language with the past twenty-year period we can observe the fact that the language of advertisement in Kyrgyz has been enriched and multiplied. This linguistic phenomenon can be considered as a good change in language development, since it can help the Kyrgyz language spread in our country. Along with the popularity a big set of semantic neologisms (words acquired new meanings) entered the Kyrgyz language, for instance, заманбап – contemporary, modern; саркеч - fashionable, brandy; санарип – digital; жарнама – ad; расмий – official; демөөрчү – sponsor; жүгүртмө саптар – tickers; колдонуучу – user; жарнама калкан – billboard; насыя – loan; чыпкалоо – filtering; кытырактар - crackers; маймылча – at (@); f.e. пайдалуу насыялар – profitable loans (Amanbank ad), for example:

Куюларда дагы бир жолу чыпкалоонун уникалдуу технологиясы – Unique technologies of new filtering (ad of “Тороз” beer brand);

Айымдардын жана мырзалардын саркеч кийимдери– Fashionable Cloth for Ladies and Gentlemen – usage of a new word *саркеч* advertisement of boutique Zahra;

Көбүрөөк даамдар, жаңы кытырактар – (“Кытырактар” crackers ad) – More Tastes – New Crackers.

Besides in the advertisement texts we have noticed number of borrowed words: хиджабдар – hijabs borrowed from Arabian, түрк хаммамы – borrowed from Turkish (Turkish bath), ачык түстүү сыра – Light Beer (ad of “Тороз” beer brand) – the word “сыра” borrowed from the Kazakh language. There are lots of common ethnographic terms that are used among Kyrgyz and Kazakh languages.

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Taking into account the fact that almost all advertisements in Kyrgyz are being translated from Russian and English, we should accept the fact that plenty of words enter the Kyrgyz language without any changes, for instance, the word *balance* – *Баланс түгөндүбү?* - ad made by Megacom mobile company to introduce calling service at zero balance; the word *portal* - an Internet site providing access or links to other sites – *Super KG порталы* – ad of a tabloid newspaper.

There is a great number of words used in the Kyrgyz advertisement language without changes, for instance, *смс* - *sms*, *роуминг* - *roaming*, *профиль* – *profile*, *опция* – *option*, *версия* – *version*, *блог* – *blog*, *VIP сауна*, *VIP мейманкана* – *VIP sauna*, *VIP hotel*, *бонус* - *bonus*, *сайт* - *site*, *смартфон* – *smartphone*, for example:

Сенин кыялыңдагы смартфон - Smartphone of your dream (Beeline U 8500 smartphone ad); *Баланс нөл болсо да чалыңыз* – Call at zero balance. Here we can also mention about the words which were partially changed while being transferred into Kyrgyz, for instance, *лимиттөө* - *limiting, limitation*, *номер* - *number (mobile phone)*, *тарифтелүү* - *tariffing*, *кредиттик* - *credit*, *корпоративдик* - *corporate*, *мобилдүү* – *mobile*, *конфиденциалдуулук* – *privacy*. This transference occurs directly by adding inflectional morphemes which do not change the meaning of the word:

Өз тарифтик планыңды түзүп ал – Make your own tariff; *Ийкемдүү тарифтер* - Flexible tariffs (ad of Megacom mobile company)

As the television still plays one of the dominant roles in human life there we have analyzed number of television commercials. In the list of our advertisements there are food products, products of pharmaceutical companies, mobile companies, airlines, cosmetic products and goods of daily consumption. The texts of the goods being advertised are laconic and precise by using strong and convincing ideas. In order to succeed in advertising process the advertisement makers use the number of phrases and word combinations from the figurative language, set phrases, proverbs and sayings, quotations, etc. Observing the advertisement texts we have noticed the saturation of both lexical (epithets, metaphors, oxymoron, personifications) and syntactical expressive means (repetition – anaphora, epiphora, participial phrases, interrogative sentences):

Чын жүрөктөн Алия уну – (ad of “Aliya” flour) - epithet «чын жүрөк» is used in Kyrgyz in order to underline the warmth and sincerity of intentions.

Асыл колдон асыл ун – (ad of “Eline” flour) - epithet «асыл» can be used for both human characteristics and objects’ features expressing superb, generous

qualities. The usage of anaphora makes the ad phrase more attractive and listenable. One more example of anaphora may be given in the following ad: «Семиз Козу» сатып ал – семиз козу утуп ал – advertisement of vodka «Semiz Kozu». In the next advertisements made by one of the famous political parties “Respublika” the epiphora has been used: *Шаар үчүн! Республика үчүн!* – For the sake of a City, for the sake of a Republic (Respublika) - billboard invoking the necessity of political party’s election results.

Жазылып коюп, жай оку – (“Alibi” newspaper ad) – Having subscribed, read in relaxed – usage of participle constructions shows the sequence of actions and effective results.

Сен бийге шыктуусуңбу? Сен бий менен жашайсыңбы? Сенин максатың бийлөөбү? – Анда “S” Dance бий тобу – Are you good at dancing? Are you obsessed with dancing? Is your aim dancing? If yes, welcome to “S” Dance - (“S” Dance dance group ad); *Үшүдүңбү? Жылынгың келеби? – Анда сууктан сактай турган «Бозо Шоро» ич* – Are you cold? Want get warm? Drink “Bozo Shoro” - (ad of “Shoro” Company) – the usage of question forms arouse the readers’ interest and draws his attention.

Мегаком. Жөнөкөй татаалдыктар Сиздер менен!- Megacom. Simple Trifles (ad of Megacom mobile company) – oxymoron creates the original image of the advertisement text (7, 15).

Тез, так жана кызыктуу – Fast, Precise and Interesting - the advertisement text of a news portal Kabar Ordo, the usage of series of parallel word units makes the text colourful and rich pointing out the bright characteristics. One more example here is an advertisement of the charity fund on TV where they put nouns in one structure line – *Сүйүү, ишенимдүүлүк, камкордуулук* – Love, Trust, Protection.

Кыймыл-аракеттин эркиндиги – Freedom of Motion (ad of warming ointment Voltaren, television commercial) – the usage of metaphor gives the text more expressive and vivid shadows. In the following examples we may observe the brightness of metaphors:

Кыялыңдын канаты – (Kyrgyzstan Air Company ad) – Wings of Your Dream.

7 fv.kg Окуялардын туу чокусунда – (ad of a news site 7 fv.kg site) – On the Top of Events.

Air Bishkek – Сиздин максатка учалы - (Air Bishkek company ad) – Let’s Fly to Your Dream.

Жалпы Кыргызстандын кучагында - (“Min Kiyal” Radio ad) – In the Arms of Kyrgyzstan.

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Темирден бекем (6) – (“Aravan” cement plant ad) - Stronger than Iron.

Учуу – ар бир адамдын укугу – (“Pegasus” Airlines ad) – giving the brief and emphatic definitions makes the advertisement idea complete and impressive.

Ар бир кадамыңызда – жеңилдик - Lightness in every step (“Lion” shoes store ad); Айкөл Ордо – салттуу тойлордун чордону (Aikol Ordo restaurant ad) - Aikol Ordo is the center of traditional ceremonies; Биз үчүн эң чоң сыйлык – бул кардарлардын ишеними (Demir International Bank ad) – Our Customers’ Trust is Our Biggest Award;

Түркүн тандоо – ыңгайлуу баа – Great Choice – Profitable Prices - (“Lion” shoes store ad);

Дандын күч-кубаты – жаңы бөтөлкөдө – Grain Power is in a New Bottle (ad of “Shoro” Company).

Жаркын жакта жаша – Live on Bright Side - the usage of alliteration makes the advertisement sound more conformable (ad of Beeline mobile company, television commercial):

«Дем» дем ала баштады – “Breath started to breathe” (the advertisement of opening of a new site) – the usage of interesting personification makes the ad more readable.

As we mentioned above the advertisement text is to have rich and meaningful content in order to achieve the success, so in most of advertisement texts they pay attention to the auditory and articulatory peculiarities in other words usage of rhymes:

Жазда, кышта – ар дайым, витаминдер дап-дайын (“Golden Sun” Juices ad) – Vitamins all the year round.

Аракты ташта, жаңы жашоо башта (“Koprinus” anti-alcohol mushroom ad) – Quit Drinking – Start a New Life.

«Курултай» сатып ал, тайыңды утуп ал (“Kurultay” cognac ad) – Buy “Kurultay” and Win the Prize.

Арзу – ар дайым даамдуу (“Arzu” restaurant chain ad) – Arzu is Always Delicious.

The Kyrgyz language is known to have plenty of proverbs and saying with deep meaning, therefore the ad makers are tend to use those proverbs and saying in their advertisements:

Кыштын кыштай, кыздын кыздай болгону жакшы (“Min Kiyal” Radio ad) – the idea of the proverb tells that it is desirable that everything and everybody must be in their right places and on time.

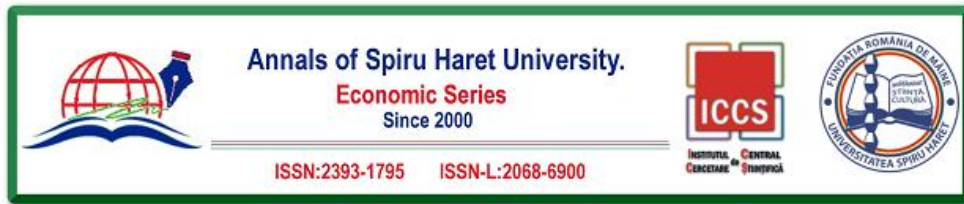
Conclusion

The advertisement language has become a principal branch of linguistics with its peculiar characteristics and original structure. As in every other language the Kyrgyz language is not exception to the rule; with the help of advertisement texts our native language becomes wider and larger. Thus, an advertisement text created with the help of a verbal, audial and visual means serves as a main weapon of people's communication and cooperation. The collapse of the Soviet Union and starting a new independent life has also influenced the development and increase of the contemporary Kyrgyz language of advertisement. Having analyzed the examples taken from television sources, Internet sites and newspapers, we can say that the language of Kyrgyz advertisement is still young and green; we do hope that the quality of Kyrgyz advertisements will improve and achieve a high level. Unfortunately, as we mentioned before 90 % of all advertisements are being translated from the Russian and English languages and in the process of translation in some cases the main idea may be lost. So, we do wish that in future the Kyrgyz language of advertising will be more vivid, eloquent and effective.

Summing up our paper we would like to say that in these latter days advertisements are everywhere. As every public phenomenon it has also its advantages and disadvantages – if manufacturers have a sharp necessity in advertisements at the same time ordinary consumers are fed up with ads. As a conclusive sentence we decided to quote a line from one article – *“These days, instead of relying on the simple goodness of lemonade and children's laughter, ads have taken a decidedly more provocative turn. They (ads) cater to your physical senses and bend your mind to what is possible”*.

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THE MARKETING RESEARCH OF CONSUMER BEHAVIOR IN THE PROCESS OF MARKET SELECTION

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Abstract

The study of consumer behavior is considered one of the most important tasks of any market entity. Practical experience shows that producers (sellers) are obliged to unambiguously define their market behavior in order to better understand their consumers, to meet their desires and aspirations in everyday trade relations. However, the breadth of firms and the diversity of markets do not allow most users of marketing tools to make direct contact with their customers. Therefore, business leaders are clearly trying to study the market behavior of consumers by spending more time and money.

In order to withstand an aggressive competitive environment, businesses are looking for answers to a key question that is important: how do consumers react to the use of various attractive marketing tools.

Of course, the study of people's role as consumers in trade operations as a process justifies the relevance of the chosen research.

Keywords: *consumer; marketing; market; consumer behavior; offer; free competition.*

JEL Classification: M31

Introduction

Before examining the issue of consumer behavior in Azerbaijan, it is logically necessary to get acquainted with the state of marketing and the economy in general in our country.

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Currently, the country is implementing a socially oriented market model under the name "Azerbaijan Model of Development", which is more suitable for us than market models. One of the serious facts already accepted by researchers is that the theoretical views on the idea that life is a system that creates prosperity do not justify themselves in practice.

It is known that with the transition to a market economy, marketing activities have developed rapidly. Due to the planned economy in the socialist economy and the consequent restriction of free exchange, marketing activities were limited and had an extremely low level of development. But as a result of the opportunity created by the new market economic system, there was a great leap in its development. Such a great development is not due to the established system, but to the weak development of socialism. Referring to the principle of extensive growth in the former Soviet Union, including Azerbaijan, they mistakenly believed that it was possible to create a market balance between supply and demand on the basis of a centralized plan. However, the marketing system allows to solve this problem by attracting potential market segments that are not yet covered by "turnover".

Review of consumer behavior in the process of market selection in case of Azerbaijan

It should be noted that there are several major problems in the development of marketing in our country. These problems include:

- Marketing philosophy is not yet fully formed in the minds of entrepreneurs;
- Marketing as a functional infrastructure element of the market should mainly serve the interests of production;
- monopolies in the market of goods and services must be eliminated;
- The number of professional marketers should be increased, etc.

There are a number of reasons why firms in Azerbaijan are less or less involved in consumer behavior research:

- As already mentioned, this is a new field;
- The main principles of the free market and the marketing concept are still "unable to find a place" in Azerbaijan. There are a number of reasons for this. An example is monopoly. Thus, a monopolistic firm, which is the only producer of a certain type of product in Azerbaijan, does not need to study the behavior of buyers of the product for at least two reasons:

- due to lack of competition in the market where the firm is located. As the sole seller of the product, the consumer will have to buy the product from this company.

In such a situation, the firm is not interested in studying the buyer's behavior because it provides the necessary profit;

- Even if the buyer investigates the behavior, it will not be in favor of the buyer. This is because while a behavior research firm seeks to meet customer demand better than its competitors, a monopolistic firm does not adapt to buyer behavior or meet its needs better because of the lack of a competitor;

- There are almost no special institutions, agencies and specialists studying consumer behavior in Azerbaijan. Here are some exceptions: Some research in this area by the Azerbaijan Marketing Society (AMC);

-Azerbaijani companies recognize their consumers "without research". Thus, most companies say that they know their customers well and do not learn customer behavior at no extra cost. It should be noted that in some markets, it is already known how the "Azerbaijani buyer" really decides. For example, sellers who raise the prices of pre-holiday holiday products know that even the poorest Azerbaijani family will be willing to go into debt to buy these products.

According to a survey on consumer satisfaction, 25% of customers are dissatisfied with the results of the purchase. 95% of dissatisfied consumers do not know how, where or to whom to contact (at least 11 of them can talk). It should also be noted that 76% of consumers do not believe in the advertising of companies.

Strengthening the local market and increasing the sale of local goods is one of the main economic problems facing any country, and failure to do so could jeopardize economic security and, ultimately, national security. For this reason, it is important to strengthen the relationship between local buyers and producers, and there are responsibilities for marketing. The marketing concept applied in our country should clear the buyer-producer relations and increase the level of customer satisfaction. According to the results of the research, customers:

- 68% are dissatisfied with the service provided;
- 14% of products or services are of poor quality;
- 9% prefer the products of other companies;
- 8% are looking for an alternative product or company;
- 3% change permanent residence, etc.

Despite the urgency and importance of studying consumer behavior, Azerbaijan has many shortcomings in this area. We can analyze these shortcomings in two areas: theoretical and practical.

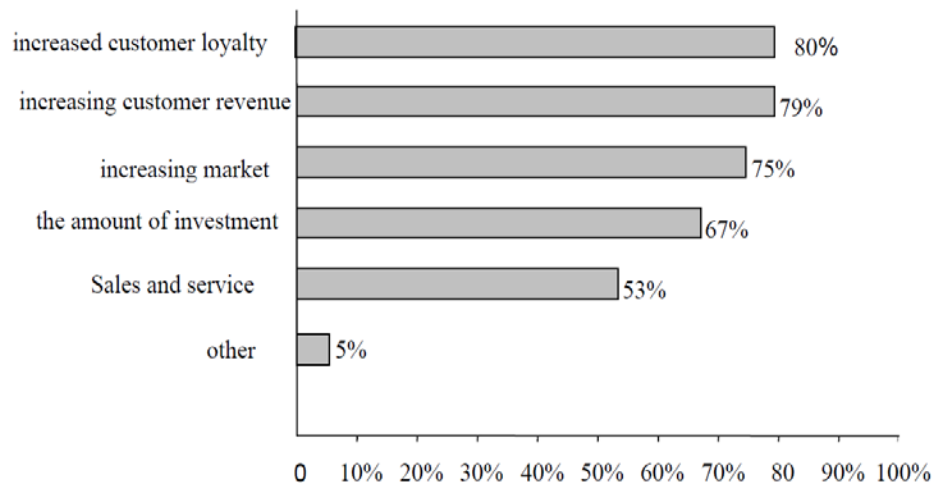
Shortcomings in the theoretical field are reflected in the lack of scientific works, articles, research, books on this topic, and the latter is almost non-existent (except

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for some topics only in marketing textbooks). Despite all this, Azerbaijan has contributed to the theory of scientific consumer behavior. One theory that Azerbaijani science can be proud of in this area is the theory of "fuzzy logic".

At present, the theory of "fuzzy logic" includes economics, psychology, politics, philosophy, sociology, etc. The importance of this theory in economics, as in many other sciences, is that it allows us to study the causes of human behavior. Regarding this theory, Rafiq Aliyev said:

"The economic and socio-economic world is so complex that it is impossible to describe it in the language of classical mathematics and bivalent Aristotle's logic. We need a more efficient modeling language to be able to take economic realities into account." We conclude that the language of modeling economic, social, and political systems must be a language based on fuzzy logic (this language is very close to natural language). In this regard, in our research, the economic system is considered as a humanistic (human centric) and a realistic multi-agent system characterized by high uncertainty in terms of information availability and modeling the behavior of economic agents is based on fuzzy logic language.



It is known that behavioral models created to study consumer behavior are not used in Azerbaijani companies. Only a few firms from foreign publications (especially marketing magazines), the results of new research

Although the Customer Relationship Management (CRM) Customer Relationship Management is widely used in many market-oriented countries (especially the United States) in accordance with the individual marketing concept, most of the existing establishments in Azerbaijan, with the exception of a few local banks (eg Bank of Baku) Those who are unaware of the existence of Relationship Management do not use it.

Conclusion

One of the tasks of marketing is to form demand. Thus, it can be said that marketing does not create demand, but strengthens or actualizes the existing demand. In modern times, marketing has a very responsible task: to create a desire for products and services that do not conflict with the interests of society and lead to both material and spiritual development of society. For this reason, it was concluded that it is important to observe ethical norms in the process of studying and applying behavior in accordance with the requirements of the socio-ethical concept.

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ORGANIZATIONAL EXPERTISE AND DECISION MAKING IN CORPORATE AND COMPLEX ORGANIZATIONS

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Abstract

The ability to carry out coordination tasks within the group is identified with the leading role of the group itself. If this ability manifests itself continuously, it is an indispensable premise for the attribution of leadership to the one who demonstrates and exercises it. Leadership is therefore a quality, a gift that is not only a factor of appreciation for the individual, but also a valuable resource for the group.

It usually happens that one or more members of an organization find it important to engage in seeking some influence on other members; this means making attempts to exercise authority. If these attempts are successful and are repeated over time, they can actually confer leadership on the one who has been the protagonist. In whatever sector they operate, companies need to reap the benefits offered by leaders capable of generating the emotional resonance in the company that allows everyone to realize their aspirations and make their potentials concrete.

Keywords: *decision making; leadership; organization expertise; psychology of work.*

JEL Classification: M12, M15, M54

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Introduction

It is important to note that, while it may be easy to achieve individual and private emotional satisfaction, the task is more complex when a leader wants to create an emotional resonance in the group of his collaborators. The awareness of one's individual emotional realities represents, for the entire organization of the company, the beginning of a useful analysis of the common habits on which those emotional realities are based and from which they are fed. In fact, this is precisely the starting point of the leader who wants to spread emotional intelligence in his organization. (Damasio A., 2000)

A group of people can in fact undertake change only when they have fully understood the reality of their internal mechanisms and, above all, when individual members of the company are aware of the dissonant or uncomfortable situations in which they are possibly operating. Understanding these realities, on an emotional level, is of fundamental importance; however, the awareness of the existence of dissonances and discomforts is not enough to bring about a change. (Eisenberg N., Fabes R. A., Guthrie I. K. E Reise M., 2000)

1. Time to rethink leadership

It is in fact necessary that the members of the group go back to the cause of the discontent, an emotional reality that usually does not originate in a disagreement with the leader but, very often, in the basic rules and habits consolidated and assimilated by the group. Starting from the understanding of the emotional reality, of the rules and habits that exist in the organization, it will be possible to develop a "collective ideal vision" which, in order to effectively involve everyone, must be in tune with each person's personal one. (Eisenberger N. E Spinard T. L., 2004).

In a period of great uncertainty and widespread criticality such as the one we are going through, it is time to rethink leadership as a source and guide tool in the development of human resources in the company. (Wagner R.K., Managerial, 1991).

We will therefore look at leadership as the result of the activity of an "effective leader", that is, one who is capable of innovating both in terms of product and organizational culture; a leader who pursues the improvement of his organization and who is not afraid to take new paths; a leader who makes the work day exciting and stimulating by creating meaning and purpose for and with his collaborators. (Getz I., Vuibert, 2002).

Contemporary organizational realities find themselves operating in environments that globalization has made particularly complex: the speed and rate

of change have no equal in the recent or distant past; the widespread knowledge at all levels of the structure does not go well with traditional top-down organizational models; the collapse of welfare systems; the emergence of multiculturalism, which on the one hand enriches organizations, on the other requires greater sensitivity and competence to make the machine work more effectively. (Gherardi S., 1990).

In short, a real revolution that raises many questions about the nature and characteristics of leadership for the future. It is therefore evident that, as the complexity of the context in which they operate has increased, today leaders, more than in the past, are faced with greater difficulties than in the past. (Wood R., Bandura A. E Bailey T., (1990).

Thus, the hierarchical image of a leader at the top of the pyramid, sufficiently capable, creative and competent to lead an organization seems to be anachronistic with respect to the changed environmental conditions: today it appears more appropriate that of a facilitator of knowledge and a negotiator of ideas. and the will from all levels of its organization. (Goleman D., 1998).

It is evident that such a leadership style requires the learning of skills and the acquisition of a sensitivity different from traditional ones. Leadership scholars affirm that, in the knowledge economy, traditional command and control models are unsuitable for exploiting the potential offered by what is now considered the true business capital: knowledge. (Mesquita B. E Albert D., 2007).

2. The evolution in the leadership style

The evolution in the leadership style towards models of a facilitative and co-creation nature, presupposes strong investments in terms of change but above all of cultural evolution, of challenging the mental assumptions through which we think about leadership and, more generally, the figure of the leader. (Mesquita B. E Markus H. R., 2004)

In organizations where it is considered necessary to operate even without predefined maps, and therefore to reduce the complexity and the unknown of the future through more inclusive leadership styles, which enhance the important contributions of the various "orchestral" voices, it will be necessary to evaluate how to pass from leadership models where the creed was "we work together to realize my ideas", to a behavioral typology in which the decision-making process is the result of the inclusion of all voices, including those apparently dissonant, in a perspective that can therefore be summarized in "we create our vision and our future together". (Frijda, N. H. (2017).

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Many private and public organizations find themselves having to face an increasingly global and multicultural market, characterized by socio-economic, political and technological changes. (Nutt P., , 1992).

In this way, organizations will often be called upon to overcome numerous challenges; some of these concerns the ability to:

- Change the organization if the market innovations require it;
- Being able to continuously manage and update one's knowledge and information base;
- Working in collaboration considering the increasingly blurred boundaries of companies and the presence of alliances with other organizations;
- Incorporate new techniques and new theoretical and empirical insights. (Oatley K. E Johnson-Liard P. N., 1987).

If in the past more attention was paid to the activities and the role played by the leader, now we focus on the group of executives that make up the top of the organization, the "top management group", responsible not only for formulating and implementing solutions for large organizational problems, but also to develop administrative decisions that guarantee the carrying out of routine activities. (Quaglino G.P., Voglia Di Fare, 1999).

The way in which decisions are made depends on the characteristics of the group (structure, composition, processes, incentives, type of leadership) and of the problem examined. (Zech E., Rimè B., 2005).

The group activity is affected by the environmental characteristics, the organization and the way in which the group perceives the problem. (Yukl G.,1998).

The decision-making process has consequences on the qualitative and economic results of the decision. (Rimè B., 2005).

3. Literature review

Below, i have introduced the list of reference works for the studied sector and the approached subject:

- Eisenberg N., Fabes R. A., Guthrie I. K. E Reise M., [2000], *Dispositional Emotionality and Regulation: Their Role in Predicting Quality of Social Functioning*, In «Journal Of Personality And Social Psychology», 78, Pp. 136-157.;
- Eisenberg N., Fabes R. A., Guthrie I. K. E Reise M., [2000], Op. Cit.
- Eisenberger N. E Spinard T. L., [2004], *Emotion-Related Regulation: Sharpening the Definition*, In «Child Development», 75, Pp. 334-339;

4. Research methodology, data and hypotheses

The research approach was of a quantitative type, the relationship was structured in logically sequential phases, according to a substantially deductive approach (theory precedes observation), which moves in the context of justification, that is, of support, through empirical data, of the theory previously formulated on the basis of literature.

The clarification of the concepts and their operation in variables took place even before the research was started.

This method offered the advantage of being able to empirically detect the concept, on the other hand it had the disadvantage of a strong reduction and impoverishment of the concept itself, with the additional risk that the main variable may have replaced the central concept of the study (phenomenon of reification). The hypothesis of the research "Organizational expertise and decision making as a psycho-relational process, to be structured according to techniques proper to social psychology in relation to aspects of the world of work" (operational decisions that oversee the practical organization of research) has been widely confirmed by literature and the data contained therein and of the subjects studied and objective and standardized data (hard).

5. Decision and judgment - closely related to the characteristics of the task

The process of evaluating alternatives varies from subject to subject, as apparently rational choices can prove irrational. Furthermore, when rationality is no longer sufficient to achieve objectives, it is essential to use techniques linked to creative processes.

Decision and judgment are closely related to the characteristics of the task and the decision context; the use of judgment heuristics and simplified decision procedures by experts does not necessarily lead to making inaccurate judgments or making inappropriate decisions; some of these intervene in the process of formation and modification of judgment and choice. (Rimè B., 2007).

The heuristics of anchoring, memory availability, representativeness and the rule of elimination by aspects are taken into consideration.

The expert differs from the inexperienced in various cognitive and emotional characteristics; for example, he has "perceptive-attentive" skills that allow him to extract information that beginners do not see or to identify information patterns (Zuckerman M., 1992); tends to acquire information selectively, captures the most relevant in the environment, manages to develop simplified representations of complex decision dilemmas, reacts better to stress, etc. (Rolls E. T., 1999).

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The concept of decision stimulated by a problem coexists with that aimed at achieving a goal; the research carried out in the organizations and the psycho-social ones have highlighted that these two conditions correspond to situations originating from stimuli, developed through processes and which achieve different results. (Scherer K. R. , 2004).

The formulation and diagnosis of the problem are considered by cognitive models as the initial stages of the decision-making process. Psychological research has highlighted the role of mental schemes and models of decision makers on the process of perception and interpretation of environmental and organizational stimulus. (Zani B., 1999).

These stimuli are perceived and categorized in the light of the previous experiences of the decision maker, the history and routine procedures of the organization. Davidson, R. J., Sherer, 2009).

Interpersonal dynamics also help to standardize and make the diagnosis process automatic; with the passage of time, the heterogeneity between the members of the group gives way to greater homogeneity. Scherer K. R., 1984).

Another important factor in the decision-making process is the objectives; according to the “globalist” perspective, this process in organizations is initiated by environmental opportunities that allow for improvement or the possibility of growth. (Simon H.A., 1977).

A further phase of the decision-making process is the research and communication of information relating to alternatives. Once the problem has been identified and the objective guiding the action specified, the group must identify alternatives or solutions to solve the problem and select one of these. (Skinner B. F., 1971).

The group process facilitates and hinders the making of good decisions; limitations, distortions and errors can be encountered throughout the group decision-making process. (Spaltro E., 2001).

It is possible to develop and consolidate effective decision-making competence, as the result of practices that stimulate intuition, creativity, collaboration and constructive confrontation. (Stewart G.L. E Manz C.C., (1995).

The environmental and organizational context is becoming so complex that the presence and importance of groups are destined to increase. (Zappalà S., 2004).

Organizations' opportunities for growth depend on the ability of groups to be able to develop effective and creative decision making. (Voss J.F., Greene T.R., Post T.A. E Penner B.C., 1983).

Conclusion

Decision-making processes, the behavior of organizations and experts in recent decades have had relevance in the socio-economic context.

As stated in the introduction, the decision-making process does not always and only take place in a linear way, but changes over time with continuous redefinition of personal goals.

Even after making a choice, the individual is always looking for new information, to convince himself and others of the validity of his decision.

A subject must be able to devise a specific strategy to reach a meaningful solution to the problem; the cognitive processes used to make a decision depend on the use of cognitive resources, which are essential for processing the information acquired.

Furthermore, a definition of a problem is given, a negative deviation from a reference value called the norm of which we do not know the cause; negative because at a certain moment something prevented the process from proceeding according to our intentions. The goal of the decision-making process is to choose the best solution following an examination of the various alternatives sought and to choose among these the most valid for our needs.

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PROBLEMS AND RESTRICTIONS IN THE MANAGEMENT OF DIGITIZATION PROJECTS IN LARGE COMPANIES

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Abstract

The paper has the following chapters: the need for a good result from the cost-benefit analysis, multi-disciplinary elements in the management of digitization projects, knowledge management in digitization projects, ethical issues – restrictions in digitization projects, natural opposition to change of organization. The use of cost-benefit analysis has the following moments of use: before its launch or choosing the option to carry out the project, if the need for a project for which there are several implementation options has been established by other methods. In digitization projects, one of the concepts used more and more is that of smart infrastructure. Recent management talks about the fact that systems are much more important now than before. One of the problems with current systems is connection.

In the case of digitization projects, there are also components that aim only at acquiring the skills necessary for new technological systems or work procedures. In their case, there are many elements already established in the field of education. One of these is the relationship between the importance given to certain knowledge and its usefulness.

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The process of globalization has extended internationally the regulation of the ethics of certain professions, including in the field of ITC and project management in large companies. The professional ethics as restriction of digitization projects are applicable not only to multinational companies, but to all those operating in a global market.

Staff confidence in the usefulness of digitization projects must aim for maximum capacity. Digitization can be conceived as a solution to increase the revenue of the companies as a financial source to motivate the staff.

Keywords: *digitalisation; large companies; management; projects; restrictions; cost-benefit analyses.*

JEL Classification: M15

Introduction

In the field of cost-analysis is relevant The Methodology for Feasibility Studies (BIRD). For the use on concept innovation in the management of the projects a new contribution is the paper of Robbie Richards [Richard, 2021]. For understanding of education as a investments is the book of Mrs Marta-Christina Suciuc [Suciuc, 2000]. For the connection between management and ethics in a global approach are important the papers published by the Journal of Intercultural Management and Ethics [JIME, 2020]

One of the main directions of evolution in the knowledge society is digitization. The expansion of digitization is usually done on a project basis. This article aims to highlight some less studied problems and restrictions on the management of digitalization projects carried out by large companies. The importance of the theme results from the fact that not taking into account all the problems that appear in the development of a project can generate its failure.

1. The need for a good result from the cost-benefit analysis

The use of cost-benefit analysis has the following moments of use:

-before its launch

-choosing the option to carry out the project, if the need for a project for which there are several implementation options has been established by other methods.

In the case of using the cost-benefit analysis before launch, its application determines whether or not a particular project is economically appropriate. This

variant compares the advantages and costs of maintaining a well-defined period of time of the existing situation with the advantages and costs of running the project.

The condition for this variant is to have only one option in carrying out the project.

If the need for a project but which can be achieved through several options has been established by other methods, the cost-benefit analysis can be used to choose the most appropriate option.

In reality, the more complex situation also arises, in which it must be established both whether the project is economically justified and the option chosen. In this variant, maintaining the existing situation is one of the options, along with those feasible for the project.

From the above, it follows that before applying the cost-benefit analysis it is necessary to establish feasible alternatives. Alternatives that do not meet qualitative requirements cannot be included in the calculation algorithm of the cost-benefit method. Such requirements may be those imposed by law, court rulings, contracts in force, pressure from the external environment that cannot be ignored. It is a temporary correlation between the components of a qualitative nature, which have priority at the moment, with those of a quantitative nature, which intervene at the end. Thus, from this point of view, in the launch of the projects, the purely qualitative and the purely quantitative aspects succeed each other, they do not intertwine.

In digitization projects, one of the concepts used more and more is that of smart infrastructure. The widely used comprehensive definition mainly indicates its composition and purpose: *smart infrastructure is the result of combining physical and digital infrastructure elements in order to provide valuable information to help make decisions faster and at lower cost* [Cambridge Centre, 2018]. From the specification of the elements that compose the smart infrastructure, we observe that we cannot neglect the physical systems. Regardless of the value weights of smart infrastructure, the operation of digital elements still depends on the parameters of the physical infrastructure. Romania, for example, has a sad experience in terms of the impact that the poor quality of some common elements of physical infrastructure, electrical outlets, can have. It thus becomes possible to separate the cost analysis for the physical and for the digital infrastructure, each having the right to refer to the technical efficiencies.

In addition to paying attention to the compatibility between the physical infrastructure elements and the digital infrastructure elements in smart systems, the digitization projects of large companies must also analyse the correlations between their standard operating times, the type of maintenance and component replacement

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services, active lifetime up-grading mechanisms. All these aspects will be part of the cost-benefit analysis on the occasion of the launch of the digitization projects.

Another direction of digitization, including for large companies, is that of *Internet of Things* (IoT) systems. And here the structure is important. The main components of an IoT system are: data collection equipment, communication networks to connect the collection equipment, servers and other computing systems using the received data. This includes storage devices, analysis devices and dedicated applications [Vrabie & Dumitraşcu, 2018]. For digitization projects with IoT component, the cost-benefit analysis will include the acquisition value and maintenance services plus upgrading for each of these components, for the entire life of the respective systems.

The emphasis on cost-benefit analysis for smart infrastructure and IoT systems is exemplary and aims to use realistic data on investment in digitization projects. The accounting policies of large companies may allow, under certain conditions, certain components to be included in administrative costs, during the course of digitization projects. However, the business analysis must include a complete picture of all the elements related to investments in digitization projects.

Some managers of large companies, in order to preserve the existing state of affairs, introduce access to financing on the list of restrictions for digitization projects. The age we live in is rightly called globalization. In addition to material goods, services, labour and emissions, finances and money can easily cross borders. Companies, especially large ones, have access to any of the components of the global financial market. The cost-benefit analysis must include the form of financing as presented in the literature [Mihai, 2015], after which to act for the selection of the financier, including based on the cost-benefit analysis of the financing activity.

In digitization projects, you need to consider the types of process. It is still valid to classify processes into main (basic) processes, auxiliary processes and serving processes [Petrescu, 2019]. At the basic and auxiliary processes, there will be financial parameters for both benefits and costs. At the serving processes, cost parameters and parameters related to the volume of services or the quality of services performed or internal can be used.

2. Multi-disciplinary elements in the management of digitization projects

The parameters involved in the management of digitization projects differ depending on the positioning of companies towards innovation in general,

compared to digital innovation in particular. There are areas where digital innovation is a continuous flow. All companies in the field of information and communication technology are obliged to maintain an intense and constant pace of digital innovation. Any wrong step in this flow means losing your market position. Keep in mind that progress must be continuous, not in leaps and bounds. There is a great capacity on the market but also for users to capitalize on research results that have already become functional. Thus, the duration of capitalization of the more technologically advanced stage of the offer is limited.

Large multinational companies in fields other than information and communication technology have an organizational culture based on constant innovation. Lately most of the innovation processes are supported by digitization. The position of digitization is not always the same, even in the conditions of knowledge societies. There is a possibility that digitalisation is the benchmark, the main goal pursued by some form of innovation. However, the situation in which digitalization is a support element for social, economic, environmental etc. innovation, can be just as common. If digitization is considered as the central objective of an innovation stage, the relevant indicators of the digitization project will have the most important weights in any type of feasibility analysis.

Regardless of the type of project carried out, studies in the field of project management have shown that often the first cause of failure is insufficient or even poor communication. For this reason, one direction of digitalization is innovation in what are called collaboration tools [Toland, 2021]. All companies in various phases of development, redesign, modernization, repositioning on the market, restructuring, will feel the need for these projects to be supported by digital communication tools of the latest technology.

A classification used in the recent business language is that between local development and global development, respectively between linear growth and exponential growth. The design of a new stage in the digitization of large companies must start from its concrete data and from its real perspectives. There are large companies that do not pursue or can have in the object of activity only operations on the local market. Digitization is one of the six components of exponential development, sometimes identified under the phrase of the six Ds, along with concealment, dislocation, demonetization, dematerialization, democratization (Peter H. Diamandis, Steven Kotler, 2015) but only together with the others. By acting alone, digitization can only support the dynamics of a local company or one with linear growth goals.

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Recent management talks about the fact that systems are much more important now than before [Peters, 2010]. One of the problems with current systems is connection. Thus, one of the problems of digitization is related to the connectivity of the systems to be upgraded. There is the alternative of digitizing existing processes, with small adjustments, or that of replacing them. It is said that sometimes before digitization, it is necessary to refurbish. Such an option is treated primarily on the basis of the time factor. Depending on the length of time we have available, we may or may not include the option of re-engineering before digitization. The problem is that upgrading delays digitization. If for the company the problem of connections and flows has already become pressing, the option of upgrading before digitization can no longer be considered.

The digital connection allows us to get to know better the people we do not have the opportunity to see face to face. Thus, through digitization there will be a new type of connectivity among people. This new type of connectivity will have to be treated appropriately from a technical, psychological, social, labour relations point of view.

Applied research in various fields of activity has drawn attention to vital points where the digitization effort needs to be focused. For example, in the field of trade logistics, one of the fastest growing activities in the context of globalization, must be logistics centres and transport hubs. These can be centres of responsibility or only cost places where the integrated computer processing of data on thousands of products and orders is required, under the conditions of remote processing and control [Gherasim & Mihalcioiu, 2019].

Theoretical developments based on the behaviour of companies support the emergence of a new generation of capitalism, in which cybernetics and digitalization have changed the previous basic parameters of business [Lazaroiu, 2019]. Changing the business model also means changing the behaviour of companies, especially large ones, thinking of new functional schemes in organizations, of new data and document flows. Last but not least, we can talk about new hierarchies within companies. The most difficult to change will be obvious in large companies. It is known that inertially, both in physics and in economics, depends on mass and speed. In the case of companies, we can accept that the degree of inertially depends on size (number of employees first, turnover, asset value), complexity (number of responsibility centres, number of business segments or lines of business) and the duration of stagnation or slow movement. Being human behaviour, habit becomes a rule and a real vector of inertially for stagnation.

One issue that needs to be addressed by those implementing digitization projects is compliance with existing standards or those being developed. There is a broad trend towards universal solutions for many components of digitization. In addition, there are national or community normative documents of program type that guide the steps that need to be taken on different components of digitization [Mares& Mares, 2018]. Taking into account these standards or programs facilitates the connectivity of the organization with the rest of the business environment after the implementation of digitization projects.

3. Knowledge management in digitization projects

In the case of digitization projects, there are also components that aim only at acquiring the skills necessary for new technological systems or work procedures. In their case, there are many elements already established in the field of education. One of these is the relationship between the importance given to certain knowledge and its usefulness. In a simplified form, in the classical theory of education, we find "*the paradox of the relationship between ornament and content.*" We also learn from the classical doctrine of education, that this problem can only be solved roughly. In addition, the recommendation of classicism in education according to which the path of natural knowledge is from concrete to abstract is usable even in the Internet age. [Spencer, 1973]. Thus, the acquisition of the skills necessary for the successive digitization stages will focus on the practical aspects, useful immediately in the company. It is recommended to use as trainers people who already know the functionality of the new digital systems and can answer concrete questions. The predominant part of the training will focus on concrete case studies, on solving problems with high probability of occurrence, not on atypical ones.

Recent developments have put into practice the results of research in the field of *artificial intelligence* that can help in the human effort to limit risks to decisions based on uncertainty. Such research also has an impact on what we call the conception, design, construction and maintenance of operating systems infrastructure [The Center for Intelligent Infrastructure Systems, 2021]. The design of new investments in which the use of artificial intelligence becomes operational implies, in addition to a degree of risk probably higher now, the need to exist during the operation of a well-developed research department. We cannot conceive of technological systems of the future in the knowledge society without being sure that we will keep pace with the innovation in the field of research-development-innovation.

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The emergence of the ITC revolution opened up opportunities for technological progress. There have been cases in which the managers of large companies wanted to take more steps towards digitalization than was economically justified. Economic theory introduced the concept of technical-economic progress to emphasize that new systems must bring not only technical advantages, but also economic advantages [Freeman & Luc, 1994]. The cost-benefit analysis of digitization projects aims to be clear to the company the concrete economic advantages (increasing revenues or decreasing costs) that are brought by the technical advantages of the new systems.

In order to have good prospects for managing the new type of resources involved in digitization projects, the knowledge, managers of companies implementing such projects will take into account the growing demands of employees. It is recommended to pay special attention to the concrete application of the concepts of lucrative well-being at individual level, individual well-being of work, job satisfaction, as described in the analyses performed on advanced countries in terms of employee rights [Diotaiuti & Amodio, 2019]. Otherwise, the wealth embodied in the knowledge of the staff will be similar to a treasure of money without a safe and without a key.

As pragmatic as they may be, managers of large companies need to consider aspects of the economic theory of knowledge that have a direct impact on digitization projects. The new knowledge needed in the digitization process and those in the period of their exploitation raise problems of ordering, structuring, management. Formal access systems to them are required, as well as their permanent updating. There is an obvious gap between the behaviour of knowledge as new resources of the company in this type of economy compared to conventional ones [Ursacescu, 2009]. Managers will keep in mind that this particularly dynamic resource, knowledge, is difficult to control. Perishability, dissipation or loss of knowledge can easily lead to losses and the character of a non-rival good and a cumulative good can bring future benefits.

4. Ethical issues - restrictions in digitization projects

One of the main groups of restrictions that have become increasingly dynamic recently is the ethical ones. Social practice has seen a sharp rise in the ethical issues recently, with a clear trend toward the emergence of new specialized branches. Among these can be the R&D ethics, with a wide range of interference with intellectual creation ethics, professional ethics, bio-ethics. As an area of high public

interest, academic ethics, including elements of research ethics (the one carried out in universities), has become so important that it is studied as a distinct discipline in universities. Among the older fields of ethics, political ethics and social ethics have an application in digitalization projects.

Digitization projects frequently appear as a result of extensive studies and research. The sequence of phases of fundamental research, applied research, technological development and prototype creation is no longer always observed. Sometimes, in digitalization projects, the technological development can have the decisive weight. But, even so, the research activity, understood in a broad sense, remains present.

For a long time, there were rules of ethics for each profession. The process of globalization has extended internationally the regulation of the ethics of certain professions. The internationalization of the business and size of companies has led to the concept of comprehensive professional ethics, applicable not only to multinational companies, but to all those operating in a global market.

Ever since the transition to the 21st century, interdisciplinary research has signalled the new demands of ethics. The extension of moral values in space and in the structural levels of nature “requires a capital re-examination of the fundamental principles of contemporary science, namely the transition from the anthropocentric paradigm to the biosphere-centric paradigm. And this will really radically influence the content of the basic principles of ethics” [Tirdea, 2000].

5. Natural opposition to change of organizations

Another group of restrictions on digitization projects is given by the *natural opposition to change in organizations*. Through digitization, major changes take place in terms of document flows, information, functional relationships between compartments, deadlines for legal or statutory tasks. There are a multitude of components that mark the individual behaviour of employees in the organization and their group attitude [Cole, 1995]. Among the factors that may cause the opposition to the introduction or expansion of the area of digitization in companies are: employee motivation, satisfaction with the work performed, the emergence of conflicts in organizations. By simplifying things to the maximum, we can establish ways that the 3 potential opposition factors to digitization do not make digitization projects more difficult.

In order to motivate employees, great attention must be paid to technical efficiency and labour productivity after the implementation of digitization projects. If

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digital systems, through their technical catalogue yields, do not increase productivity, the company will not have financial sources to motivate the staff. We understand that digitization can be conceived not only as a change in the content of work, but also as a solution to increase the company's revenue. It follows that the projects to digitize activities that have a natural downward trend in demand are risky.

In general, the success of projects depends decisively on the human factor. In digitalization, the affective component of the human personality has an overwhelming role, difficult to compare with other fields. For this reason, staff confidence in the usefulness of digitization projects must aim for maximum capacity. Steps are needed to assess progress, including on a personal level. Only true leaders, with the capacity for real influence, will be able to achieve such performances. Managerial practice has formulated the principle of emphasizing the qualities of others as a basis for effective communication in the organization and for maximizing performance in motivating to goals [Cole, 2020]. The affective component can thus be one of the ways to combat the opposition of organizations to change.

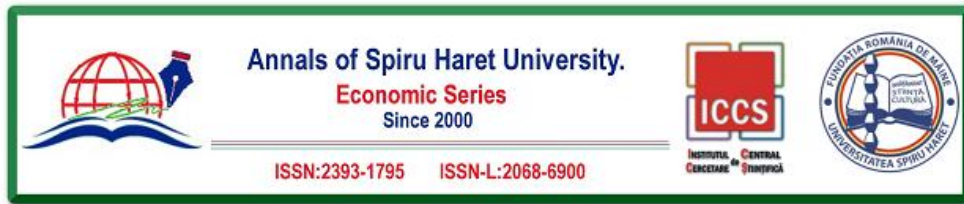
Conclusion

The management of digitisation at large companies has problems and restrictions. First of all is the result of the cost-benefit analysis. In the same time the managers of large companies have to take in account the rulls of knowledge management in digitisation projects, including the classical theory of education. Ethical issues are more and more important restriction in many fields, including research for new technologies like ITC. Ddiditalisation means an important change in the company. In large companies the change is more difficult to do. So the natural opposite to change of organization is very important for digitisation projects of large companies.

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DO CEO GENDER AND EDUCATIONAL BACKGROUND AFFECT THE FINANCIAL PERFORMANCE OF HOTELS IN NIGERIA?

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Abstract

In recent times, firms or businesses in the Hotel and Tourism industry across the globe have suffered setback financially in terms of patronage and turnover. This is out rightly attributed to the emergence of the invincible enemy – the COVID-19 pandemic. The upper echelon of organization, thus have a role to play in reviving this sector. Against this backdrop, this study examined the impact CEO gender and educational background on the financial performance of hotels in Nigeria. This study sampled three listed hotel in the Nigeria Stock Exchange from 2017 to 2020. Ordinary least squares regression was employed to empirically ascertain the relationship between variables of the study. The study found that CEO gender has no significant impact on the financial performance of Hotels in Nigeria. Secondly, the study found that CEO educational background has positive and significant impact on the financial performance of Hotels in Nigeria. The study recommends that CEO with hotel and tourism educational background should be appointed in hotels in Nigeria to improve the financial performance.

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Keywords: *financial performance; hotels; gender; education.*

JEL Classification: I25, G40

1. Introduction

The hospitality industry across the globe has experienced its fair share of the negative consequence of the virus. Prior to the emergence of COVID-19 in Nigeria, there has been a tremendous growth in the hospitality industry (Bello, 2018). Growth in hotels, restaurants, clubs, event centers, recreational site and lots more. A very lucrative business in the Hospitality Industry is the Hotel. Hotels as business from hospitality industry in Nigeria has attracted significant investment over the years. Specifically, PricewaterhouseCoopers (2017) posits there has been significant investment in hotels in the last three years to the tune of over three billion US dollar (\$3Billion). Hotel business have notably added to the nations GDP, amounting to about N1.7billion (\$US 5.5 million) in the year 2016. (Ekwujuru, 2016; Jumia Travel, 2017). However, since the emergence of the invincible enemy and the health policies to reduce its spread, there has been a severe drop in the growth of hotel and hospitality industry (Bello & Bello, 2021).

The study tends to examine whether CEO gender and educational background would help improve the financial performance of hotels in Nigeria. CEOs have repeatedly been referred to as icons in accounting research and in the business world (Benjamin & Dabor, 2019). The popularity of a CEO is a function of his ability to revive a dying firm back to life and infuse energy into the firm to enable bound back to its feet. In line with upper echelon theory of Hambrick and Mason (1984), the attributes of the CEO is directly linked to the performance of the firm. Hambrick (2007) reiterated that CEOs' actions are built on their personal understandings of the strategic circumstances they are faced with and this intention depends on the CEO's educational background and beliefs. Koyuncu, Firfiray, Claes and Hamori (2010) argues that the CEO intellectual placement influences the competitive strategy followed by a firm given that such values shape the assumptions made about present, future and alternative actions.

There has been argument as to whether these CEO attributes affect firm performance. Empirically, there has been mixed findings on these selected upper echelon attributes – gender and educational background, on firm performance (Benjamin & Dabor, 2017; Matsila, 2016; Satriyo & Harymawan, 2018; Shao &

Liu, 2014; Baloyi, & Ngwakwe, 2017; Dwiharti & Adharani, 2018; Kubo & Nguyen, 2021; Khan & Vieito, 2013; Ghardallou, Borgi, & Alkhalfah, 2020). This existence of mixed findings was the motivation of the study, coupled with the fact that there is dearth in the literature on the effect of CEO gender and educational background on financial performance of hotels in Nigeria.

2. Literature and Hypotheses Development

2.1 *Financial Performance of Hotels In Nigeria*

The financial performance of a firm is very sacrosanct in ascertaining its ability to allocate resources. The financial performance of a firm often used as a yardstick to determine the going concern status. The going concern status is used the main objective the upper echelon of an organization. Jensen (1993) and Lipton and Lorsch (1992) confirm that corporate performance is associated with the policy of directors. Corporate performance can be measured by several indicators, one of which is profitability. Profitability is described by the use of total assets or net assets effectively recorded in the balance sheet. Effectiveness is reflected by the extent of asset use in net income. Venkatraman and Ramanujam (1986) state that corporate performance is centred on the use of financial indicators based on outcome and is assumed to reflect achievement of corporate economic objectives. Financial performance can be measured in various ways, such as absolute measurements (sales, profit), return-based measurements (profit/sales, profit/ capital, profit/equity), internal measurements (profit/sales), external measurements (market value of the firm) and many others. In this paper, performance is measured by ROA.

2.2 *CEO Gender*

The low presence of female gender in the top management positions of organization across the globe is not a new phenomenon. This could be as a result of the common perception that there is a 'glass ceiling effect' preventing the promotion of women to the highest positions in firms (Adams & Funk, 2012; Kanter, 1977). However, there are claims by researchers that female CEO possess the traits of being less overconfident (Barbar & Odean, 2001; Chen, Leung, Son, and Goergen, 2019), more risk averse (Bertrand, 2011; Faccio, Marchica and Mura, 2016) and more hesitant to participate in organizational or occupational fraud (Hanousek, Shamshur and Tresl, 2019; Dollar, Fisman & Gatti, 2001).

There is an unending argument on the effect of female CEO and firm performance. Empirical evidence suggest that there is mixed finding on the nexus

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between female CEO and firm performance across the globe. The first strand of argument posited that female CEO have no impact firm performance (Benjamin & Dabor, 2017; Matsila, 2016; Satriyo & Harymawan, 2018; Shao & Liu, 2014; Sipiwa, et al., 2017). They based their argument on the low representation of the female gender in the upper echelon of organizations. The second strand of argument in literature asserted that the presence of female CEO in firms signal better performance in terms of market (stock) and financial stability and organizational growth (Dwiharti & Adharani, 2018; Kubo & Nguyen, 2021; Khan & Vieito, 2013). This argument was based on the attributes of the female gender being risk averse and innovative. The third strand of argument believes that the appointment of female CEO spells doom for the organizations (Jadiyappa et al, 2019). Satriyo and Harymawa (2018) sounded that female CEO have negative impact on the performance of small firms. Therefore, this study would contribute to the argument empirically on the impact of CEO gender on the financial performance of Hotels in Nigeria.

2.3 CEO Education Background

The educational background of the CEO or upper echelon managers of organizations is an impetus for better performance and growth. This is because valuable human capital of firms is based primarily on the education level and background of staff (Ghardallou, Borgi, & Alkhalifah, 2020). Ghardallou et al (2020) sounded that CEO with higher educational background have the likelihood of enhancing the value of the human capital in firms. The attainment of some education height by CEOs of firms would foster better decision making, innovation and efficient and effective solution to management bottlenecks (Bantel & Jackson, 1989; Cheng Li, Lin, & Chinh, 2020). Certo (2003) echoed that the education level of top managers in firms is a prerequisite for better managerial effectiveness.

As regards to CEO education background, Gottesman and Moray (2010) posited that CEO having SAT, MBA or law educational background has no impact on firms performance. Lindoff and Jonson (2013) reiterated that CEO with business educational background would not improve firm performance. In another contrary view, Koyuncu et al (2010) posited that CEO with educational background in Engineering would improve the performance of firms. Therefore, this study tend to investigated whether CEO with educational background in Hotel and Tourism would improve the financial performance of Hotels in Nigeria.

2.4 Control Variables

Firm size and leverage was used as control variable in examining the impact of CEO gender and educational background on the financial performance of hotels in Nigeria. The usage of these variables became necessary to reduce the strong effect of the independent variables on the dependent variable of the study. Also, these variables have been used in a similar manner to control the effect of CEO attributes on financial reporting quality (Ashafoke, Dabor & Ilaboya, 2021)

2.5 Empirical Review

In Japan, Kubo and Nguyen (2021) investigated the effects of female CEOs on firm performance of nonfinancial listed firms. The researchers stumbled upon the fact that there is a positive reaction of the stock market when female CEOs are brought into firms. They also found that founder female CEOs have a positive impact on Tobin's Q.

In Pakistan, Khan, Mansi, Lin, Liu, Suanpong and Ruangkanjanases (2021) investigated the effects of Chief Executive Officer attributes on the financial performance of banks in Pakistan from 2011 to 2020. The researchers employed the ordinary least squares to test the hypotheses of the study, and it was discovered that CEO's education and experience positively affect bank profitability. Ghardallou, Borgi, and Alkhalfah (2020) investigated the impact of CEO attributes on firm performance in Saudi Arabia. The study sampled 120 listed firms on the Tadawul stock exchange from 2014 to 2017. The researchers found that CEO educational background has a positive impact on firm performance.

Saidu (2019) investigated the nexus between executive officer's (CEO) ownership, education and origin on the performance of firms in the financial sector in Nigeria from the period of 2011 to 2016. The researcher found that CEO education positively improves profitability. In Kenya, Kokeno and In Kenya, Muturi (2016) explored the impact of CEO characteristics on firm performance using data of firms listed in the Nairobi Securities Exchange. They found that CEO age and CEO education had a positive and significant effect on firm performance.

Satriyo and Harymawan (2018) examined the role of female CEOs on firm performance of Indonesian listed firms. The researchers employed the Indonesian Stock Exchange (IDX) during the period 2014-2015. The results from the descriptive statistics show that less than half of the firms investigated appointed a woman as CEO. Their results from the econometric analysis revealed that female CEOs are not associated with firm performance in large firms, although the relationship was negative. The researcher further found that female CEOs have a negative association with firm performance in firms of a small size.

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Dwiharti and Adhariani (2018) examined the effect of CEO gender on firm performance and risk level in Indonesia from 2010 to 2012. The researchers found that firms managed by female CEOs have better financial performance but higher risk levels, the latter probably resulting from their growth.

In India, Jادیappa, et al (2019) investigated the effect of CEO gender on the performance of firms. The researchers sampled a hundred India firms and found that female CEO has negative impact on firm performance in India. They further provided evidence that the negative effect is relationship increase in agency costs following the appointment of a female CEO.

In South Africa, Matsila (2016) examined the influence of Chief Executive Officer's gender and firm performance. The researcher found no empirical evidence on the nexus between CEO gender and sales turnover, share price and net profit.

Baloyi and Ngwakwe (2017) examined the impact of CEO gender on firm performance of listed South African firms. The study employed company turnover; share price, net profit as measures of firm performance. The researchers found no evidence on the nexus between CEO's gender, net profit, share price and turnover.

Benjamin and Dabor (2017) examined the impact of CEO characteristics on performance of the listed deposit money banks in Nigeria. They researchers surveyed twelve (12) banks listed on the Nigeria stock exchange from 2004 to 2015 and used CEO gender and CEO educational background as independents variables of the study. The utilized the ordinary least squares regression techniques was as inferential statistics and found that CEO gender and CEO educational background have no significant impact on performance of listed deposit money banks in Nigeria.

In the U.S. Shao and Liu (2014) examined the relationship between CEO gender and firm performance from 1992 to 2013. They study found CEO gender have no significant impact on firm performance. They further found that CEO gender does not affect firm risk level, and that there is no significant difference between male and female CEO.

Khan and Vieito (2013) employed panel data of U.S. firms from 1992-2004 to empirically ascertain the association between CEO gender and firms performance. They found that a firm's risk level is smaller when the CEO is a female. Therefore there is an existence of positive association between female CEO and financial performance of firm.

2.6 Theoretical Framework

The Upper Echelon theory is used to provide theoretical understanding of the impact of CEO gender and educational background on financial performance of listed Hotels in Nigeria. The theory has been used in prior studies to explain the influence of CEO attributes on firm performance (Chen, 2015; Khan et al, 2021; Louis & Osemeke, 2017). The Upper Echelon theory was postulated by Hambrick and Mason (1984) and it explains how managerial background attributes can reflect tactical decisions. This study would critically examine how CEO gender and educational background affect the financial performance of Hotels in Nigeria. Researchers opine that that female CEO have the tendencies of improving the performance of firms (Khan & Vieito, 2013), because of their lows risk business risk level. However, Lam et al. (2013) still argue the female CEO does not have the impetus to improve the performance of firms. Likewise, the CEO educational background of firms, Khan et al. (2021); Saidu (2019); Kokeno and Muturi (2016) claimed that the performance of firms could be significantly improves if the CEO has educational background relating to the job.

3. Material and Methods

3.1 Research Design and Data Analysis Techniques

The study adopts a cross sectional research design. Secondary data was gotten from annual financial reports of listed hotels in the Nigeria Stock Exchange. A total of three hotels (Capital Hotel Plc, Ikeja Hotel Plc, and Transcorp Hotel Plc) were sampled in the study from the period of 2017 to 2020. Ordinary least squares regression was employed as inferential statistics, while mean, minimum, and maximum and standard deviation was employed as descriptive statistics of the study.

3.2 Model Specification

Flowing from the theoretical framework and extant literature, this study specified the model as;

$$FP = f(CEG; CEB; \text{Control variables}) \dots\dots\dots(1)$$

In econometric form:

$$FP_{it} = \beta_0 + \beta_1CEG_{it} + \beta_3CEB_{it} + \beta_4FS_{it} + \beta_5LEV_{it} + \varepsilon_{it} \dots\dots\dots(2)$$

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Where

FP = Financial Performance;

β_0 = Constant;

CEG = CEO Gender;

CEB = CEO educational background;

FS = Firm Size;

LEV = Leverage

β_1, β_2 = Coefficient of explanatory variables

ε = Standard error

i = Cross sectional (Companies)

t = Time Series

A priori expectations in with extant literature to be $\beta_1, \beta_2 > 0$

Table 1. Measure of variables

Variable	Measurement	Supporting Scholars
Financial Performance (FP) (Dependent Variable)	Return on Asset = This is measured as the profit after tax ratio to the company's total asset	Benjamin and Dabor (2020)
CEO Gender (CEG) (Independent Variable)	This is recorded by means of a dummy variable, which is 1 if the CEO is female, and 0 if not.	Ashafoke, et al (2021)
CEO Educational Background (CEB) (Independent Variable)	This is recorded by means of a dummy variable, which is 1 if the CEO has background in hotel and tourism, 0 if not.	Gottesman and Morey (2010)
Firm Size (FS) (Control Variable)	The natural book value logarithm of total assets	Saidu And Aifuwa (2020)
Leverage (LEV) (Control Variable)	The total debt ratio divided by equity.	Ashafoke, Dabor & Ilaboya (2021)

Source: Authors' Compilation, 2021

4.0 Presentation of Data, Analysis and Discussion of Findings

Table 2. Descriptive Statistics

Variables	Mean	Minimum	Maximum	Std. Dev
FP	0.0869	-0.1618	0.9510	0.2779
CEG	0.3333	0.0000	1.0000	0.4923
CEB	0.4166	0.0000	1.0000	0.5149
FS	7.5623	6.9931	8.0597	0.4232
LEV	0.2464	0.0674	0.4631	0.1217

Source: Authors' Computation, 2021

Table 3. Correlation Matrix

Correlation Probability	FP	CEG	CEB	FS	LEV
FP	1.000000 -----				
CEG	-0.150531 0.6405	1.000000 -----			
CEB	-0.318805 0.3125	-0.239046 0.4543	1.000000 -----		
FS	-0.410997 0.1844	0.334078 0.0007	0.220046 0.4920	1.000000 -----	
LEV	0.236211 0.4598	0.125959 0.6965	-0.437355 0.1551	-0.104413 0.7467	1.000000 -----

Source: Author's Computation, 2021

Table 2 shows the summary statistics about the sampled listed hotels over the study period. The mean of the financial performance as measure by return on asset stood at 0.0869 with a minimum and maximum values of -0.1618 and 0.9510,

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respectively. The standard deviation of 0.2779, failed to exhibit considerable clustering around indicating poor financial performance in hostels investigated. The average of female CEO stood at 0.333, implying that the male are more that female in terms of CEO position. This was further justified by the standard deviation 0.4923 which was above the mean. About 42% of the CEOs of hotels investigated had hotel and tourism educational background. Most of the CEOs had other educational background which differs from hotel and tourism background. The average firm size and leverage stood at 7.5623 and 0.2464, respectively.

The table 3 show the linearity of variables. As observed the association between the variables of the study was below the 0.8. This implies that the variable is free from multicollinearity problems (Studenmond, 2014).

Table 4. Inferential Statistics – Ordinary least squares regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.141434	4.367082	1.177316	0.2775
CEG	0.427195	0.524699	0.814172	0.4424
CEB	0.623378	0.286336	2.177082	0.0345
FS	-0.697832	0.607469	-1.148753	0.2884
LEV	0.202911	0.805837	0.251802	0.8084
R-squared	0.650826			
Adjusted R-squared	0.508703			
S.E. of regression	0.291335			
Sum squared resid	0.594132			
Log likelihood	1.006096			
F-statistic	13.752952			
Prob(F-statistic)	0.026698			

Source: Authors' computation, 2021

The results of the ordinary regression in table 4 show that model of the statistically fit. F-statistic = 13.752952, p = 0.026698. Result from the regression analysis revealed that CEO gender have an insignificant positive impact on

financial performance of listed hotels in Nigeria, $\beta_1 = 0.427195$; $SE = 0.524699$, $p = 0.4424 > 0.05$. This implies that CEO gender do not affect the financial performance of listed Hotels in Nigeria. The findings of this study is in tandem with the work Benjamin and Dabor (2017); Satriyo and Harymawan (2018); Mastsila (2016) Shao and Liu (2014) and Baloyi and Ngwakwe (2017); but in dissonance with the works of Dwiharti and Adharani (2018); Khan and Vieito (2013); Kubo and Nguyen (2021) that CEO gender improves firm performance, and also the works of Jadiyahpa, Jyothi, Sireesha, and Hickman (2019) who noted that female CEO negatively affect firms performance. Satriyo and Harymawan (2018) also found that female CEO negatively affects the financial performance of small firms.

Secondly, the ordinary regression analysis revealed that CEO educational background positively affects the financial performance of listed Hotels in Nigeria, $\beta_2 = 0.623378$; $SE = 0.286336$, $p = 0.0345 < 0.05$. This implies that appointment of CEO with educational background in Hotel and Tourism would increase the financial performance of listed Hotels in Nigeria. This findings is consistent with works of Ghardallou, et al (2020); Khan et al. (2021); Saidu (2019); Kokeno and Muturi (2016) who also found that CEO educational background have positive impact on firms performance. However, the finding of this study is in dissonance with the work of Benjamin and Dabor (2017) who submitted that CEO educational background have no impact on firm performance. The control variables introduced in the study have positive impact on the financial performance of listed Hotels in Nigeria. However, the relationship was not statistically significant at 5%.

5. Conclusion and Recommendations

The broad objective of this study was to investigate the impact of CEO gender and educational background on financial performance of listed Hotels Nigeria. Bearing in mind the current health crisis that have raveled almost all sectors of the economies of the world today, firm performance is still an indicator on the going concern status of a firm. The descriptive statistics revealed that financial performance of hotels investigated is affected by the COVID-19 pandemic. Furthermore, the study empirically found that CEO educational background has positive impact on the financial performance of listed Hotels in Nigeria. Also, CEO gender has no impact on the financial performance of listed Hotels in Nigeria. In line with finding of this study, it was concluded that CEO educational background in hotel and tourism improves the financial performance of Hotels in Nigeria. The

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study recommends that CEO with hotel and tourism educational background should be appointed in hotels in Nigeria to improve the financial performance. This study is subject to some limitations. The population and periods examined may not be the representation of the phenomena.

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SCIENTIFIC FUNDAMENTALS OF STUDYING THE TERRITORIAL RECREATIONAL SYSTEM

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Abstract

The set of phenomena related to recreational activities should be considered as a system, so that the object of study of recreational geography is the Territorial Recreational Systems (TRS). The main social function of TRS is to maximize the needs of the population in recreation, health, treatment and increasing physical and spiritual potential. TRS is an open system, it receives information, matter, energy from the external environment. TRS transmits to the external environment, mainly, information for the management of the supersystem and the so-called recreational information for the population (potentially aggregated by tourists) and, most important, it returns the tourists themselves - people after rest, healthy and spiritually enriched. Studying the models of development and functioning of the Territorial Recreational Systems (TRS) is inextricably linked to the problem of identifying the relationships between the individual elements of this system, such as tourists, natural complex, technical structures, service system) and between recreational and non-recreational systems (reinstallation) etc.

Keywords: *territorial recreational system; recreational geography; recreational activities; territorial orientation; cartographic modeling.*

JEL Classification: L83

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The set of phenomena related to recreational activities should be considered as a system, so that the object of study of recreational geography is the Territorial Recreational Systems (TRS). TRS is a category in which the territorial resort and tourist complexes are intensely reflected and formed. An important feature of TRS is that they include, in an organic way, existing territorial entities.

Concept of territorial recreational system and its study tasks through recreational geography

The main social function of TRS is to maximize the needs of the population in recreation, health, treatment and increasing physical and spiritual potential. The central object of a functional TRS is a person, a tourist. The following main tasks can be identified in the recreational geography in the TRS study:

- 1) identification and justification of TRS as a space system (patterns, factors and conditions of this system, its forecast);
- 2) the study of the functional structure of TRS and its link to other economic subsystems of the territory (including determining the place and importance of TRS in the complex development of the territory's economy, i.e. the relationship with the regional economic system that covers it);
- 3) linking TRS to the natural and geographical situation. TRS - a large and complex system.

Its complexity lies not only in the fact that it includes various industries and activities, but also in the fact that this system affects various aspects of public life. Therefore, TRS is the subject of various sciences, such as: sociology, physical and economic geography, district planning, economy, etc.

As TRS is an open system, it receives information, matter, energy from the external environment. TRS transmits to the external environment, mainly, information for the management of the supersystem and the so-called recreational information for the population (potentially aggregated by tourists) and, most important, it returns the tourists themselves - people after rest, healthy and spiritually enriched. TRS as a functional system includes the following blocks, which are lower order systems:

- 1) the group of tourists;
- 2) natural and cultural complexes;
- 3) the technical system;
- 4) the group of service personnel;
- 5) the system of TRS management bodies.

TRS normally operates in close cooperation with several industries in a given area. These industries perform different TRS functions. At least five functional branches and their groups are required for TRS, created as an interprofessional formation:

1. The group of industries that perform the main function of the system. These include: resorts, tourist farms, recreation (in the narrow sense of the word). These industries form the core of the system. The unity in some territories of these industries (unity of purposes, functions, shared use of certain natural resources, etc.) makes it possible to interpret TRS as a type of intersectoral system. Each of the TRS sectoral parts components is a system of quite different industries, subsectors and activities. The composition of the TRS core indicates that it is mainly an intersectoral system of the unproductive sphere.

2. Group of industries, mainly, maintenance of TRS core production. It is represented by construction (including capital, as any TRS is a fast-growing system, as a rule, it increases its capacity by raising new facilities); transport (primarily passengers, as TRS is characterized by tourist flows). TRS may include cultural services, trade, production of special tourist equipment, souvenirs, etc. The cross-chain links of the TRS core directly affect agriculture, the food industry and the light industry, causing qualitative and quantitative changes in the development and territorial organization of the latter. Thus, TRS, as an intersectoral phenomenon, is closely linked to other systems of the territory and partially resonates with them.

3. Industries that include a system of educational institutions, which train specialists with higher and secondary qualifications for the tourism and recreation industry. It trains not only doctors, physical education instructors, cultists, but also tourism and mountaineering instructors, guides, economists and planners for the tourism industry.

4. Industries that include a system of specialized design institutes, offices, as well as research institutions that focus on meeting the needs of the resort and tourism industry. This includes recreational area planning activities, districts, nodes, centers and points.

5. The specialized management bodies, which shall receive information on the status of other TRS subsystems, shall provide guidance on issues of optimal operation and further development of the TRS. Thus, all these industries (functional subsystems of TRS) interact with each other in space and time.

As for the **methodological basis of the study**, TRS can be divided into the following provisions:

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- 1) the TRS study should be systematic;
- 2) TRS is mainly a non-productive sphere system;
- 3) depending on the purpose of the study, the number of participants studying TRS.

There are two possible ways to approach the TRS study systematically:

1. TRS is studied on an interdisciplinary basis by a team of scientists of different specialties, who face the task not only of their own study, but also, first of all, modeling and designing TRS as a large and complex system.

2. At the initial stage of TRS formation, a scientist should study who is tasked with investigating the general trends and structure (including spatial) of TRS, its formation characteristics and territorial organization with the application of traditional methods of economic geography. In this case, TRS is considered a small and simple system. An example of such a TRS study is economic and geographical research.

In this case, we use both general scientific methods (analysis and synthesis of induction and deduction, idealization, etc.) and traditional methods of economic and geographical research modernized in relation to modern requirements: literary, field balance, mathematics and cartography.

One of the main tasks of a geographer is to map. In this case, the TRS model is a set of maps, representing the system from different angles. It is necessary in this set (system) of maps to have maps with the following thematic directions: estimated recreational maps of the territory and its separate components; complex analytical maps of separate branch recreational systems; complex synthetic TRS maps as a whole; forecasting TRS maps as a whole and its separate branching systems.

TRS typology and its specialization

TRS typing is a process of selecting their types and creating a logically justified typology. The TRS type can be distinguished according to all the essential characteristics of the systems. Most typing is done by:

- 1) the functions of recreational activities;
- 2) the degree of correlation in the organization of this activity of an unchanged nature and technical systems;
- 3) territorial orientation of TRS.

Typing TRS according to the functions of recreational activity. This classification is based on the typology of recreational activities. As there are four main functions of recreational activities, there are four main functional types of TRS: I - medical, II - health, III - sports, IV - cognitive [1].

Typing TRS by spatial orientation. Depending on the distance of the TRS from the place of permanent residence of the tourists, i.e. in terms of spatial orientation, there are two types of TRS: long and short rest or a long-term and short-term recreation system. Short-term and short-term mass recreation in the last days of the week is more pronounced in the nearby areas of cities. Therefore, the first and most common type of TRS in their spatial orientation are the so-called suburban TRS. Long-term recreational TRS takes place in remote specialized areas.

Cartographic modeling of territorial recreational systems

Studying the models of development and functioning of the Territorial Recreational Systems (TRS) is inextricably linked to the problem of identifying the relationships between the individual elements of this system, such as tourists, natural complex, technical structures, service system) and between recreational and non-recreational systems (reinstallation) etc. It is now possible to name many resting places where these relationships have developed unfavorably and require the intervention of the authorities. To improve existing relationships, their management, forecasting and further development, knowing the nature of existing relationships between them, the nature of the causes that produce a phenomenon and the consequences.

In connection with the need to solve this problem from a territorial point of view, the question naturally arises as to the effectiveness of one of the means of studying geographical objects - maps, the conditions and possibilities of using it to obtain new information.

One of the most effective research methods can be cartographic modeling - a set of map operations designed to gain new knowledge about recreational systems. Cartographic modeling includes the creation of maps, but the development of methods for using maps already created, their common analysis is at the forefront. Based on this, the main attention should be paid to a complex cartographic model, which is a set of maps or cartographic features and which allows obtaining additional information about the studied object, which each map in particular cannot provide.

The origins of recreational geography are found in other sections of geographical science - population geography, transportation, architectural objects, etc. The duration of the existence of these sections and the state of development of the related areas of recreational cartography are different, so that their cartographic material provision is uneven. For example, there are very few maps that cover

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aspects such as: the resistance of the natural complex to recreational tasks, the social efficiency of recreation and recreational demand, etc. Existing maps by functional purpose can be divided into three groups. The first group - maps that are created for tourists, hunters, fishermen - the so-called tourist. They contain specific leisure information about the region, its attractiveness. The second group of maps is intended for recreational researchers and recreation organizers and contains information on the forms of organization and maintenance of TRS, recreational migrations (tourist flows), the volume and quality of recreational resources, recreation as a socio-economic phenomenon. These maps serve as a source of information that is used to carry out design and planning works and to identify patterns of territorial organization of recreation. This group of books fits best the concept of leisure.

The third group consists of maps, which, although not intended for researchers and recreation organizers, may contain useful information for them. These are various economic and physical-geographical maps, with the help of which it is possible to find out the links between the recreational and non-recreational use of the territory.

TRS comfort is usually a feature of individual recreational facilities, such as hotel class and number of staff. The same terrain can include the comfort of natural conditions and the number of hot days per year, annual rainfall, temperature fluctuations and much more.

TRS capacity can be considered in two aspects: institutional capacity and territorial capacity. Maps of the first type are quite common and this property of TRS, as a rule, is reflected in the number of beds.

In order to reflect the dynamics of TRS, it is necessary to have information that characterizes TRS, its capacity and structure over time. It is interesting to reflect the daily, weekly, annual and long-term dynamics of tourists, and for some areas - the actual reflection and seasonal changes. It can be represented on maps by indirect indicators, such as: the difference in turnover between winter and summer.

TRS reliability is a property that determines the reliability of its operation, which is manifested by the stable operation of individual subsystems, regardless of external influences or related to them and can be expressed by indicators such as the difference in the number of tourists depending on weather.

TRS efficiency is often presented in the form of tourism revenues. This plot can also be reflected in the social and medical-biological aspects.

From the point of view of the tourists influence on the condition of a natural complex, the so-called stability of a natural complex allocates, i.e. the ability to

withstand different loads at a certain limit after which begins its irreversible destruction. In recreational research, interest in the sustainability of the natural complex is associated with the need to develop environmental measures and task rationing.

Thus, the direction of the research is sought in order to find a TRS model, which would best reflect the systemic nature of the phenomenon and allow new information to be obtained. A systematic cartographic model of a TRS is a set of two or more maps, which are combined using a general scientific model of a recreational system. Its appearance changes depending on the purpose of the model.

The synthetic map is the most obvious form of presenting the result, as it allows the transmission of generalized conclusions without requiring a complex and time-consuming comparison and a comprehensive analysis of the maps. A set of complex maps also meets this requirement.

If the main task is to find the relationship of the elements, to identify what and with what it is connected, then for this purpose the most promising is the use of a cartographic model, in which a set of maps acts as a consequence of dividing the system into individual elements, connections, integration, system integrity restoration.

The aim of the research is to identify new knowledge about TRS, so to study the links, a complex cartographic model should be presented in the form of a set of maps in which each map reflects only one characteristic of the TRS element. This type of model is considered to be the original one, which allows the construction of assumptions about connections, to reveal the basic relationships and properties of the components.

This model reflects the more complete objective reality than the individual maps. The use of a systematic cartographic model for understanding the territorial recreational system is the first principle of cartographic modeling of TRS.

The territorial recreational system is a complex internal formation. Each element is a natural complex, a system of services, engineering structures can be considered as an independent system that includes several components. For example, the components of the natural complex are climatic conditions, water bodies, vegetation and more. In turn, each of them can be characterized by several indicators; for example: the forest - the age of the tree, the diversity of the species, the nature of the bush and the bush, etc. There are many specific features that are important for displaying this TRS. In addition, the operation of the TRS is inextricably linked to the activities of other non-recreational systems (it affects

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them and feels the impact itself), resulting in the possible number of features of the TRS being added to the characteristics of those systems with which it is connected. For clarity, the variety of features of the recreational system can be described as a diagram (Figure 1).

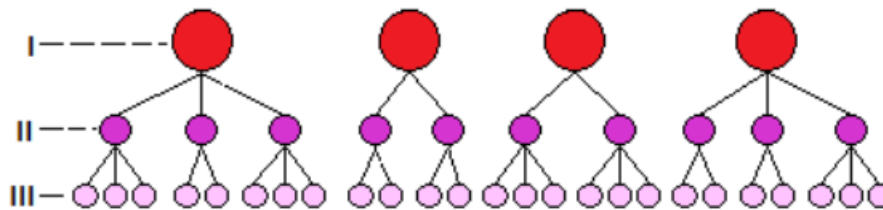


Figure 1. TRS characteristics [1]

Note: I – TRS elements; II – elements compounds; III – compounds characteristics.

It is clear that the use of all possible features in the text and, moreover, their display on maps is not only time consuming and technically complex, but also does not meet the basic requirement for any modeling - a reflection of the main.

The number of possible features highlights the problem of how to minimize the number of books and the creation of a set that allows in a concise form to submit maximum information. The basis of minimization is the idea of TRS anthropocentricity.

The main element of TRS - a group of tourists, any other elements that are not directly related to it, cannot be considered recreational. Therefore, maps reflecting the location of tourist groups should be a central part of the complex cartographic models of the system. In order to determine the nature of the connections, in order to identify the operating patterns of the TRS, it is necessary to compare all the maps with this central map, verifying the connection of their information.

The degree of connection with a group of tourists determines the feasibility of including a certain feature in the created model. This is the second principle of recreational systems cartographic modeling.

TRSs are hierarchical systems, each of which consists of lower-ranking systems and is also part of a higher-ranking system. In any territory that is considered a TRS, it is always possible to identify places that are lower ranking systems. These small territorial formations, in turn, can be divided into even smaller TRS. As an example of reflecting such a hierarchy, we can cite three different-scale maps of

the location of specialized recreational facilities: in the Carpathians as a whole; in the mineral waters of the Carpathians and in Guta. The hierarchical nature of TRS implies the need to study the same properties, i.e. the relationships between the same elements at different hierarchical levels at different scales.

The need for the “layer-by-layer” study of a system of any rank with the help of maps sets at different scales is the third principle of cartographic modeling of TRS.

The considered principles of cartographic modeling show that the cartographic model of TRS should be represented by a set of maps that reflect the relationship of its main elements, among which the main place is given to the tourist location map. It is most effective to use a set in which each feature is presented on a separate map to build assumptions about connections. For the in-depth study of systems of any rank, it is advisable to use several sets of maps with different scales.

The main method of studying recreational systems is their common analysis, which allows the identification of basic properties and relationships between TRS elements. Visual or even imaginary comparison of maps makes it possible to build hypotheses about connections and formalization – they clarify them, while the choice of comparison units (mapping) affects the conclusions about connections.

According to some authors, tourism is all types of movement that are not associated with a change of permanent residence and work [8, p.5]. That is, if we focus on the “population movement”, then tourism should be understood as one of the forms of migration that does not have a permanent nature.

Many authors (V. I. Azar [5], V. G. Gerasimenko [9] and others), in their definitions of the concept of “tourism”, emphasize the dynamism (“movement”) and territoriality of this phenomenon. A number of authors add notes to the definition of tourism that this is necessarily an active holiday [7].

In 1963, at the UN Conference on International Tourism and Travel, the definition of an international tourist is any person who is in a country for 24 hours or more, which is not his or her permanent residence for rest, treatment, participation in sporting events, meetings, congresses, etc., unpaid in the host country [7]. Therefore, it should be noted that tourism can be not only an active type of recreation (mountaineering, diving, sports and hiking trips, etc.), but also passive recreation (improving health, medical, SPA tourism, etc.).

Currently, in international practice, the definition proposed and approved at the International Conference on Travel and Tourism Statistics (Ottawa, 1991) and approved by UNWTO and the UN Statistical Commission is widely used. According to it, a tourist is a visitor, i.e. “A person who travels and stays in places

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outside his/her usual environment for a period not exceeding 12 months for any purpose other than to engage in paid activities from sources in the visited place” [2]

According to the UNWTO definition: “tourism is the activity of people who travel and stay outside their usual environment, for a period of not more than one year in a row, for recreation, business and other purposes”. [3]

According to the Tourism Law of the Republic of Moldova no. 798-XIV of 11.02.2000: “tourism is a branch of the national economy with complex functions, including property and services provided for consumption by persons who exist outside their usual environment for less than one year for a purpose other than implementation of paid activities in the visited place” [10, Article 2].

Analyzing the definitions of the term “tourism” led to the conclusion that most authors interpret this concept from the consumer’s point of view, i.e. tourism is a journey undertaken for a specific purpose (recreation, treatment, participation in sporting events, conferences, congresses, etc.).

However, tourism should also be considered from the point of view of the producer, namely: as a sphere of production and sale of tourism services by organizations that have tourism resources.

Tourism is a specific branch of the economy, which includes the activities of tourism businesses to provide a range of tourism services and the sale of tourist goods to meet the needs of a person that might appear during his/her journey [11].

Based on the above, the author proposes a clarification of the definition of tourism: a branch of the economy that aims at the economic, social, political development of the tourist activity objects and the satisfaction of the recreational needs of the subjects of this activity. According to the author, this definition refers to the (essential) concept, which covers the area of research as a whole, reveals the inner content of tourism, which is expressed in the unity of the diversity of properties and relationships.

Modern tourism is characterized by a variety of species, but there is no generally accepted classification of them. The authors of the Fundamentals of Tourism Business Manual, M. Malskaya, V. Khudo and V. Tsybukh, note: “There is still no clear, generally accepted classification of tourism”, continuing: “... This is due to the fact that it is almost impossible to distinguish pure forms and types of modern tourism” [12].

The literature dedicated to the study of tourism classifies the types of tourism based on different criteria (purpose of travel, nature of tourism, legal status, duration of travel or stay, seasonality, modes of travel, age of traveler, etc.).

There is a classification of international travel according to the purpose of the trip, proposed by the World Tourism Organization. It is recommended to divide international travel into three groups:

1. Trip for fun:
 - 1) Travel for recreation (in resorts, rural and/or mountain areas, tourist routes, sea and river cruises, honeymoon trips, etc.);
 - 2) Travel as a way of cultural education (visiting art exhibitions, museums, historical sites, monuments of religious art and education, various cultural and educational events);
 - 3) Sports trips (skiing, water sports, mountain sports, cycling, hiking routes, etc.).
 - 4) Tourism to visit relatives and friends:
 - 5) Other objectives (incentive tours, gambling, etc.).
2. Economic, commercial or business tourism:
 - 1) Participation in conferences, congresses, symposia, fairs, exhibitions, etc.;
 - 2) Long business trips;
 - 3) Business travel.
3. Other tourist destinations:
 - 1) Travel for study purposes (language practice, internships, professional development);
 - 2) Travel for treatment and recovery (resorts, health resorts, SPA institutions);
 - 3) Transit tourism;
 - 4) Others (family issues, support, etc.) [4].

This classification, despite its official status, has its disadvantages. Modern tourism is characterized by a variety of purposes of tourist travel, i.e. in a single trip a tourist can combine recreation (entertainment) and education, but also the elements of commercial (business) tourism.

According to the author, we should not divide the objectives of the trip into groups, but classify tourism according to the classification criteria (according to recreational characteristics, purpose of the trip, mode of travel, accommodation for tourists, number of participants, organizational and legal forms etc.).

In the Republic of Moldova, the leading places are occupied by the following types of tourism: medical and recreational, wine, cultural and educational and rural.

In international practice, an important role in the development of the tourism industry is played by entertainment, events, business, scientific types of tourism, which have developed in our republic in the last decade.

It should be noted that there is no single type of tourism in isolation and, in this context, the relationship between the objectives of a tourist trip should be highlighted. For example, in health tourism, a large number of cultural and

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cognitive aspects are combined with entertainment, business tourism with scientific, educational events and entertainment.

A specific feature of tourism, as a branch of the national economy, is that its product (complex of services, goods, works) cannot exist independently, it is inextricably linked to other sectors of the economy [13]. Traditionally, tourism has three economic functions: the reproduction of the tourist product - production, employment and income generation. Some researchers [14] consider it necessary to supplement the list of economic functions of tourism with the function of smoothing regional imbalances, which is particularly relevant today and the function of leveling balance of payments deviations.

The leveling function is manifested by the fact that tourism, under certain conditions, can contribute to the economic development of structurally weak regions. The creation of tourism enterprises in remote and poorly industrialized regions will contribute to their economic development. In this case, the tourism fulfills the function of leveling, attractive in terms of nature and culture, the landscape to turn tourism into an economic path, ensuring economic growth and a decent standard of living.

Through the leveling function, the influence of tourism on the stabilization of the payments balance of the region is realized. As part of the payments balance, the expenditure of local tourists who have left the region is contrasted with the income received from the consumption of goods and services by tourists who have arrived in the region [5].

Tourism was a profitable and rapidly growing branch of the world economy until the COVID-19 pandemic. The current state of tourism distinguishes by the presence of contradictions in the structure of its organization, in the direction of its development, in the state of characteristics: qualitative and quantitative [1].

The current state of tourism in the world can be seen as a crisis. This is due to a sharp decrease in the quantitative indicators previously obtained in the field of tourism services, a reduction in the material and technical base of the tourism industry and a significant discrepancy between the needs of the population in the provided tourism services.

UNWTO has identified 5 reasons for managing the tourism in economic sectors in the near future:

1. This industry creates jobs in both tourism and indirect industries.
2. The stability of the tourism industry compared to other sectors of the economy and the ability to adapt to changing conditions should be noted. In the last

13 years, the growth rate of turnover in the international tourism industry has decreased in three cases: after the terrorist attack of September 11th, 2001 (-0.4%); due to the outbreak of SARS in 2003 (-1-6%); during the global economic crisis of 2009 (-3.8%), 2019-2021 during the COVID-19 pandemic - global tourism fell by 85% at the beginning of 2021 compared to the period before the pandemic. The coronavirus pandemic could cost the global tourism sector \$2 trillion of lost revenue in 2021. According to a new UNWTO World Tourism report, the number of international tourists in July-September increased by 58% compared to the same period in 2020. However, they remained 64% below the level of 2019.

“Despite recent improvements, the world’s uneven vaccination rates and new strains of Covid-19 such as Delta and Omicron could affect an already slow and unstable recovery”, the organization said in a statement.

According to the UNWTO, 46 destinations - and this is 21% of the total - are completely closed to tourists.

While Europe (-53%) and America (-60%) saw a relative improvement during the third quarter of 2021, travel to Asia and the Pacific was down 95% compared to 2019, as many destinations remained closed for traveling.

Africa and the Middle East recorded a drop of 74% and 81% respectively in the third quarter of 2021 compared to 2019.

The safe recovery of international tourism in the future will largely depend on the interaction between countries on travel restrictions [2].

3. Tourism has a beneficial effect on the economic development of developing countries.

4. The stabilizing role of tourism in the development of a green economy should be emphasized.

5. Tourism is a regulator in the prevention of conflicts between countries and peoples, in crisis management; in the development of tolerance between different societies [15].

As for the (medical) health improvement tourism, in this context, the words of Taleb Rifai should also be quoted: “Medical and health tourism is now becoming a very important field ... there is not enough information about it. In this area, UNWTO receives figures only from some countries that are more interested in the development of medical and health tourism than others; there are no global statistics. This applies not only in the medical field, but also in other specialized tourism areas that have emerged recently. There are very clear signals from different countries that they are interested in medical and health tourism” [16].

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ACCOUNTING IN THE NEW AGE OF DIGITIZATION. CLOUD ACCOUNTING

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Abstract

We note that, in the recent years, there has been substantial progress in the field of Cloud Computing.

The changes brought about by digital technologies are felt in all areas, including in accounting.

Currently, in business, the transfer of accounting systems in the Cloud is a new solution used by more and more companies that believe that, in this way, they will improve the economic efficiency of their business activity, performance and competitiveness of the company.

The purpose of our article is to analyse the implementation of Cloud technology in the organization's accounting, how it influences the flow of accounting processing, and accounting results.

We want to investigate whether Cloud technology is a solution for the future of accounting, or whether there are important impediments that make us susceptible and cautious as users.

The research methods used consist in the analysis of the specialized literature by applying different techniques of analysis of works based on qualitative, quantitative research but also comparative analysis.

Keywords: *cloud accounting; cloud computing; reduces the volume of manually processed documents; the prevent errors; the increase data accuracy; the security information and confidentiality information.*

JEL Classification: H70, H83, M40, M48

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Introduction

In the business world, the transfer of accounting systems in the Cloud is a new and innovative solution that more and more companies are currently using, motivated by the advantages in terms of costs, diversity and speed of operations provided by the new technology.

The purpose of our article is to analyse the implementation of Cloud technology in the organization's accounting, how it influences the flow of accounting processing, and accounting results.

We want to investigate whether Cloud technology is a solution for the future of accounting, or whether there are important impediments that make us susceptible and cautious as users.

The implementation of Cloud technologies in the accounting information system of modern companies is a current topic that is of interest, but also controversial, both in the business environment and in the accounting profession.

The research methodology of this paper is of qualitative-quantitative deductive type. The research methods used consist in the analysis of the specialized literature by applying different techniques of analysis of works based on qualitative, quantitative research but also comparative analysis.

Cloud computing is a model of data processing that consists in making available to the user, through web resources and provider services, the computing power, the disk space, the databases, the analysis services and the artificial intelligence.

Given that information technology has evolved extremely rapidly in the last decade, there is a need for a new approach to accounting computerization, which can have a positive impact on the business.

A study from December 2015, conducted by KPMG on global cloud trends, shows that more and more managers are prepared and choose to migrate the financial and accounting process to the Cloud.

For these companies, elements such as: access to information, speed of transmission, speed of decision-making, flexibility in managing accounting activities are becoming more and more important.

1. Cloud Accounting in the business environment. Characteristics

Information technology changes the way companies conduct their business activity related to structure, objectives, strategies, human resources.

A study conducted by Aberdeen Group – a research and market research company –, in 2013, shows that Cloud applications implemented in the flow of

accounting processing lead to a 50% reduction in invoice processing costs, a significant improvement in customer satisfaction and an increase by over 20% of labour productivity.

Thus, Cloud applications implemented in the accounting process can increase the productivity of accounting staff by optimizing the time spent with data processing and its allocation for the development of accounting analysis in decision-making.

By default, this can generate a reduction in the costs of collecting and processing accounting data, but also an improvement in the client-accountant relationship by accessing in a shorter time the information desired by the client.

For many companies, accountancy is a cumbersome and time-consuming process. Collecting and recording data, organizing information, reconciling accounts, generating reports can be difficult, costly, time consuming and error prone activities.

Therefore, an online accounting software in the Cloud can offer managers and employees the possibility of global and integrated access to data, rapid updating of information when desired, rapid generation of reports, of financial statements with a significant reduction in time and costs [4].

Cloud Accounting can provide applications, levers, to meet business needs [8].

Thus, at the *operational level* – Cloud Computing has functions that support accountants for efficient processing and storage of data on accounts receivable, debt, taxes, and bank accounts.

Table 1. Influences of Cloud Accounting business levels

Operational level - Cloud Computing has functions that support accountants for efficient processing and storage of data
Tactical level - Cloud Computing has functions that support accountants for a quick generation and access to financial statements, accounting records, reports, cash flow analysis, risks analysis
Strategic management level - Cloud Computing has functions that support budget planning, business modelling, efficient management of internal controls of a company

Source: The author's processing

At the *tactical level* – Cloud Computing has functions that support accountants for a quick generation and access to financial statements, accounting records, reports, cash flow analysis, risks analysis, etc.

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At the *strategic management level* – Cloud Computing provides fast and integrated access to data on activities at other levels of responsibility, has functions that support budget planning, business modelling, efficient management of internal controls of a company.

A Cloud Accounting application is an accounting application that can be accessed from anywhere with an Internet connection, without the need to be installed and managed on one's own servers.

By implementing Cloud-type applications, the financial relationship between the business partners can be significantly improved, in the sense that:

- by means of these applications, it is possible to give up time and resource consuming activities [10];
- it allows data access in a common workspace;
- it allows secure and online storage of information;
- regardless of location, it allows permanent access from any electronic device that has an Internet connection.

Accounting organizations such as the American Institute of Certified Public Accountants (AICPA) consider Cloud Computing technology as an innovative way of operating in business. Thus, AICPA highlights the diversity of possibilities that are created by using Cloud Computing-based applications in accounting efficiency such as [10]:

- fiscal planning;
- productivity and profitability analyzes;
- cash flow forecasts;
- confirmations requested for audit;
- payment of invoices;
- preparation of financial statements, salaries, sales;
- customer relationship management (CRM);
- real-time approach to scanned invoices, etc.

We show in Table no.2 the platforms often used in Cloud:

Through the *Software-as-a-Service (SaaS)* platform – which is the most common form of Cloud – professional accountants have the opportunity to provide accounting services in an innovative way, namely, the use of third-party managed applications without the need of installing additional applications.

Another Cloud platform is *Platform-as-a-Service (PaaS)* – which is the most complex form of Cloud and offers the possibility for a company to develop its own applications.

Table 2: Cloud platforms

Cloud platforms - opportunities for accounting:
<i>Platforma Software-as-a-Service (SaaS)</i>
<i>Platform-as-a-Service (PaaS)</i>
<i>Infrastructure-as-a-Service (IaaS)</i>

Source: based on information from Tugui, A. & Gheorghe, A.M. (2014)

Another platform often used in the Cloud and with many benefits is *Infrastructure-as-a-Service (IaaS)* – through which one can access infrastructure resources, storage or networking services.

More and more specialists recommend that, before using the Cloud Computing applications in the accounting process, a review of the software possibilities, the infrastructure, the internal processes, its staff be made within the company.

Implementing Cloud applications in the accounting process is not an easy action because it involves a change of mentality, culture, attitude, and even a staff reduction.

Accountants not only adopt Cloud Computing, but must structure a new approach to work, which will reduce administrative processes that are repetitive, but also a staff reduction.

According to a EUROSTAT ranking at the level of September 2020, only 10-15% of the Romanian companies chose to implement Cloud applications in the accounting process. At European level, countries with a better level of IT digitization in the Cloud are: France with 28%, respectively, Germany with 19.4%.

However, at European level, there has recently been a 21% increase in Cloud adoption among corporations.

2. Advantages of Cloud Computing in accounting

* Implementing Cloud applications in a company's accounting process helps reduce the time for processing invoices and other financial documents by means of electronic records possibility.

Accounting documents, especially invoices, receipts, tax receipts for purchases, sales, transfers, can be uploaded online directly by the customer through scanning, thus eliminating the stage of sending these documents to the accountant and processing them in the document -by- document system.

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Cloud applications collect transaction data from invoices, record information in the accounting journals and post data to the account sheets. Thus, it eliminates a series of accounting steps that the accountant would perform document by document using the usual accounting program, gaining, by means of the Cloud applications, time, a fast processing of a large volume of accounting documents, but also their rapid centralization in Accounting Journals, Account Forms [6].

- * Financial management based on SaaS solutions automates the financial process and reduces the volume of manually processed documents.

- * Compared to traditional accounting, the Cloud accounting system can make the transition from basic accounting records to compiling real-time business analysis.

- * Cloud Accounting technology improves the customer-accounting relationship through the following two interface components [5]:

- *Customer-oriented interface:*

Cloud Accounting simplifies the way of approaching the data, all the information required at a certain moment for the analysis of the financial situation are arranged in the form of Dashboards easy to follow by the client;

- *Single user interface:*

Regardless of who accesses certain information and from which location, the same data is available, as different users can track the same information in real time.

- * Cloud Accounting offers the ability to eliminate duplicate information, prevent errors and increase data accuracy. SaaS-based accounting systems have implemented controls that automatically identify and prevent duplicate records [6].

For example, goods, services purchased or rented are automatically attributed to invoices received or payments made, and expenses are correctly recorded in the accounting period to which they correspond.

- * Cloud technology requires minimal investment in hardware, and maintenance of cloud applications is provided by the vendor at no additional cost. The costs involved in using Cloud applications are lower than the costs of running applications locally on one's own devices.

- * Another advantage is given also by the increase of the activity volume. Thus, for an application running on the company's servers, increasing the volume of activity above a certain level can lead to major additional investments in hardware and software. Instead, cloud technology offers much more flexibility, without additional investment in equipment or infrastructure, this technology allows the management of a larger volume of data by supplementing the demand for cloud services at a minimum additional cost [4].

3. Limitations of Cloud Computing technology in accounting

Although the benefits of Cloud Accounting are recognized at the company level, as we saw from the study conducted by EUROSTAT 2020, the implementation of Cloud applications is quite slow, especially due to the uncertainty of management regarding the control and ownership of information.

The biggest fears of companies refer to the security and confidentiality of their information, in terms of using Cloud-based applications.

These data security concerns are explained by the fact that, by applying Cloud services, the company information is stored on a Server that can be accessed via the Internet, and is not stored on the company's own computer unit.

According to the 2019 Oracle & KPMG Annual Report – there has been a 3.5-fold increase in the number of companies that will hold more than half of the data in the Cloud by the end of 2020.

However, the Report points out that the critical nature of cloud services has turned the security of the Cloud into a key strategic point.

The 2019 Oracle & KPMG Annual Report has identified several segments where companies can face *security threats* by applying Cloud services in accounting, namely [7]:

- The confusion generated by the division of responsibility between departments – can generate cyber and security incidents in the form of malware attacks and data theft;
- CISO central IT security officers frequently see their responsibilities at the edge of cloud security. About 90% of central IT security officers are confused about their role in software security (SaaS) compared to what Cloud services provide;
- Visibility remains the most important security challenge. Timely detection of the cybersecurity problem, but also the inability of the existing network security protocols to provide visibility into the workload of the host server can represent cybersecurity issues;
- Other cybersecurity issues are the lack of security controls, but also the use of the Cloud by unauthorized persons – leading to fraud and information leakage.

Conclusion

Our research on the chosen topic demonstrates the positive impact of Cloud applications on accounting systems, which determines the improvement of business performance.

Many transactions can be performed faster, in a simplified and integrated way, and managers will be able to make faster and better decisions to achieve the company's objectives.

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Being connected to a global market, the company can maintain better connections with all its business partners, thus becoming more competitive.

Accounting needs to position itself in the future by taking advantage of digital technology opportunities, including Cloud Computing applications, in order to have a business vision, but also to ensure process efficiency, compliance, control, increase productivity, reduce costs and increase overall business.

Cloud Computing technology changes the way in which the functions of the finance department support business, changes the way in which we identify and manage current and future risks and opportunities, as well as the way in which we analyze and process the information.

Cloud Computing technology changes the way in which information is stored and sorted, the speed and manner in which we interact and communicate, and helps us increase transparency and accountability. This is no longer an IT function, but an economic-financial function that is gaining more and more ground in the activity of companies.

The cyber risk is and will remain a thorny issue in this context, but it must be integrated into all business decision-making processes, not added later as a secondary idea.

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THE IMPACT OF TREASURY SINGLE ACCOUNT (TSA) ON PUBLIC SECTOR PERFORMANCE IN NIGERIA

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Abstract

This study examined the impact of treasury single account (TSA) on public sector performance in Nigeria. Specifically, this study analyzed the effect of treasury single account on budget execution; accountability and cash management in Nigeria public sector. This study made use of primary data sourced from 300 randomly selected respondents from government parastatals, agencies and ministries across six southwest states in Nigeria. Data were collected with the use of structured questionnaire. Collated data were analyzed with the use of percentage/frequency count and ANOVA regression analysis. Result showed that TSA adoption exert significant positive effect of budget execution (0.794; $p < 0.05$); level of accountability (0.750, $p < 0.05$), and cash management (0.960, $p < 0.05$) in Nigeria public. The study therefore concluded that treasury single account has substantial positive impact on performance of Nigeria public sector. Hence this study recommends the need for government to strengthen guidelines for the full implementation of the policy so as to ensure long term sustenance of the policy across the country. In addition there is need for government to engage in objective public enlightenment about the importance of the policy. Government should also overhaul the capacity of the Federal Ministry of Finance and the CBN to cope with challenges associated with enforcement of the provisions of the TSA so as to further harness the benefit of centralize control of funds across the country.

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Keywords: *treasury single account; public sector; Nigeria; public sector performance.*

JEL Classification: H87

1.0 Introduction

Treasury single account is part of public management tools that ensures transparency and accountability in public sector through proper appropriation and application of public funds (Owie, Wilson and Onuora, 2018). Treasury single account allows the ministry of finance to have full control over budget allocations and strengthens the authority of the budget appropriation, improvement on operational controls during budget execution in an efficient, transparent and reliable manner. According to Nwaorgu, Ezenwaka and Onuorah (2017). treasury single account facilitates proper and regular monitoring of cash balances and efficient payment mechanism. Treasury Single Account eliminates idle funds of government from public sector entities kept in money deposit banks and enhance the reconciliation of revenue and expenditure (Adeolu, 2015). Prior to treasury single account, Nigerian public sector funds are kept in several accounts with various commercial banks accounts. Obinna (2015) noted that about 10,000 bank accounts were held in several banks which made it difficult for government to know the true state of their income and expenditure position. It has led to pockets of idle cash balances held in MDAs' accounts when the same MDAs were out borrowing from commercial banks (Opeyemi, Samuel, Faboyede and Peter, 2017). Such idle funds are being swept under the floor by officials of MDAs where idle funds are available or being spent on frivolous items whose benefits cannot be significantly identified. As a result, there were improper leakages, embezzlement of funds and inadequate budgetary and financial planning and these banks relied on deposits from government agencies and lent back to the government at high interest rates (Ndubuaku, Ohaegbu, Nina and Nsimoh, 2017). Helen, Amenawo and Basse (2017), Nigeria as a developing nation had over time struggled with the burgeoning rate of fund embezzlements in several quarters of the public sector, which ultimate was the sine-qua-non for the establishment of several control agencies: Conduct Bureau, Independent Corrupt Practices Commission (ICPC), and Economic and Financial Crimes Commission (EFCC) to mention but few. Observably, activities of these agencies over time had little or no effect on the rate

of financial crime in the country, with spiraling corrupt practices among public officers in recent times. In response to the perennial menace of poor public sector accountability and transparency in the country, it became necessary for government led by President Buhari to instigate the full adoption of treasury single account in the country, in an attempt to occasion substantial abatement of the inherent leakages in the mobilization process of public resources in the country.

The implementation of treasury single account is expected to allow complete and timely information on government cash resources. This will ensure proper accountability and transparency as well as reconciliation of public sector revenue and expenditure. As identified by Oyedele (2016) and Oyedokun (2016), treasury single account should bring about better budget performance, lower cost of public projects, prompt payment of project, transparency in unexpended funds allocated in the budget. Treasury single account gives ministry of finance full control over budget allocations, and strengthens the authority of the budget appropriation. When separate bank accounts are maintained, the result is often a fragmented system, where funds provided for budgetary appropriations are augmented by additional cash resources that become available through various creative, often extra-budgetary, measures. Also, it improves operational control during budget execution. When the treasury has full information about cash resources, it can plan and implement budget execution in an efficient, transparent, and reliable manner. The existence of uncertainty regarding whether the treasury will have sufficient funds to finance programmed expenditures may lead to sub-optimal behavior by budget entities, such as exaggerating their estimates for cash needs or channeling expenditures through off-budget arrangements. In addition, treasury single account ensures that there is no ambiguity regarding the volume or the location of the government funds, and makes it possible to monitor payment mechanisms precisely. Many governments have achieved substantial reductions in their real cost of banking services by introducing a TSA. Furthermore, it enables efficient cash management by undertaken higher quality cash outturn analysis (e.g., identifying causal factors of variances and distinguishing causal factors from random variations in cash balances).

Statements of Problems

The issue of efficient cash management, accountability and transparency in Nigeria public sector including all tiers and levels of government finances is a fundamental problem because it determines the sustainability of these sectors as

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well as the growth and development of the economy (Okwoli, 2014). According to Bashir (2016), a major problem associated with efficient cash management accountability and transparency is high corruption practices. About 500 billion were embezzled between 1960-2009 (Chukwuemeka, Ugwuanyi and Ewuim, 2012). The corruption perceptible index ranked Nigeria as 121 in 2008, 130 in 2009 and 134 among 178 in 2010 which later increased to 148 out of 180 in 2017 (Transparency International, 2018; Lodikero, Fagbayimu and Olateru, 2018). This situation has eaten deep into the fabrics of Nigerian economic system leaving her in a terrible precarious situation that pictures her as poor, despite the huge human and natural resources Nigeria is divinely blessed with. As a result, many of the government projects are financed through debts which have increased the cost of servicing both external and internal debt while the country's endowment are in personal pockets and idly kept in bank accounts. Also, government most often borrow from the pool of their own money in commercial banks since they are not properly accounted for (Oti, Igbeng and Obim, 2016)

In an attempt to sustain public sector activities and promote economic growth and development, government has established various anti-graft agencies to curb corruption practices in Nigeria which includes Economic Financial Crime Commission (EFCC), Independent Corrupt Practices Commission (ICPC) etc. However, some these agencies are seen as a simple tool in the hand of the government (Onuoha, 2010; Uwak and Udofia, 2016). This is because activities of these agencies over time had little or no effect on the rate of financial crime in the country, with spiraling corrupt practices among public officers in recent times. Therefore, President Buhari instigated the full adoption of treasury single account in the country in order to respond effectively to the perennial menace of poor public sector accountability and transparency in the country. As stated by Ahmed (2016) treasury single account is a vital tool for consolidation of cash resources of the governments, thus reducing the cost of borrowing. TSA is seen as one of the strategic and tactical measures instituted in the present administration to deter fraudulent practice and clamp down corruption (Yusuf, 2016). Larson (2007) explained that TSA is bound to improve transparency and accountability in public financial management (PFM). First, it will remove organization/MDAs secrecy around the management of public finances. The second is the revenue generating agencies that have been depriving the treasury of due revenue through a plethora of bank accounts under their purview unknown to the authorities will no longer be able to defraud government since all funds will be swept into the TSA.

Several empirical works have been carried out on treasury single account. These range from the policy impact of treasury single account in Nigeria (Oti, Igbeng and Obim, 2016; Chinedu and Emma, 2017, Badejo, Oluwaseyi and Taiwo, 2017); treasury single account and transparency in public sector financial management in Nigeria (Otemu, Rita and Otemu, 2018, Adeagbo and Olajide, 2019; Lodikero, Fagbayimu and Olateru, 2018); effect of adoption of treasury single account on tertiary institutions finances in Nigeria (Olurankinse Ajidagba and Olaniyi, 2010; Olaoye and Adebawale, 2017) effect of treasury single account on banks performance (Ighosewe and Ofor, 2016; Yohanna and Okwoli 2010, Olaoye and Talabi, 2019); effect of treasury single account on the performance of ministries, departments and agencies in Nigeria (Ofor, Omaliko and Okoli 2017); treasury single account on liquidity of banks (Ejike 2019, Oru and Odumusor 2019); perception of Nigerians towards the Treasury Single Account (TSA) Mboto, Offiong and Ibor (2017), impact of treasury single account on the failure of financial institutions in Nigeria (Okpala, Akinyede and Worimegbe, 2019), impact of treasury single account on government revenue and economic growth (Ofurum, Oyibo and Ahuche, 2018). While some discovered significant impact of treasury single account, other revealed insignificant impact of treasury single account. Hence this study examined the effect of treasury single account on performance of public sector with specific focus on the:

- (i) Effect of treasury single account on budget execution in Nigeria public sector
- (ii) Effect of treasury single account on accountability in the Nigeria public sector
- (iii) Effect of treasury single account on cash management in Nigeria public sector

2.0 Literature Review

Treasury Single Account

Treasury single account (TSA) can be defined as an allied structure of government bank accounts ensuring a combination of government funds and the best use of government possessions. TSA possess three crucial fundamentals, first a combined arrangement of government bank accounts that permits total control of all cash reserves, secondly an option suitable for accessing and working with TSA based on institutional arrangement and payment settlement method and Thirdly, the combination of government receipts not lacking anything that it needs to be complete as it should include all receipts including budgetary and extra-budgetary (Pattanayak & Fainborn, 2010). This implies that every public receipts regardless

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of whether the matching cash flows are dependent on budgetary control or not (e.g. situations of earmarked funds, reserve funds and other off-budget or extra-budget funds) should be controlled by the TSA (Oguntodu, Alalade, Adekunle & Adegbile, 2016; Shah, 2007).

Treasury single account was perceived by Nelson and Ogah (2015) as an account that collates the balances of all the ministries, departments and agencies of the government, but there is an intermediate account for every MDAs that holds the total of the expenditures and receipts. In this way, the complete amount will be transferred in the end to the treasury single account. The treasury single account can also be seen as a unified arrangement of government bank accounts enabling an combination of revenues from all MDAs and an advantageous use of government monetary resources (Onyekpere, 2015). As posited by Oguntodu *et al* (2016) treasury single account is a set of connected bank accounts that controls the receipts and payments of the government and ensures a consolidated view of government monetary worth at any point in time. The merits of this account are many. The collection of revenues into a single treasury account makes it possible for prompt capture and payment of all revenues received into the government's account without the multiple banking structures impeding a smooth-operation. This merit in this way limits revenue leakages that results into revenue loss and lack of accountability and transparency in public sectors (Oguntodu *et al*, 2016).

The broad objective of treasury single account is to enhance successful control of government monetary balances. Specifically, treasury single account fulfills the following objectives:

- i. reduces transaction expenses during budget execution;
- ii. limits the delay in dispense of revenue to the government;
- iii. enhances quick payments of government expenditures;
- iv. effective control and monitoring of the sharing of funds to different government agencies;
- v. enhances easy coordination with the monetary policy operation;

Public Finance Management Theory

This theory assumed that all areas of financial resources, i.e mobilization and expenditure should be well utilized in government for the benefits of the citizens. It involves resource mobilization, prioritization of programs, the budgetary process, efficient management of resources and exercising control to guide against threats. The theory also stress that the government's revenue should be well mobilized to

disallow the looting of such into private pockets (Udo & Esara, 2016). These consist of resources prioritization, prioritization of programmes the budgetary process, efficient management of resources etc. (Bashir, 2016). This theory in relation to the study suggests that TSA is primarily to avoid misappropriation of public funds.

Institutional Theory

The theory was propounded by Meyer and Rowan (1977) and DiMaggio and Powell (1983) who assumes that organizations adopt structures and management practices that are considered legitimate by other organizations in their field, regardless of their actual usefulness. Legitimated structures or practices can be transmitted to organization in a field through tradition (organization imprinting or founding), through imitation, by coercion and through normative pressure. Other scholars such as Palmer, Jennings & Zhou (1993), Scott (1987) and Covalski and Dirsmith (1988) viewed Institutional theory base on the premise that organisations respond to pressures from their institutional environments and adopt structures and procedures that are socially acceptable as being appropriate organizational choice. Meyer and Rowan (1977) argue that institutional techniques are not based on efficiency but used to establish as appropriate, rational, and modern. They are said to be used to display responsibility and avoid claims of negligence.

Empirical Review

Otemu, Rita and Otemu (2018) examined treasury single account and transparency in public sector financial management in Nigeria. Specifically, the study analyzed the features, benefits, demerits and prospects of treasury single account. The study employed discursive method. The study discovered that TSA have caused so much problems that ranges from induced unemployment as a result of downsize of bank staffs, encourages bureaucracy because it is a single line operation that possess through various authorization before cash is released. Also, treasury single account might distort the effective functioning of the institutions since government allocations are hardly enough to carter for the needs of the institutions. However, the study revealed that treasury single account help government in efficient cash management, improves appropriation control, among others.

Badejo, Oluwaseyi and Taiwo (2017) assessed the nexus of treasury single account policy in Nigeria. Specifically, the study investigated the contextual relevance and benefits of TSA. The study employed discursive method. The study discovered that TSA is a desirable prerequisite for modern cash management and is

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an effective tool to establish oversight and centralized control over government's cash resources. The study concluded that that TSA enhances the overall effectiveness of a Public Financial Management (PFM) system.

Adeagbo and Olajide (2019) examined treasury single account: a tool for preventing leakages and enhancing accountability of public funds in Nigeria. Specifically, the study assessed the effectiveness of TSA system in preventing leakages of public funds and how TSA enhance accountability of public funds. The study employed primary data collected from 114 respondents in finance offices of federal MDAs and institutions in Ibadan. The study revealed the significance of TSA in preventing leakages and enhancing of proper accountability of public funds with (F value = 599.94, $p = .000$) and (F value = 1000.13, $p = .000$) respectively. Therefore, the study concluded that TSA serves as a tool for preventing leakages and enhance proper accountability of public funds in Nigeria.

Abdullahi, Canice and Yahaya (2019) investigated treasury single account, fraud detection and prevention in the Nigerian public sector. Basically, the study focused on the empirical review of treasury single account, fraud detection and prevention in the Nigerian public sector. The study used descriptive method of social inquiry. The study discovered that Treasury Single Account as a central revenue pooling system has been lauded in different quarters since implementation in 2015 as cure all syndrome for public sector fraud. Therefore, the study concluded that while the TSA may deter fraud in the public sector but have no control over appropriation of revenue.

Osagioduwa (2019) assessed treasury single account effectiveness on corruption and public organization. The study specifically analyzed the effect of treasury single account policy on corruption control. The study employed primary data collected through questionnaire from 264 respondents among government accountants and auditors in southeast Nigeria. the study analyzed data using percentages, correlation and chi-square. The study reported that there is a statistically significant positive relationship between Treasury Single Account and corruption reduction in the public sector of Nigeria while TSA has insignificant effect on administration of public sector. Therefore, the study concluded that TSA reduces financial crime in public sector but is ineffective in the administration of public sector.

Lodikero, Fagbayimu and Olateru (2018) examined treasury single account: a tool for accountability and transparency in Ondo State Nigeria. The study specifically analyzed the effect of exposure of financial loophole, increase in revenue generation, ease revenue collection and proper cash management on

accountability and transparency in government revenue management. The study employed primary data collected through questionnaire from 100 respondents in MDAs. The study analyzed data using ordinary least square regression. The study showed that exposure of financial loophole, increase in revenue generation, ease revenue collection and proper cash management have significant positive effect on accountability and transparency in government revenue management. Therefore, the study concluded that Treasury Single Account is catalyst for enhancing efficient of revenue generation in Nigeria, transparency and fight against corruption.

Ekubiat and Ime (2016) investigated the adoption of treasury single account by state government of Nigeria. The population for the study consisted of 200 Professional Accountants in Akwa Ibom State. Taro Yamane's statistical formula was used to select sample size of 133. Purposive sampling technique was used to select the 133 respondents/samples. The data obtained from questionnaire administration were analyzed using descriptive statistics and t-test statistics. The finding revealed that, TSA adoption and full implementation by the state governments will be of greatest benefit as showed in the weighted means scores of 4.20 and tcal of 24.87; there will be challenges in a short-run but the benefits at a long-run will definitely out-weight the challenges. It was concluded in this study that, State Governments of Nigeria should adopt and fully implement TSA for successful control and accountability of public funds so as to avoid bailout funds always from any source.

Ajala Adesanya and Oyewale (2017) examined the nature, origin and challenges of the treasury single account in Nigeria public financial management. The study noted that with introduction of the TSA, government expects to block all loopholes and leakages of financial resources and also ensure a robust financial management system. TSA will also help to ensure proper cash management by eliminating idle funds usually left with different deposit money banks and in a way enhance reconciliation of revenue collection and payment. Recommendation was made among others that government should ensure that TSA does not create unnecessary bottleneck and clog in the wheel of progress of the concerned ministries and the nation at large.

Ofor, Omaliko and Okoli (2017) studied the effect of treasury single account on the performance of ministries, departments and agencies in Nigeria. The study relied basically on primary data which was obtained through questionnaire designed and administered to 75 respondents drawn from the federal government ministries, departments, agencies and parastatals (MDA) within Anambra

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metropolis in the eastern part of Nigeria. Analysis was based on the Wilcoxon sign test. it was revealed base on the analysis conducted that the institutionalization of TSA has significantly affected and improved the performance of federal government MDAs at 5% level of significance which goes further to confirm that treasury single account is capable of blocking financial loopholes in revenue generation and promoting transparency and accountability. It was concluded that since the adoption of treasury single account has significantly improved the performance of federal government ministries, departments and agencies in Nigeria, government should enforce the adoption of TSA and ensure that it is mandatory for all MDAs and parastatals in the country.

Oti, Igbeng and Obim. (2016) focused on the appraisal of policy impact of treasury single account in Nigeria. The study made use of primary data through the use of questionnaire which were administered to gathered views of individuals and institutions. Data were equally gathered and analyzed using survey and exploratory research design. The study concluded by drawing attention to the shock being experienced by the deposit money banks, which has led to downsizing of its personnel, and adopting other cost minimization measures. The adverse effects on lending capacity with resultant effect on operations of the banks and companies which would ultimately result in lower profits and companies' income tax to the federal government gave the basis for recommending adequate education to elicit buy-in of all stakeholders and building into the policy a transitional window.

Olurankinse Ajidagba and Olaniyi (2010) examined the effect of adoption of treasury single account on tertiary institutions finances in Nigeria. The study use survey research design and data were collected from primary source through the administration of questionnaire to respondents. Data collected were analyzed using descriptive statistics and kolmogorow smirnov non parametric statistic tool. The findings reveal that adoption of TSA impact negatively on human capital development, and also place some challenges on the smooth running of tertiary institutions mostly in the area of project implementation, Budget implementation and payment of conference or workshop allowance to attendee. The study concluded that TSA adoption inhibits the development of tertiary institutions in Nigeria.

Akinleye, Fajuyagbe and Owoniya (2018) examined treasury single account, as a nudge towards public sector accountability in Nigeria. Specifically, the study analyzed the influence of adoption of treasury single account on the effectiveness of cash management, reduction of fraudulent activities and improvement in the level of accountability in the Nigerian public sector. The study made use of primary

data collected through the use of a questionnaire, based on a sample of 400 respondents randomly selected from government parastatals, departments, institutions and ministries, across the six southwest states in Nigeria. Data collected were analyzed with frequency and percentage response analysis. Findings of the analysis showed that the adoption of treasury single account provoked effective management of cash, sustained a considerable reduction in the level of fraudulent activities and aided improved level of accountability in the Nigerian public sector. Thus, there is no doubt that treasury single account is a nudge towards public sector accountability in Nigeria.

Olaoye and Adebowale (2017) evaluated the effectiveness of the policy of treasury single account in federal institutions in Nigeria. The study made use on survey research design of the cross sectional type, evaluating treasury single account in the context of selected federal institutions in Ekiti state. Purposive sampling technique were used to select federal institutions including Federal University of Technology Akure (FUTA), Federal Polytechnic Ado Ekiti, Federal University Oye, and Federal Medical Centre, Ido, while random sampling was used to select representatives from each of the institution 30 respondents were sampled from each of the institutions with focus on staffs working out of Audit and Bursary Departments, thus making a total number of 120 respondents sampled for the study. Data were collected using self-structured questionnaire and responses were analyzed using frequency count and percentage analysis. Result showed that implementation of treasury single account is considerably effective among federal institutions, fostering better financial management, accountability and transparency, elimination of operational inefficiencies and consistency over time.

Nwaorgu, Ezenwaka and Onuorah (2017) assessed treasury single account and public sector accountability in Nigeria. Basically, the study analyzed the effect of treasury single account on the performance of public sectors in Nigeria. the study employed primary data collected from 250 respondents in account department of federal government health institutions. The study analyzed data using regression analysis. The study discovered that regular monitoring of government cash balances affect accountability in the public sector to a great extent while unexpected fiscal volatility affect accountability in the public sector to a moderate extent. Therefore, the study concluded that government treasury single account affects accountability of public sectors.

Inienger, Orban and Emem (2018) examined treasury single account and the performance of the Federal Ministry of Education, Abuja. The study specifically

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analyzed the impact Treasury Single Account (TSA) and the performance of the Federal Ministry of Education, Abuja. The study employed data primary data collected through questionnaire. The study analyzed data using simple percentages and frequencies. He study showed that Treasury Single Account has improved expenditure management in the federal Ministry of Education, Abuja. The study also revealed the challenges affecting the implementation of Treasury Single Account (TSA) in the ministry to include: inadequate guidelines on the implementation procedure, no provision for the ministry to maintain impress among others. Therefore, the study concluded that Treasury Single Account (TSA) is a good policy aimed at improving funds available to government.

Igbekoyi, and Agbaje (2017) assessed the implication of treasury single account adoption on public sector accountability and transparency. The study specifically examined the effect of Treasury Single Account on financial leakages in revenue collection, transparency and financial misappropriation in Nigeria. The study employed primary data collected through questionnaire from 100 respondents in 10MDAs in Ondo state. The study analyzed data using ANOVA and regression analysis. The study revealed that TSA significant positive impact on financial leakages, transparency and curb financial misappropriation.

Ajibade, Oyedokun and Doumu (2018) assessed treasury single account and public fund management. Specifically, the study examined the impact of Treasury Single Account on leakages, Accountability and Transparency of public funds. The study employed primary data collected from 121 respondents. The study analyzed data using regression analysis. The study found that TSA has significant effect on leakages, Accountability and Transparency of public funds. Therefore, the study concluded that Treasury Single Account expectedly improve accountability and transparency and as well reduce leakages in the financial system.

3.0 Research Method

This study made use of primary data sourced from 300 randomly selected respondents from government parastatals, agencies and ministries across six southwest states in Nigeria. The study made use of structured questionnaire designed in two sections, which captures respondent's details, and responses to questions related to the effect of treasury single account (TSA) adoption on effective budget execution, level of accountability, and efficient cash management in Nigeria public sector in selected parastatals, agencies and ministries. Data collected for the study were analyzed with the use of percentage and frequency

count and ANOVA regression analysis. Model used in this study represents an adaptation of the model used by Agbo, Jugu and Okwoli (2017) to investigate the effects of treasury single account on performance and survival of deposit money banks in Nigeria, where performance measured in terms of return on asset (ROA) and net interest margin (NIM) was specified as a function of adoption of treasury single account (TSA). Thus model for this study is specified in compacted functional and linear forms below representing three models:

$$PSP=f(TSAA)$$

$$PSP = \alpha_0 + \alpha_1 TSAA + \varepsilon_t \text{ --- (1)}$$

Where: PSP represent public sector performance measured in terms of public sector budget execution (PBE), public sector accountability (PAC) and public sector cash management (PCM), while TSAA represents Treasury Single Account Adoption.

4.0 Results and Discussion

Analysis of treasury single account and effective budget execution in Nigeria Public

Frequency and percentage analysis presented in table 1 showed response to questions raise in the study in the quest to ascertain the effect of treasury single account adoption on budget execution in Nigeria public sector. As reported in the table about 78.7% of the respondents are of the opinion that adoption of treasury single account has significantly improved operational control during budget execution in Nigeria public sector as against only 17% of the respondents that submitted to the contrary. Also 77.3% of the respondents sampled in the study affirmed that adoption of treasury single account position Nigeria public sector for better budget implementation performance while only 11.3% of the respondents argued otherwise. About 79.3%, 74%, 65.4%, of sampled respondents affirmed respectively that adoption of Treasury Single Account (TSA) has significantly reduce misappropriation and diversion of public funds during budget execution; adoption of Treasury Single Account (TSA) has substantially reduce the liquidity reserve need for efficient budget implementation in Nigeria publics sector; and adoption of Treasury Single Account (TSA) has significantly reduce transaction cost during project execution in Nigeria public sector, while only 11.3% 12.7% and 14.4% disagreed respectively. Overview of responses presented in table 1 showed

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that without controversy adoption of treasury single account has notable effect on the level of budget execution in Nigeria public sector. The observed effect of treasury single account adoption on budget execution is further substantiated with the ANOVA regression result presented in table 2.

Table 1. Response Analysis

S/N	ITEMS	SA	A	UD	D	SD
1	Adoption of Treasury Single Account (TSA) has significantly improved operational control during budget execution in Nigeria public sector	134(44.7%)	102(34.0%)	13(4.3%)	38(12.7%)	13(4.3%)
2	Adoption of Treasury Single Account (TSA) position Nigeria public sector for better budget implementation performance	111(37.0%)	121(40.3%)	34(11.3%)	19(6.3%)	15(5.0%)
3	Adoption of Treasury Single Account (TSA) has significantly reduce misappropriation and diversion of public funds during budget execution	115(38.3%)	123(41.0%)	28(9.3%)	24(8.0%)	10(3.3%)
4	Adoption of Treasury Single Account (TSA) has substantially reduce the liquidity reserve need for efficient budget implementation in Nigeria publics sector	92(30.7%)	130(43.3%)	40(13.3%)	23(7.7%)	15(5.0%)
5	Adoption of Treasury Single Account (TSA) has significantly reduce transaction cost during project execution in Nigeria public sector	74(24.7%)	122(40.7%)	61(20.3%)	29(9.7%)	14(4.7%)

Source: Field Survey (2020)

Table 2. Regression Analysis

ANOVA REGRESSION RESULT

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	12.366	9.067		1.364	0.186
TSA ADOPTION	0.794	0.120	0.810	6.635	0.000

R-square=0.657; F-stat= 44.026; prob(f-stat)=0.000; DW: 2.510; Dependent Variable: PUBLIC BUDGET EXECUTION

Estimation result presented in table 2 revealed that TSA adoption exert significant positive effect of budget execution with reported coefficient estimate of 0.794 ($p < 0.05$), which connote that budget execution in Nigeria public sector tends to improve following the adoption of treasury single account. Reported R-square statistics stood at 0.657 which implies that about 65.7% of the systematic variation in budget execution can be explained by adoption of treasury single account.

Analysis of treasury single account and accountability in the Nigeria public sector

Frequency and percentage analysis presented in table 3 showed response to questions raise in the study in the quest to ascertain the effect of treasury single account adoption on the level of accountability in Nigerian public sector. As reported in the table about 72.3% of the respondents agreed that Treasury Single Account (TSA) is a potent tool for reducing excessive spending in Nigeria public sector, while only 14% of the respondent disagreed. In the same vein, 68% of the respondents affirmed that Introduction of Treasury Single Account (TSA) has significantly help in checking institutional leakages in Nigerian public sector as against the 9.2% that argued otherwise. Notably also about 56%, 62%, 73%, of sampled respondents affirmed respectively that adoption of Treasury Single Account (TSA) contribute significantly to smooth accounting practices in Nigeria public sector; adoption of treasury Single Account (TSA) has hither-to foster resourceful utilization of government fund; the level of accountability and

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transparency had significantly increased in Nigeria public sector since the adoption of Treasury Single Account (TSA), while only 20.3% 16% and 15% disagreed respectively. Overview of the responses presented in table 3 revealed without mincing words that adoption of treasury single account has substantial effect on the level accountability in Nigeria public. Estimation result presented in table 4 also corroborated the overviewed responses on the effect of treasury single account adoption on the level of accountability.

Table 3. Response Analysis

S/N	ITEMS	SA	A	UD	D	SD
1	Treasury Single Account (TSA) is a potent tool for reducing excessive spending in Nigeria public sector	96(32.0%)	121(40.3%)	41(13.7%)	25(8.3%)	17(5.7%)
2	Introduction of Treasury Single Account (TSA) has significantly help in checking institutional leakages in Nigerian public sector	83(27.7%)	121(40.3%)	67(22.3%)	23(7.7%)	6(2.0%)
3	Adoption of Treasury Single Account (TSA) contribute significantly to smooth accounting practices in Nigeria public sector	71(23.7%)	97(32.3%)	71(23.7%)	49(16.3%)	12(4.0%)
4	Adoption of treasury Single Account(TSA) has hither-to foster resourceful utilization of government fund	78(26.0%)	108(36.0%)	66(22.0%)	42(14.0%)	6(2.0%)
5	The level of accountability and transparency had significantly increased in Nigeria public sector since the adoption of Treasury Single Account (TSA)	60(20.0%)	159(53.0%)	36(12.0%)	18(6.0%)	27(9.0%)

Source: Field Survey (2020)

Table 4. Regression Analysis

ANOVA REGRESSION RESULT

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.000	9.386		1.598	0.124
	TSA ADOPTION	0.750	0.124	0.784	6.055	0.000

R-square=0.615; *F-stat*= 36.669; *prob(f-stat)*=0.000; *DW*: 2.026. Dependent Variable: PUBLIC SECTOR ACCOUNTABILITY

Estimation result presented in table 4 revealed that TSA adoption exert significant positive effect on the level of accountability in Nigeria public sector with reported coefficient estimate of 0.750 ($p < 0.05$), which connote that the level of accountability in Nigeria public sector improved significantly following the adoption of treasury single account. Reported R-square statistics stood at 0.615 which implies that about 61.5% of the systematic variation in public sector accountability can be explained by adoption of treasury single account.

Analysis of treasury single account and cash management in Nigeria public sector

Analysis presented in table 5 showed response to questions raise in the study to track the effect of treasury single account adoption on cash management in Nigeria public sector. As reported in the table about 90.7% of the respondents affirmed that Treasury Single Account (TSA) is an effective strategy for sustaining efficient cash management in Nigeria public sector, as against only 6.3% of the respondents that submitted to the contrary. About 84% of the respondents sampled in the study also agreed that Treasury Single Account (TSA) is useful for reducing cash management competition in Nigeria Public sector, while 8% declined such a claim. In addition about 85.4%, 69.7%, 63.4%, of sampled respondents affirmed respectively that receipt and disbursement of government resources has been effective since the adoption of Treasury Single Account (TSA); there is high level of efficiency in fund mobilization in public sector since the adoption of Treasury Single Account (TSA); adoption of Treasury Single Account (TSA) has significantly reduce bank's fees and transaction cost in Nigeria public sector. While

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only 12.3% 12.6% and 16.6% disagreed respectively. Overview of the responses as presented in table 5 showed that without controversy adoption of treasury single account has notable effect on the quality of cash management in Nigerian public sector. To substantiate the observed responses the study also presented regression estimation result of the effect of TSA adoption on public sector cash management in table 6.

Table 5. Response Analysis

S/N	ITEMS	SA	A	UD	D	SD
1	Treasury Single Account (TSA) is an effective strategy for sustaining efficient cash management in Nigeria public sector	159(53.0%)	113(37.7%)	9(3.0%)	7(2.3%)	12(4.0%)
2	Treasury Single Account (TSA) is useful for reducing cash management competition in Nigeria Public sector	113(37.7%)	139(46.3%)	24(8.0%)	17(5.7%)	7(2.3%)
3	Receipt and disbursement of government resources has been effective since the adoption of Treasury Single Account (TSA)	119(39.7%)	137(45.7%)	7(2.3%)	31(10.3%)	6(2.0%)
4	There is high level of efficiency in fund mobilization in public sector since the adoption of Treasury Single Account (TSA)	72(24.0%)	137(45.7%)	53(17.7%)	25(8.3%)	13(4.3%)
5	Adoption of Treasury Single Account (TSA) has significantly reduce bank's fees and transaction cost in Nigeria public sector	79(23.7%)	119(39.7%)	60(20.0%)	37(12.3%)	13(4.3%)

Estimation result presented in table 6 revealed that TSA adoption exert significant positive effect of public sector cash management with reported coefficient estimate of 0.960 ($p < 0.05$), which connote that cash management in

Nigeria public sector has improved in quality as a result of the adoption of treasury single account. Reported R-square statistics stood at 0.603 which implies that about 60.3% of the systematic variation in the quality of cash management in Nigeria public sector can be explained by adoption of treasury single account.

Table 6. Regression Analysis

ANOVA REGRESSION RESULT

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.419	12.313		0.196	0.846
TSA ADOPTION	0.960	0.162	0.776	5.906	0.000

R-square=0.603; F-stat= 34.883; prob(f-stat)=0.000; DW: 2.190; Dependent Variable: PUBLIC SECTOR CASH MANAGEMENT

Discussion

This study revealed that adoption of treasury single account (TSA) has over time improved operational control during budget execution, and it has also positioned public sector for better budget performance, with reduce level of misappropriation and diversion of public funds, as well as reduced liquidity reserve need for efficient budget implementation. In clear terms performance of Nigeria public sector has be significantly and positively affected by the adoption of treasury single account. This study also reflect that treasury single account is no doubt a potent tool for reducing excessive spending, checking of institutional leakages, and also stimulate smooth accounting practices that needed to sustain improved level of accountability and transparency through resourceful utilization of funds across the public sector. In essence adoption of treasury single account has engendered improved level of accountability in Nigeria public sector. In addition this established that treasury single account has been effective in sustaining efficient cash management, fund mobilization, receipt and disbursement of resources in Nigeria public sector over time. Thus its overall impact on cash management cannot be undermined. In a nutshell adoption of treasury single account has contributed positively to improved performance in Nigeria public sector. Discoveries made in this study resonate with the findings and submissions

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of previous studies including Ajibade, Oyedokun and Doumu (2018); Igbekoyi, and Agbaje (2017); Inienger, Orban and Emem (2018); Nwaorgu, Ezenwaka and Onuorah (2017); Akinleye, Fajuyagbe and Owoniya (2018); As established by Ajibade, Oyedokun and Doumu (2018), Treasury Single Account over time improve accountability and transparency and as well reduce leakages of public fund. Study by Igbekoyi, and Agbaje (2017) revealed that TSA significant positive impact on financial leakages, transparency and curb financial misappropriation. Inienger, Orban and Emem (2018) also found that Treasury Single Account (TSA) is a good policy aimed at improving funds available to government. Nwaorgu, Ezenwaka and Onuorah (2017) established that treasury single account significantly affect the level of accountability of public sectors. In addition Akinleye, Fajuyagbe and Owoniya (2018) submitted that there is no doubt that treasury single account is a nudge towards public sector accountability in Nigeria.

5.0 Conclusion and Recommendation

Premise on series of analyses conducted in this study established that adoption of treasury single account significantly influence performance of Nigeria public sector in terms of budget execution, level of accountability, and cash management. As such this study concluded that treasury single account has substantial positive impact of performance of public sector in Nigeria. Hence this study recommends that there is need for government to strengthen guidelines for the full implementation of the policy so as to ensure long terms sustenance of the policy across the country. in addition there is need for government to engage in objective public enlightenment about the importance of the policy. Government should overhaul the capacity of the Federal Ministry of Finance and the CBN to cope with challenges associated with enforcement of the provisions of the TSA so as to further harness the benefit of centralize control of funds across the country.

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THE RELATIONSHIP BETWEEN AUDITORS' INDEPENDENCE AND AUDIT REPORT QUALITY IN LISTED NIGERIAN DEPOSIT MONEY BANKS IN WEST AFRICA

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Abstract

This study focused on the relationship between auditors' independence and quality of audit report. To investigate this objective a survey research design was adopted to gather data from the respondents through the distribution of questionnaires to 120 respondents comprised of 12 auditors and 108 senior staff of the 12 randomly selected Deposit Money Banks (DMBs) in Nigeria. In addition, 120 copies of questionnaires were distributed to the respondents from which only 118 questionnaires were returned and used for the study. Both descriptive and inferential statistics of logit regression was adopted for the study. The result obtained from the regression analysis showed that there was a significant positive relationship between auditor independence and quality of audit report. This assertion was premised on the fact that the p-value of the LR-statistics computed for the test of 0.0000 was less than the critical value of 5%. It was concluded that auditor independence and quality of auditor report were sufficiently related. It was recommended that auditors should not interfering with the affair of its client in order not to erode its independence.

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Keywords: *auditors; auditors independence; statutory audit; quality of audit report.*

JEL Classification: M41, M42

1. Background to the Study

This study is designed to examine independence of auditors and quality of audit report in listed Nigerian Deposit Money Banks. As an institution grows, there is high probability that inconsistent data if not properly managed will be made available to the various decision makers because they do not involve and adopt the independent auditors in their financial activities that will ensure good corporate governance so as to alleviate the problems.

Auditors report could be likened to internal control system by which an organization's resources are directed, monitored, and measured. It plays an important role in detecting and preventing of fraud and protecting the organization's resources, both physical (e.g. machinery and property) and intangible (e.g., reputation or intellectual property such as trademarks). Tirole (2018), Observed that in recent times, the financial manipulations, weak internal control systems, ignorance on the part of the board of directors and audit committee, manipulation on the part of the reporting auditor and other fraudulent activities that occur within companies, creating a negative goodwill to the general public.

Between the years 2005- 2012, The Central Bank of Nigeria (CBN) investigated banks on possible reasons for the collapse of some banks in the country. It was discovered that deposit money banks failed to adhere strictly to corporate governance policy on granting of loans to customers. The investigation revealed that loans were granted to customers without collateral securities and this led to financial problems in some of the deposit money banks in Nigeria. The investigation further revealed that the auditors of these banks might have been influenced by their management to give out clean bill to them in such a way to window dress. (Jensen 2016). This also led to the removal of Chief Executive Officers of some of these banks and followed by merger and acquisition of some of these banks. This took place to stabilize the deposit money banks in Nigeria and as well to save the banking sector and the depositor's money banks (NDIC Report, 2015). In particular, it must be mentioned here that regulators have often expressed their concern that the length of the auditor-client relationship could impair auditor independence and thus audit quality Adeyemo & Okpala, 2017).

Audit fees are expected to be a sign of current and future performance (Stanley, 2017). Most studies in Nigeria focus on a single characteristic, such as audit quality (Farouk & Hassan, 2014) and measure its effect on financial performance. Others, such as Enofe, Mgbame, Efayena and Edegware (2016) examined the link between audit quality and auditor independence, auditor experience and auditor accountability. Olagunju (2017) studied the relationship between Corporate Governance and Audit Quality.

The researcher examined at the issue of quality of audit report in Nigerian deposit money banks with respect to independence of auditors. In view of the fact that not much research work has been carried out or conducted on this study in Nigeria and more so, that the few available studies appear very contradictory to one another. This development has necessitated the need for this study and variables such as professional experience, audit fees which were not earlier considered by previous studies have now been accommodates. On this basis, the objective of this study is to evaluate the relationship between auditors' independence and audit report quality in listed Nigerian deposit money banks. In order to empirically investigate this objective, the paper is divided into five section which includes; background to the study, literature review, methodology, results and discussion and conclusion and recommendation.

2. Literature Review

The review of literature for the study is carried out under three sub-headings of conceptual, theoretical and empirical reviews of literature.

Conceptual Review

The meaning attached to words are very essential in understanding what the words denote in relation to a particular scenario. Thus, this section concentrates on the meaning of words and concepts relating to auditors independence and quality of audit report.

Auditor Independence

Auditors independence refers to the auditors' ability to maintain an objective and impartial mental attitude throughout the audit (Sridharan, 2017) as cited by Olagunju (2016). To maintain the highest ethical standard for the auditing profession, independence should be tailored towards the quality of being free from influence, persuasion or bias (Myers, 2013). In the absence of independence, the value of audit

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services will be greatly impaired. Auditor's independence is recognized as the cornerstone of the public accounting profession and that it is privileged to govern itself. Financial information users, stakeholders and the society at large grant power and privilege to the Accounting profession. So, auditors are expected to perform their duties for the public benefit in exchange for exclusive professional privilege. The purpose of independence of auditors on audit report is to enhance its credibility by providing written reasonable assurance from an independent source that will show a true and fair view in accordance with an accounting standard

Types of Independence.

There are three main ways an auditor's independence can manifest itself. These are programming independence, investigative independence and reporting independence (Olagunju, 2017).

Programming independence essentially protects the auditor's ability to select the most appropriate strategy when conducting an audit. Auditors must be free to approach a piece of work in whatever manner they consider best. In addition, the auditing profession is a dynamic one, with new techniques constantly being developed and upgraded which the auditor must decide to use. The strategic methods, which the auditors intend to implement, cannot be inhibited in any way.

Investigative independence protects the auditor's ability to implement the strategies in whatever manner they consider necessary.

Basically, auditors must have unlimited access to all company's financial information concerning their assets and liabilities. Company must answer any queries regarding a company's business and accounting treatment. The collection of audit evidence is an essential process, and cannot be restricted in any way by the client's company. Reporting independence protects the auditors' ability to choose to reveal to the public any information they believe should be disclosed. If company directors have been misleading shareholders by falsifying accounting information, they will strive to prevent the auditors from reporting this. It is in situations like this auditors independence is most likely to be compromised (Chijioke, Emmanuel & Noshikare, 2016).

Real independence and Perceived Independence

There are two important aspects to independence which must be distinguished from each other: independence in fact known as real independence and independence in appearance known as perceived independence. Both forms are

essential to achieve the goals of independence. Real independence refers to the actual independence of the auditor, that could be referred to as independence of mind. Real independence is concerned with the state of mind the auditor is and how the auditors deal with a specific situation. An auditor who is independent in the nature of his engagements, has the ability to form an opinion which will have reflections on his report even if he is placed on a compromising condition by the organization directors. Likewise, an auditor's objectivity must be beyond question and this can be guaranteed by perceived independence which is very important. (Kyriakou & Beck, 2014).

Quality of Auditors report

Quality of Auditors report could be explained to be the probability that an auditor will both discover and truthfully report material errors, misrepresentation, or omissions in the client's material financial statement. It could also be seen as the probability that an auditor will not issue an unqualified report for statements containing material errors (Fama, Henson & Sharks., 2014), the accuracy of auditor's information reporting (Davidson & Neu, 2013), and measurement of the audit's ability to reduce noise and basin order to improve on accounting data (Doputch, 2014).

The audit service is the provision of independent verification of the credibility of financial statements to users. In order to ensure that the audit enhances the credibility of financial statements, it must be of a sufficient audit quality (Geiger, Gasissmaier, & Gigerenzer 2013) and, in turn, audit credibility (Lia, 2017). Financial statement users will change assessments of audit report quality based on new publicly available information about an auditor (Dopuch & Simunic, 2016). New information, such as audit independence as auditor's ethical behaviour, lower perceived auditor independence, may be lower perceived financial statement reliability and, thus, the perceived quality of audit services provided (Tirole, 2015).

In other words, high-quality auditors give greater credibility and better quality to financial statements than low-quality auditors (Umar, 2015). The higher audit quality generates the higher the information credibility and information quality that has impact on the higher quality of financial statements (Venkataraman, 2015).

In accounting context, higher audit fees are reflected by higher costs that have to infer that these higher costs result in greater audit quality. Hence, the auditor should have a higher reputation as a result (Myers, 2014). The link of the relationship between the reputation and the audit quality is provided by economic theorists such as Lan and Leffler (2015) and Shapiro (2002). The essence of their

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arguments is that individual has an economic incentive to incur above average costs in order to produce a service. Many have advocated that in order for an auditor to remain independent, they should not be allowed to provide audit clients with any other advisory services. Both auditors and their clients have argued that the knowledge acquired during the audit process allows other services to be provided less expensive. The motion to form audit committee was first made in the Cadbury report in 1992. A group of three to five non-executive directors from within the company are chosen to provide what is supposed to be an objective view on all aspects of the audit from the evaluation of internal control systems to recommendations on audit fee.

Through the Cadbury report this practice has been implemented and many are still not convinced of the neutrality of non-executive directors Peer review or assessment. This is a new audit approach and it is not common in Nigeria. It involves a review of an audit firm system, procedures and strategies by another audit firm of comparable size reputation and standard. This is a requirement in the US that must be satisfied once in every three years. This is implemented to ensure that external audits are carried out with the utmost professionalism and independence at all times. Such a system has not been accepted by UK auditors. However, it is expected that many large firms are already rotating external auditors: it is widely believed that rotation of an audit firm will improve auditor's independence. Auditors will have no incentive to work together with their clients if the contract is due to expire in the foreseeable future. (Aderibigbe , 2016). Auditors will likely forge relationships with Directors and Staff that will bring less concern about upsetting them through an unfavorable audit report. In rotating an auditor, the auditor will try to prepare his account properly in order to produce audit report so as to avoid any shortcomings from the incoming or the new audit team (Cadbury, 2013).

Relationship between independence of auditors' and auditor's report

The relationships that exist between independence of auditor and quality of audit report must not be over emphasized in an organization especially in deposit money banks where auditor's disciplines are created. Independence of auditors plays a great role in virtually all institutions. If there is no independence, there is no auditor and there is no deposit money bank. It should be of note that, if there is no deposit money banks there is no economy as well (Fredrick, 2015).

The relationship of auditor independence and quality of an audit report also depends simultaneously on several audit firm features such as auditor's specialty,

audit report lag, auditor's tenure, audit firm size, audit fee, auditor's enterprise, audit company type (Ng & Tai, 2014; Abedalgader Ibrahim & Baker, 2015). These features are peculiar to a particular audit firm, and can be jointly referred to as the audit firm features/characteristics that have potentially varying effects on the firm. For instance, audit report lag leads the existing shareholders and potential shareholders to postpone their transaction on shares (Ng and Tai, 2014, cited in Apadore and Noor, 2013). Auditors have a potentially privileged position to forecast the client's economic condition (Louise, 2015). Lastly, independence is one of the greatest auditor's virtues which guides in expressing opinion on financial statement.

Theoretical Review

This section presents theoretical review on inspired confidence theory, Agency theory, Leading credibility theory, Information Asymmetry theory, Liability management theory and the Policeman theory.

Theory of Inspired Confidence

This theory was propounded by Hapsari (1920). It details on the expected social responsibility of the independent auditors and the possible methods for ensuring that the engagement must meet the society needs. It specified auditor's role and their expected performance to restore the financial lost glory in the investors in public quoted companies. Knechel, (2013) researched on the work of Limperg (1879) of the University of Amsterdam. In the research, it was observed that the loss of confidence by the society on audits will reflects the non-social usefulness and acceptability of such. Their research made them realize that Limperg's principle in his theory is specifically relevant in the phase of audit function development.

According to the Limperg's *theory*, "the demand for audit services is the direct consequence of the participation of outside stakeholders and majorly the financial information users in the economy". Therefore, since the information given to the stakeholders by the management might be biased, an audit of this information is needed in order to give an informed decision to the investors. Auditor responsibility is described as the confidential function rooted in the society interests in the effectiveness of the audit and in the opinion formed by the accountants. This reliability of audit report by the stakeholders is the function' of the confidence reposed on the auditors. If the confidence is betrayed, the function too is jeopardized and becomes irrelevant (Sarbanes, 2013)

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Liability Management Theory

The theory was produced advance in the 1960s by Deposit Money Banks. It states that, there is no need for banks loan self-liquidating and maintaining liquid assets as they can borrow reserve money in the money market whenever necessary, advocates that a bank can meet its liquidity requirement by bidding the market for additional funds. In other words, they can borrow money from the market to meet their needs instead of granting self-liquidating loans (Stanley, 2010).

The Policeman Theory

The policeman theory claims that the auditor is responsible for searching, discovering and preventing fraud. However, more recently the main focus of auditor has been to provide reasonable assurance and verify the truth and fairness of the financial statement. (Umar 2007).

Empirical Review

Enofe, (2013) reported that auditors comment on financial statement must give an unbiased and impartial view of the company's financial activities in order to be useful to the users. The reality facing the stakeholders of financial reporting is that corporate financial reporting failure have been on the increase (Adeyemi, 2016). Empirical study on corporate governance and audit independence through empirical evidence of Iranian Bankers. He examined the several factors that affect audit independence in Iran. His result showed that there is a huge difference between auditors and bankers on audit independence. He came to the conclusion that for solving problem a well-established corporate governance can improve audit independence. In his conclusion, he posited that auditor should not be advocates for their clients and management also should not influence the audit fees and the scope of the audit. He believed that corporate governance in Iran shall increase auditor's independence with its effectiveness to be borne out of proactive institutional framework in Iranian soil. In the researcher's opinion, independence should be a state of the mind which indicates that auditors should remain independent on the forming of his opinion in irrespective of any kind of influence.

Fatah, (2018) carried out Lia (2017) on the effect of competence, independence and professional auditors on audit quality, it was discovered that competent auditors in carrying out the audit have a positive and significant impact on audit, the independence of the auditor in conducting the audit has a positive and significant impact on the quality of audit and that auditor professionalism in conducting audit

has a positive and significant impact on audit quality. This present study is a bit different because of the usage of different variables such as audit fees, Professional Experience and compliance with statutory provision in relation to audit quality.

Omole and Oyewole (2017) examined critical evaluation of impacts of auditors independence and quality of audit in Nigeria. The tests revealed that independence of audit committee is most significance in affecting audit quality in Nigeria. It does not however find audit firm rotation to be a significant factor for enhancing audit quality in Nigeria. It was recommended in the study that efforts should be made to strengthen audit quality if the quality of financial reporting was to be improved and regulatory authorities should ensure that the same firm do not render audit services and offer management advisory services in the same company simultaneously.

Babatolu, (2018), examined auditors independence and audit quality, a study of selected deposit money banks in Nigeria. Their tests revealed that the need to ensure reliable and high quality audit work, it must be ensured that auditors must not be too familiar with their clients in order not to jeopardise their integrity and in return impair their independent opinion. Their study also revealed that there is a positive relationship between audit fee, audit firm rotation and audit quality. It therefore recommended that Auditor's independence should be strengthened by taking different measures to address the issue which could create threats for auditors. The researchers failed to proxy other variables like compliance with statutory provisions and Professional Experience of auditors to actually juxtapose their findings.

Fatah, (2018) carried out Lia (2017) on the effect of competence, independence and professional auditors on audit quality, it was discovered that competent auditors in carrying out the audit have a positive and significant impact on audit, the independence of the auditor in conducting the audit has a positive and significant impact on the quality of audit and that auditor professionalism in conducting audit has a positive and significant impact on audit quality. This present study is a bit different because of the usage of different variables such as audit fees, Professional Experience and compliance with statutory provision in relation to audit quality.

3. Methodology

The research design used is descriptive survey design. The population of the study consists of 5,000 staff in 21 deposit money banks in Nigeria for the period under review between 2010- 2019. For this study, purposive sampling method was used. In using this technique, the researcher cover 12 selected deposit money banks. The banks are; Access Bank plc, Fidelity Bank plc, First City Monument

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Bank Ltd, First Bank of Nigeria Ltd, Guaranty Trust Bank Plc, Union Bank of Nigeria Plc, United Bank for Africa Plc, Eco Bank Plc, Stanbic IBTC Bank Plc, Key stone Bank Ltd, Wema Bank Plc and Zenith Bank Plc. The banks were chosen on the bases of their financial and deposit strength, sizes and capital in respect to the information disclosed in their annual reports. In addition, purposive sampling technique was used to 120 respondents for the study. These respondents comprised of the 12 external auditors for auditing the financial statement of the selected banks and 108 senior's staffs in the selected deposit money banks, the 108 senior staffs were made up of nine (9) most senior staff in each of the selected bank. Primary data was used for the study; a structured questionnaire was used as a tool for data collection. The questionnaire was structured in such a way that would help in decision on the objectives of the research, choosing the coverage of the study, enable the researcher's method of data collection to be used and it helped in the process, analysis and the interpretation of the data collected. The questionnaire used was subject to internal and external validity. The internal validity was done by a lecture in the Department of Accounting, Joseph Ayo Babalola University to check the instrument for consistency. Also, 30 drafts copies of the questionnaire were also taken to the field to confirm whether the questionnaire would measure what it was supposed to measure. After careful collection of the 30 copies of questionnaires distributed to the respondents, analyzing was done. The result of the Cronbach's coefficient alpha obtained was 0.8934. This showed that the instrument was externally valid. Both descriptive and inferential statistics tools were used for the study. In particular, the inferential statistics of logit regression was used to achieve the objective of the study. Meanwhile, from the 120 copies of questionnaires distributed to the respondents only one hundred and eighteen copies of questionnaires were returned and used for the study.

4. Results and Discussion

The result in table 1 presented the distribution of respondents on auditor independence. Looking at the result from the table, it might be asserted that auditor independence was very essential in quality of audit work. The implication of this was that without auditor being independent it might be difficult to obtain audit work that was above human intuition and feelings. Thus, it was reasonable to assert that auditor independence, professional experience of the auditors, auditor compliance with statutory guidelines and audit fees payable to auditors were important factors that influenced the quality of auditors work. This assertion was

based on the fact that the mean value computed for most of the test statement were quite better than the acceptable mean of 3.00 on a five point five likert scale.

Table 1. Distribution of respondents perception on Determinants of Quality of Audit Report

A	Auditors Independence	SA (%)	A (%)	UND (%)	D (%)	SD (%)	Mean	Std
1	The remuneration of auditor by his audit fees promote auditors independence	56 (47.46)	50 (42.37)	6 (5.09)	4 (3.39)	2 (1.69)	4.31	0.82
2	The understanding of Generally Accepted Auditing Standards (GAAS) and its application enhances auditors independence in Nigerian deposit Money banks.	67 (56.78)	35 (29.66)	8 (6.78)	5 (4.24)	3 (2.54)	4.34	0.95
B	Professional Experience							
1	An auditor that is exposed professionally is bound to be more independent	40 (33.90)	50 (42.37)	12 (10.17)	10 (8.47)	6 (5.09)	3.92	1.09
2	Professional Experience of auditors increases their confidence	24 (20.34)	77 (65.25)	8 (6.78)	5 (4.24)	4 (3.39)	3.94	0.91
C	Auditor compliance with statutory provision							
	Compliance with the statutory provisions and code of ethics of accounting profession enhance audit quality of Nigerian Deposit Money Banks.	34 (28.81)	59 (50.00)	12 (10.17)	8 (6.78)	5 (4.24)	3.92	
	Non-compliance with operational audit procedure reduces the quality of auditors opinion	67 (56.78)	31 (26.27)	12 (10.17)	5 (4.24)	3 (2.54)	4.31	
D	Audit fees							
1	Audit fees is associated with auditors independence	55 (46.61)	45 (38.14)	10 (8.47)	5 (4.24)	3 (2.54)	4.22	0.95
2	Audit fees is mostly determined in relation to audit risk	65 (55.08)	35 (29.66)	8 (6.78)	4 (3.39)	6 (5.08)	4.26	1.08

Source: Researcher's Field work, 2021

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Distribution of respondents on the Quality of Audit Report

Quality of auditor works depended on certain factors among which is independence of auditor. Thus, the desire of the auditors to produce qualitative audit report would depend on the amount of independence the audit firm was able to enjoy. Table 2 presented the distribution of respondents' perception on the quality of audit work.

Table 2. Distribution of respondents on the quality of audit work in DMBs in Nigeria

S.N	Variable	SA (%)	A (%)	UND (%)	D (%)	SD (%)	Mean	Std
1	Audit report quality is subject to the understanding of accounting standards and auditing standards e.g. IFRS, GAAP, and SAS.	60 (50.85)	43 (36.44)	8 (6.78)	4 (3.39)	3 (2.54)	4.30	0.91
2	Compliance with statutory provisions in the cause of auditing or audit works enhance audit quality	67 (56.78)	36 (30.51)	5 (4.24)	8 (6.78)	2 (1.69)	4.34	0.95
3	Audit report quality vary widely, depending on the skills and judgment of expertise of the particular auditor involved in Nigeria deposit money banks	56 (47.46)	45 (38.14)	7 (5.93)	6 (5.08)	4 (3.39)	4.21	1.00

Source: Researcher's Field work, 2021

Table 3 Regression Results computed for testing the relationship between auditor independence and quality of auditors report

Dependent Variable= Quality of Audit Report (QAR)

Variable	Coefficient	Standard Error	Z-calculated	P-value
C	-4.612195	3.209461	-1.437062	0.1507
AI	0.966535	0.220320	4.386946	0.0000
PE	2.014060	0.596963	3.373846	0.0007
AF	0.951463	0.142243	6.688997	0.0000
CSP	0.592586	0.181460	3.265656	0.0021
	OTHER	TEST	STATISTICS	
McFadden R-squared	0.986003		Mean dependent var	0.864407
S.D. dependent var	0.343816		S.E. of regression	0.294248
Akaike info criterion	78.651492		Sum squared resid	9.783747
Schwarz criterion	70.768894		Log likelihood	-33.43801
Hannan-Quinn criter.	67.699160		Deviance	66.87602
Restr. deviance	93.66428		Restr. log likelihood	-46.83214
LR statistic	26.78825		Avg. log likelihood	-0.283373
Prob(LR statistic)	0.000022			

Source: Researcher's Computation, 2020

Table 2 presented the distribution of respondent's perception on the quality of auditor report. From the table, it was found that the quality of auditors report in the selected deposit money banks had improved as a result of the amount of independence the auditors enjoyed. In addition, the desire of the management of the bank to state clear of the auditor works had enhanced the quality of the auditor report. Also, the understanding of the accounting standards and ability of the auditor to comply with regulations and rules guiding the audit of ADMBs financial statement had added seriously to the quality of the audit report. This inferred was

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premised on the fact that the mean values obtained for the test items for quality of auditor report were quite greater than the acceptable mean of 3.00 with standard deviations that showed slight dispersion from the mean.

Table 4.10 presents the results of the logit regression computed for achieving the broad objective of the study. From the table, it was found that the p-value of the Z-statistics compute for Auditors Independence (AI) OF 0.0000 was less than the critical value of 5%. This implied that the null hypothesis which stated that auditors' independence was not significant on the quality of audit report in Nigerian DMBs was rejected. It was reasonable to assert that auditors' independence was significant on the quality of audit report. The independence of auditors was very vital to the quality of the audit report. With appropriate level of independence for auditors, auditors would be able to carry out his/her jobs assiduously without hindrance. The gathering of evidence, verification and checking of financial records of clients companies by auditors' required the right independence. With appropriate latitude of freedom for auditors to do their works the quality of the auditor's report might be enhanced. Failure of organization to give auditors some levels of liberty to operate had been found by Omole and Adeniyi (2016) to negatively affect the quality of the auditor's report. Auditors were behooved as a rule not to interfering in his client companies' affair. They were implored to concentrate only on their audit assignment. This was important in order for auditors not to lose his/her independence. Auditors must not be engaged to carry out duties outside their audit assignment in order not to impede their independence. Auditors by virtue of their engagement were employed to check if the financial statement prepared by the management reflected accurately the true and faire position of the organization and not to do otherwise in order to continue to maintain their integrity for the betterment of the audit report. The regression coefficient obtained for this test variable of 0.97 was positive with significant Z-statistics value of 4.39. This showed that there was a positive and significant relationship between auditor independence and quality of audit report in the Nigerian DMBs. The further implied that a 1% increase in in auditor independence might lead to 0.97% improvement in the quality of the auditor's report. The sign of this variable was in line with a priori expectation for the variable and hence, auditors' independence could be a determinant of quality of audit report.

Moreover, it was discovered that the p-value of the Z-statistics computed for Professional Experience of 0.0007 was less than the critical value of 5%. This indicated that the null hypothesis which stated that Professional Experience of

auditors was not significant on auditor quality of audit report was rejected. It was reasonable to assert that Professional Experience of auditors was significant on the quality of the auditor's report. Auditors needed to be professionally exposed before they could carry out a meaningful audit. With the right Professional Experience through appropriate training, professional certification, attendance at conferences and seminars and continuous mandatory professional training, the quality of the audit report could be enhanced. The ability of auditors to express an independent opinion different from that of the management of his/her client company had been discovered by Omole (2016) to be a direct function of professional acumen of these auditors. Auditors work as posited by Adeniyi (2017) required accountants that were professionally qualified and exposed in the rudiment of the audit assignment. The regression coefficient obtained for this test variable of 2.01 was positive with significant Z-statistics value of 3.37. This revealed that there was a significant positive relationship between Professional Experience of auditors and quality of audit report and hence, a 1% increase in Professional Experience of auditors might lead to 2.01% improvement in the quality of the audit report. The sign of this variable was in tandem with a priori expectation and hence, Professional Experience of the auditors might be a determinant of quality of the audit report.

The result in table 4.10 was quite revealing, it was discovered that the p-value of the Z-statistics computed for Audit fees (AF) of 0.0000 was less than the critical value of 5%. This implied that the null hypothesis which stated that audit fees were not significant on the quality of the audit report was rejected. It was reasonable to infer that audit fees were significant on the quality of the audit report. The quality of the auditor report might depend in some cases on the audit fees charged by the auditors. Prompt payment of the required statutory audit fees to auditors by Client Company could enhance the quality of the audit report. In addition, the tendency of a bank to deprive the auditor the required statutory fees might erode the quality of the audit report. This was because no sane auditors would continue to work with a bank that refused to pay the agreed audit fees. Resultantly, the intention of a bank to overpay the audit fees for the purpose of compromising the auditor independence might be tempting particularly with the auditor did not have the required professional training and experience. The regression coefficient computed for this test item of 0.95 was positive and significant with significant Z-value of 6.69. The implication of this was that there was a positive relationship between audit fees and quality of audit report and hence, a 1% increase in prompt payment

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of statutory audit fees to the auditor by DMBs might lead to 0.95% improvement in the quality of audit report. This sign of this variable was in conformity with a priori expectation for the parameter and hence, audit fees might be a determinant of quality of audit report.

It was found that the p-value of the z- statistic s calculated for compliance with statutory provision (CSP) of 0.0021 was less than the critical value of 5%. This implied that compliance with statutory provisions enhanced the quality of audit report. The ability of the auditor to comply with necessary auditing and accounting standards during the course of his audit assignment might enhance the quality of the audit report. The quality of audit report depended to a large extent on the ability of the auditors to express his opinions on the basis of required standards and provisions. Failure of the auditors to comply with necessary provisions and auditing standards might make his opinion to be void. Auditor opinions were importance to an organization in many respects. Through audit opinion the shareholders of companies would be able to assess meaningfully the ability of the management to make return for their investment. In fact, through these opinions the prospective investors might be able to judge whether or not to invest in such a company. Therefore, these auditor opinions needed to be devoid of any subjective and personal feeling that had no bases in statutory audit provisions and hence, doing this by the auditors might improve the quality of the audit report. The regression coefficient computed for this test item of 0.59 was positive with significance Z-statistics of 3.27. The import of this was that there was a significant positive relationship between compliance with statutory provisions and quality of audit report. Therefore, a 1% unit increase in the ability of the auditor to comply with statutory provisions might lead to 0.59% improvement in the quality of the audit report. The sign of this variable conform to a priori expectation and hence, compliance with statutory provisions might be a determinant of quality of the audit report in the selected DMBs.

The results of the other statistics computed revealed that auditors' independence was necessary for quality of the audit report. For instance, the McFadden R^2 obtained for the test of 0.99% revealed that 99% of the quality of audit report might be caused by auditor independence. On this basis, auditors independence was a good predictor variable for quality of audit report. In addition, the p-value of the LR-statistics obtained for the test of 0.0000022 was less than the critical value of 5%. This indicated that the joint null hypothesis which stated that there was no significant relationship between auditor independence and audit report quality in

Nigerian Deposit Money Banks was rejected. It was saved to infer that there was a significant relationship between auditor independence and audit report quality in Nigerian Deposit Money Banks. Also, the results of the Akaike Information criterion, Schwarz criterion and Hannan-Quinn criterion obtained for this test showed that auditors' independence was a good explanatory variable for the quality of audit report in Nigerian DMBs.

5. Conclusion and Recommendation

- Conclusion

The result obtained for the study had showed that auditor independence was an essential parameter for enhancing the quality of audit report. Thus, it was concluded that there was a significant relationship between auditor independence and audit report quality. The implication of this was that the quality of audit report was a direct correlation with the amount of independence the auditor would be able to enjoy.

- Recommendation

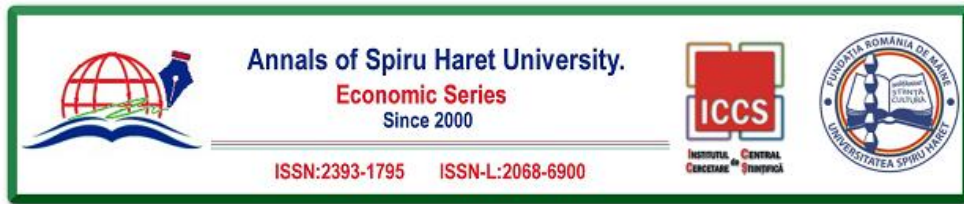
It was discovered that the independence of auditor had a direct relationship with the quality of audit report. On this basis, therefore, it may be recommended that there is need for the audit firm to protect its independence by working within its statutory duties. This indicates that an auditor should not interfering in the affair of its client.

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THE ECONOMIC REFLECTION OF THE INTERNAL AUDIT FUNCTION DEPENDING ON THE MANAGERIAL ASSISTANCE

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Abstract

The control environment, which is largely determined by management policies and the operating style of the entity, is fundamental to the way the controls are carried out within an organisation. In order to obtain a full understanding of the control environment, the auditor should focus more on the high-level policies and practices of the audited entity and less on the detailed controls within individual operations. Professional scepticism is of great importance when assessing the control risk. The auditor must apply it when verifying how the internal controls, implemented by the management of the entity, have acted in the direction of reducing the specific inherent risks.

Keywords: *internal audit; managerial assistance; audit program; International Accounting Standards.*

JEL Classification: H83, H12, M42

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Introduction

Internal audit, as defined by the International Institute of Internal Auditors, is an independent and objective function, which gives an entity assurance over the level of control held within their operations and enables management to improve the company's activities. Internal audit helps the entity to achieve its goals by evaluating, through a systematic and methodical approach, its risk management, control and governance processes and making proposals to enhance their effectiveness.

1. The internal audit function

If the auditor is not satisfied with the controls established by management to mitigate these risks, he may decide that the control risk is higher than he initially assessed. In this case, the auditor initially recognises that there is an inherent risk of fraud when collecting proceeds from entertainment or the delivery of goods and services for example.

The auditor will evaluate whether the entity's accounting policies are appropriate for its activity and in accordance with the applicable accounting financial reporting framework and the accounting policies used in the relevant sector of activity.

The auditor must take into account the following elements, when he intends to obtain an understanding the control environment:

- The ethical values and integrity of management;
- The objectives set up by the management and risks implications involved in achieving these objectives;
- The operating style of management (eg: through codes of conduct and manuals of procedures) and the organizational structure;
- How responsibilities are established by management (eg: through the organizational structure and through the separation of tasks);
- The policies for maintaining the competent personnel, respectively the recruitment policies and improvement of the professional training;
- Management oversight of the control procedures and the way the accounting system operates, including review of operations and budget monitoring (including internal audit);
- The way in which management of the entity ensures compliance with the laws and regulations.

When preparing the audit program, the auditor will consider the specific assessments of the inherent and control risks, as well as the level of certification required to be provided by the detailed audit tests.

Furthermore, the auditor should consider the duration of the controls tested and the detailed procedures, the assistance expected from the entity side, the assistants' availability and involvement of other auditors or experts.

Professional scepticism is of great importance when assessing the control risk. The auditor must apply it when verifying how the internal controls, implemented by the management of the entity, have acted in the direction of reducing the specific inherent risks.

Basically, the audited entity proceeded to the direct substantive testing through the audit procedure, namely "inspection" which represents the physical examination of the tangible assets. This type of audit sample is most often associated with the inventory audit, as physical examination provides useful and reliable audit evidence.

Identifying the inherent risks associated with the entity's activities is achieved by managing change: people change, methods change, organizations and policies change and as such, risks change.

Risk assessment means identifying and analysing the relevant risks in meeting the objectives, in order to know how they should be managed.

Risk assessment is part of the operational process and must identify and evaluate "internal and external factors" that could affect the organization's objectives.

External factors include changes of the economic conditions, change in the regulatory framework, political factors or changes in technology.

The identification of the risks associated with the entity's activities must take into account the forms of internal control, respectively the existence and the functionality of the relevant procedures. Each activity should have a procedure developed that will contain internal controls, therefore if this is missing, the activity presents potentially greater risks than those for which procedures are developed.

This is based on the fact that the execution personnel, not having a consistent procedure, will have difficulties in understanding the activity and implicitly implementing it in practice.

The auditor should establish a global materiality to ensure proper planning and guidance of the audit missions.

The 240 International Audit Standard makes a difference between fraud and error and describes two types of fraud which are relevant for the auditor, meaning the misrepresentations resulted from the wrong representation of assets and the misrepresentations resulted from the fraudulent financial report; it describes the responsibilities reverted to those in charge with governing and managing the entity

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in order to prevent and detect the fraud and it establishes the auditor's responsibilities for detecting the significant misrepresentations due to fraud; it requires to the auditor to maintain a professional sceptic attitude admitting the possibility for a significant misrepresentation to happen due to fraud, no matter how much experience in what the entity and honesty and integrity of management and of those in charge with governing the auditor has; it asks from the commitment team members to discuss the susceptibility for the financial situations of the entity to contain significant misrepresentations due to fraud and it asks the commitment partner to take into consideration the aspects which are about to be communicated to the members of the commitment team who are not involved in discussions;

Therefore, the manager's responsibility is maximum in what preventing, fraud investigating, bribe, corruption, setting up the necessary measures when the first warning signs of these appear is concerned.

The main responsibility for preventing and detecting the fraud and errors belongs to both charged with governing and to the management of the entity.

The responsibilities charged with governing, and respectively, with the management can vary depending on entity and from country to country.

The management, under the supervision of those in charge with governing must set up an adequate climate, must create and maintain an honesty culture and high ethical standards and must settle proper controls for preventing and detecting the fraud and errors from the entity.

Those in charge with governing an entity have the responsibility to guarantee, by supervising the board, the integrity of the accounting systems and of financial reports of an entity and to assure themselves that there are adequate controls, including for risk monitoring, for the financial control and in accordance with the law in force.

The government of an entity is responsible for establishing a control environment and for maintaining politics and procedures which help achieve the assurance objective in the best conditions possible, and for ordered and efficient development of the activities of the entity.

This responsibility includes the implementation and assurance of permanent functioning of the accounting and internal control systems which are meant to prevent and detect frauds and errors. Such systems reduce, but cannot eliminate the risk of the appearance of misrepresentations, either these being caused by fraud or errors. Consequently, the management assumes the responsibility for any remained risk.

This 240 IAS standard asks the auditor:

- to carry out procedures in order to obtain information which can be used for identifying the risk of some significant misrepresentations due to fraud;
- to identify and evaluate the risks of some significant misrepresentations due to fraud at the financial situations level of assertion; and to evaluate the internal controls projection due to the entity for those evaluated risks which could have as a result a significant misrepresentation due to fraud, including the relevant control activities and to determine if they have been implemented;
- to determine the global answers in order to approach the risks of some significant misrepresentations due to fraud at the financial situations level and to take into consideration the appointing and supervising the personnel; to take into account the accounting policies used by the entity and to include an unexpected element in selecting the nature, the moment and the extent of the audit procedures which are about to be done;
- to project and make audit procedures in order to respond to the risks of avoiding the controls by the management;
- to determine the responses in order to approach the significant risks regarding significant misrepresentations due to fraud;
- to take into consideration if an identified misrepresentation can show if it is about a fraud;
- to obtain written declarations from the management regarding the fraud;
- to communicate with the management and with those in charge with governing;
- The 240 International Audit Standard standard offers:
- guidance referring to the communication with the regulating and implementing authorities;
- guidance, if the auditor comes across unusual problems which bring forward the auditor's ability to continue the audit as a result of a misrepresenting which results from fraud or suspicion of fraud;
- establishes documentation requirements.

During the audit mission, the materiality used prevents performing certain testes over areas that do not have a significant impact on the audit opinion.

At the conclusion of the mission, a possible exceedance of the materiality will cause the auditor to propose correction of the errors identified or to mention them in the audit report.

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In order to determine the materiality level for an entity the auditors can use as a basis equity, net income or turnover. These elements are known as the baseline, against which materiality is determined in absolute or relative values.

The auditor's findings could have an impact:

- on the results of the exercise;
- on the disclosures of the balance sheet and income statement

The net result of the exercise is used as a reference. If its size is not important, this could be changed to another reference base, such as the operating result or the company's self-financing capacity.

Increased attention is also given to the exceptional items that will be grouped together so they would only refer to the current financial year.

Last but not least, the auditor must review the previous results to avoid using an abnormal net result as a basis for materiality.

The findings result from an inaccurate classification of accounts or an unjustified net-off between debtor and creditor balances. If two bank accounts, one in a credit position and the another in a debit position, are compensated, the importance of the compensation is determined by comparing it with the total of the respective positions.

The elements specific to materiality are as follows:

- 1) The needs of the users of the annual accounts;
- 2) The characteristics of the company;
- 3) The characteristics of the elements considered significant.

The annual accounts of an entity are providing information to different categories of users: shareholders, associates, staff, creditors, tax authorities, unions, clients, statisticians, economists, financial analysts, etc. Therefore, the auditor will set up materiality considering the needs of different users.

Risk assessment is an important phase in carrying out the internal audit missions. As such, in order to complete this phase correctly and effective, it is necessary to involve experienced internal auditors, who know well the audited entity and the methodology around risk assessment.

If the auditor is aware of errors identified in previous years audits, he will consider these when setting up materiality levels. If previous experience indicates the possibility of material errors, then a different audit approach might be required.

The auditors calculate a numerically expressed size, known as "precision" which is also used in calculating the size of each selected sample. This is determined by applying a percentage between 80% and 90% on the difference between the materiality level and the estimated value of the error.

If the auditor has suspicions or discovers errors or irregularities, he needs to quantify the extent of the error or irregularity identified.

The auditors do not set the precision level as the difference between materiality and the estimated error as it would lead to an insufficient sample size. This is because the auditor may have underestimated the error, and the formula is only valid when there are no errors in the sample.

Any error found leads to an increase in the sample size required to achieve the planned procedures.

The revision of the audit plan is the responsibility of the partner, who must ensure that it contains sufficient activities designed to achieve the audit objectives. Therefore, he must verify that the plan is in accordance with applicable policies and standards, including whether the professional scepticism used by the auditors is justified in the working papers. For example, the partner will analyse how the level of materiality was determined and also how the risk assessment was carried out. He will also check whether the planned analytical procedures are the most appropriate. If he is satisfied with the content of the plan presented by the audit team, he will then approve it. Otherwise, he will discuss with the auditors to make the necessary adjustments.

If changes to the general audit plan and the audit program happen, then the first change appears in the general audit plan and audit program which is reviewed during the course of the audit. The audit approach is continuously reviewed during the engagement to respond to changing conditions or unexpected results of audit procedures performed. The reasons for significant changes must also be documented.

We can conclude that the internal audit function has become a managerial assistance function whereby internal auditors help managers, at any level, to master the other functions within an entity and all accounting activities.

The general objective of a financial audit is to provide assurance that the financial statements examined presents a fair view of the economic operations of the entity and are prepared in accordance with the relevant laws and regulations.

Providing an absolute assurance over the financial statements, even if it is possible to achieve, requires a costly activity. However, to reduce these costs, there is the possibility of performing audits based on tests. In this context, the auditors, through their reports, seek to provide a reasonable assurance - not an absolute assurance - that the financial statements examined are complete and prepared in accordance with the relevant laws and regulations.

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The auditors are not responsible for the prevention and detection of corruption, fraud and errors, even though the annual audits can prevent mistakes and possible negligence. The responsibility for the prevention and detection of corruption, fraud and errors, as well as for taking appropriate measures, rests with the management of the audited public entities.

However, even under these conditions, the auditors must be alert when they find weaknesses in the internal control environment, inconsistencies or errors in the financial accounting records, unusual results or conditions, which indicates the existence of fraud, lack of probity or corruption.

Conclusion

The conclusions to be drawn are the following:

The auditor should review and evaluate the conclusions drawn from the audit evidence obtained as a basis for expressing an opinion on the financial statements. This review and evaluation involve taking into account the fact that the financial statements have been prepared in accordance with an accepted general financial reporting framework, which could be the International Accounting Standards, or relevant national standards and practices.

In practice it was found that the implementation and improvement of the effectiveness of the relevant departments' records are not consistent. Thus, a permanent control over the link of the accounting records of the receipts was ensured in the context of the existence of a clear situation of the locations where the activity is supported.

In conclusion, the auditor appreciated that, based on the verifications made, the communication carried out with management and the information contained in the self-evaluation report are slightly erroneous, due to the lack of clear records of the activities supported.

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THE EFFECTS OF BUSINESS PROCESS MANAGEMENT ON ORGANISATIONAL PRODUCTIVITY: A STUDY OF SELECTED BANKS

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Abstract

This study examined the effects of business process management on organisational productivity. Survey research design type was adopted for the study. The population was characterized with both genders (that is male and female workers) in Guaranty Trust Bank and United Bank of Africa. A sample size of two hundred and twenty-one (221) staff was selected. The sampling technique that was used was Random Sampling Technique. Data collected were analyzed using frequency, descriptive and all stated hypotheses were analysed using Pearson Correlation and the findings indicated that there was a significant relationship between change in process and competitive advantage; also, the finding showed that there was a significant relationship between radical redesign and sales growth. The study therefore recommended that during the reengineering of the processes, organizations should stress on their planning as well as strategies.

Keywords: *business process management; change process; competitive advantage; radical redesign; sales growth.*

JEL Classification: M10, M19

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1. Introduction

The concept of designing organizations was first presented by Hammer (1990) as a radical redesign of processes to gain critical improvements in cost, quality, and services. For there to be a striking increase in effectiveness, efficiency and productivity, drastic change in the design of the organization's processes and production cycles is required. Organizational processes today are clearly not the same as what they were hundreds of years ago. It has been estimated that hundred years ago around nine out of ten workers moved and produced tangible material items. In 1990s, the proportion was down to one out of five the other four out of the five laborers presently produce and deliver intangible products like information and service (Drucker, 1993). As of late services are ruling the world, the foundation of any organization is people and processes. On the off chance that individuals are motivated and working hard, yet the business measures are bad and stay as non-value-adding activities, organizational performance will be poor (Orogbu, Onyeizugbe & Onuzulike, 2015).

Business process management (BPM) is considered relatively one of the new topics in management field, and it concerns with the information about running current processes or activities, upgrade and redesign it in a way that lessen the wasted effort and increase the effectiveness, and implement changes in the processes to improve the organizational performance, where it incorporate and merge between the information technology and the processes management structure for the sake of improvement, where the efficient management of processes are fundamental to maximize the value of organizations (Aldiat, Bataineh & Abu-Hamour, 2018). Enhancing the performance of an organization is the cardinal task of every top-level manager. To accomplish the corporate objectives business process management (BPM) has arisen as an influential idea within the last decades. Today, practically all operational excellence programs run in organizations everywhere on the world depend on the BPM idea. Resting on the corporate strategy the business process is the center core aspect of every organization and, hence, they build the foundation for all further advances, for example, the improvement of information systems, the allocation of HR and so forth. Thus, BPM has become exceptionally pertinent for experts and the management research.

The banking industry is a critical driver of fiscal development for world economies through provision of services, for example, enabling money transfers, guaranteeing savers and borrowers are collected under well-ordered structures. The

banking sector ensures the nations' fiscal development and long-term sustainability. Albeit critical to world stability, the most recent sixty years have seen the industry experience serious financial difficulties which have adversely influenced the economic performance of many economies. Globally most banks are battling with a several difficulties; intricate and divided policies, historical set ups, disrupting plans and advances in technologies, emerging competitors as well as tense customers with continually evolving needs. Taking a look at the East African district, the case is not so different. The economic conditions have been decaying to a great extent in Nigeria, Kenya and South Sudan, with different nations shutting the year (2020) with a not so good story to tell due to vulnerability, change and difficulties. The Nigerian financial sector is as yet battling with the test of corruption, failure to reach most of the provincial populace, tax avoidance, system challenges, fragmentation, deceitful activities and ineffectual leadership. This has led to a basic point in the financial system in Nigeria experiencing the breakdown and unproductive nature of certain banks, mergers/consolidations. This requires the adoption of BPM.

The conduct of commercial over the most recent couple of years has not been great. Bank efficiency and productivity on normal has been erratic and poor. This has been ascribed to the challenges of corruption, disruptive directives, chronicled structures, disrupting models and innovations, new business entrants, a tense customer base with ceaselessly evolving needs, inability to get to the rural populace, tax avoidance, system challenges, fragmentation, fraudulent activities and ineffective leadership. This hence require the upgrade and reinforcing of banks inner control components, developing sustainable strategies, focus on improved practices, processes and product development that is aimed at healthy, financial, social and environment friendly activities. From this viewpoint, Business Process Management is a good support for organizations as it is a powerful way to govern, improve and streamline organization's activities and processes. BPM adoption has been recognized as one of the methods in which banks can keep up and support their competitiveness through a consistent spotlight on processes. The sector faces cut throat prevalence where BPM is ceaselessly needed to help the performance of industry activities and facilitation of enterprise-wide observation and synchronization.

There exists the shortage of research focusing exclusively on the Business process management (BPM) in the financial sector in Nigeria. The couple of studies that explored on the theme Business process management (BPM) include (Aldiabat, Bataineh & Abu-Hamour, 2018; Kiruja & Kimencu, 2020). All of these

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studies were carried out outside Nigeria. From researches made online, no comparative investigations on the topics Business Process Management (BPM) explicitly on chosen banks in Nigeria. This study is therefore carried out to cover the established gaps left opened in several literatures. The aim of this study is to examine the effects of business process management on organisational productivity with reference to selected banks in Nigeria, this would help us to update the previous studies and fill the gap in literature. Other specific objectives of the study are to:

- i. To investigate the relationship between change in process and competitive advantage
- ii. To determine the relationship between radical redesign and sales growth

2.Literature Review

2.1. Business Process Management (BPM)

Bassam, Ashraf and Husam (2018) defined business process management (BPM) as a management approach that centers around the processes, which includes four components: strategic alignment, IT, employees' involvement, and processes improvement. A business process is a collection of inter-related events, activities and decisions that involve many actors and resources and that collectively lead to an outcome that is of value to an organization and its customers. In the recent years, many organizations have been using more and more, the concept of business processes to capture, coordinate and optimize their activities (Domingos & Martins, 2017).

Nadarajah and Kadir (2013) stated that BPM is one of the significant connections that integrate between the organizational systems and its HR, where organizations intend to augment the proficient utilization of its assets and accomplish its essential goals and clients' requirements. Recent studies (e.g., Jiraporn et al, 2017; Asmare, 2012; Hung, 2006) highlight the influential and persuading power of business process management on organizational performance. Different studies underscored the positive effect of utilizing information technology infrastructure on human resources performance (Thabit & Jmealy, 2017; Fakhour, 2016).

2.1.2. Linkage Between BPM and Organisational Productivity

BPM has become a helpful instrument for any corporate organization that is looking for enhancements in its present organizational performance and plans to

accomplish cost leadership strategy in its operating industry and environment. For organizations endeavoring to work as adequately and productively as could really be expected, reengineering process remains a viable weapon. Organizations are needed to reengineer their business measures to accomplish performance and long-term strategy for organizational growth and performance (Siha & Saad, 2008).

By implementing BPM, organizations accomplish upper hand. This reality has been demonstrated by examining the effect of BPM on four competitive measures; these are (a) cost, (b) customer service, (c) quality and (d) productivity. The organization demonstrated improvement in all the four zones after implementation of BPM. The outcomes were a lot of commendable in process improvement and customer services (Belmiro, Gardiner & Simmons, 1997). The Satisfaction level of clients is directly influenced by reengineering of business process. Increased utilization of IT, wide network of ATMs and skilled staff assist nationalized banks to gain upper hand in the business (Dutta & Gupta, 2009). The main factor behind BPM implementation is value creation for the client, and information technology regularly plays a significant empowering role. It is important to embrace effective strategies for consolidating core and investigating new alternatives for sustained fast track development on a continuous basis and effecting midcourse correction, wherever necessary (Ranganathan & Dhaliwal, 2001).

In the event that reengineering is implemented in a proactive way as a part of organization's business strategy, the chances of accomplishing high productivity increase. The researchers who utilize reactive approach fail to accomplish critical performance outcomes and results. The researchers have focused on the point that core processes should be reengineered from the client viewpoint and managers must concentrate on the critical challenges for effective BPM implementation: changing attitudes and culture, extensive communication and overcoming fear and resistance to change at all levels of the organization, especially within the middle management. The researchers have reinforced the prior finding that IT serves as an empowering agent in the implementation of BPM (Petrozzo & Stepper, 1994). If an organization intends to reap the rewards of new information technologies, they may need to restructure their process. BPM is a new approach and tool to adequately manage the changes that occurred because of IT revolution in business world. To survive in an exceptionally unpredictable business environment, organizations need to restructure, redefine, rebuild and rethink their current business strategies. BPM helps in reduction in cost, enhances quality, speed and services are significantly improved. In the event that BPM is seen as a tool leading to growth and value

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creation, its chances of success increase (Belmiro, Gardiner & Simmons, 1997). The goal of BPM is to increase work proficiency and reduce waste. Inefficient and ineffective processes, low market share, growing level of unsatisfied customers or challenges by competitor are the rationale behind several organizations' desire to change.

2.2.2. Change in Process versus Competitive Advantage

According to Khan and Hashim (2014), organizational change refers to the changes that emerge within the organizational activities such as change in process, change in technology and change in rules and regulations or change in organizational culture. Cao, Clarke and Lehane (2003) opined that business practitioners make changes in their organizations due to several reasons, it can be the need of organizations, organization process, need to change the organizational functions, need to change its values, need to change human behavior, need to change in the authorizes and responsibilities in the organization. According to Elow, Langly and Montreal (2013) they believed that many types of changes become a challenge to successfully implement for business practitioners, such as product, marketing and sales activities, structure, culture and technological change. According to Iqbal (2011), he opined that the main purpose of the organizational change in an organization is to confirm its existence and its continuity in the business world, which might be attained by the continuous development and growth of the organization. Nowadays organizations are working in a highly competitive environment and constantly growing environment, therefore organizational change has become an important factor. Shahmansouri, Esfahan and Nikki (2013) opined that competitive advantage is considered as an important factor of any organization because it is an exclusive spot of the organization. This can be obtained by utilizing the organizational resources in a well-organized manner. Furthermore, it is the ability of the organization to offer valuable harvests and facilities at a lower price as compared to their competitors.

Dranove and White (1994) explicated the various dimensions of competitive advantage, which include; flexibility, quality, cost and delivery. In the opinion of Awwad, Khattab and Anchor (2013) flexibility refers to the organizational ability to change according to the circumstances. Flexibility was categorized as necessary flexibility (flexibility in a machine, product and material), sufficient flexibility (process, operation and program) and competitive flexibility (manufacture, growth and market).

H₁: There is significant relationship between change in process and competitive advantage.

2.2.3. Radical Redesign versus Sales Growth

Traditionally, according to Damanpour (1991) redesigning has been understood as the adoption of a system, policy, programme, process, product or service that is new for the organization. Radical design is defined as fundamental changes in a firm's technology which give rise to a new products, services or production processes for new customers or emerging markets (Chen & Huang, 2009). While Garcia and Calantone (2002) viewed radical redesign as an important changes and novelty in the products development. Radical redesigning is identified as the main ingredient of a competitive advantage. Radical redesign creates a competitive advantage through the opening of new markets and through the generations of changes in consumer preferences (Tangkit & Panjakajornsak, 2016).

The concepts of sales growth can be used as the process of improving sales profit measures. According to Dobbs and Hamilton (2007) they defined growth change in size over a defined period of time. While Brush, Ceru and Blackburn (2009) defined growth as the geographical expansion, increase in the number of product and services, mergers and acquisition. In the opinion of Coad, Frankish, Roberts and Storey (2013) an organization experiences sales growth as a result of efficient utilization of resources and capacities that are used to facilitate growth by the companies. It consisted of radical redesign, radical innovation techniques, capacities acquired infrastructures, resources and financial counseling etc. Sales growth involves the increase in the amount of revenue generated by the firm over a particular period of time. This could occur as a result of increment in the product prices, selling of more products or both. Moreover, sales growth can also occur as a result of price increase, which could be as a result of increase, which could be as a result of inflation and therefore not due to real sales growth but if cost remains low it contributes to the real growth of the sales.

H₂: There is significant relationship between radical redesign and sales growth

2.2. Theoretical Review

2.2.1. Resource Based Theory

This study is anchored on the Resource Based View (RBV). Theory which holds that organization are rent seeking units that develops and convey resources (assets and capacities) to enhance competitive advantage. The theory investigates why

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organizations are a success or failure in their area of operation. It analyzes and interprets the internal assets of the organization and places emphasis in the utilization of assets and capacities to plan and formulate strategies that achieve sustainable competitive advantages that contribute to improved organizational performance. Areas of study that relate to RBV have looked at assets and capabilities. Resources are the assets that an organization centers around to achieve its objectives or to excel on its basic success factors (Saqib and Rashid, 2013). Resources comprise of financial, labour and technical resources, tangible assets and other substances viewed as hardiness based on the Strength, Weaknesses, Opportunities and Threats analysis (Bryson, 2007).

In the opinion of Dasgupta and Gupta (2009), Penrose (1959) propounded the idea of RBV on the principle that, an administrative organization and a collection of productive resources as a bundle of potential services should be indispensable. With this statement, Penrose concurred that for every organization to face the growing competition in today's external environment, they have to focus on their internal resources and capabilities as the principal source for strength to survive and gain competitive advantage. This competitive superiority is a must for strategic purposes and should be imitable. RBV theory posits that organizations should aim to achieve strategic fit with the external environment just as well as maximize on their internal assets so as to make room and dictate potential opportunities (Armstrong, 2006).

3. Research Methodology

The survey research design was used in carrying out this research; this design is chosen to meet the objectives of the study. For the purpose of this study, the population constitutes the totality of all banks in Nigeria. Random Sampling Technique was used to select two banks namely Guaranty Trust Bank and United Bank of Africa. A total of two hundred and twenty-one (221) sample size is chosen. The data collection instrument that this study used was questionnaire; this was used to obtain primary data from the field of study. Face (expert) validity of the instrument was attained by the help of the supervisor whose supervision/opinions greatly served as a thorough guide for the success of this work was used. The data was analyzed with the use of descriptive statistics to summarize and relate variables which were be attained from the administered questionnaires. In accomplishing all analysis details with efficiency and effectiveness, the researcher utilized the aid of Statistical Package for Social Sciences (SPSS; Version 20)

software. The study made use of Pearson Correlation analysis to test for hypotheses 1 to 3 since they are measuring relationship between variables.

4. Results and Discussion

Table 1. Demographic Information

		Frequency	Percentage
Gender	Male	79	35.8 %
	Female	142	64.2 %
Marital Status	Single	112	50.7 %
	Married	105	47.4 %
	Divorced	4	1.9 %
Age	0-30 years	84	37.8 %
	31-50 years	126	57.2 %
	51 years above	11	5.0 %
Education	OND/NCE	69	31.4 %
	HND/B.Sc/B.Ed	111	50.3 %
	PGDE/M.Sc/M.Ed	40.4	18.3 %
Working Experience	0-5 years	91	41.3 %
	6-10 years	68	31.3 %
	11-15 years	28	12.8 %
	16 years above	32	14.6 %

From the demographic table shown in table 1, the gender analysis showed that 64.2% of the respondents were female while 35.8% were male, which implied that majority of the respondent were female. The marital status analysis also revealed that 50.7% of the respondents were single, while 47.4 % of the respondents were married and 1.9 % were divorced, and hence there are more single respondents. The age analysis revealed that 37.8 % falls between the age range of 0-30 years, while 57.2% falls within the range of 31-50 years and 5.0 % falls between 51 and above, and hence majority of the respondents falls within the age bracket of 31-50 years. Education analysis revealed that the 31.4% of the respondents were holders of OND/NCE, while 50.3% of the respondents were HND/B.Sc/B.Ed holders and 18.3% of the respondents were 18.3% were PGDE/M.Sc/M.Ed, and hence there is high literacy rate among the respondents. While the working experience analysis revealed that 41.3% of the respondent falls between 0-5 years, while 31.3 % of the

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respondents fall between 6-10 years, 12.8 % falls within the range of 11-15 years and 14.6 % of the respondents fall within the range of 16 years above.

Hypothesis One

1. H_0 : There is no significant relationship between change in process and competitive advantage

Table 2. Descriptive Statistics Table

	Mean	Std. Deviation	N
Change in process	2.1719	1.27469	221
Competitive Advantage	2.0860	1.17428	221

Non parametric Correlations

Table 3. Correlations Table

		Change in process	Competitive Advantage
Change in process	Pearson Correlation	1	.868**
	Sig. (2-tailed)		.000
	N	221	221
Competitive Advantage	Pearson Correlation	.868**	1
	Sig. (2-tailed)	.000	
	N	221	221

** . Correlation is significant at the 0.01 level (2-tailed).

Interpretation of Result

The Pearson Product Moment correlation result above shows that there is a significant relationship between change in process and competitive advantage ($r = 0.868$). This relationship is statistically significant because the generated p-value for the result (0.000) is less than the level of significant (0.05) used for the study.

Decision Rule: Null hypothesis is rejected while the alternative hypothesis is accepted. This infers that there is a positive significant relationship between change in process and competitive advantage.

Hypothesis Two:

2. **H₀:** There is no significant relationship between radical redesign and sales growth

Table 4. Descriptive Statistics Table

	Mean	Std. Deviation	N
Radical Redesign	2.1222	1.21674	221
Sales Growth	2.1041	1.26600	221

Non parametric Correlations

Table 5. Correlations Table

		Radical Redesign	Sales Growth
Radical Redesign	Pearson Correlation	1	.936**
	Sig. (2-tailed)		.000
	N	221	221
Sales Growth	Pearson Correlation	.936**	1
	Sig. (2-tailed)	.000	
	N	221	221

** . Correlation is significant at the 0.01 level (2-tailed).

Interpretation of Result

The Pearson Product Moment correlation result above shows that there is a significant relationship between radical redesign and sales growth ($r = 0.936$). This relationship is statistically significant because the generated p-value for the result (0.000) is less than the level of significant (0.05) used for the study.

Decision Rule: Null hypothesis is rejected while the alternative hypothesis is accepted. This infers that there is a significant relationship between radical redesign and sales growth.

5. Summary of Findings

The research focused on effects of business process management on organisational productivity. Based on this relevant data were gathered and

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analyzed. Two (2) hypotheses were tested and the entire alternative hypotheses were accepted. Hypothesis one revealed that there is a significant relationship between change in process and competitive advantage; this finding agrees with the finding of Ozcelik (2010); who posits that radical redesign strikingly increases productivity, efficiency and profitability, when change in structure and process is implemented. Hypothesis two revealed that there is a significant relationship between radical redesign and sales growth; this finding agrees with the finding of Belmiro, Gardiner & Simmons (1997) who posits that BPM helps in sales boom, reduction in cost, while quality, speed and service are also dramatically enhanced. It was also found that BPM is a tool leading to growth and value creation, it chances of success increases in any organization.

6. Conclusion

From the discussion of the finding's conclusions are drawn and it can be shown that business process management is the redesigning of business structures and processes, the associated process and structures to achieve a speedy and gradual improvement in organizational performance. The work process innovation will assist the organization to be more organized in their technique by utilizing teams to smooth out their process by training these workers in highly specialized approaches and appropriate working environment, making the work process more challenging, aggressive and fascinating, consequently improving the worker retention and firms' performance. The process redesigning focuses on incrementally improving on overall process by improving its individual steps and sub processes. It involves steadily improving an existing structures and process by decreasing the time, unpredictability and administrative structures of the individual steps and sub structures and processes, subsequently giving more obligations and power to the worker which enhances workers' job satisfactions.

7. Recommendations

The study recommends the following:

- i. The study firmly recommends that firms should focus in carrying out the implementation of strategies and techniques while reengineering their business processes and structures.
- ii. Firms should take into consideration the involvement and participation of people, as participative management has showed a strong impact and determinant of reengineering business operations.

iii. During the processes of reengineering, firms should stress on their planning as well as strategies because a strong relationship was found between firms' strategy and quality improvement.

iv. Policy makers should also strongly invest on strategies and structures that determine changes in market place vis-a-vis its abilities and strengths to attain its full potential and strength. They should provide appropriate platform and infrastructure to afford a proper support framework to businesses processes that positively effects on the performance of the firms.

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AN ANALYTICAL ASSESSMENT OF THE DETERMINANTS OF EXCHANGE RATE: AN EMPIRICAL EVIDENCE FROM NIGERIA

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Abstract

The study utilised econometric techniques as data analysis technique and it is indicated that there is no significant relationship between real terms of trade and real exchange rate in Nigeria; there is no significant relationship between real trade restrictions and real exchange rate in Nigeria; there is no significant relationship between technological progress and real exchange rate in Nigeria. However, it is demonstrated that there is a significant relationship between real government expenditure and real exchange rate in Nigeria and there is a significant relationship between nominal exchange rate and real exchange rate in Nigeria. Therefore, the study concluded that, at the long run level, the real variables alone that influences real exchange rate in Nigeria were insignificant. However, real exchange rate in Nigeria was determined by both real and nominal variables are the core fundamentals that determined real exchange rate in Nigeria mostly in the short run. It is therefore recommended that there is need for the monetary authority in Nigeria to create enabling environment that will encourage and attract international trade activities by investing in the infrastructure of the nation.

Keywords: *exchange rate; term of trade; trade restriction; government expenditure; technological process.*

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JEL Classification: F31

Introduction

Research related to exchange rate management still remains an area of interest to economists and finance experts, especially in developing countries, despite a relatively enormous body of literature in this area. This is largely because the exchange rate is not only an important relative price of one currency in term of other that connects domestic and world markets from goods and assets, but it also signals the competitive of a country's exchange power with the rest of the world in a global market. Exchange rate serves as an anchor which supports sustainable macroeconomic balances in the long-run.

Ajao (2015), exchange rate has traditionally played a crucial role in Nigerian monetary policy. production, which is considered to be the main source of external and government revenues because of its crucial impact on the country trade relation with other countries, first, as a mono-product (oil) export dependent economy and second, as an import dependent (developing) nation; besides the country's competitiveness and overall economic growth. Thus, exchange rate is being regulated via exchange rate policy. This policy for exchange rate can be fixed or flexible and has substantial transformation since post-independence era when the country operated a fixed exchange rate system that was in alliance with the IMF per value or fixed system and its goals is to achieve price stability.

In recent years, policy discussions have increasingly included references to real exchange rate stability and correct exchange rate alignment as crucial elements in the important of economic performance in Nigeria. Real effective exchange rate movement affects economic activity in Nigeria, mainly owing to its dependence on imported capital goods and specialization in commodity exports. The country has experienced a series of exchange rate depreciations in an effort to improve output growth.

The government has considered the exchange rate to be an important macroeconomic instrument for ensuring a low inflation rate and a stable financial system, promoting exports, controlling imports, and enhancing economic growth. In the literature, the real exchange rate serves as a better international price for determining the competitiveness of a given country than the normal exchange rate. Management of the nominal exchange rate depends on the real exchange rate, which is influenced by, inter alia, the nominal exchange rate (Montiel, 1997).

Statement of the Problem

Nigeria continues to face serious depreciation of the naira against major currencies in the world and in a bid to stabilize it; monetary authorities have adopted one exchange rate policy to another. The difference policies have not helped in stabilizing the naira. Naira has depreciated so low in value from 0.6159 in 1975 to over 350.16 in 2016. This has had major constraints to economic growth and development in areas of investments in-inflow, competitiveness of the tradable sectors, and the high cost of doing business. The ability to have a stable and viable currency is a solid foundation for growth and sustainability in key sectors of the economy especially as Nigeria focuses on shifting its position from being the 39th economy in the world to becoming one of the 20th economy in world by the year 2020 as this has not been achieved.

The aspiration in this vision is to improve the nation's global competitiveness and a nation's global competitiveness comes in terms of strong, stable currency and a viable export sector but Nigerian economy still experiences.

Several steps have been taken by the Nigerian government towards the creation of a less distorted and stable economy. However, the persistent failure of government efforts to restore fiscal and monetary stability resulted in the reversal of the most important aspect of Nigeria's economic liberalization process. , that is, the liberalization of her foreign exchange regime towards the end of 1993. This was responsible going back to the fixed exchange rate system along with the centralization of foreign exchange in 1994 and restricting bureau de change to buying foreign exchange as agents of the Central Bank of Nigeria (CBN).

However, these measures were not able to narrow the official and parallel market spread, which was very high; and this negative development prompted the government to adopt a guided deregulation from 1995 to data which have not yielded desirable results as. the official rate of the naira to the US \$ and other foreign currencies has consistently depreciated on yearly basis. This has put pressure on the naira exchange value both at the AFEM and at the parallel market let to further depreciation of the naira continually. It cannot be categorically pointed that certain elements determine the exchange rate fluctuation in Nigerian economy. Thus, the study capture international terms of trade shocks, government expenditure patterns, trade restrictions, net capital inflow (remittances), foreign aid flow and technological progress, as well as to expansionary macroeconomic Nigeria's real exchange rate dynamics and have explored several policies stance bothering RER in Nigeria. The issues addressed include the extent to which

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observed movement in Nigeria's RER represent a movement from the position of equilibrium, monetary variables influence and macroeconomic instability on the actual RER in Nigeria, and the impact of changes in nominal exchange rate on observed trends of RER movement.

Objective of the Study

The broad objective of this study is to examine the real exchange rate determinants in Nigeria. The specific objectives include:

- i. To examine the effect of real terms of trade on real exchange rate in Nigeria;
- ii. To assess the effect of real trade restrictions on real exchange rate in Nigeria;
- iii. To investigate the effect of real government expenditure on real exchange rate in Nigeria;
- iv. To investigate the effect of technological progress on real exchange rate in Nigeria;
- v. To determine the impact of nominal exchange rate on real exchange rate in Nigeria;
- vi. To determine the impact of domestic money supply on real exchange rate in Nigeria

Literature Review

Exchange Rate

Exchange Rate could be seen as the rate at which a local currency exchanges for a foreign currency; it is otherwise called foreign exchange rate and usually stated as the amount of a local currency that will exchange for a unit of foreign currency. Once the exchange rate of a currency has been fixed, the rate will be maintained all over the world through arbitrage. The exchange rate of a particular currency to other currencies are different in values. An increase in the exchange rate of Naira to the dollar indicates depreciation while a decrease in the exchange of Naira to the dollar indicates appreciation.

Exchange rate could be nominal or real exchange rates but the focus of the study is real exchange rate. Real exchange rate can be defined as the nominal exchange rate that takes the inflation differentials among the countries into account. It is also defined as the ratio of nominal exchange rate to price level (GDP Deflator).

Terms of Trade

Terms of Trade (TOT) is one of the most important external real exchange rate determinants and is often included as one of the major determinants of both development and developing countries. The overall effects of TOT on the real exchange rate are ambiguous. The price of tradables is a weighted average of the price of exportables and importables. TOT may have two different effects on the real exchange rate, namely, income and substitution effects. The income effect results when an increase in export prices, or a fall in import prices, raises the income of an economy and increases the demand for nontradables.

Thus, in turn, tends to reduce the relative price of tradables to nontradables and causes then RER to appreciate. On the other hand, the substitution effect can be observed, because nontradables are relatively cheap. An improvement in TOT due to an export price increase brings about RER depreciation for given levels of nominal exchange rate and nontradables prices. However, if the improvement in the current account balance would increase income and the aggregate price of nontradables and cause an appreciation of the RER. The income effect would be more prominent in this case. Because of the ambiguity about the final effects of a TOT shock on the RER, the price of importables and exportables should be regards as two separate variables in determining real exchange rate behaviour.

Government Expenditure

Government expenditure is another fundamentals real variable when can cause the real exchange rate to deviate from its equilibrium value. Increases in government expenditure increase the demand for nontradables. If the major portion is spent on nontradable goods and services. In the short run, this excess demand for nontradables bids up their price and results in RER appreciation. However, there will be depreciation of the RER if the larger share of government expenditure is spent on the tradable sector rather than on consumption of nontradables. Thus, the sign of this variable can be either positive or negative in determining behaviour of the equilibrium real exchange rate.

Trade Restrictions

Trade restrictions in the form of tariffs generally cause a RER appreciation. If the tariff worsens the current account position and increases the demand for the price of nontradables, the RER appreciates. An increase in binding quantitative trade restriction (import quota) also increases the demand for import substitutes,

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which behave as nontradables due to imposition of quantitative trade restrictions during boom period. This results in higher prices and profitability for nontradables and leads to a long run equilibrium real appreciation. In these cases, the increase in the price of nontradables due to trade restrictions is higher than the increase in the composite price of tradables. However, if trade restrictions lead to a worsening of the current account deficit and reduce the demand for nontradables, there will be RER depreciation. In this case, the negative income effect will outweigh the positive substitution effect.

Technological Progress

The non-policy domestic fundamental variable, namely, technological advancement (growth rate of real gross domestic product (GDP), generally increases the efficiency and productivity of the tradable sector. Increased productivity induced by technological progress increases factor availability. By reducing the cost and price of tradables, increased productivity makes the tradable sector more competitive and tends to depreciate the RER of the sector. In this situation, supply effects of technological progress offset the demand effects according to the Rybczynski principle (Edwards, 1989). If the advancement in technology increases income, however, which, in turn, increases demand for nontradables and reduces the relative price of tradables to nontradables, there will be a real appreciation. In this case, the demand effects of technological progress are greater than the supply effects and this is known as the Ricardo-Balassa effect (Edwards, 1989).

Domestic Money Supply

In order to maintain a sustainable macroeconomic equilibrium in an open economy, fiscal and monetary policies must be consistent with the exchange rate regime. Misalignment of the real exchange rate occurs due to inconsistencies between macroeconomic policies and the official exchange rate policy. Under a fixed exchange rate regime, expansionary monetary or fiscal policy raises the real stock of money, increasing the demand for both tradables and nontradables goods and financial assets. The excess demand for tradable goods results in a higher trade deficit and loss of international reserves, whereas the increased demand for nontradables raises their price and tends to cause the actual RER to deviate further from its equilibrium value.

The over-valuation of the RER, which is a fall in the actual real exchange rate from its long run equilibrium, will be short-lived and the economy adjusts through

reduction of the money stock. The higher demand for nontradables, induced by the higher stock of money, would require a higher (actual) RER to re-establish equilibrium in the nontradables market. The stock of international reserves will fall by the decline of the real domestic money supply. The actual RER will continuously depreciate through reductions in the price of nontradable good and revert towards the long run sustainable equilibrium RER position in the long run. The time involved in the readjustment of a misaligned RER to its long run equilibrium depends on the original stock of money as well as a number of other variables.

Theoretical Framework

Edward's theory of real exchange rate determination

The role of the real exchange rate in the economic performance of both developed and developing economies has been one of the major issues of macroeconomic policy debate in recent times. There is growing agreement among economists and policy makers that while stability in the Real Exchange Rate (RER) promotes economic expansion and improved welfare, misaligned real exchange rate hinders export growth and generate macroeconomic instability. In spite of the crucial role of real exchange rate in policy discussion, empirical analyses of the factors behind the behaviour of the real exchange rate in developing countries are sparse.

In particular, there have been very limited attempts to distinguish formally between equilibrium real exchange rate (ERER) and the deviation or misalignment of RER from its equilibrium level. The real exchange rate reacts to a series of real and nominal disturbances, including international terms of trade shocks, government expenditure patterns, trade restrictions, net capital inflow (remittances), foreign aid flow and technological progress, as well as to expansionary macroeconomic policies and nominal devaluation.

The basic theoretical framework used in this study has been adopted from Edwards (1989) theory of real exchange rate determination. The theory captures most of the stylized features of a small open developing economy, including the existence of exchange and trade controls. This theory allows only the "fundamentals" or real variables to play a role in determining the long run equilibrium real exchange rate, whereas both real and nominal factors influence the actual real exchange rate in the short run.

The theory assumes as small, open economy, which produces and consumes two goods (tradable and non-tradables). Importables and exportables are aggregated into one tradable category. The government sector consumes both

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tradables and nontradables and finances its expenditures by non-distortionary taxes and domestic credit creation. The country holds both capital controls, and that there is some capital flows in and out of the country. The nominal exchange rate of the country is fixed with a basket of currencies of its major trading partners. It is also assumed that there is a tariff on imports. The price of tradables in terms of foreign currency is fixed and equal to unity, that is, $P_T = 1$. Finally, perfect foresight is assumed in this theory.

The Balassa-Samuelson Hypothesis

The Balassa and Samuelson hypothesis (BS) (Balassa 1964, Samuelson, 1964) offers in general a theoretical justification of the long run trends in real exchange rates in relation to productivity and prices. Their natural point of departure is the Salter-Swan (dependent economy) model, i.e., taking into consideration the important real world feature of having both tradable and non-tradable goods.

BS states that if a given country's productivity in producing tradable goods compared to its productivity in making non-tradable goods and services rises more rapidly than in a (certain) foreign country, then the home country real exchange rate will experience appreciation. Thus, if productivity of factors of production grows faster in the home country tradable sector, then relative price in the non-tradable sector should rise (Nahuis & Geurts 2004). This would cause a faster rate of domestic inflation relative to the country with the slower rate of productivity growth and as a result the real exchange rate would appreciate. Or seen from the perspective of the income terms of trade approach the booming sector (i.e., high oil premiums) originate larger spending on both tradable and non-tradable goods and services.

Given that the tradable products are linked to the international market by the price taker (small country) supposition, the increased demand would generate higher imports. However, the prices of the non-traded goods would have to rise as they are determined by the interaction of domestic supply and demand, resulting in higher inflation. Consequently, the real exchange rate of the country under consideration would appreciate. The existence of the BS effect is corroborated by substantial empirical support, though its strength is commonly found to be quite smaller in comparison to the theoretically expected one.

Empirical Literature

The following regarding the determinants of real exchange rate has been mixed. Udousung and Umoh (2012) analyzed exchange rate determinants in Nigeria

from 1971 to 2000. Six variables were included in the exchange rate model, including openness of the economy, import tax, balance of payment, the fiscal deficit, exports tax and trends. Their result revealed that import tax, openness of economy and export tax had positive coefficients, implying a direct positive relationship between these variables and the real exchange rate

Ajao and Igbekoyi (2013) investigated the determinants of real exchange rate volatility in Nigeria from 1981 to 2008. Using generalized auto-regression condition heteroskedasticity (GARCH) techniques and the error correction model (ECM) to examine the various determinants of exchange rate volatility in Nigeria. However, the result of their analysis suggest that the openness of the economy, government expenditures, interest rate movements and the legged exchange rate among others, were the significant variables that influenced real exchange rate volatility during the period reviewed. In terms of real exchange rate misalignment. Aliyu (2011) employed the Johansen's cointegration approach and vector error correction model to investigate RER misalignment in Nigeria. He identified terms of trade, crude oil volatility, monetary policy performance and government fiscal stance as major determinants of the RER and his study showed that the Naira was overvalued by about 5.9 per cent during 2005Q4, just before the introduction of WDAS in 2006Q1. Also, Omotosho and Wambai (2012) found that the Naira was misaligned by 0.29 percent during the period 2000 – 2011.

Rano (2008) estimated the long-run behavioural equilibrium exchange rate in Nigeria. The regression results showed that most of the long-run behaviour of the real exchange rate could be accounted for by real net foreign assets, terms of trade, the index of crude oil volatility, the index of monetary policy performance and government fiscal stance. Victor and Dickson (2012) investigated the determinants of the real exchange rate in Nigeria, where their main objective was to present a dynamic model of real exchange rate determination using data from 1970 to 2010. They considered government spending, GDP, terms of trade, capital flow, price level, technological progress and nominal effect exchange rate. The Johansen co-integration test they applied suggested that a long relationship existed among the variables.

In Angola, Takaendesa (2006) established that terms of trade, the real interest rate differential, domestic credit, the degree of openness of the economy and technological progress have long-run impact on the real exchange rate. Terms of trade, domestic credit and degree of openness of the economy have significant influence on the real exchange rate in the short-run. In a similar study for Venezuela,

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Yu-Hsing (2006) concluded that broad money supply, world interest rate country risk, and the estimated rate of inflation have adverse effect on exchange rate while government deficit appreciates the exchange rate. Quite a number of studies have also been conducted to investigate the determinants of real exchange rate in Nigeria and the extent of real exchange rate misalignment. Mapenda (2010) revealed that any increase in government consumption expenditure, the terms of trade, net foreign aid inflow and openness significantly led to currency depreciation, while an increase in world cocoa process appreciated the Ghanaian currency.

Jimoh (2006) provide evidence which shows decisive trade liberalization program of 1986 – 87 led to the depreciation of the Nigerian real exchange rate and made the real exchange rate more responsive to changes in terms of trade but other less decisive changes in trade regime produced no significant changes in the real exchange rate. Empirical findings on other emerging economies include; Mungule (2004) which attempted to explain the movement of Zambia's real effective exchange rate using a vector error correction model and quarterly time series data through the use of purchasing power parity tests, impulse response and variance decomposition functions, the study indicates that Zambia's real exchange rate depends significantly on the prevailing real fundamentals, price differentials, and real shocks similar to most studies about the nature of the determinants of the real exchange rate.

Nganda (2005) to find whether there is evidence of an empirical relationship between commodity prices and the exchange rate and whether the presence of such a link has any implications on the level of labor intensive manufacturing employment. The findings are that minimum prices are a significant determinant of the real exchange rate in South Africa and there is evidence that point to the conclusion that the exchange rate has an important impact on manufacturing output and employment as suggested by the Dutch Disease literature,. There is also evidence that shows a link between the exchange rate and export performance with appreciations positively impacting export performance.

Holtemoller and Mallick (2008) found that the higher the flexibility of the regime the lower is the misalignment. Toulaboë (2006) did a study on the impact of exchange rate misalignment on economic growth of developing countries using data from 33 countries. The result shows that average real exchange rate misalignments are negatively correlated with economic growth. The link between real exchange rate uncertainty and private investment in developing countries was done by Serven (2002) and the empirical result shows; that exchange rate volatility

has a strong negative impact on investments, the real exchange rate uncertainty on investments is significantly larger in economies that are highly open and in those with less developed financial systems.

Methodology

The study used ex-post facto research design. Secondary data were employed and the data were collected from sources such as theglobaleconomy.com, World Bank database, international financial statistics (IFS) and publications of the National Bureau of Statistics (NBS) and Central Bank of Nigeria (CBN) statistical bulletins. This research employed aggregate annual time series data of the following variables: Real Exchange Rate (RER), Terms Of Trade (TOT), Trade Restrictions (TRT), Government Expenditure (GEXP), Technological Progress (TECHP), Domestic Money Supply (DMS) and Nominal Exchange Rate (EXC).

3.5 Model Specification

The regular method of modeling RER equilibrium is to convey the theoretical bond between RER and its major determinants. This was corroborated by the findings of (Edwards, 1988; Elbadawi, 1994). The normal formula has been employed in several research works (Ghura & Grannes, 1993, Bashir & Luqman, 2014). The estimates of this study follow the relationship found in investigating the causes of real exchange rate behaviour in Nigeria.

$$RER = f(TOT, TRT, GEXP, TECHP, DMS, EXC)$$

Its linearized version is given below:

$$\log RER = b_0 + b_1 \log TOT + b_2 \log TRT + b_3 \log GEXP + b_4 \log TECHP + b_5 \log DMS + b_6 \log EXC + U_t \quad 3.1$$

Where:

RER = Real Exchange Rate

TOT = External Terms of Trade, defined as the ratio of foreign price exportable to weighted foreign import price for Nigeria.

TRT = Trade Restrictions (it is measured using following formula; normal gross domestic product divided by the sun of Price of Exports and Price of Imports. Trade restriction variable is opposite to trade openness. D

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GEXP = Government Expenditure

TECHP = Technological Progress (this has been used as an explanatory variable to capture the Ricardo-Balassa effect on the equilibrium RER and is proxied by the rate of growth of real GDP.

DMS = Domestic Money Supply

EXC = Nominal Exchange Rate

Ut = Error Term.

Techniques of Data Analysis

The study employed unit root to ascertain the stationary of the data and Augmented Dickey-Fuller (ADF) was adopted. The study tested the long run relationship between the exchange rate and its determinants and Autoregressive Distributive Lag (ARDL) model.

Data Analysis and Interpretation

Augmented Dickey-Fuller (ADF) Unit Root Test

In order to establish the integration orders among the variables in the model, the ADF unit root test was employed. The non-stationary amongst data often times made it necessary for the data used in this study to be subjected to the unit root test using the Augmented Dickey-Fuller (ADF) approach to establish the stationary of the data and order of integration. In order to determine if the time series is stationary, the ADF test.

Table 3. Unit root test using the Augmented Dickey-Fuller (ADF) Statistics

Variables	At Level	At 1 st or 2 nd Difference	Order of Integration
RER	-1.6744	-5.8372	I(1)
RTOT	-2.0942	-5.9779	I(1)
RTRT	-2.7899	-5.3489	I(1)
TECHP	-5.0656	-	I(0)
RGEXP	-4.3927	-	I(0)
EXC	-2.4948	-5.4706	I(1)
DMA	-0.6755	-4.4781	I(1)

Source: E-views 10.0 Econometric Software

The result of the ADF unit root test is shown in Table 3. The analysis of the ADF unit root test revealed that not all the variables was found to be stationery at levels (I(0) except for RGEXP and TECHP, hence, it becomes impossible at this stage to reject all their null hypotheses. This is so because the test statistic values at level for (RER, RTOT, RTRT, EXC and DMS) variable using the ADF test were below the critical values at one percent, five percent and ten percent levels of significance.

However, when these variables (RER, RTOT, RTRT, EXC and DMS) were differenced once, they were stationery. This is because the tests statistic values were found to be greater than the critical values at one percent, five percent and ten percent levels of significance. Having that all the variables are integrated in order 1(1) for (RER, RTOT, RTRT, EXC and DMS) and order 1(0) for RGEXP and TECHP, hence, all their null hypotheses are rejected.

Test for Long Run Relationship

The long run relationship was done using Johanson cointegration test

Table 4. Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.91485	194.1248	125.6154	0.0000
At most 1 *	0.805875	122.6880	95.75366	0.0002
At most 2 *	0.597782	75.14969	69.81889	0.0176
At most 3 *	0.543069	48.73763	47.85613	0.0412
At most 4 *	0.311719	26.02415	29.79707	0.1280
At most 5 *	0.280772	15.19096	15.49471	0.0555
At most 6 *	0.176548	5.633245	3.841466	0.0176

Trade test indicates 4 cointegrating equ(s) at the 0.05 level

* Denotes rejection of the hypothesis at the 0.05 level

** MacKinnon-Haug-Michelis (1999) p-values

Source: E-views 10.0 econometric software

Seeing that all the series were integrated of order 1(0) and 1(1) suggesting the presence of a unit root, hence, the need to determine if there is the existence of a long run relationship by conducting a co-integration test among the variables. In doing so, the study adopted the Johansen and Jesulius (1990) multi-variate co-integration approach based on trace and maximum eigen value test.

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Table 4 revealed that trace test statistics indicated only four cointegrating equation at five (5) percent level. This is because the trace statistic value in each of the four equations is greater than their critical values. Based on the trace test therefore, we can conclude that there is the presence of long run relationship among the variables in the model.

Table 5. Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.914850	71.43677	46.23142	0.0000
At most 1 *	0.805875	47.53834	40.07757	0.0061
At most 2 *	0.597782	26.41206	33.87687	0.2962
At most 3 *	0.543069	22.71348	27.58434	0.1860
At most 4 *	0.311719	10.83318	21.13162	0.6639
At most 5 *	0.280772	9.557719	14.26460	0.2426
At most 6 *	0.176548	5.633245	3.841466	0.0176

Max-eigenvalue test indicates 2 cointegrating equ(s) at the 0.05 level

* Denotes rejection of the hypothesis at the 0.05 level

** MacKinnon-Haug-Michelis (1999) p-values

Source: E-views 10.0 econometric software

On the other hand, the results of the maximum Eigenvalue test in Table 4.5 indicated only two (2) cointegration equations at five percent level of significance. This is so because, the maximum Eigenvalue statistic value in the two equations is greater than their respective critical values at five percent level of significance. Based on the maximum Eigenvalue test, it is also concluded that, there is a long run relationship among the variables in the model. The long run relationship means that variables move together over time so that short-term disturbances from the long-term will be corrected.

ARDL F-Bound Test

Based on the ADF unit root test order of integration 1(0) and 1(1), the autoregressive distributive lag (ARDL) model is most suitable to capture the short run as well as the long run dynamics of our model. The F-test through the Wald test (bound test) is conducted to check the joint significance of the coefficients specified in the model. Being an F-test, the Wald test is conducted by imposing

restrictions on the estimated long-run coefficients of determinants (RTOT, RTRT, RGEXP, TECHP, EXC, DMS) and RER.

Table 6. ARDL F-bounds Test

Hull Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	0.581711	6

Critical Value Bounds

Significance	10 Bound	11 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Source: E-view 10.0 Econometric Software

The selection criteria of the ARDL bound test tabulated lower and upper bound are one percent, five percent, and ten percent significance level. The result of the ARDL result conducted revealed that, the coefficients of determinant (RTOT, RTRT, RGEXP, TECHP, EXC, DMS) are not jointly co-integrated with the dependent variable, RER, hence, the absence of long-run relationship between the independent variables. and dependent variable. This is because the calculated F-statistic is 0.58 compared with Pesaran critical value at all levels of significance is lower than the lower bound (2.12) and the upper bound (4.43). This result indicated that there exist no evidence of long-run co-integration between (RTOT, RTRT, RGEXP, TECHP, EXC, DMS) and RER.

ARDL Cointegration and Long Run Test Effects

As a result of the insignificant long run relationship between (RTOT, RTRT, RGEXP, TECHP, EXC, DMS) and RER, there is need to assess and estimate the effects of the long run coefficients. The long run coefficients measure the long run effects of the independent variables on the dependent variable. From the ARDL cointegration test analyzed, the long run estimates are shown in table 7

The result of the long run estimates showed that the long run effect between RGEXP and RER was negative (-10.0861) and insignificant (0.9639); the long run effect between RTOT and RER was negative (-18.4109) and insignificant (0.9639);

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the long run effect between RTRT and RER was positive (16.3261) and insignificant (0.9625); the long run effect between TECHP and RER was positive (0.1188) and insignificant (0.9631); the long run effect between EXC and RER was negative (-16.3222) and insignificant (0.9631); the long run effect between DMS and RER was positive (15.5723) and insignificant (0.9633). With the absence of a long run cointegration between the variables, further tests are conducted to ascertain whether the model is free from serial correlation and problem of stability.

Table 7. ARDL Cointegration and Long Run Effects Result

Long Run Coefficients				
Variable	Coefficient	Std. Error	T-statistic	Prob,
LRGEXP	10.086149	218.867789	-0.046083	0.9639
LDMS	15.572304	332.030340	0.046900	0.9633
LRTOT	18.410944	399.097971	-0.046131	0.9639
LRTRT	16.326186	340.869864	0.047896	0.9625
LEXC	16.322272	369.458234	-0.044179	0.9654
TECHP	0.118862	2.523207	0.047108	0.9631
C	40.835869	946.175434	0.043159	0.9662

Source: E-view 10.0 econometric software

Test of Hypotheses

The hypotheses for the study were tested using ARDL Short Run Test

The short run dynamics of the ARDL as shown in table 8 revealed that the ARDL model has a good fit on the data in the short run. This is given by the high value of the R-squared of 0.9985 (99.85 percent) and the adjusted R-squared of 0.9966 (99.66 percent). Based on the value of the adjusted R-squared, about 99.7 percent of the systematic variations in the real exchange rate in Nigeria has been determined by changes in real terms of trade (RTOT), real trade restrictions (RTRT), real government expenditure (RGEXP), technological progress (TECHP), nominal exchange rate (EXC) and domestic money supply (DMS).

On the same note, the high value of F-statistics (542.6997) shows that the overall model is statistically significant. The overall significance of the short-run model implies the joint significance of all explanatory variables in explaining short-run changes in the real exchange rate position in Nigeria.

Table 8. ARDL Short Run Dynamics Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LRGEXP(-1)	-0.246843	0.115287	-2.141111	0.0535
LDMS	0.739269	0.212300	3.482181	0.0045
LRTOT(-1)	-0.210293	0.161488	-1.302218	0.2173
LRTRT	0.192783	0.121134	1.591482	0.1375
LEXC	0.919039	0.151581	6.063032	0.0001
TECHP	0.001317	0.001028	1.281413	0.2243
C	0.421502	1.051406	0.400894	0.6955
ECT(-1)	0.028530	0.478002	0.059686	0.9534
R-squared	0.998528	Mean dependent var		1.473336
Adjusted R-squared	0.996688	S.D. dependent var		1.593376
S.E. of regression	0.091697	Akaike info criterion		-1.645096
Sum square resid	0.100900	Schwarz criterion		-0.883836
Log likelihood	39.03134	Hannan-Quinn criterion		-1.412371
F-statistic	542.6997	Durbin-Watson statistic		1.972348
Prob(F-statistic)	0.000000			
Dependent Variable LNER				

Source: E-view 10.0 econometric software

The result for the variables shows that the unexpected positive sign of error correction term (ECT) is highly insignificant. The highly insignificant ECT further confirms the existence of an unstable and insignificant relationship between real exchange rate and its determinants in Nigeria with their various lags. The coefficient of ECT (0.0285) imply that deviation away from the long run real exchange rate (RER) is uncorrected by 2.85 percent by the following year. This positive sign signal a non-oscillating convergence in real exchange rate (RER) and a movement away from equilibrium.

Analysis of the short-run estimates revealed further that, changes in the previous lagged period of real government expenditure (RGEXP) have a negative but significant impact on the current value of real exchange rate (RER) in Nigeria. The negative value (-0.2468) revealed that, a percent increase in real government expenditure will negatively impact real exchange rate determination in Nigeria by 0.24468 in the short run, *ceteris paribus*.

Further analysis of the short-run estimated revealed that, changes in the current period of domestic money supply (DMS) have a positive and significant impact on the current value of real exchange rate (RER) in Nigeria. The positive value

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(0.7392) revealed that, a percent increase in domestic money supply will positively impact real exchange rate determination in Nigeria by 0.7392 in the short-run, *ceteris paribus*.

Analysis of the short-run estimated revealed further that, changes in the previous lagged period of real terms of trade (RTOT) have a negative and insignificant impact on the current value of real exchange rate (RER) in Nigeria. The negative value (-0.2102) revealed that, a percent increase in real terms of trade will negatively impact real exchange rate determination in Nigeria by 0.2102 in the short run, *ceteris paribus*.

Analysis of the short-run estimated revealed further that, changes in the current period of nominal exchange rate (EXC) have a positive and significant impact on the current value of real exchange rate (RER) in Nigeria. The positive value (0.9190) revealed that, a percent increase in real terms of trade will positively impact real exchange rate determination in Nigeria by 0.9190 in the short run, *ceteris paribus*.

Finally, the analysis of the short-run estimates revealed further that, changes in the current period of technological progress (TECHP) have a positive but insignificant impact on the current value of real exchange rate (RER) in Nigeria. The positive value (0.0013) revealed that, a percent increase in technological progress will positively impact real exchange rate determination in Nigeria by 0.0013 in the short run, *ceteris paribus*.

Discussion of Findings

The study empirically examined real exchange rate determinants in Nigeria. The study also adopted the ARDL model technique as a result of the ADF unit root test orders of integration (1(0) and 1(1)). The ARDL bound test revealed the absence of a long run existence in the model. This was as a result of the F-statistics value being lower than the Pesaran lower and upper critical bound values. The ARDL model was also subjected to the serial correlation and stability tests. The results revealed that the model satisfied both the no serial correlation and stability requirements and conditions. The stability test was conducted using the CUSUM stability test.

The ARDL short run dynamics test was conducted to attempt to correct the existing disequilibrium position in the short run. The error correction (ECM) factor did not have a negative sign and was not statistically significant as theoretically expected. The highly insignificant ECT further confirms the existence of the long

run insignificant relationship between real exchange rate and its determinants in Nigeria with their various lags.

Further analysis of the ARDL results revealed that, the coefficient of real government expenditure (RGEXP) is both correctly signed and significant statistically. The implication of the negative sign of the coefficient is that increase in government spending relative to GDP induces real exchange rate depreciation. This is because in the long run, higher government spending most likely according to Maesofernandez, Osbat and Schnatz (2001) undermines confidence in a currency thereby leading to distortions and consequently exerts a negative effect on the real exchange rate. This is, however, not to deny the fact that an increase in real government expenditure which increases the demand in the nontradable sector stimulates higher productivity, conserves foreign exchange, which otherwise would be used for imports, and improves real exchange rate. Perhaps this condition is not likely to hold for Nigeria given the low level of capacity utilization, high energy and other operating costs, among others, in the nontradable sector.

This was also supported by Bouakez and Eyquem (2011) that an unexpected increase in public expenditures leads to a fall in the risk-adjusted long-term real interest rate causing the real exchange rate to depreciate. In their study, they proposed a small-open-economy model that features three key ingredients: incomplete and imperfect international financial markets, sticky prices, and a not too-aggressive monetary policy. The coefficient of the RGEXP has the expected negative sign with respect to the RER in the model but it does not have any significant effect in the long run but does in the short run at the conventional five percent level of significance.

The role of macro policy as proxied by domestic money supply is found to be significant in affecting the RER in the model in the short run. A one percent increase in domestic money supply will insignificantly appreciates the RER by 15.57 in the long run though, however, domestic money supply will appreciate RER significantly by 0.739 in the short run. Unsustainable macroeconomic policy, in terms increased domestic money supply, raises the domestic price of nontradables and appreciates the RER, confirming the theoretical analysis of the RER. Furthermore, Yu-Hsing (2006) concluded that broad money supply, would interest rate, county risk, and the estimated rate of inflation have adverse effect on exchange rate while government deficit appreciates the exchange rate.

Theoretically, the sign of coefficient of terms of trade is ambiguous. It depends on whether the substitution or income dominants. Here, the positive income effect

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of a change in terms of trade dominates and hence the coefficient's sign is positive. Although Nigeria is a price taker in the world economy, faces quantity restrictions from the organization of oil producing states (OPEC) and crises in the oil producing region, which adversely affect supply, yet changes in its terms of trade results in appreciation of real exchange rate. This development and indeed those in the above could, however, spur more imports into the economy.

The result indicates that an improvement in RTOT does not have any significant short run and long run impact on the real exchange rate. With the coefficient indicating a negative sign in relation to RER, it is not statistically significant in either the short run or the long run at conventional five percent level of significance. The finding of this study disagrees with Victor and Dickson (2012). They investigated the determinants of the real exchange rate in Nigeria, where their main objective was to present a dynamic model of real exchange rate determination using data from 1970 to 2010. They considered government spending, GDP, terms of trade, capital flow, price level, technological progress and nominal effective exchange rate. The Johansen co-integration test they applied suggested that a long relationship existed among the variables.

With respect to trade restrictions, it is seen that due to more trade restrictions and import barriers on the nation, it would lead to exports and it appreciation of real exchange rate. From the results of this study, real trade restrictions have an insignificant positive effect on RER. The result indicates that the introduction of restrictive trade policies from the mid-1980s appreciated the RER in the long run as well as in the short run. Trade restrictions tend to have appreciated the RER in Nigeria by 16.32 percent in the long run and by 0.19 percent in the short run. Thus, the trade regime has an important bearing on the movement of RER in Nigeria.

Conclusion and Recommendations

The findings showed that there is no significant relationship between real terms of trade and real exchange rate in Nigeria; there is no significant relationship between real trade restrictions and real exchange rate in Nigeria; there is no significant relationship between technological progress and real exchange rate in Nigeria. However, it is demonstrated that there is a significant relationship between real government expenditure and real exchange rate in Nigeria and there is a significant relationship between nominal exchange rate and real exchange rate in Nigeria. The ARDL result concluded that, at the long run level, the real variables alone that influences real exchange rate in Nigeria were insignificant. However,

real exchange rate in Nigeria was determined by both real and nominal variables are the core fundamentals that determined real exchange rate in Nigeria mostly in the short run. It is therefore recommended that there is need for the monetary authority in Nigeria to create enabling environment that will encourage and attract international trade activities by investing in the infrastructure of the nation

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ENVIRONMENTAL RISK, REPUTATIONAL RISK, AND LEGAL RISK AS DETERMINANTS OF THE PERFORMANCE OF MANUFACTURING COMPANIES IN NIGERIA

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Abstract

Most manufacturing firms focus on how to improve their effectiveness and pay less attention to the possible risks that can affect their profitability. The impact of environmental, reputational and legal risks on the performance of manufacturing firms was examined in this paper. An exploratory research design was used by the researcher. The population of this study is 305 senior staff from 10 manufacturing companies in Lagos state's Ikorodu Metropolis. The Logit Binary regression model was used to test the study's hypotheses. This model is thought to be suitable because it can predict the impact of independent variables on dependent variables. According to the findings of

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this study, environmental risk, reputational risk, and legal risk all have a negative significant impact on the performance of manufacturing firms. This study recommended that manufacturing company management give greater attention to their environmental, reputational, and legal risks by making sure that such risks are properly managed with the help of Enterprise Risk Management Tools and by offering valuable intelligence into their entire organization with Data-Driven Decision Making. Manufacturing firms should use Optimised Heat Maps and Charts to distinguish, analyze, and assess Environmental Risk, Reputational Risk, and Legal Risk in order to avoid or minimize such risks.

Keywords: *environmental risk; reputational risk; legal risk, performance of manufacturing companies.*

JEL Classification: M11

Introduction

Industries all over the world are subjected to various risks, including environmental risk, reputational risk, and legal risk, and this has a significant impact on their performance (AliBaba & VazirZanjani, 2021). The likelihood of a detrimental event occurring is defined as risk. The ambiguity that engulfs upcoming events and outcomes is referred to as risk. It expresses the probability and consequence of an event that has the potential to impact a firm's attainment of goals (Bhimani, 2020). Risk can be defined as a state in which there is a possibility of loss but also a possibility of gain (Boekestein, 2021). Based on the goal and point of view of a discussion, the concept of risk can also be described and explained in a variety of ways. According to Chapman and Ward (2021), a risk is a doubt associated with damage or loss. They imply that something that is indeterminate does not have to be risky; nevertheless, if an event is both vague and involves a loss, it can be classified as a risk. According to Essinger and Rosen (2021), risk is defined as "the possibility of unwelcome, adverse consequences to human life, health, property, or the environment." Because one would never risk a loss if there was no chance of winning, to realize the existence of a risk, one must be aware of both the gains and losses incurred and therefore a risk can be reflected as individual and relative to observer (Francis & Armstrong, 2019). All these definitions seek to make

known that risk is to be seen as part of daily life, and the presence of risk in any environment should not be a problem but the focus should be on how those risks are being managed and in turn minimizing their potential effect.

Risk management on the other hand deals with the process of identifying and controlling potential risks that can be faced by an organization. Risk management is about identifying the risk to be managed, risk to leave unattended and risk that need to be hedged. Risk management is recognized in today's business world as an integral part of good management practice. In its broadest sense, it entails the systematic use of management policies, procedures and practices to the tasks of identifying, analysing, assessing, treating and monitoring risk. Risk management refers to a practice of identifying loss exposures faced by an organization and selecting the most appropriate procedures for treating these particular spotlights effectively (Gordon, Loeb, & Tseng, 2019). Risk management is the identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to mitigate, monitor, and control the probability and/or impact of unfortunate events or to maximize the realization of opportunities (Gupta, 2018).

Effective risk management can bring far payoffs to the company irrespective of what type it is. These paybacks include, superior financial performance, better basis for strategy setting, improved service delivery, better competitive advantage, less time spent firefighting and fewer unwanted surprises, increased likelihood of change initiative being achieved, closer internal focus on doing the right things properly, more efficient use of resources, reduced waste and fraud, and better value for money, improved innovation and better management of contingent and maintenance activities (Gupta, 2018). Risk management in manufacturing sector is about the categories and types of risks that can be opened to companies in the manufacturing industries and the approach which the companies adopt in managing those risks. The ways and manners which companies adopt in managing their risks can have either of positive or negative effect on their performance. Here are some of the risks that manufacturing companies can be exposed to; environmental risk, reputational risk, and illegal risk. Some factors that may cause companies to face various unpredictable risks are environmental complexity (Hoyt & Liebenberg, 2020), intense competition,

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advanced technology, development of information and communication technology, new methods of supplying goods and services, environmental issues and companies' movement from tangible to intangible assets. As a result, companies are faced with several risk management issues including enterprise risk management, business risk management and strategic risk management (Luo, 2017).

Currently, risk management is regarded as one of the most important concerns of executives and the risk management activities are expanding. However, regarding the peripheral effects and applications of risk management, few empirical researches have been done up until now (2021). In other words, despite rapid growth in importance of the topic, few applied studies have been done to determine whether environmental risk, reputational risk, and legal risk has practically undesirable effects on the firm's performance.

On the other hand, due to the conceptual complexities of risk management and variation in methods of controlling adverse effects of losses, the previous few attempts that have been made failed to offer a comprehensive and integrated framework. Risk management has several advantages. It inspires strong stimulus in company's major stockholders to increase their investments in the company. By increasing their investments such investors invest in company's specific assets. These assets are regarded as tools that provide better business opportunities toward obtaining proper and long-lasting competitive advantage. Therefore, it is concluded that lack of effective environmental risk, reputational risk, and legal risk management may lead to imposition of extra costs on both investor and investee and thereafter affects their performances.

Research Objectives

The primary purpose of this paper is to examine the effect of environmental risk, reputational risk, and legal risk on the performance of manufacturing companies in Nigeria. The specific objectives are to:

1. determine the extent at which environmental risk impact the performance of manufacturing firms.
2. Examine the extent at which reputational risk influence manufacturing firms performance.
3. ascertain how legal risk influence manufacturing firms performance.

Literature Review

Risk

Risk in finance refers to the likelihood that actual outcomes will differ from predicted outcomes. Risk is described as the volatility of returns in the Capital Asset Pricing Model (CAPM). The "risk and return" concept holds that riskier investments should have higher expected returns to reimburse investors for the increased volatility (Mua, GangPengb, & Douglas, 2019).

Types of Risk

As indicated by ParvizRad (2012), there are two types of risk: systematic risk and unsystematic risk. Systematic risk is an investment's market unpredictability, which means that it symbolizes external factors that affect all (or several) businesses in a sector or group. Unsystematic risk refers to asset-specific unpredictability that can influence an investment's effectiveness.

The following are the most vital types of risk to take into account when assessing investment options for a financial analyst:

Environmental Risk

This is known as the risk that a particular business venture or activity will cause destruction to the surrounding natural environment. For example, if oil reserves were discovered in a national park, there would be the environmental risk that exploiting the reserves might harm or destroy some of the park's wildlife. While environmental risk implies some moral or at least reputational risk, it also carries economic consequences. A company with environmental risk often has to pay fees for exemptions from certain policies, and it is usually responsible for cleaning up the environment in case it causes a slow or sudden disaster (Shiller, 2021).

Environmental Risk Management

Environmental risk management (ERM) helps to ensure that environmental risk is contained to acceptable levels, and ideally should be applied to all aspects of a mining operation in a structured process to ensure that all relevant issues are addressed. Criteria and objectives for risk assessment should be established during the planning stage. Results of monitoring should be fed into the risk assessment process to identify and reduce emerging problems as soon as possible. As ERM encompasses the entire

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mine iproject, imultiple iskills iare ineeded iand isufficient iresources imust ibe made iavailable ito ido ithe ijob ieffectively. iThe iresults iof ithe irisk ianalysis must ibe icommunicated ieffectively ithrough ithe icloud isystem, iand irisk management irecommendations ishould ibe iimplemented ipromptly ifor ithe iERM process ito isucceed(Maginn, iTuttle, iMcLeavey, i& iPinto, i2017).

Reputational iRisk

This type of irisk istrikes iwwithout iwarning iand ishifts iyour icorporate landscape. iEven iworse, iit iinjects ian iunfavourable inarrative iinto iyour isearch results iwwhich iaffects icustomer iopinions iand iimpacts irevenue. iThere iare countless statistics about online reputation ithat isupport ithis iconclusion. iWe commissioned ia istudy iby iForrester iConsulting ito ifind iout iwwhat iexecutives at large ibrands ithink iabout iSEO iand ireputation(Elosegui, i2003).

Reputation irisk iis ievolving. iIt's ia istrategic iconcern ibecause iit iis connected ito iand imagnified iby iother ibusiness irisks. iAccording ito ia irecent DTTL isurvey, iReputational Risk, ithe imost iprevalent idrivers iof ireputation risk are irisks irelated ito iethics iand iintegrity, iphysical iand icyber isecurity, iand products iand iservices. iThird-party irelationship irisk iis ialso irapidly iemerging, as icompanies iare iincreasingly ibeing iheld iaccountable ifor ithe iactions iof vendors, ibrokers, iand isimilar iassociates. iSo ias ithose irisks iproliferate, reputation irisk iheightens ias iwwell.

Reputation irisk ikeeps ibusiness ileaders iup iat inight ibecause iit's ia imeta risk. iIt ican ioriginate iand ispread ifrom iinside iand ioutside ithe iorganization, at an ialarming ispeed. iThe iexecutives iinterviewed iin ithe iglobal isurvey expressed ithe iinherent ichallenges iin ithis isituation. iFor iexample, iperceptions can ivary ifrom igeography ito igeography, iso ian iissue ior ievent imay inot ipose a ithreat iin ione ilocale, ibut imay itrigger ia iworldwide imedia ifrenzy iin another iwith ivery ireal iconsequence ito ireputation (Jovanovic, i2015).

Adding ito ithe iconcern iis ithat isome iof ithe se irisks iare ibeyond ithe company's idirect icontrol. iRespondents ito ithe isurvey iwere iless iconfident about imanaging irisks ifrom ithird-party/extended ienterprise iissues, icompetitive attacks, iand ihazards ior iother icatastrophes ithan iabout imanaging irisks ithey can icontrol iinternally, isuch ias ithose irelated ito iregulatory icompliance ior employee imisconduct.

Legal iRisk

Legal irisk iis ithe ilikelihood iof ifinancial ior ireputational iloss iresulting from a ilack iof iknowledge i(or imisunderstanding) iof ihow ithe ilaw iapplies ito iyour business, ior ioperating iwith ia ireckless iindifference ito ithe ilaw iand ihow iit applies (Mas-Colell, iWhinston, i& iGreen, i2019).

Legal irisk iw as idefined ias ipart iof ioperational risk i by ithe iBasel II accord in i2003. iIt iincludes ithe irisk iof ifinancial ior ireputational iloss iresulting ifrom any itype iof ilegal iissue. iThis icould iinclude ia ilack iof iawareness ior misunderstanding iof ithe iway ilaws iand iregulations iapply ito ia ibusiness. iBut companies ican itake iaction ito ireduce ithis irisk. iSo, ifor iexample, ia corporation imay irequire iall iits iemployees ito iundergo ihealth iand isafety training iin iorder ito ireduce iits ilegal irisk ifrom icompensation iclaims(Den i& Haan, i2019).

One iof ithe iprimary ireasons iw hy ilegal irisk iis iassociated iw ith ioperational risk iinvolves ifraud isince iit iis irecognized ias ithe imost isignificant icategory iof operational iloss ievents iand iconsidered ito ibe ia ilegal iissue ias iw ell. iThese, however, ido inot imean ithat ilegal irisk iis ionly iconfined ito ithis conceptualization ibecause iit iis idefined iin imore ithan iway. iFor iinstance, there are ispecific isets iof ilegal irisks ithat iare idefined iby ithe iEuropean Union (EU) Law. iIn i2005, ithe iEuropean Central Manufacturing companies ideclared ithat iit will idevelop iits iown ilegal irisk idefinition ito ihelp i"facilitate iproper irisk assessment iand irisk imanagement, ias iw ell ias iensure ia iconsistent iapproach between iEU icredit iinstitutions(Krusell i& iSmith, i2018).

Risk iManagement iand iPerformance iof iManufacturing iCompanies

Adebisi i(2021) investigate ithe iconnection iof iethics ito irisk imanagement. They iargue ithat ithere iare icompelling ireasons ifor igood iethical ipractice ito be an iessential ipart iof irisk imanagement. iThey idiscuss ithat iexploring ithe relationship iof iethics iand irisk imanagement ihas isignificant icommercial outcomes. iNot ionly ithose ioutcomes ihelp ito iidentify ipotential iproblems, ibut they ialso ihelp ipreventing ifraud, ipreserving icorporate ireputation, iand ito mitigate ilitigation iagainst icompany iw hich ilead ito iincreased ilegitimacy. Likewise, iBhimani i(2021) isay ithat irisk imanagement ileads ito ihigher corporate ilegitimacy.

Using ia isample iof iChinese ifirms, iMua i(2021) iexamine ithe ieffect iof irisk management istrategy iover iperformance iof inew iproduct idevelopment. iThey

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find that risk management strategies that focus on technological, organizational, and marketing factors, individually and interactively improve the performance of new product development.

Gordon and Keni (2020) examine the relation of enterprise risk management (ERM) and performance. They argue that the relation of enterprise risk management and performance is contingent upon five firm-specific factors namely, environmental uncertainty, industry competition, firm complexity, firm size, and board of directors' monitoring. Finally, they argue that for implementing ERM firms should pay attention to the contextual variables that are surrounding the firm.

Andersen (2020) examines the firm-specific investment rationale as a plausible explanation for positive risk management effects. As a consequence of the firm-specific investment rationale, he finds that effective risk management outcomes are associated with superior corporate performance. Further, he indicates that firms that vary in levels of intellectual capital and investment in innovation also differ in their risk management effects.

Likewise, Gupta (2021) examines risk management in Indian companies and explores the reasons for the adoption or lack of adoption of an integrated approach to risk management. He shows that even though effective risk management can improve organizational performance, companies do not have adequate infrastructure to implement enterprise-wide risk management. He concludes that a sea change in risk perception is required to build up a risk culture across business segments and incentivize risk management adoption.

Risk management is an effective technique for minimizing undesirable effects of risks and optimizing the benefits of risky situations (Cohen & Kaimenakis, 2017). Manuel (2018) describes the aim of risk management as a process enhancement that is established through systematic identification, evaluation and mitigation of project risks. According to these definitions, risk management is defined as measures that are taken to decrease the potential risky consequences of specific phenomena, namely price variation, accidents, political hazards, disruption in supply of raw material, economic development, etc. Such risks represent a wide spectrum of a company's risks that are dealt with by various specialists. In other words, effective risk management deals with market risks that the company is facing and tries to take advantage of business opportunities that these risks might have. It is an effective tool of contending with external market threats that are out of management control and result in reduction of profit variances (Milost, 2017).

The tools and facilities that management uses to face external market threats are financial hedging, insurance contracts, management control systems, transportation of resources and careful decisions that are made to improve company's profitability. All of the aforementioned movements are made to reduce adversity of situations that the company might face with.

To cover environmental risk, reputational risk and legal risk, companies do risk management through derivatives via using insurance coverage and through examining integrative risk management approaches. In addition, in comparison with past risk management motivations, and historical financial obligations, there is higher tendency to risk management now. Indeed, it is obvious that company's accountability depends to its ability to utilize the new opportunities that are derived from changes in environment (Boekestein, 2021).

Methodology

The researcher made use of an exploratory research design. The study population is employees of manufacturing firms in Ikorodu Area of Lagos state. A research questionnaire was utilized as an instrument for collection of data. The instrument was adequately subjected to reliability and validity test. The simple random sampling was used as sampling technique for this study which is targeted towards giving every respondent an equal opportunity of being selected. For the purpose of this study, Taro Yamane was utilized to determine the sample size.

$$ss = \frac{N}{(1 + N(e)^2)}$$

$$ss = \frac{305}{(1 + 305(0.05)^2)}$$

$$ss = 171.$$

The sample size for this study is the 171 respondents.

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Reliability of the Research Instruments

Table 1. Reliability Test Result
Reliability Statistics

Cronbach's Alpha	N of Items
.721	171

Source: SPSS 25.0 OUTPUT

The result of the reliability test in table 1 shows that Cronbach Alpha for all the items in the questionnaire is reliable. This means that the questionnaire is reliable enough for further research.

Table 2. Kaiser-Meyer-Olkin (KMO) and Barlett's test of Sphericity

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.741
Approx. Chi-Square		3241.144
Bartlett's Test of Sphericity	Df	171
	Sig.	.000

Source: SPSS 25.0 output

This study conducted the KMO and Barlett's test of Sphericity. The KMO determines the sampling adequacy which should be close than 0.5 for a satisfactory factor analysis to proceed. Kaiser (1974) recommend 0.5 (value for KMO) as minimum (barely accepted), values between 0.7-0.8 acceptable, and values above 0.9 are superb. The table 4 shows that the value of KMO measure for the questionnaire is .6151 which is greater than 0.5 and therefore accepted that the sample was adequate.

From table 2, the test is significant (0.001) which infers that correlation matrix is not an identity matrix.

Method of Data Analysis

The hypothesis was tested using Logit Binary regression model.
The Formula for Logit Binary regression model:

$$L = \ln \left[\frac{P_t}{1 - P_t} \right] = \beta_0 X_t$$

Where:

L i= iLogit iRegression

ln i= iLog

Pi i= iEnvironmental iRisk, iReputational iRisk, iLegal iRisk,

1 i- iP i i= iEnvironmental iRisk, iReputational iRisk, iLegal iRisk,

β i= iBeta

X i= iPerformance iof iManufacturing iCompanies.

Statistical iPackage ifor iSocial iSciences iSoftware i(SPSS) iversion i25 iwas used ifor ithe idata ianalysis.

Data Presentation, Analysis and Interpretation

Questionnaires were administered to respondents, out of the 171 questionnaires that was administered, 151 copies were filled correctly and returned.

Data Analysis

Table 3. Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	-44.124 ^a	.887	.754

Source: SPSS 25 Output

Table 3 shows that there is about 89% correlation between the performance of Environmental Risk, Reputation Risk, Legal Risk and the performance of manufacturing companies. This implies that poor management of these risk has about 89% chances of affecting the performance of manufacturing companies either positively or otherwise. This is also confirmed by the Nagelkerke R Square value of 75%.

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Table 4. Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Environmental Risk	-4.141	3.212	2.211	4	.007	55.111
Reputational Risk	-5.141	3.221	3.321	4	.001	12.214
Legal Risk	-6.251	2.011	6.341	4	.000	1.214
Constant	5.141	22.117	5.141	4	.001	2.321

a. Variable(s) entered on step 1

Source: SPSS 25 Output

Table 4 revealed that Environmental Risk; Reputational Risk; and Legal Risk has a negative significant effect on the performance of manufacturing companies. Consequently, the Beta value of -4.141 (as shown in Table 4) simply means that Environmental Risk accounts for a unit effect of -4.141, Reputational Risk has a unit effect of -5.141, Legal Risk accounts for a negative effect of -6.251. The p-value (.007, .001, .000, and .001) is less than the significant level of 0.05. The result in Table 4 shows that the p-value is less than the level of significance of 0.05. Therefore, Environmental Risk; Reputational Risk; and Legal Risk has a negative significant effect on the performance of manufacturing companies.

Conclusion

Bad management of Environmental, Reputational and Legal Risks may lead to the total collapse of a manufacturing firm. It was concluded in this study that all the risk factors (Environmental, Reputational and Legal Risks) negatively significantly affect the performance of manufacturing firms.

Recommendations

Manufacturing firms' managers should give more attention to environmental, reputational, and legal risks, making sure that these risks are addressed with Enterprise Risk Management Techniques and giving valuable intelligence into their entire organization with Data-Driven Decision Making. These firms should use Optimal operational Heat Maps and Graphs to classify, analyze, and assess Environmental Risk, Reputational Risk, and Legal Risk in order to avoid or completely eradicate such risks.

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THE EVOLUTION OF THE LEGISLATIVE AND ECONOMIC FRAMEWORK REGARDING THE FISCAL INSPECTION WITHIN ANAF

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Abstract

The modernization of life, in general and the economic one, in particular, have led to a renovation of economic crime, at an adaptation of evasion to everyday life. Classical patrimonial offenses have lost their relevance, currently assisting in a sophistication of financial and fiscal crime, one of the new forms it takes being economic evasion. The universality of the evasion phenomenon is explained by its extension to all types of societies and to all social classes. The age of tax evasion is linked to the very appearance of taxes and fees. A complex phenomenon, which appears as a response of the taxpayer in relation to the coercive action of the state, the tax evasion is a subject disputed equally in the legal sciences and in economics, bending on the recent branch of economic law. In this context, it is necessary to analyze the evolution of the legislative and economic framework in Romania about the fiscal inspection within ANAF.

Keywords: *tax evasion; fiscal inspection; unexpected control; anti-fraud control.*

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JEL Classification: H20, H26, K34, M48

Introduction

The National Agency for Fiscal Administration was established based on Government Ordinance no. 86/2003 regarding the regulation of some measures in financial - fiscal matter, as a specialized body of the central public administration, public institution with legal personality and own budget, subordinated to the Ministry of Public Finance. The National Agency for Fiscal Administration was established on October 1, 2003, becoming operational on January 1, 2004. Through this reorganization, the leadership of the Ministry of Public Finance aimed to improve the activity of fiscal administration.

The National Agency for Fiscal Administration - the strategic objectives

Currently, in accordance with the provisions of Government Decision no. 520/2013 on the organization and functioning of the National Agency for Fiscal Administration, with subsequent amendments and completions, the Agency ensures the administration of taxes, fees, contributions and other budget revenues given by law in its competence, organizes the activity of recovering outstanding tax receivables by applying measures enforcement, performs fiscal inspection and tax verification and issues tax administrative acts, organizes the capitalization of goods confiscated or entered, according to law, in the private property of the state, as well as goods seized in the enforcement procedure, applies customs regulations, as well as other provisions relating to goods under customs supervision or subject to customs control, act both to prevent the evasion of payments due to the budgets administered by the Agency and to prevent and detect tax evasion and tax and customs frauds.

Also, according to the provisions of Government Decision no. 520/2013 on the organization and functioning of the National Agency for Fiscal Administration, with subsequent amendments and completions, the National Agency for Fiscal Administration exercises responsibilities in the field of preventing, detecting and combating tax evasion and tax and customs fraud, respectively:

- attributions in the field of prevention and detection of tax evasion, tax fraud, and customs fraud:
 - Acts both to prevent the evasion of payments due to the budgets administered by the Agency and to prevent and detect tax evasion and tax and customs fraud.

- Cooperates with the institutions with similar attributions from other states, based on the international treaties to which Romania is a party or on the basis of reciprocity, as well as with the anti-fraud bodies within the European Union, in cases of common interest.
- Verifies compliance with legal regulations on the movement of goods on public roads, in ports, railways and rivers, airports, in the vicinity of customs points, warehouses, free zones, as well as in other places where such activity takes place.
- Verifies the legality of the activities carried out, the existence and authenticity of the supporting documents in the activities of production and provision of services or during the transport, storage and sale of goods and applies seals to ensure the integrity of goods.
- Establishes and uses databases necessary for the prevention and detection of economic and financial crimes and other illicit acts in the fiscal and customs field.
- Performs investigations, supervisions and fiscal and customs verifications necessary to prevent and detect the facts of tax evasion and tax and customs fraud, including in cases where situations of violation of specific legislation are reported.
- Requests, in accordance with the law, data or documents from any private and/or public entity, to investigate and substantiate the findings regarding the commission of acts that contravene the legislation in force in the fiscal and customs financial field.
- Ascertains circumstances regarding the commission of certain acts provided by the criminal law in the field of tax evasion, establishes their tax implications and orders, under the conditions of the Fiscal Procedure Code, to take precautionary measures whenever there is a danger that the debtor will evade prosecution or hides, alienates or wastes his patrimony.
- Legitimizes and establishes the identity of the administrators of the controlled units, as well as of any persons involved in committing the facts of tax and customs evasion and fraud found and requests them for written explanations.
- Retains documents, under the conditions of the Fiscal Procedure Code, requests certified copies of the original documents, takes samples, and other such specimens, requests the performance of technical expertise necessary to complete the control act.
- Exercises the operative and unexpected control regarding the prevention and discovery of any acts and facts in the economic-financial, tax and customs field, which result in the tax and customs evasion and fraud;

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- Performs, in accordance with the law, controls to identify tax and customs evasion and fraud at all categories of taxpayers, regardless of tax domicile, size and form of organization, as well as in any place, of the form under which economic activities are carried out, revenue generators.

- Participates, with its own staff or in collaboration with the specialized bodies of other ministries and specialized institutions, in actions for detecting and sanctioning illicit activities that generate phenomena of tax and customs evasion and fraud.

- Concludes, as a result of the performed controls, control acts for establishing the fiscal state of affairs, for ascertaining and sanctioning the contraventions, as well as for ascertaining the circumstances regarding the commission of certain facts provided by the criminal law, notifying, as the case may be, the criminal investigation bodies.

- Stops and controls, in accordance with the law, the means of transport loaded or likely to be loaded with excisable products in national, intra-Community and international movement, verifies the fulfilment of the legal conditions regarding the circulation of excisable products, verifies, under the law, during the day and at night, buildings, warehouses, land, offices and other objectives and may take, in accordance with the law, samples that it analyses in its own or approved laboratories, in order to identify and examine excisable products;

- Ascertains and sanctions the acts that constitute contraventions according to the regulations in force regarding the regime of excisable products and retains, for the purpose of confiscation, the goods that are the object of the contravention, for which the law provides such a sanction.

- Carries out, under the conditions of the Fiscal Procedure Code, controls in all the spaces where goods and services are stored or traded for prevention purposes, discover and combat any acts and deeds that are prohibited by the normative acts in force.

- Ascertains the contraventions and applies the corresponding sanctions, according to the competences provided by law.

- Orders measures, under the conditions of the fiscal legislation, regarding the confiscation, under the conditions of the law, of the goods whose manufacture, storage, transport, or sale is illicit, as well as of the incomes realized from commercial activities or illegal services and picks up the financial-accounting documents and of another nature which may serve to prove contraventions or, as the case may be, offenses.

➤ attributions in the field of combating acts and facts of tax evasion and tax fraud and customs fraud:

- Provides, through the Anti-Fraud Directorate, specialized technical support to the prosecutor in conducting criminal prosecution in cases involving economic and financial crimes.

- Performs, through the Anti-Fraud Directorate, at the request of the prosecutor:

- ✓ Technical-scientific findings that constitute means of proof, in accordance with the law.

- ✓ Financial investigations in order to make goods unavailable.

- ✓ Any other tax audits ordered by the prosecutor.

In 2013, the National Agency for Fiscal Administration adopted new programmatic documents to continue the modernization and reform of the institution. Starting from the Government Program 2013-2016, the National Agency for Fiscal Administration has developed a new medium-term strategy 2013-2017 through which it has set three major objectives that contain on the one hand the multiannual commitments of previous years, and on the other another part responds to the development and modernization needs of the tax administration.

The strategic objectives of ANAF are:

- Firm fight against tax evasion.
- Improving voluntary compliance.
- Increasing collection efficiency.

According to the information provided by the National Agency for Fiscal Administration in the period 2015-2020, the main objectives of the fiscal inspection activity were measures to prevent and combat tax evasion, reduce methods of avoiding tax returns and payments, increase voluntary compliance with declaration and payment. During this period, the fiscal inspections were performed on areas of activity and on high-risk taxpayers, the selection being made based on the risk analysis.

In the period 2015 - 2020, the fiscal inspection activity performed both fiscal inspections and unannounced, cross-checks or on-site investigations.

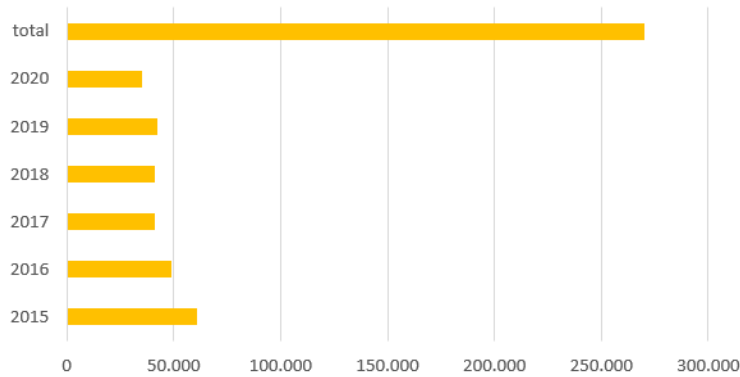
The total number of checks performed was 222,499 as follows:

- a) Year 2015 - 61,054.
- b) Year 2016 - 48,676.
- c) Year 2017 - 41,963.
- d) Year 2018 - 40,952.

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- e) Year 2019 - 42,612.
- f) Year 2020 - 35,494.

Table 1. Number of checks



Source: anaf.ro

In 2015, there was a significant increase compared to 2014, as follows:

1. Additional amounts established in the amount of 18.84 billion lei, increasing by 34.7%.
2. 3,348 criminal notifications amounting to 11.25 billion lei, increasing by 22.1%.
3. Insurance measures amounting to 4.97 billion lei, increasing by 34.8%.
4. 11,117 fines amounting to 24.9 million lei, increasing by 3.9%.

As can be seen in 2015, all the indicators related to the fiscal inspection registered an increase in terms of values.

It should be mentioned that in order to increase the degree of voluntary compliance and to improve the fiscal body - taxpayer relationship, the following administrative acts were issued:

- 4 price agreements in advance
- 33 individual anticipated tax solutions
- Completion of 6 amicable procedures.

In 2016, because of the conclusion of the 48,676 controls, the following results were obtained:

1. Additional amounts established in the amount of 11.4 billion lei.

2. 1,804 precautionary measures totalling 2.7 billion lei.
3. 9,478 fines amounting to 18.8 million lei.
4. Confiscations of goods and cash in the amount of 9.4 million lei.
5. 2,466 criminal notices with a damage of 6.7 billion lei.
6. 2.3 billion lei representing the decrease of the fiscal loss in the case of legal entities.

In 2016, the control apparatus of the fiscal inspection activity within DGAMC carried out 823 control actions, out of which 338 fiscal inspection actions, because of which additional revenues in the amount of 1.6 billion lei were attracted to the consolidated general budget. Starting with 01.01.2016, the organization and operation of the DIRECTORATE FOR THE ADMINISTRATION OF LARGE TAXPAYERS (DGAMC) was approved as a fiscal body with legal personality and its own budget. This aspect was made in the desire to create the premises for increasing the quality and efficiency of the decision-making act at the level of DGAMC management, at the same time as ensuring an increased prestige in relation to taxpayers.

These issues were regulated by Order of the President of ANAF (OPANAF) no. 3610/2016 and no. 3675/2016.

In 2017, because of the 41,396 controls concluded, of which 29,957 taxpayers are legal entities and 11,439 taxpayers are individuals, the following results were obtained:

1. Additional amounts established in the amount of 8.2 billion lei.
2. 2.7 billion lei representing the decrease of the fiscal loss in the case of legal entities.

It should be mentioned that to increase the degree of voluntary compliance and to improve the fiscal body-taxpayer relationship, the following administrative acts were issued:

- 5 price agreements in advance.
- 36 individual tax solutions in advance.

In 2017, DGAMC had under its administration a number of 2940 companies at national level, to which is added the administration of secondary offices registered for tax purposes as payers of salaries and incomes assimilated to salaries due to taxpayers who set up such offices. The General Directorate for the Administration of Large Taxpayers collected the amount of 94.4 billion lei from the general consolidated budget, representing 72.4% of the state budget revenues and 17.4% of the state social insurance budget revenues. Regarding the receipts made by DGAMC in 2017, they represent 43.9% of total national revenues.

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In 2018, the fiscal inspection activity concluded 40,952 controls, of which 25,719 fiscal inspections (general and partial) and 15,233 unannounced controls, cross-checks, and on-site investigations. As a result of the controls completed in 2018, the fiscal inspection activity registered the following results:

1. Additional amounts established in the amount of 5,997.2 million lei.
2. Diminishing the fiscal loss with the amount of 2,874.9 million lei to taxpayers' legal entities.
3. Insurance measures instituted in number of 1,624 in the amount of 1,296.02 million lei.
4. 4,424 contravention fines applied in the amount of 9.53 million lei.
5. 1408 criminal notifications with a damage of 1,345.42 million lei.

The fiscal inspection activity within DGAMC carried out in 2018, 692 fiscal inspection actions, from which it attracted additional revenues in the amount of 1.496 billion lei from the consolidated general budget. There were applied 29 fines with a value of 216,500 lei, 6 criminal notifications with a damage in the amount of approximately 73 million lei and the reduction of the fiscal loss with the amount of 1,642 billion lei.

In 2019, from the perspective of the controls performed, 42,612 were performed, out of which 27,023 fiscal inspections (general and partial) and 15,589 controls (unannounced, cross-examination and on-site investigations) and the following results were achieved:

1. Additional amounts established in the amount of 4,948.8 million lei.
2. Insurance measures in number of 1,016 in total amount of 849 million lei.
3. 3883 fines in the amount of 849 million lei.
4. Diminishing the fiscal loss with the amount of 2,669 million lei for legal entities taxpayers.

Within DGAMC in 2019, 757 fiscal inspection actions were carried out, from which revenues in the amount of 1,000 million lei were attracted to the consolidated general budget. 17 contravention fines were imposed with a value of 77,000 lei, 3 criminal notifications were drawn up with a damage of 68 thousand lei and the reduction of the fiscal loss with the amount of 1,620 million lei.

In 2020, 35,494 controls were performed and the following results were achieved:

1. Additional amounts established in the amount of 4,218.9 million lei.
2. 560 precautionary measures with a value of 667.9 million lei.
3. 2,736 contravention fines were applied in the total amount of 7.3 million lei.

4. 538 criminal notices with a damage of 814.2 million lei.
5. Diminishing the fiscal loss with the amount of 1,933.9 million lei.
6. Additional fiscal obligations in the amount of 158.2 million lei and the decrease of the fiscal loss by the amount of 981.1 million lei to the taxpayers who carry out transactions with affiliated persons and to whom the applied transfer price has been verified.

DGAMC, through the activity of fiscal inspection in 2020, concluded 584 actions of fiscal inspection and attracted to the general consolidated budget additional revenues in the amount of 760.84 million lei. 10 fines amounting to 52,000 lei and a reduction of fiscal loss in the total amount of 953 million lei were applied.

Starting with December 6, 2015, the Fiscal Procedure Code is substantially amended by Law no. 207/2015. In the new Fiscal Procedure Code in Title VI, we find the notion of Fiscal Control, which is divided into 6 chapters, respectively:

- ✓ CHAPTER I - Fiscal inspection.
- ✓ CHAPTER II - Unexpected control.
- ✓ CHAPTER III - Anti-fraud control.
- ✓ CHAPTER IV - Verification of the personal fiscal situation by the central fiscal body.
- ✓ CHAPTER V - Documentary verification.
- ✓ CHAPTER VI - Final provisions regarding the fiscal control performed by the central fiscal body.

The rewriting of the new Fiscal Procedure Code was one of the objectives assumed by the Ministry of Public Finance. A balanced legal relationship was desired both from the perspective of the taxpayer and from the perspective of the tax administration. The greatest importance that this balance offers is the fact that the tensions, existing until that moment, in the relationship between the two parties diminish and everything is for the benefit of the Romanian economy as well as of the society. By rewriting the code of procedure, it was wanted to avoid the production of abuses of power by the state and the avoidance of abuses of law by the taxpayers. In the first situation, that of the state, it was desired to establish clear principles and rules that the state must respect through the tax administration in its relationship with the taxpayer. From the perspective of the abuse of rights by the taxpayer, it was wanted to clarify some anti-abuse rules.

The main changes to the new fiscal procedure code concern the principles of conduct, the principles of application of fiscal legislation.

Regarding the principles of conduct, the following are noted:

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- The principle of legality in the administration of taxes and fees, according to which the fiscal procedure is carried out in accordance with the provisions of the law.

- The principle of reasonableness and fairness.
- Exercising the right of appreciation.

Regarding the principles of application of the fiscal legislation, respectively the interpretation of the fiscal legislation, such as the principle “in dubio contra fiscum” (in case of doubt regarding the fiscal norm, the interpretation is made in favour of the taxpayer), by which the taxpayer is protected against an abusive application of the law by the tax authority and is likely to reduce conflicts between the tax administration and the taxpayer. Thus, when it must apply the fiscal norm to an individual situation and there is an uncertainty as to the meaning in which the law applies to the respective fiscal situation, the fiscal body must:

- ✓ First to clarify the respective text, appealing to the will of the legislator and the purpose of the law, as they are expressed in various public documents (substantiation notes, explanatory memoranda, parliamentary debates, reports, and opinions of the specialized committees of the Parliament, etc. - documents which are published on the website of the Government, ministries, Parliament, etc.).

- ✓ To resort to the systematic interpretation, respectively the interpretation of the provisions through each other, giving to each provision the meaning that results from the whole law.

- ✓ When the text of a provision may have several meanings, it is interpreted in the sense that best corresponds to the general purpose of the law.

- ✓ A legal provision is interpreted in the sense that it can produce the effects pursued by the general purpose of the law, and not in the sense that it does not produce any effect.

- ✓ To apply the rule of interpretation in favour of the taxpayer, if by going through all the previously mentioned rules the meaning of the norm has not been clarified.

Another regulation concerns the duration of the fiscal inspection and the sanctioning of the non-observance of its duration as well as the maximum duration in which an unexpected control must be completed.

The deadline for submitting the appeal filed against the fiscal administrative acts was increased to 45 days, from 30 as provided in the old tax procedure code.

As shown above, in Romania fiscal control/fiscal inspection were defined and regulated by Law no. 30 of March 22, 1991, followed by GO no. 92/2003 and Law

no. 207/2015. From 2015 until now, in Law no. 207/2015, amendments appeared that were adopted, as presented above, by Government Ordinance. The changes were aimed at clarifying, repealing, or adding new articles.

Conclusion

From the research carried out, it was concluded that tax evasion is currently a complex economic and social phenomenon. It is imperative, for all the states of the world that the harmful consequences of this phenomenon be limited, diminished, lost out of scope, in the conditions in which it has become clear to everyone that they cannot be eradicated. Tax evasion has a direct and immediate effect on tax revenue levels, which leads directly to imbalances in market mechanisms, as well as to the illicit enrichment of practitioners of this methods of deception that affect the state and ultimately each of us honest taxpayers. As there are several interpretations, names, and meanings of this phenomenon, it is normal for it to be difficult to define. Phrases such as “fraud, illegal fraud, international evasion, legal fraud, international evasion, fraud by law, underground economy” are used. Not only the terminology is an element of confusion, but also the ambiguous law, the boundary between lawful and illicit being very fragile.

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FDI AND INCOME CONVERGENCE IN THE CENTRAL EUROPEAN TRANSITION COUNTRIES

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Abstract

Foreign direct investment generates a number of benefits, especially for developing and transition countries, and, therefore, it is a major factor in economic development. Some of the advantages of foreign direct investments are technology and knowledge spillover; increased employment and competition and improved balance of payments. The aim of this research is examining the effect of foreign direct investment on income convergence of Central European transition countries. Regression analysis is used to test this effect. The results indicate that Central European transition countries with a higher inflow of foreign capital achieve more propulsive convergence towards the average income of developed countries of the European Union. The results of the research can be useful for the economic policy makers of transition countries.

Keywords: *foreign direct investment; economic growth; income convergence; Central European transition countries.*

JEL Classification: F21, F43, O47, O52

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Introduction

International movement of capital is one of the most important factors in the economic development, especially in the case of developing and less developed countries. The importance of foreign direct investment (FDI), as a form of international capital movement, has the potential to create positive externalities generated by multinational companies in their operations and investments in the host country. FDI has a positive impact on economic growth in the host country through capital inflows, job creation, technology and knowledge transfer and increased competition [Milutinović & Stanišić, 2016; Joseph *et al.*, 2019; Cvetković *et al.*, 2021]. FDI can also generate growth by promoting technological innovation [Bevan & Estrin, 2004]. Over the past decade, FDI has played “an increasingly important role in the process of functional integration of the world economy” [Crescenzi & Petrakos, 2016, p. 587]. FDI is often considered “as a necessary resource for the progress and growth of an economy, especially for the transition countries” [Pantić & Milojević, 2019, p. 100].

Generally speaking, FDI is a form of international capital movement, although different definitions of FDI can be found. FDI represents real investments in production factors, i.e. in capital goods, in land or in stocks, where the investor is involved in both investment and management, while maintaining control over the use of invested capital [Salvatore, 2009]. In the modern phase of the world economy development, FDI is “a key development factor, and along with trade, become the basic mechanism of globalization of the world economy” [Nestorović, 2015, p. 273].

However, the most widely accepted definition is given by the Organization for Economic Cooperation and Development (OECD). According to this definition, “FDI reflects the objective of establishing a lasting interest of a resident enterprise in an economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy, other than the economy of the direct investor. Lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment company, as well as a significant degree of influence on the management of the company” [OECD, 2008, p. 7].

Using regression analysis, the hypothesis that Central European transition countries with higher flows of foreign capital achieve more propulsive income convergence towards the average income of developed members of the European Union (EU) is tested in this paper. For the purposes of the analysis, the Western Balkan states (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia

and Serbia) and, so called, “new” member states of the EU (countries that joined the EU from 2004 to the present) are included in the group of Central European transition countries.

Since this topic is still insufficiently researched on the example of Central European transition countries, the contribution of the paper is to reduce the gap in the literature. The novelty of this research, in relation to the previous ones, is the analysis of this effect, not only for the entire period (1995-2019), but also for subperiods. Such an analysis leads to the results that show the strong impact of the Global Economic Crisis on the effects of FDI on income convergence.

The first section of the paper presents the theoretical background of income convergence and previous empirical research on the effect of FDI on income convergence. Data and research model are provided in the second section. The results of the research are presented in the third part of the paper, while the fourth part is intended for concluding remarks.

Theoretical Background and Literature Review

The theoretical discussion about income convergence among countries or regions began with Robert Solow’s neoclassical growth model. The basic assumption of this model is diminishing returns on capital, which means that lower returns on capital will first occur in the those countries that are rich in capital, ie in developed countries [Solow, 1956]. Consequently, these countries will also have a lower gross domestic product (GDP) per capita growth rate. Situation is opposite in the less developed countries, that is, due to a smaller volume of capital, capital growth is higher, which causes a higher GDP per capita growth rate. Solow (1956) concluded that that, due to diminishing returns on capital, income convergence occurs, i.e. less developed countries have faster growth compared to developed ones.

The question of whether economies converge over time has occupied relatively much attention among economists. Many empirical studies show contradictory results depending on samples and measurement techniques. Nevertheless, most attention is paid to the concepts of σ -convergence and β -convergence (absolute and relative). When less developed countries have faster growth than developed ones, β -convergence exists. In other words, β -convergence exists when countries converge to the same level of GDP per capita regardless of their initial conditions. Absolute β -convergence occurs when countries have the same savings rates, population growth rates and depreciation rates, differ only in the initial income level and strive for one identical steady state [Milutinović, 2015]. Barro & Sala-i-

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Martin (1991) and Mankiw *et al.* (1992) introduced the concept of relative β -convergence, which is considered a much more realistic concept compared to absolute β -convergence. When countries strive to a different steady states, due to different savings rates, population growth rates, and different levels of technology, relative β -convergence occurs. Therefore, countries converge towards their own, different steady states [Milutinović, 2015]. When a country is further from steady state, it will have faster growth than those countries that are closer to their steady state, i.e. richer countries. It can be concluded that relative β -convergence represents faster growth of poor, compared to rich countries, towards different steady states.

In addition to the concept of β -convergence, the existence of σ -convergence is also tested in the literature. If the income gap between the two countries decreases over time, σ -convergence exists [Milutinović, 2015]. Several methods are used in the literature to determine the existence of σ -convergence, that is standard deviation and coefficient of variation. If standard deviation decreases over time, i.e. the absolute difference between the income levels of countries is decreasing, σ -convergence exists. Upward trend of the coefficient of variation indicates existence of convergence. Otherwise, the downward trajectory of the coefficient of variation over time indicates the existence of divergence.

Empirical research on income convergence emerged in the 1980s. Baumol (1986) conducted one of the first studies and proved that a homogeneous group of countries converges towards a certain growth rate. On the contrary, divergence was found in the heterogeneous group of countries. Barro & Sala-i-Martin (1991) also proved income convergence between Western European countries. Numerous empirical studies by various authors followed, which showed the practical application of the income convergence hypothesis. A special place is occupied by research that examines income convergence in the process of economic integration. Following the accession of Central and Eastern European countries in the European Union in 2004, a number of papers have emerged examining the existence of income convergence between “old” and “new” EU members [Matkowski & Próchniak, 2007; Vojinović *et al.*, 2009; Stanišić, 2012; Gligorić, 2014]. These research results prove that income convergence exists between the observed countries, i.e. groups of countries. These two concepts of convergence (beta and sigma) are considered complementary and irreplaceable with each other.

In addition to a large number of papers examining income convergence between the “old” and “new” EU members, there have been papers testing income

convergence between the Western Balkan states and the EU [Murgasova *et al.*, 2015; Stanišić, 2016; Milutinović & Durkalić, 2018]. However, there is not enough paper that could answer the question of whether the countries of the Western Balkan states are catching up with the EU.

Empirical research of the relationship between FDI and income convergence are numerous. However, results and conclusions are far from uniform. Using bilateral FDI flows on the example of 57 countries, Choi (2004) tested the effect of FDI on income convergence. Author also included the geographical proximity between two countries in the analysis, as well as the language they speak. The starting assumption was that the effect on income convergence is greater if the two countries are closer and use the same language. Regression analysis showed that an increased FDI flow between the two countries positively affects income convergence. This effect is even greater if countries are closer and use the same language. Choi (2006) also pointed out that “increase in FDI intensity, measured by internal, external and total FDI as a percentage of GDP, affects the increase in income inequality” (p. 814). In particular, external FDI, rather than internal FDI, have a greater negative effect on income distribution.

There is not a large number of scientific papers that test the relationship between FDI and economic growth in the EU countries, as it is the case in developing countries. Examining the effects of FDI on economic growth in the EU, Moudatsou (2003) concluded that there is a positive effect of FDI on economic growth, both direct and indirect. The results showed that these effects, unlike those in the case of developing countries, are unconditional and do not depend on the level of human capital, probably because the stocks of human capital in them are large and do not represent a limiting factor of economic development. Tang (2015), in contrast to Moudatsou, found no evidence that FDI contributes to economic growth in the EU countries. Bonetto *et al.* (2009) examine the impact of financial variables on the process of income convergence between selected EU countries and Balkan countries from 1999 to 2007. Testing the absolute and relative convergence on a sample of 21 countries, the authors came to the conclusion that active policy of domestic loans and market capitalization in Balkan countries leads to an increase in convergence speed. However, too active market capitalization can lead to destabilization of the Balkan economies.

Abiad *et al.* (2007) analysed the impact of financial integration and international financial flows on income convergence in Europe. Financial integration, has led to the capital transfer from rich to poor countries, leading to an acceleration of income

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growth. However, it is necessary to point out the negative and unstable effects of capital flows, such as the decline of international competitiveness and appreciation of the exchange rate. The severity of these effects depends on whether capital inflows are directed to increase productivity. The authors proved that FDI was accompanied by an increase in productivity.

Fabricio *et al.* (2006) also proved the positive effect of international capital in the “new” members of the EU. These countries transformed production structures, by increasing the content of technology and the quality of their products. However, authors concluded that risk of the appreciation of the exchange rate still exists. Abiad *et al.* (2009) concluded that this transition, enabled by rapid financial integration, was self-limiting because it enables further separation between domestic savings and investments. Financial integration leads to the capital movement from rich countries to the poor ones, which accelerates income convergence. However, with increased incomes, financial integration no longer plays a major role in attracting foreign capital, leading to a reduction in growth momentum.

Aghion *et al.* (2005) examined how the development level of the country’s financial system affects income convergence. The results showed that a more developed financial system accelerates income convergence. Medium and highly developed countries convert not only in the amount of GDP per capita, but also when it comes to a degree of financial system development. This link between economic growth and the degree of financial system development is more intense in the early stages of economic development, and weakens over time as the country approaches sustainable development. Thus, underdeveloped and developing countries, which have a relatively developed financial system, are more likely to catch up with developed countries, while those countries with a relatively underdeveloped financial system will remain trapped in the poverty trap. In a study of the International Monetary Fund, effects of various factors on income convergence were tested, including the impact of the degree of financial system development [Murgasova *et al.*, 2015]. The authors came to the conclusion that more developed financial system accelerates income convergence between developed and less developed countries.

Data and Model

In order to test the hypothesis that Central European transition countries with higher flows of foreign capital achieve more propulsive income convergence

towards the average income of developed members of the European Union (EU15), the following regression model is used:

$$\text{GRGDP}_{i,t} = \alpha_0 + \alpha_1 \text{DIST}_{i,t-1} + \alpha_2 \text{DIST}_{i,t-1} \times \text{FDI}_{i,t-1} + \alpha_3 \text{FDI}_{i,t-1} + v_{i,t}$$

where $\text{GRGDP}_{i,t}$ represents GDP growth rate per capita in current prices of the country i in year t , $t =$ from 1995 to 2019. $\text{DIST}_{i,t-1}$ is the gap in GDP per capita between the country and the EU15 average in the previous period, and $\text{FDI}_{i,t-1}$ is FDI of the country i in the previous period. α_0 is constant, and $v_{i,t}$ standard error.

FDI per capita in current prices and FDI as a percentage of GDP are used as a measure of FDI. A positive value of the coefficient α_2 means that a higher inflow of FDI into the country contributes to faster income convergence of Central European transition countries, towards the average EU15 income.

When coefficient α_1 is positive, income convergence between the Central European transition countries, on the one hand, and the EU15, on the other, exists. A higher value of this coefficient implies faster convergence.

Data for the analysis were obtained from The World Bank and UNCTADstat.

Results and Discussion

Results of the regression analysis of the effect of FDI on the income convergence of the Central European transition countries are shown in Table 1. Regression analysis was performed for the period 1995-2019, and for the subperiods 1995-2000, 1995-2007, 2001-2010, 2001-2007, 2008-2010 and 2011-2019. FDI per capita and FDI as a percentage of GDP were used as indicators of FDI. If the coefficient with the variable related to the factor is positive and statistically significant, the factor, in this case FDI, contributes to more propulsive income convergence. In the entire observed period (1995-2019), the coefficients with independent variables are not statistically significant, so it cannot be concluded that FDI contributes to a more propulsive income convergence of Central European transition countries.

However, when observing the subperiods, the coefficients with the independent variables are statistically significant, and therefore affect income convergence, only in the two subperiods, i.e. 2001-2007 and 2011-2019. The period 2001-2007 covers the period from the beginning of the XXI century to the Global Economic Crisis. In this period FDI shows the impact on income convergence in Central European transition countries. Namely, a higher inflow of FDI per capita contributes to a

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faster GDP growth rate per capita in the Central European transition countries. That is, there is a reduction in the income gap between the Central European transition countries and the EU15. However, effect of FDI, measured as a percentage of GDP, is not significant, and therefore does not affect income convergence of the Central European transition countries in the period from 2001 to 2007. These results can be explained by a significantly higher inflow of FDI per capita in the Central European transition countries since the beginning of the 2000s.

Table 1. Effect of FDI on income convergence of Central European transition countries

		$DIST_{i,t-1}$	$DIST_{i,t-1} \times FDIpc_{i,t-1}$	$FDIpc_{i,t-1}$	$DIST_{i,t-1} \times FDI\%_{i,t-1}$	$FDI\%_{i,t-1}$	Constant	R^2
1995-2019	Coeff.	-0.103	0.292	-0.883	-0.275	0.708	4.925	0.048
	<i>p</i>	0.091	0.706	0.253	0.771	0.467	<0.0005	
1995-2000	Coeff.	0.114	-0.504	0.499	0.347	-0.279	1.634	0.02
	<i>p</i>	0.549	0.490	0.629	0.793	0.860	0.675	
1995-2007	Coeff.	0.288	2.550	-3.568	-1.225	0.693	1.269	0.11
	<i>p</i>	0.003	0.447	0.344	0.681	0.490	0.270	
2001-2010	Coeff.	-8.944E ⁻⁵	-1.423E ⁻⁸	-1.423E ⁻⁸	3.090E ⁻⁶	-0.025	6.258	0.051
	<i>p</i>	0.1	0.475	0.938	0.525	0.828	<0.0005	
2001-2007	Coeff.	0.292	8.610	-11.408	-4.913	7.607	2.245	0.186
	<i>p</i>	0.018	0.091	0.055	0.249	0.111	0.081	
2008-2010	Coeff.	9.480E ⁻⁵	4.631E ⁻⁸	-0.003	-2.501E ⁻⁵	0.997	-3.157	0.053
	<i>p</i>	0.476	0.298	0.190	0.184	0.173	0.493	
2011-2019	Coeff.	3.247E ⁻⁵	5.549E ⁻⁸	-0.002	-1.455E ⁻⁵	0.480	2.184	0.256
		0.292	<0.0005	<0.0005	0.001	0.001	0.032	

Legend: $DIST_{i,t-1}$ - GDP per capita gap between the country and the EU15 average in the previous period; $FDIpc_{i,t-1}$ - FDI per capita in the previous period; $FDI\%_{i,t-1}$ - FDI in the previous period, as a percentage of GDP

Source: author's calculation

FDI show significant effect in the years following Global Economic Crisis (2011-2019). Positive value of the coefficient with variable $DIST_{i,t-1} \times FDI_{pc,i,t-1}$ means that higher inflow of FDI per capita contributes income convergence in the Central European transition countries. On the contrary, the negative value of the coefficient with the variable $JAZ_{i,t-1} \times FDI\%_{i,t-1}$ means that a higher inflow of FDI, expressed as a share of GDP, does not contribute to reducing the income gap between the Central European transition countries and the EU15, but widens it.

The obtained results, which show the opposite direction of FDI per capita and FDI as a percentage of GDP on income convergence, are in line with the results obtained by Choi (2004). Namely, authors' results indicate that increased FDI flows between the two countries have a positive impact on income convergence. However, the results are opposite when FDI inflows are measured as a percentage of GDP. Choi (2006) pointed out that FDI inflows expressed as a percentage of GDP increase the income gap between the two countries. A possible explanation for the opposite effect of these two indicators may be that FDI, presented as a percentage of GDP, already contains GDP and its effect.

In conclusion, regression results indicate a positive effect of higher FDI inflows on income convergence in Central European transition countries, from the beginning of XXI century until the beginning of the Global Economic Crisis. Also, in the years after the Global Economic Crisis, when economies started to recover, and FDI flow slowly began to rise, FDI have had positive effect on income convergence in Central European transition countries. Taking this into account, it can be concluded that FDI contribute to a more propulsive convergence rate of the Central European transition countries towards the average EU15 income level.

Overall results are strongly influenced by the Global Economic Crisis. Also, lack of positive effect of FDI on income convergence for the entire period (1995-2019), as well as in the first decade of transition, could be the result of structural imperfections of transition economies, inefficient domestic firms and insufficient absorption capacity. In other words, it can be under the influence of transition process itself.

Conclusions

Foreign direct investment can play a vital role in the transition, generating a number of benefits that include more funding sources available for investment, technology and skills transfer, improved risk management between domestic and foreign investors, and faster development of the domestic financial sector. In

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addition, access to foreign capital can lead to more stable spending and more efficient specialization. Furthermore, foreign capital can impose external discipline, increasing country's ability to attract further capital inflows. However, globalization and greater mobility of international capital may also pose a potential macroeconomic risk to recipient countries if foreign investment dries up or if there is wider global disruption. Of course, this potential instability varies depending on the type of international capital flow. Given their long-term nature, foreign direct investment tends to be less volatile than most other forms of capital inflows.

The subject of this paper is the relationship between foreign direct investment and income convergence in Central European transition countries. Namely, the aim of the paper is to test whether the higher inflow of foreign direct investment generates more propulsive income convergence of Central European transition countries towards income level of developed European Union countries.

Research results didn't show positive effect of foreign direct investment on income convergence for the entire period (1995-2019). However, the positive effect of foreign direct investment on income convergence was proven for following subperiods – from the beginning of XXI century until the Global Economic Crisis (2001-2007) and after the Global Economic Crisis (2011-2019). This indicates that the results are under the strong influence of Global Economic Crisis. In addition, the results are influenced by structural imperfections of transition economies and their insufficient absorption capacity. Taking all into account, it can be concluded that, higher inflows of foreign direct investment, can lead transition countries converging towards average gross domestic product per capita level of the developed countries of the European Union, and reaching a higher standard of living.

The main limitation of this paper lies in the observation period. In that sense, future research should cover a longer period of observation, i.e. the entire last decade of the XX century, in order to perceive the period from the beginning of the transition. The research results show the effect of the Global Economic Crisis, so that future research can be focused on the effects of the current health crisis caused by the COVID-19 virus.

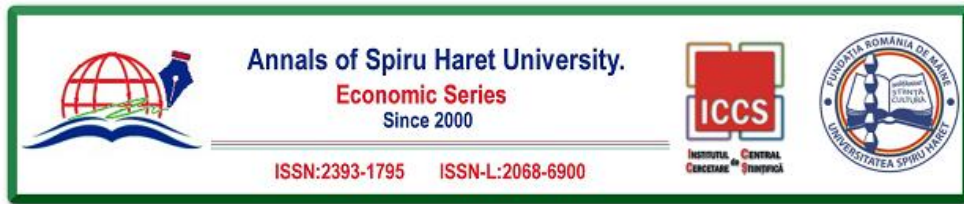
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INSURANCE LITERACY AND RISK APPETITE: EVIDENCE FROM SELECTED SMALL AND MEDIUM- SIZED ENTERPRISES IN LAGOS, NIGERIA

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Abstract

The economic loss that possibly occurred from the inactions of individuals may be resultant effects due to lack of insurance literacy in their personal financing decisions. However, insurance decisions that rest upon the level of risk acceptability of an individual SMEs is usually expressed in the course of attaining a high level of personal financial satisfaction. Therefore, this study examined the relationships between insurance literacy, and risk appetites, with specific reference to SME operators/owners in Lagos, Nigeria. The study adopted a cross-sectional survey research design. Thus, the single-stage cluster sampling method was adopted in the questionnaire distribution and collection processes. A structured questionnaire was employed for data gathering. A total of 386 copies of the questionnaire were distributed, of which

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273 were found usable which represented a 71% response rate. The data procedural technique employed were simple frequency percentages and the multivariate regression method. The results show that all other determinants of insurance literacy except for insurance behaviour have positive relationships with SMEs' risk appetites in Lagos, Nigeria. This study recommended that insurance education, as a field of study, should be taken as seriously as possible so that it can help develop the peoples' minds psychologically and sociologically to get attracted to insurance in order to manage their future. More so, insurance providers in Nigeria should attempt to make the business of insurance lovable and affordable to SMEs' operators/owners in a bid to shapen their behavioural risk attitudes.

Keywords: *insurance literacy; risk appetites; rational choice theory; SMEs; Nigeria.*

JEL Classification: M04, M19

1.0. Introduction

Small and medium sized enterprises (SMEs) are recognised as agents of economic growth and development for every nation of the world (Ajemunigbohun, Isimoya, & Elegunde, 2020; Dayour, Adongo, & Kimbu, 2020; Ledwin & Watson, 2019). Previous studies (such as Adeosun, & Shittu, 2019; Ayyagari, Demirguc-Kunt, & Maksimovic, 2011; Chodokufa, 2016) agreed to the assertion that not less than 95 percent of enterprises which were SMEs are accountable for 60 percent private-related sector opportunities. They argued that the participatory share of SMEs in terms of businesses and work-related opportunities within African continent to stand approximately around 90 percent and 50 percent respectively. These opportunities can be largely coordinated if the various risks associated with these businesses are well-managed.

Risk is prevalent, and its permeates every aspect of human endeavour. It is a formidable force in the search for human and business survival (Adeyele & Osemene, 2018; Al Qubtan, Gan, Abd. Hadi, Abdul Jalil & Rambeli, 2021; Zoghi, 2017). According to Ibiwoye, Mojekwu, and Dansu (2020), major factors confronting SMEs' growths and developments are embedded in the numerous risks impinging their performance in the economic space. Ajemunigbohun and Adeoye (2018) pinpointed at proper risk management techniques, among categories of businesses at both small and medium levels, as inadequate. Earlier

study of Mensah (2004) stated institutional and legal instruments that ought to boost risk management among SMEs operators as thus lacking. Membula (2002) as cited in Ajemunigbohun and Adeoye (2018) aligned the incapacities of SMEs' operators to inadequate risk management education and knowledge; for which insurance is necessary. Dorfman, Ferguson and Ferguson (2006) opine that a lack of well-designed insurance literacy as well as thorough bred teachers for this specialised area will invariably hinder students who intend to obtain a degree in this discipline from doing so. Similarly, business organisations requesting for skilled personnel in risk management and insurance field would not be able to fill up such vacancy.

However, Insurance is depicted as an enterprise support of historical importance to trading activities and any other business entities (Aniete, Uba, & Odou, 2019). According to Skipper and Klein (2000), as cited in Aduloju and Ajemunigbohun (2017), insurance is said to provide vital contributions for economic growth, such as promoting financial stability; substituting for and complementing government security programme; fast-tracking trading; ensuring that risk is handled more efficaciously; and inspiring loss mitigation. Insurance is one of the most complex pecuniary products which consumers will demand whiling living. Insurance is purchased to safeguard against risks of life, property, health, liability for property damage or individual bodily injuries sustained. According to Tennyson (2011b), informed consumption decisions require individual consumers to select a suitable level of coverage to comprehend policy terms and conditions, juxtapose services and financial wellbeing of competing insurers, and have an understanding of their level of risk acceptance under the contract of insurance.

Risk appetite is perceived by many organisations as a fascinating subject leading to theoretical discussions but often failed to embrace it while making their daily decisions (Adeyele & Omorokunwa, 2017). The basis for making important decisions in an organisation hinge upon its objectives and strategy to achieving goals. SMEs and large enterprises are exposed to many perils that lead to their early shutdown. So, to avert business shutdown, the managers of these entities must decide in advance on the scope of operation to pursue their business objectives (Thamaka, Dickason, & Ferreira-Schenk, 2021). This scope of operation defines their risk appetite, although there is no general consensus of what the concept implies. It all depends on the context in which the term is considered, and in some cases, it means how much the organization's drivers intend to relate with a particular organisation while at the same time restricting their relationship with another company of similar line of business. The concept is also defined as total level of risk to be accepted by a financial institution with a

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view to achieving its strategic objectives (Epetmehin, 2013; Hudakova, Masar, Luskova, & Patak, 2018; Thamaka et al., 2021).

2.0. Conceptual and Theoretical review

2.1. Conceptual Review

The insurance literacy is an assemblage of measurements comprising insurance attitude, insurance behaviour, insurance knowledge, and insurance confidence. These measuring instruments were adapted from the financial literacy measurements, hence not too many studies had been conducted in this area.

Financial literacy is continuously gaining attention from divergent quarters, be it government, professionals, financial services industries, and academia. Hence it plays crucial dominance in consumers' financial judgments relating to areas including savings, investment, retirement, debt management, and insurance (Beck, & Garris, 2019; Lin, Bruhn, & William, 2019; Refera, Dhaliwal, & Kaur, 2016; Tennyson, 2011b). In contradiction to the above submission on the greater attention given so far to financial literacy, Driver, Brimble, Freudenberg, and Hunt (2018) submitted that little studies were conducted about insurance literacy, particularly in terms of a detailed evaluation of the comparison between life and non-life types of insurance covers. Investment and Financial Services Association (2010), as cited in Lin et al. (2019), contends that households could experience acute fiduciary situations during severe injury or the demise of an income earner. Globally, consumers are confronted with detailed information regarding financial products (Kubitza, Hofmann, & Steinorth, 2019). This is the case of insurance products as replicated in some studies (Fairer Finance, 2018; Kramer, 2016; Lusardi & Mitchell, 2014). However, research on the nexus between financial literacy and insurance demand has been minimal. Although financially literate consumers are most often confronted with highly complicate insurance agreements in reality (Kubitza et al., 2019).

A recent research finding of Lin et al. (2019) maintained that financial literacy is not necessarily a replica of insurance literacy; which corroborated the earlier study of Huston (2010) as cited in Sanjeeva and Hongbing (2019), stating that only 31% of all studies conducted around financial education, financial capability, and financial literacy considered issues or areas related to insurance and risk management. Earlier submission of Tennyson (2011a) opines that the relatively low level of consumers' insurance literacy and its significant variation is concerning demographic features. Sanjeeva and Hongbing (2019) identify

insurance education as the core process leading to insurance literacy. Thus it mentions that its fundamental goal is to achieve behavioural changes, which is aimed at greater acceptance and improved utilisation of insurance products to accomplish consumers' financial wellness.

According to Sanjeewa, Hongbing and Lin (2019), insurance literacy is delineated as an anthology of knowledge, cognitive competence, behaviours, and specific external factors, enabling consumers' desirable attributes. They reiterated that any aptly developed program to enlighten consumers regarding alternative risk management mechanisms, insurance value, and identified circumstances of auspicious policy consequences could enhance consumers' insurance literacy. There exists an argument that persons with high level of insurance literacy possibly wield active and sensible influence in pondering the appropriateness of individual insurance protection or ask for expert understanding concerning its effect (Lin et al., 2019). More so, past studies (such as Diver et al., 2018. Core data, 2014; Tennyson, 2011b) came up with the understanding that life insurance seems extremely expensive, complex to apprehend, and difficult to procure than the non-life insurance cover. They commented that people often procure motor vehicle insurance as their safest measure; thereby, fail to insure themselves and their households against injuries, disability, or death.

An earlier submission of Kahneman and Tvesky (1984), as cited in Driver et al. (2018), averred that the decision making processes, in behavioural finance literature, can be encompassed with biases and irrational outcomes. Purchase decisions about insurance, according to Teraveinen-Goff (2019), make no difference; hence overconfidence is evident. He further mentioned that when people are overconfident and highly optimistic, there is a high tendency not to evaluate their risk properly, which might plunge them into other risk-prone situations. Thus, they are unlikely to purchase any preventive techniques such as insurance, safeguard from risk, most especially high severe situation, and frequent low situation. However, constructive arguments have been raised in the past, as to those factors influencing insurance purchase to include absence of trust concerning insurance providers (Feinman, 2010); high level premiums (Kelly & Vu, 2010; Pullis, 2010); not acknowledging the exigency of insurance (Laury, Mcinnes, & Swarthout, 2009).

However, Capuano and Ramsey (2011b) stipulate other related factors concerning literacy as influencing insurance demand to include lack of dexterity in risk assessment and complexity of insurance policies of any kind. Driver et al. (2018) stress that the desire to purchase insurance may not be affected by loss

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severity, but the potential loss frequency. They buttressed their claim that people can make payment for safeguarding themselves against high-probability risk even when severities of risks are low (e.g., non-life insurance situations). At the same time, they protect themselves against low-probability risks but with high-level financial severity (e.g. life insurance covers). Fairer Finance (2018) delineate several circumstances whereby individual persons are oblivious of the particular risks insured. It reiterates that illiteracy concerning insurance contracts is premised upon inadequate financial response to a possible loss situation.

Kubitza et al. (2019) restate that low financially literate individuals are unclear of high contract complexity in deciding available information. They buttressed that financially illiterate individuals alter insurance decisions relating to wherever they are faced with the contract's complexity. They maintain that if people are less prudent, the contract's complexity reduces their demand for insurance. According to Lee (2012) and Doherty and Eckles (2011), behavioural bias of financially illiterate people often creates unnecessary doubt concerning the terms of an insurance contract. They restated that with complexities of contract statements and languages, cognitive competences and knowledge imperfection of insurance conditional terms blur individual's notion about the contract payout. This, according to Lee (2012), is said to be connected with the level of individual risk awareness. Arguably, the possible dangers encapsulating low-level financial literacy become clear where non-existence of risk awareness culminates in inadequate insurance protection among susceptible individuals in the society.

Risk awareness, according to Insurance Europe (2017), is seen as a core component of financial literacy, particularly from insurance perspective. Bauhoff, Carman, and Wuppermann (2013) state that several individual consumers wield a low level of risk awareness and are thus devoid of the required knowledge of insurance products and providers of insurance services. By so doing, financial literacy raises knowledge and gives access to people to make suitable choices when pondering on how to procure sufficient insurance cover. Kubitza et al. (2019) comment that financial literacy and risk awareness provide people with a better knowledge of insurance products' core characteristics. To this end, they said it expands individual choice scope and permits them to make informed decisions when choosing the insurance products that meet their needs and expectations optimally. Kwadwo and Kwasi (2016) maintain that sound and effectual risk awareness assist individual consumers to evolve the requisite understanding, knowledge, and confidence to assess and better comprehend the required policies,

knowing where to seek information when required, and to make decisive judgments concerning their safety and that of their households via proactive risk control techniques such as insurance cover.

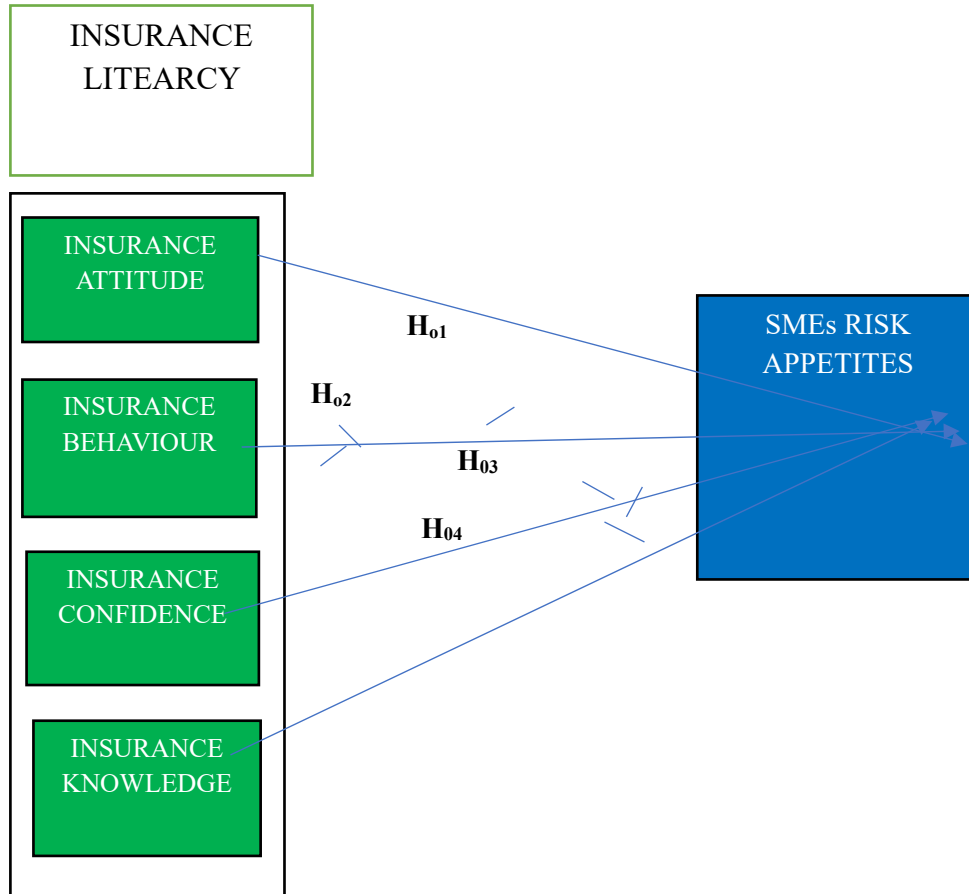


Figure 2.1

Source: Developed by the Researchers (2021)

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2.2. Theoretical Review

The rational choice theory assumes the literacy of an individual agents in the accuracy of information acquired towards his/her needs. The precision of the information is in relation to products prices, earning capacities, and desired consumption level. However, changes in an agent's earnings with relative to prices inform his/her rationality towards such product (Clarke, 2016). This theory further pointed at the anticipated desire of an economic agent towards outcomes of all possible alternatives and choices toward their potential ability and desire (Scott, 2000). It is presumed under this theory that individuals are risk averse in relation to insurance prices, and also, rational in their desire for insurance literacy in the event of losses (Kunreuther & Pauly, 2005). The maxim suffices that lower insurance literacy denies an economic agent the appetite for risk (Du, Feng, & Hennessy, 2014). At the point, where an insurer has less confidence an individual risk appetite the purchase of insurance, as scientific remedy to approaching potential loss exposure in their numerous business activities, or where the insurer perceives that an individual or SMEs operator will not be willing to approach its risk acceptability with insurance technique, which probably changes their attitudinal disposition. However, due to doubt concerning the future of an individual SMEs operator or owner, insurance choices are not usually made based on utility alone but on a consideration of the behavioural pattern of an individual agent (Richter, Schiller, & Schlesinger, 2014). This theory explains the individual SMEs operator's willing to approach its risk acceptability level with necessary insurance policy, and how their risk appetite could probably be supported with appreciable level of insurance literacy.

3.0. Methods

A survey design was adopted in the study. The design assisted in the planning and implementation of a desired instrument for real-life scenario (Creswell & Creswell, 2018). The study adopted structured questionnaire in its data gathering. This instrument helped for time adequacy, survey representation, and simplicity of response (Cooper & Schindler, 2014). In a survey study by Ibiwoye, Mojekwu, and Dansu (2020), approximately 11,663 registered Small and medium businesses operated in Lagos State. For the purpose of data gathering exercise, single stage cluster sampling was employed in ten local council areas of the state. This sampling method was advantageous in terms of time management and inexpensiveness (Wilson, 2014). The study adopted construct, logical, and

criterion-related validity in the accuracy of survey items placed on the instrument. The test of the instrument reliability produced Cronbach alpha of 0.734, 0.715, 0.700, 0.883 and 0.682 for insurance attitude, insurance behaviour, insurance confidence, insurance knowledge and risk appetites respectively. The statistical outcomes met the expected criterion for excellent internal consistency. Two-hundred and seventy-three sample size was adopted out of the 386 generated sample from the Taro Yamane's (1967) formula as cited in Taherdoost (2016), as given as:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{11,668}{1 + 11,666 (0.05)^2} = 386$$

The data procedure adopted was the multivariate statistical technique. Conclusively, five Likert scaling measurements of 'strongly agree' 'agree', 'indifferent', 'disagree', and 'strongly disagree' were adopted.

4.0. Results and Discussion

The study adopted multivariate method to test the relationship between the constructs with the intervention of the Statistical Package for Social Sciences (SPSS) version 22.0. In presenting the estimated model coefficients, the calculation obtained from the descriptive statistics and multiple regression model is given as:

4.1. Descriptive Analysis of Research Variables

4.1.1 Insurance Attitude

In Table 4.1.1, The respondents responded to the various items, wherein 77.6 percent expressed their agreement in terms of '*when it comes to making a financial investment like insurance, I prefer it as safety to risk*', 15.8 percent disagreed; then, 6.6 percent indifferent. For '*the amount of return from insurance has nothing to do with my willingness to take risk*', while respondents expressed 68.5 percent in support, 6.2 percent were in disagreement with it, then, 25.3 percent were indecisive. As for '*I am happy with any financial investment like insurance as long as the risk is minimal*', 78.7 percent of the entire respondents displayed their agreement, 3.3 percent were indecisive, and 18.0 percent disagreed. For '*I do not agree with the idea that greater risk leads to a higher rate of return from*

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insurance', while 28.6 percent agreed, 2.2 percent disagreed. Then, 69.2 percent expressed their indecision. The result of the descriptive statistics on insurance attitude clearly show that all the respondents have similar opinions about all the subject matters as indicated in their mean and standard deviation scores.

Table 4.1.1. Insurance Attitude

Variables	Scale Level					Mean	Std Dev.
	SD	D	U	A	SA		
	1	2	3	4	5		
When it comes to making a financial investment like insurance, I prefer it as safety to risk	2.6	13.2	6.6	66.3	11.3	3.71	.925
The amount of return from insurance has nothing to do with my willingness to take risk	4.4	1.8	25.3	60.8	7.7	3.66	.826
I am happy with any financial investment like insurance as long as the risk is minimal	2.6	15.4	3.3	71.4	7.3	3.66	.916
I do not agree with the idea that greater risk leads to a higher rate of return from insurance	0.7	1.5	69.2	25.3	3.3	3.29	.588

Source: Field Survey, 2021

4.1.2. Insurance Behaviour

In Table 4.1.2, The respondents responded to the various items, wherein 57.8 percent expressed their agreement in terms of '*I usually have control over my budget (like buying insurance) for the major spending of the year*', 16.5 percent indifferent and 25.7 percent disenchanted. For '*before taking any financial decision like insurance, I would consider my options multiple times*', while respondents expressed 49.8 percent in support, 25.3 percent were in disagreement with it, then, 24.9 percent were indecisive. As for '*I have never spent my income on buying financial product like insurance*', while 34.7 percent of the entire respondents

displayed their agreement, 17.6 percent were indecisive, and 47.7 percent disagreed. For ‘*I have no plan for how to handle financial risk through insurance compared to other people*’, while 54.3 percent agreed, 32.9 percent disagreed, and only 12.8 percent undecided. The result of the descriptive statistics on insurance behaviour clearly show that all the respondents have similar opinions about all the subject matters as indicated in their mean and standard deviation scores.

Table 4.1.2. Insurance Behaviour

Variables	Scale Level					Mean	Std Dev.
	SD	D	U	A	SA		
	1	2	3	4	5		
I usually have control over my budget (like buying insurance) for the major spending of the year	15.4	10.3	16.5	55.6	2.2	3.19	1.154
Before taking any financial decision like insurance, I would consider my options multiple times	1.5	23.8	24.9	48.4	1.4	3.25	.884
I have never spent my income on buying financial product like insurance	11.4	36.3	17.6	31.1	3.7	2.79	1.112
I have no plan for how to handle financial risk through insurance compared to other people	5.1	27.8	12.8	53.5	0.8	3.17	1.011

Source: Field Survey, 2021

4.1.3. Insurance Confidence

In Table 4.1.3, The respondents responded to the various items, wherein 57.1 percent expressed their agreement in terms of ‘*I am afraid to making financial decisions like insurance no matter how good I think my decisions are*’, 14.7 percent indifferent, and 28.2 percent expressed their disagreement. For ‘*I am not*

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confident in planning my financial budget in buying insurance product for the year, while respondents expressed 46.1 percent in support, 45.1 percent were in disagreement with it, then, only 8.8 percent were indecisive. As for *'I do not feel confident making insurance decisions, even when I have the knowledge to do so'*, 56.8 percent of the entire respondents displayed their agreement, 22.0 percent were indecisive, and 21.2 percent disagreed. For *'I prefer consulting experts in managing my losses through purchase of insurance other than managing it myself'*, while 62.6 percent agreed, 31.5percent indecisive, and 5.9 percent disagreed. The result of the descriptive statistics on insurance confidence clearly show that all the respondents have similar opinions about all the subject matters as indicated in their mean and standard deviation scores.

Table 4.1.3. Insurance Confidence

Variables	Scale Level					Mean	Std Dev.
	SD	D	U	A	SA		
	1	2	3	4	5		
I am afraid to making financial decisions like insurance no matter how good I think my decisions are	0.7	27.5	14.7	55.7	1.4	3.30	.913
I am not confident in planning my financial budget in buying insurance product for the year	0.0	45.1	8.8	44.6	1.5	3.03	.979
I do not feel confident making insurance decisions, even when I have the knowledge to do so	2.2	19.0	22.0	50.9	5.9	3.39	.934
I prefer consulting experts in managing my losses through purchase of insurance other than managing it myself	1.5	4.4	31.5	52.4	10.2	3.66	.780

Source: Field Survey, 2021

4.1.4. Insurance Knowledge

In Table 4.1.4, The respondents responded to the various items, wherein 77.3 percent expressed their agreement in terms of ‘*I am more comfortable with living a life that does not involve high financial risk thereby buy insurance*’, 18.3 percent indifferent, and 4.4 percent in disagreement. For ‘*when making financial decision like insurance, I am being very careful*’, while respondents expressed 52.3 percent in support, 3.7 percent were in disagreement with it, then, 44.0 percent were indecisive. As for ‘*when it comes to financial spending like insurance, I am financially more conservative*’, 13.3 percent of the entire respondents displayed their agreement, 56.0 percent were indecisive, and 30.7 percent disagreed. For ‘*because I believe in luck, my understanding of a financial instrument like insurance is not necessary*’, while 13.2 percent agreed, 27.5 percent indifferent, and 59.3 percent disagreed. The result of the descriptive statistics on insurance knowledge clearly show that all the respondents have similar opinions about all the subject matters as indicated in their mean and standard deviation scores.

Table 4.1.4. Insurance Knowledge

Variables	Scale Level					Mean	Std Dev.
	SD	D	U	A	SA		
	1	2	3	4	5		
I am more comfortable with living a life that does not involve high financial risk thereby buy insurance	0.0	4.4	18.3	72.2	5.1	3.79	.585
When making financial decision like insurance, I am being very careful	1.5	2.2	44.0	50.2	2.1	3.49	.654
When it comes to financial spending like insurance, I am financially more conservative	0.7	30.0	56.0	11.7	1.6	2.83	.692
Because I believe in luck, my understanding of a financial instrument like insurance is not necessary	8.1	51.2	27.5	11.0	2.2	2.48	.875

Source: Field Survey, 2021

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4.1.5. Organisational Risk Appetite

In Table 4.1.5, the organizational risk appetite items for which data was sought from the entire respondents *were owners' tendency to take risk, company's past risk experience, knowledge of business environment, incentives for risk taking, company's risk capacity, perceived riskiness, stakeholders' pressures, frequency of risk reporting, and company size*. The respondents responded to the various items, wherein 78.8 percent expressed their agreement in terms of *owners' tendency to take risk*, only 3.3 percent flaunted disagreement, while 17.9 declared their indecision. For the *company's past risk experience*, while respondents expressed 88.7 percent in support, 8.9 percent were in disagreement with it. Then, 2.4 were indifferent. As for *knowledge of business environment*, while 88.8 percent of the entire respondents displayed their agreement, 6.7 percent expressed their indecision, and 4.5 percent showed their displeasure. For *incentives for risk taking*, while 88.8 percent agreed, 4.3 percent indecisive, and 6.9 percent disagreed. For *company's risk capacity*, while 93.5 percent agreed, 6.5 percent disagreed. For the *perceived riskiness*, while respondents expressed 83.2 percent in support, 6.4 percent were in disagreement with it. Then, 10.4 were indifferent. As for *stakeholders' pressures*, while 86.6 percent of the entire respondents displayed their agreement, 8.9 percent expressed their indecision, and 4.5 percent showed their displeasure. For *frequency of risk reporting*, while 93.4 percent agreed, 2.2 percent indecisive, and 4.4 percent disagreed. For *company size*, while 90.4 percent agreed, 5.1 percent indecisive, and 4.5 percent disagreed. The result of the descriptive statistics on organizational risk appetite clearly show that all the respondents have similar opinions about all the subject matters as indicated in their mean and standard deviation scores.

From the results of the regression analysis presented above, it is clear that there is positive moderately relationship between insurance literacy and risk appetite. The model also shows the variations experienced by the dependent variable that could be explained by the independent variable (R square) which shows that insurance literacy is responsible for about 17.1% of variance in SMEs operators' risk appetite. This means that 82.9% of the risk appetite enjoyed by the insurance companies comes from other factors other than the predictor used in this model (insurance literacy). The generalisation of the results (Adjusted R square) indicates that true 13.5% of the variation in risk appetite is explained by insurance literacy metrics (*insurance attitude, insurance behaviour, insurance confidence, insurance knowledge*). This result is almost close to reality as the difference between R Square and Adjusted R Square is not high. The standard error fit, which is a measure of the precision of the model, shows how wrong the

statistical outcomes could be at 4% if one uses this model to make real life predictions. The above result is both statistically significant and insignificant as seen in the ANOVA table (p-value = 0.136, 0.000, 0.306, 0.963, 0.596) as they are less than and greater than the 0.05 confidence interval used in this study.

Table 4.1.5. Organisational Risk Appetite

Variables	Scale Level					Mean	Std Dev.
	SD	D	U	A	SA		
	1	2	3	4	5		
Owner's or operator's tendency to take risk influences our decision for risk tolerance	2.6	0.7	17.9	68.5	10.3	3.83	.718
Our company's past risk experience influence our decision to accept risk	6.7	2.2	2.4	38.3	50.4	4.23	1.081
The awareness and knowledge of our business environment influence our decision for risk tolerance	4.5	0.0	6.7	48.0	40.8	4.21	.916
Our management provides incentives for risk taking	2.2	4.7	4.3	43.6	45.2	4.25	.905
Our company risk capacity influences our desire for risk acceptance	2.2	4.3	0.0	38.7	54.8	4.39	.882
Perceived riskiness in our kind of business influence our decision for some level of risk tolerance	6.4	0.0	10.4	50.8	32.4	4.02	1.016
Other stakeholders' pressures influence our risk tolerance decision at times	4.5	0.0	8.9	36.3	50.3	4.28	.960
Frequency of risk reporting determines the amount and type of risk my organisation wishes to accept	2.2	2.2	2.2	28.5	64.9	4.51	.837
My company's size influences our risk tolerance level	0.0	4.5	5.1	22.9	67.5	4.54	.781

Source: Field Survey, 2021

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4.2. Hypothesis Testing

Table 4.2. Multiple Regression Results for Economic Factors vs. Insurance Buying Behaviour

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.413 ^a	.171	.135	3.97541	.171	51.434	4	269	.136
a. Predictors: (Constant), insurance attitude, insurance behaviour, insurance confidence, insurance knowledge									
ANOVA ^a									
Model		Sum of Squares		Df	Mean Square	F	Sig.		
1	Regression	812.862		1	812.862	51.434	.136 ^b		
	Residual	2291.560		272	15.804				
	Total	3104.422		273					
a. Dependent Variable: Risk appetite									
a. Predictors: (Constant), insurance attitude, insurance behaviour, insurance confidence, insurance knowledge									
Coefficients ^a									
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		
		B	Std. Error	Beta			Lower Bound	Upper Bound	
1	(Constant)	11.875	1.682		7.060	.000	8.551	15.200	
	Insurance attitude	1.275	.120	.542	10.631	.000	1.038	1.511	
	Insurance behaviour	-.151	.147	.062	-1.026	.306	-.440	.139	
	Insurance confidence	.008	.176	.003	0.046	.963	-.339	.355	
	Insurance knowledge	.117	.220	.032	.531	.596	-.317	.551	
a. Dependent Variable: Risk appetite									

Source: Authors' computation, 2021

4.3. Discussion of Findings

From the empirical analysis conducted and the test of hypotheses carried out, this study confirmed the relationship between insurance literacy and risk appetite among SMEs operators/owners in Lagos State, Nigeria; with respect to the research objectives.

The result shows that insurance literacy (comprising insurance attitude, insurance behaviour, insurance confidence, and insurance knowledge) has positive and moderate relationship with the risk appetite of SMEs owners/operators in Lagos State, Nigeria, thereby invalidating the null hypothesis and validating the alternate hypothesis. This result corroborates the findings of Epetimehin (2013), Joseph & Joshua (2011), and Philippe & Liliana (2016). While Philippe & Liliana (2016) suggest that insurance companies should calibrate shareholders' risk appetite levels and adopting such with the decision-making processes; Joseph & Joshua (2011) added that setting up risk policy documents and risk appetite levels by the insurers is a sign of good risk management system.

Ajemunigbohun et al (2020) pointed at economic variables as significant to insurance patronage, and thus a pedestal on major choices of their life; Dash (2018) had admitted that economic variables (such as income and prices of insurance) are core values in the behavioural disposition of insurance products.

5.0. Conclusion and Recommendations

From the empirical analyses conducted and the test of hypotheses carried out, this study has been able to address the research objectives. The results show that all other determinants of insurance literacy except for insurance behaviour have positive relationships with SME's risk appetites in Lagos, Nigeria. The findings show that insurance literacy is key to attracting high level risk appetite from SMEs operators as their attitude, shown in the result, towards insurance proved to be significant while other components in terms of their behaviour, confidence, and knowledge of insurance proved insignificant. This is an indication that that insurance providers haven't done enough in changing behavioural patterns of individuals, their level of confidence, and knowledge capacities with regards to insurance products. Therefore, insurance providers should in Nigeria should focus on insurance literacy metrics that will have greater effects on the risk appetite of SMEs owners/operators and other entrepreneurs or business-related industries.

Based on the justification adduced to in this study, the researchers recommended that insurance education, as a field of study, should be taken as

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seriously as possible so that it can help develop the peoples' minds psychologically and sociologically to get attracted to insurance in order to manage their future. More so, insurance providers in Nigeria should attempt to make the business of insurance lovable and affordable to SMEs' operators/owners in a bid to shapen their behavioural risk attitudes. The SMEs operators should try to shift their desire to managing the thrust of risk off to the insurance providers for adequate business, economic and financial security. Insurers are expected to provide special funds to financially support for uninsurable risks of the operators in a bid to enhance the value of insurance among businesses. It is also important that regulator roll out programmes in collaboration with insurance practitioners in order to ensure protection of individual consumers.

6.0. Contributions to Knowledge, Limitations, and Suggestions for Future Research

This study has been able to help in establishing a link between insurance literacy and SMEs' risk appetites, with the development of a conceptual model. Despite the recommendations highlighted, the study has some limitations. First, the study's findings are viewpoints of SMEs owners/operators in Lagos State. This is just a representation of the study population, which may affect the generalisation of the entire population. This means that the generalisation of the findings should be made with caution. Given this implication, similar studies should be carried out in other industries in Nigeria.

It is being suggested that further research works should place attention on behavioural attitudes of policyholders in Nigeria. Research work is thus encouraged to look at behavioural factors that can influence more preferences for insurance products in Nigeria. Lastly, future research work could direct attention at sociology and psychology of insurance.

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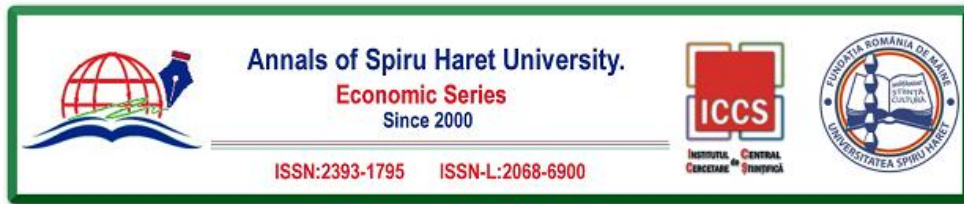
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RISK FINANCING STRATEGY AND PROJECT SUCCESS: EVIDENCE FROM BUILDING CONTRACTORS IN LAGOS STATE, NIGERIA

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Abstract

The aim of the study is to evaluate the significant effect of risk financing strategy on project success among building contractors in Lagos State with focus on risk transfer strategy and risk retention strategy on project success among building contractors in Lagos State, Nigeria. This study employed a descriptive survey research design. The population of the study comprises all registered builders in Lagos State which are 2,422 builders. The study adopted a convenience sampling method. The total sample used for the study is 170 respondents. The study employed a structured questionnaire as its instrument of data collection. Data collected were analysed using Statistical package for social science students (SPSS) and regression analysis. The regression result showed a strong positive relationship between risk transfer strategy and project success among building contractors in Lagos State which is indicated by the R value (.701) at 5% significance level and it is statistically significant at .000 which is less than ($P < 0.05$). The second hypothesis regression result showed a strong positive relationship between risk retention strategy and project success among building contractors in Lagos State which is indicated by the R value (.701) at 5% significance level and it is statistically significant at .000 which is less than ($P < 0.05$). It was concluded that the compliance level of the contractors with regards to the stipulation of section 64(1), No.37

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of Insurance Act 2003 was very low compared to their high level of awareness with the stipulation. The compliance level was less than 20% compared to the awareness level that was more than 20%. It was recommended that all built environment stakeholders should become more involved in the implementation of risk management. Their early involvement will facilitate a better understanding of each party's roles and enhance collaboration and communication within the Nigerian construction industry.

Keywords: *financing strategy; contractors; environment stakeholders; risk management; construction industry.*

JEL Classification: G32, G34

Introduction

Construction activities, like all human endeavours, are fraught with risk, and the risks are numerous and varied (Ede, 2016). In order to reduce the impact of uncertain events, risk management is incorporated into the planning, arranging, and controlling of activities and resources. Because of the time and cost associated with construction projects, construction risk has gotten a lot of attention (Akintoye & MacLeod, 2017). The collapse of buildings has been a source of great concern for everyone in Nigeria, despite the fact that these structures are important contributors to any nation's development. As a result, when a structure collapses, it fails to perform the functions that it is supposed to for the people and the government. A structure is considered collapsed if the entire structure or a portion of it has collapsed and can no longer fulfil the purpose for which it was constructed (John, 2017). When a building collapses, it elicits strong emotional responses from all segments of the population, resulting in significant economic, human, and material losses for the country. There have been numerous building collapses in recent years, the majority of which are uninsured (Obodoh, 2019).

In Nigeria, the number of building failures and collapses has increased to alarming levels, and stakeholders must wake up and stop dismissing these recurring events (Akinyemi, 2016). It has resulted in the unnecessarily loss of lives and destruction of people's property on several occasions, making it a major source of concern because it jeopardizes our great nation's development. According to the Nigerian Institute of Building (NIOB), Lagos State accounts for 60% of all reported building collapses in Nigeria. Because affected individuals are evicted from their homes and businesses are destroyed on a regular basis. Building collapse

is a common occurrence throughout the world, but it is more common and devastating in developing countries. It is a major issue in Nigeria, with the majority of incidents occurring in Lagos, the country's largest city. In fact, it has become a common occurrence in Nigeria, even among ordinary citizens. Every stage of the building construction process, from initial investment appraisal to construction and use, has been established as being fraught with risks for all parties involved. There have been numerous building collapses in recent years, and the majority of them are uninsured, as confirmed by the commissioner of insurance in a 21-story building on Gerard Road in Ikoyi recently collapsed, necessitating the federal government's call for compulsory insurance enforcement. Most building contractors appear to be uninterested in risk financing strategies that involve transferring or retaining risk so as to ensure the safety and completion of construction projects. As a result, the research aims to look into risk financing strategies and project success among building contractors in Lagos. The aim of the study is to evaluate the significant effect of risk financing strategy on project success among building contractors in Nigeria in Lagos State.

Conceptual review

Risk Management and Building Construction

The scope of building activities necessitates risk management, as each stage of construction entails some level of risk (Drakes, 2016). Risk management in the construction industry entails planning, organizing, and controlling activities and resources to minimize the impact of unplanned events. Because of the time and cost associated with construction projects, construction risk has gotten a lot of attention (Akintoye & MacLeod, 2017). Risk can come in a number of different forms, and the type of risk varies depending on the situation. Risks associated with the transportation of toxic materials, for example, cannot be managed in the same way that risks associated with space missions can. Akintoye and Macleod (2017), Raftery (2014), Williams and Heims (2019), and Toakley and Ling (2017) identified the current use of risk management techniques in the construction industry. Some of these concepts include risk premium, risk adjusted discount rate, subjective probability, decision analysis, sensitivity analysis, Monte Carlo simulation, stochastic dominance, Casper, and intuition. However, one of the most common ways for the Nigerian construction industry to manage construction risks, according to Odeyinka (2017), is to transfer them to insurance companies. It is still unknown how effective this method is at reducing construction risks in Nigeria.

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Risk in Building Construction Projects

Construction projects, according to Hamza et al., (2015), are extremely complex and can pose a threat in variety of internal and external risks. Any exposure to the possibility of loss in the construction industry is referred to as construction risk (Surety, 2014). A strict set of laws and regulations must be followed during the construction process to best avoid these risks. Unfortunately, because unknown factors will inevitably arise during the course of a project, there is no way to completely eliminate risks. One of the most effective ways to manage risks is to understand the various types of risks and how to manage them. If you can identify and categorize risks before you start a project, you can improve your risk management and avoid any potential losses. Renuka (2014) identified several types of risks in construction projects which includes technical risks, financial risks and logistical risk.

Concept of Builders Risk Insurance Policy

This is a policy that covers structures in the Nigerian construction industry while they are being constructed. It safeguards the contractor's interest in materials in transit for the job, as well as the value of the property under construction, until the job is completed and accepted by the owner. The policy could be written to cover both the entire structure and the costs of remodeling or renovation projects for new construction. It can be used for a variety of projects, including room additions, decks, and kitchen remodels (Odeyinka, 2015). Builders risk insurance, also known as "course of construction," "construction all risk," and "contractors all risk insurance," is a specialized type of insurance that protects buildings and projects against repair or replacement costs during construction and, in some cases, for a period afterward. This insurance usually covers construction materials, fixtures, and appliances that are intended to become an integral part of the structure being built. (Clark and Boswall, 2015).

Compulsory Builders Risk Insurance Policy in Nigeria

The National Insurance Commission "NAICOM" stated that it was acting in accordance with the provisions of the Nigeria Insurance Act (2003) and in a renewed effort to negotiate insurance use, practice, and regulations. The deadline for fully enforcing all mandatory insurance policies under various Nigerian statutes and applying penalties to this legal alert has been set for the end of March 2011. Builders' liability insurance is required by Section 64 of the Insurance Act. All

multi-story building builders must register the structure and insure it against all construction risks resulting from the builder's negligence or the negligence of the builder's servants, agents, or consultants, which negligence may result in bodily injury, loss of life, or property damage. All owners and contractors of buildings under construction with more than two floors, according to NAICOM consultant Soladoye (2012), are required to have the policy, which covers construction risks such as death or injury to site workers or members of the public, as well as property damage.

Table 1. Some of the recent collapsed buildings and their insurance status

S/N	Structure	Date	Location	Cause of collapse	Fatality	Insurance policy status
1	Residential under construction	June 2010	Oniru Estate, Victoria Island	Substandard materials, haphazard works.	1	Not insured
2	4 storey building structure	10 th September, 2010	28 Tinubu street Victoria Island	Structural defects	3	Not insured
3	Five-storey	June 2011	11 Aderibigbe street Maryland,Lagos	No geotechnical investigation	None	-
4	3-storey building	July 2011	Oloto street, cement road, Ebute Metta,Lagos State	Non-compliance to building standards & regulations	10	Not insured
5	3-storey building	August 2011	Orosanye street Lagos	Wrong supervision	None	Not insured
6	Building in use	November 20, 2012	Jakande estate oke afa, Isolo Lagos State	Structural failure and occupants carelessness	3	Not insured
7	A twin four storey duplex	November 3, 2013	Victoria island,Lagos	unknown	4	-
8	(SCOAN) Synagogue	12 th September,2014	Ikotun-Egbe Lagos state	Structural defects	About 116	Not insured

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	Church of All Nations					
9	Synagogue Warehouse Church, Lagos.	September 12,2014	Ikotun-Egbe area of Lagos state	Demolition process	4	Not insured
10	Four storey building	March 13, 2015	6 Mogaji Street Idumota Lagos island	Unknown	1	-
11	3 storey building	July 15, 2015	Ebute Metta Lagos	Structural defect	None	Not insured
12	3 storey building	October 21,2015	Swamp street Odunfa Lagos island.	Structural defect	None	Not insured
13	A five-story building under construction	March 9,2016	Lekki Lagos	Addition to the approved number of floors.	34	Not insured
14	Two storey building	March 19, 2016	Mile 12,Lagos	Structural defect	1	-
15	Residential building	April 2016	Horizon 1, Lekki Garden, Ikate.	Structural defect	18	-

Source: Lagos State Building Control Agency, 2020

Empirical review

Human negligence in key areas of construction, such as soil investigation, incorporating extra load design, stress from winds, earthquakes, uneven terrain, use of substandard building materials, poor monitoring, and overall poor workmanship, according to Oloyede (2015), causes building collapses.

Madu, (2015) identified natural occurrences like earthquakes, tornadoes, floods, and other natural occurrences as causes of building failure. Other factors, he claims, include omission and carelessness, which leads to the use of deficient structural drawings, a lack of proper project supervision, the alteration of approved

drawings, the use of substandard materials, the Nigerian system's corruption, construction without approved drawings, and the translocation of building plans to different sites.

Adebayo (2016) believes that in the construction industry, efficiency in skill and experience is critical to producing high-quality workmanship. Ayinuola (2014) accused all parties involved in the construction industry, including clients, architects, engineers, local government town planners, and contractors, of contributing to building failures on multiple levels.

H₀₁: Risk transfer strategy does not have significant effect on project success among building contractors in Lagos State, Nigeria.

H₀₂: Risk retention strategy does not have significant effect on project success among building contractors in Lagos State, Nigeria.

Research Methodology

This study was conducted using a descriptive survey research design. Because surveys are useful for describing the characteristics of a large population, they are commonly used., the descriptive survey research design was chosen (Osula, 2014). The population of this study includes all forty-one (41) licensed non-life insurance companies operating in Nigeria as at 1st of January 2019 (National Insurance Commission, 2019). The population of the study comprises all registered builders in Lagos State which are 2,422 builders (CORBON, 2020) validated by the study of (Babatunde, 2020). Lagos state was a choice of the selected building contractors because it is the state with highest number of registered builders in Nigeria and is the commercial nerve of Nigeria. It is assumed that responses obtained from the sample respondents would be representative of the opinion of all the registered building construction companies in Nigeria. The study adopted a convenience sampling method of selection and to be able to draw the right sample for the purpose of this study. 942 of the registered builders are fully functional and 281 building contractors are operative on island area of Lagos state where the study is conducted, the areas include Ikoyi, Victoria Island and Lekki phase 1. The Taro Yamani formula was applied to ascertain the sample size. The formula is given below as:

$$n = \frac{N}{1 + N(e)^2}$$

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Where n = sample size, N = population size e = error limit
 $N = 281$ $e = 0.05$

Therefore $n = 165$ approximately. 5 group head of property insurance department of the big 5 insurance companies were also selected for the study (Axa Mansard Insurance, NEM insurance plc, Custodians & Alliance insurance, Mutual Benefits plc and Leadway Assurance). Therefore, the total sample used for the study is 170 respondents.

This study employed a structured questionnaire as its instrument for data collection. This instrument is relevant in collecting feedbacks from respondents based on their perceptions and opinions. Furthermore, it is suitable for collecting data from respondents within a relatively short period.

In line with extant literature, the response options provided in this study's questionnaire follow the 5-point Likert-type scale, consistent with (Binuyo, 2019). This scale, being an ordinal interval scale, is numbered from 5 to 1.

Data collected will be analysed using Statistical package for social science students (SPSS) which expresses the data in tables, frequencies and percentages while regression analysis will be used to test the hypotheses formulated in order to evaluate the significant effect of risk financing strategy among building contractors in Lagos State, Nigeria. The regression equation will be

$$Y = a + bX$$

Where:

a = intercept

b = slope or gradient

X = Risk financing strategy

Y = project success

Results and discussion

The Analysis of the bio- data of the respondents, the analysis was done with respect to gender, age, Work experience, educational qualification and position at work. The results are presented in tables:

Table 4.2. Bio data analysis

VARABLES		FREQUENCY	PERCENTAGE (%)
GENDER	Male	120	70.6
	Female	50	29.4
	Total	170	100
AGE (YEARS)	18 but less than 30	86	50.6
	30 but less than 40	27	15.9
	40 but less than 50	40	23.5
	50 but less than 60	10	5.9
	60 and above	7	4.1
	Total	170	100
EDUCATIONAL QUALIFICATION	Bachelor's degree/HND	13	7.6
	Master's degree	53	31.2
	Doctorate degree	81	47.6
	Professional certificate	12	7.1
	OTHERS(ND,SSCE,etc)	11	6.5
	Total	170	100
WORK EXPERIENCE (YEARS)	Less than 5 years	23	13.5
	5 yrs but less than 10 yrs	39	22.9
	10 yrs but less than 15 yrs	62	36.5
	15 yrs and above	46	27.1
	Total	170	100
BUSINESS SIZE CLASSIFICATION	Small	45	26.5
	Medium	86	50.6
	Large	39	22.9
	Total	170	100
	POSITION IN BUSINESS	Owner	78
Partner		40	23.5
Supervisor		37	21.8
Others		15	8.8
Total		170	100
RISK MANAGEMENT GUIDELINE	Yes	96	56.5
	No	74	43.5
	Total	170	100
INSURANCE POLICY	Yes	63	37.1
	No	107	62.9
	Total	170	100

Source: Field survey 2022

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Table 4.2 above shows that 70.6% of the respondents were male while 29.4% of the respondents were female. It can also be seen that 50.6 % of the respondents were between the ages of 18 but less than 30years, 15.9% were between the ages of 30 but less than 40 years old, 23.5% respondents were between the ages of 40 but less than 50 years, while 5.9% of the respondents were between the ages of 50 but less than 60 years, and 4.1% of the respondents ranged in age from 60 years old. Table 4.1 above shows that 7.6% represent Bachelor's degree/HND, 31.2% of the respondents were master's degree, 47.6% of the respondents were holders of doctorate degree while 7.1% of the respondents were professional certificate holders and 6.5% represent other qualifications (SSCE, ND, GCE)

It can also be seen that 13.5% of the respondents are at less than 5 years work experience, 22.9% are at 5 years but less than 10 years work experience, 36.5% of the respondents are at 10 years but less than 15 years work experience and 27.1% of the respondents are at fifteen years and above work experience. Table 4.2 also shows that, 26.5% of the respondents are small business size, 50.6% of the respondents are medium business size and 22.9% of the respondents are large business size. The table also shows that, 45.9% of the respondents are owners, 23.5% of the respondents are partners, while 21.8% of the respondents are supervisor and 8.8% of the respondents are others.

It can also be seen that 56.5% of the respondents have risk management guideline for managing risk while, 43.5% of the respondents does not have risk management guideline for managing risk. Table 4.1 also shows that, 37.1% of the respondents have insurance policy and 62.9% does not have insurance policy.

Descriptive Analysis of Research Variables

Section B of the questionnaire will be analysed using frequency tables and simple percentages and the test of hypotheses will be done using chi square.

In the Table 4.3 above which is to explain the building construction risk management process; the risk transfer strategy shows that 47 of the respondents representing 27.6 percent strongly agreed that they have insurance policy for all building constructions that they do, 37 respondents representing 21.8 percent agreed that they have insurance policy for all building constructions that they do even though 51 respondents representing 30 percent are undecided about them having insurance policy for all building constructions that they do. It also shows that 33 respondents representing 19.4 percent strongly agree that Construction insurance policy gives confidence in the process of building construction, 61

respondents representing 35.9 percent agree that Construction insurance policy gives confidence in the process of building construction.

Table 4.3. Building construction risk management process; risk transfer strategy

S/N	Statement	SA (%) 5	A(%) 4	U(%) 3	D(%) 2	SD(%) 1	Total (%)
1	We have insurance policy for all building constructions that we do	47 (27.6)	37 (21.8)	51 (30)	20 (11.8)	15 (8.8)	170 (100)
2.	Construction insurance policy gives confidence in the process of building construction	33 (19.4)	61 (35.9)	14 (8.2)	42 (24.7)	20 (11.8)	170 (100)
3	Most building contractors do not have construction policy because it is too expensive	58 (34.1)	27 (15.9)	11 (6.5)	43 (25.3)	31 (18.2)	170 (100)
4	Builders risk policy is relevant to building construction projects	18 (10.6)	26 (15.3)	39 (22.9)	54 (31.8)	33 (19.4)	170 (100)

Source: Field survey 2021

From Table 4.4 above which to find out the risk retention strategy shows 25 respondents representing 14.7 percent strongly agreed that they consider experience in choosing the project team management members, 36 respondents representing 21.2 percent agree with the fact that they consider experience in choosing the project team management members.

It can be seen in the table that 14 respondents representing 8.2 percent strongly agree with the fact that communication and coordination between parties (clients, consultants and contractors) is very sound, 43 respondents representing 25.3 percent agree with the fact that communication and coordination between parties (clients, consultants and contractors) is very sound, 36 respondents representing 21.2 are undecided with the fact that communication and coordination between parties (clients, consultants and contractors) is very sound.

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Table 4.4. Risk Retention Strategy

5	We consider experience in choosing the project team management members	25 (14.7)	36 (21.2)	18 (10.6)	33 (19.4)	58 (34.1)	170 (100)
6	We revise design documents and drawings to ensure compliance to building standards	43 (25.3)	41 (24.1)	27 (15.9)	36 (21.2)	23 (13.5)	170 (100)
7	Communication and coordination between parties (clients, consultants and contractors) is very sound	14 (8.2)	43 (25.3)	36 (21.2)	46 (27.1)	31 (18.2)	170 (100)
8	Decision making process is scrutinized to avoid errors during construction	37 (21.8)	28 (16.5)	49 (28.8)	32 (18.8)	24 (14.1)	170 (100)
9	Test and inspection of materials and labour are thoroughly done in every phase of the building construction	36 (21.2)	22 (12.9)	41 (24.1)	19 (11.2)	52 (30.6)	170 (100)

Source: Field survey 2021

Table 4.5 shows that 47 respondents, or 27.6%, strongly agree that punitive measures imposed on contractors for non-compliance with Insurance of Buildings Under Construction is poor, while 37 respondents, or 21.8 percent, agree that punitive measures imposed on contractors for non-compliance with Insurance of Buildings Under Construction is poor. The table also shows 32 respondents representing 18.8 percent strongly agree that most building contractors are not aware of the construction policy, 15 respondents representing 8.8 percent agree that most building contractors are not aware of the construction policy, 46 respondents representing 27.1 percent are undecided as to if most building contractors are not aware of the construction policy, while 28 respondents representing 16.5 percent disagree that most building contractors are not aware of the construction policy, and 49 respondents representing 28.8 percent strongly disagree that most building contractors are not aware of the construction policy.

Table 4.5. Awareness of building construction policy by building contractors

10	Punitive Measures imposed on Contractors for non-compliance with Insurance of Building under construction is poor	47 (27.6)	37 (21.8)	51 (30)	20 (11.8)	15 (8.8)	170 (100)
11	Most building contractors are not aware of the construction policy	32 (18.8)	15 (8.8)	46 (27.1)	28 (16.5)	49 (28.8)	170 (100)
12	Construction policy is not compulsory for all types of construction	41 (24.1)	38 (22.4)	24 (14.1)	16 (9.4)	51 (30)	170 (100)
13	Most building contractors have apathy for construction policy despite the awareness	28 (16.5)	48 (28.2)	47 (27.6)	36 (21.2)	11 (6.5)	170 (100)
14	Most builders have alternative for construction insurance	34 (20)	53 (31.2)	26 (15.3)	18 (10.6)	39 (22.9)	170 (100)

Source: Field survey 2021

It can also be seen from the table that 41 respondents representing 24.1 percent strongly agree that construction policy is not compulsory for all types of construction, 38 respondents representing 22.4 percent agree that construction policy is not compulsory for all types of construction. The table also shows that 28 and 48 respondents representing 16.5 percent and 28.2 percent strongly agree and agree respectively with the fact that most building contractors have apathy for construction policy despite the awareness.

Table 4.6 above is to find out the project success of building construction. In material related factors, it can be seen that 11 respondents representing 6.5 percent strongly agree that quality of materials used influence building project success. It can also be seen that 39 and 26 respondents representing 22.9 percent and 15.3 percent strongly agree and agree respectively that change in material type and specifications affects building project success. The table also shows that 20 and 37 respondents representing 11.8 percent and 21.8 percent strongly agree and agree respectively to the fact that compliance of materials to specifications affect building project success.

Table 4.6. Project Success of Building Construction

Building project success factors	Measuring scales					TOTAL (%)
	SA (%) 5	A (%) 4	U (%) 3	D (%) 2	SD (%) 1	
Material related factors						
Quality of materials used influence building project success	11 (6.5)	31 (18.2)	58 (34.1)	43 (25.3)	27 (15.9)	170 (100)
Change in material type and specifications affects building project success	39 (22.9)	26 (15.3)	18 (10.6)	33 (19.4)	54 (31.8)	170 (100)
Compliance of materials to specifications affect building project success	20 (11.8)	37 (21.8)	15 (8.8)	47 (27.6)	51 (30)	170 (100)
Labour and equipment related factors						
Labour performance and productivity affect building project success	52 (30.6)	22 (12.9)	41 (24.1)	19 (11.2)	36 (21.2)	170 (100)
Availability and efficiency of equipment affect building project success	49 (28.8)	46 (27.1)	15 (8.8)	28 (16.5)	32 (18.8)	170 (100)
Finance related factors						
Cost estimation accuracy helps in achieving project success	53 (31.2)	13 (7.6)	11 (6.5)	81 (47.6)	12 (7.1)	170 (100)
Source of finance for the building project affect project success	54 (31.8)	33 (19.4)	39 (22.9)	18 (10.6)	26 (15.3)	170 (100)
External related factors						
Changes in building construction regulations affect project success	28 (16.5)	11 (6.5)	47 (27.6)	36 (21.2)	48 (28.2)	170 (100)
Government permits are difficult to get	18 (10.6)	36 (21.2)	25 (14.7)	33 (19.4)	58 (34.1)	170 (100)
We experience civil disturbances at the construction sites	51 (30)	15 (8.8)	47 (27.6)	20 (11.8)	37 (21.8)	170 (100)

Source: Field survey 2021

Test of Hypotheses

Hypothesis One

H₀₁: Risk transfer strategy does not have significant effect on project success among building contractors in Lagos State, Nigeria.

Regression

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.701 ^a	.000	-.021	1.439	.000	.000	1	48	.995	2.928

a. Predictors: (Constant), Risk transfer strategy

b. Dependent Variable: Project success among building contractors

ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.000	1	.000	.000	.995 ^a
Residual	99.380	48	2.070		
Total	99.380	49			

a. Predictors: (Constant), Risk transfer strategy

b. Dependent Variable: Project success among building contractors

The regression result above showed a strong positive relationship between risk transfer strategy and project success among building contractors in Lagos State which is indicated by the R-Value (.701) at 5% significance level and it is statistically significant at .000 which is less than ($p < 0.05$).

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Coefficient^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1. (Constant)	3.177	.481		6.599	.000
Risk transfer strategy	.001	.141	.001	.007	.995

b. Dependent Variable: Project success among building contractors

Hypothesis Two

H₀₂: Risk retention strategy does not have significant effect on project success among building contractors in Lagos State, Nigeria.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.811 ^a	.000	-.021	1.439	.000	.000	1	48	.995	2.928

a. Predictors: (Constant), Risk retention strategy

b. Dependent Variable: Project success among building contractors

ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.000	1	.000	.000	.995 ^a
Residual	99.380	48	2.070		
Total	99.380	49			

a. Predictors: (Constant), Risk retention strategy

b. Dependent Variable: Project success among building contractors

The regression result above showed a strong positive relationship between risk retention strategy and project success among building contractors in Lagos State which is indicated by the R value (.811) at 5% significance level and it is statistically significant at .000 which is less than ($P < 0.05$).

Discussion of Findings

The R value (.701) at the 5% significance level indicated a strong positive relationship between risk transfer strategy and project success among building contractors in Lagos State, which is statistically significant at .000, which is less than ($P < 0.05$). The R value (.701) at the 5% significance level indicated a strong positive relationship between risk retention strategy and project success among building contractors in Lagos State, which is statistically significant at .000, which is less than ($P < 0.05$).

Previous research backs up this conclusion (Beuselinck & Manigart, 2016; FASB, 2015; Beest, 2016). Risk financing strategy, according to the findings, aids builders in mitigating unplanned risk. The findings also revealed that the quality of risk financing strategy could account for 62 percent of the variation in project success among building contractors in Lagos, Nigeria. This result has never been examined before, to the best of the researcher's knowledge. The vast majority of studies that used the effect of risk management on construction work as a theoretical foundation in their conceptual models have confirmed the importance of risk financing strategy on project success among builders in Lagos State, at least in theory. (See, for example, Beuselinck and Manigart, 2017; FASB, 2013; Beest, 2018; Mamic, Sacar, and Oluic, 2013). Furthermore, the research shows that the effect of risk transfer or retention strategy varies depending on the size and experience of the company, not the type of business. Many studies back up this conclusion (Chalaki et al., 2017; Huang, Rose-Green and Lee 2018).

Conclusion and recommendations

A number of risks exist in the construction industry that the contractor or client cannot bear on their own. As a result, the contractor will need to buy insurance to protect himself from these dangers. The majority of contractors and clients, however, are still unaware of the law's existence and enforcement, according to the survey's findings. It is critical to emphasize that contractors must purchase contractors or builders all risk insurance, as described in this paper, in order to

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avoid all risks and disputes. The National Insurance Commission should collaborate with relevant professional bodies such as NIOB, CORBON, COREN, ARCON, NIQS, and Planning authorities that are involved in the development process of building property in order to improve the overall implementation process. Contractors should view insurance as an additional tool for improving the construction and housing industries, and develop the habit of entrusting insurance experts by participating in their policies when the need arises. Offenders should be punished to serve as a deterrent to others, in order to stem the tide of building collapses.

The findings of this study will aid in the implementation of more effective financing strategies, which will benefit the construction industry as a whole. The following recommendations are made in order to achieve this goal: Because the majority of respondents rated their understanding of risk financing strategy for building construction as intermediate, risk financing strategy workshops for building constructions would be a reasonable suggestion to further educate all parties involved in construction projects. With adequate training opportunities in place, increased knowledge of the subject and awareness of the importance of risk management throughout the construction project life cycle can be achieved. The stakeholders in the built environment should be more involved in risk management implementation. Their early involvement will improve collaboration, togetherness and communication within the Nigerian construction industry environment by facilitating a better understanding of each party's roles in risk management in construction. The research findings are used to make recommendations to construction contractors on how to deal with the industry's major risks and how to improve their risk financing strategy practice. Also in order to facilitate quality work, the mindset of accepting the lowest bid should be reconsidered. Because the cheapest bids are not always the best, particularly when it comes to risk management, some criteria should be used to choose. More research is needed to determine the extent to which certain risk factors or sources, such as material price fluctuations, inclement weather, political risks, and so on, have an impact. Construction organizations must form effective communication links in order to realize the benefits of partnerships and alliances, which is critical to reducing construction risk. Insurance companies should also make every effort to ensure that their policies are well-documented and understood by construction industry operators. Insurance companies should do everything they can to resolve claims as quickly as possible. The government is also expected to keep a close eye on the

insurance act and enforce it so that builders risk insurance is used frequently on projects.

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TAX AGGRESSIVENESS AND FIRM VALUE: EVIDENCE FROM PUBLICLY LISTED INDUSTRIAL GOODS COMPANIES IN NIGERIA

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Abstract

In this study, the relationship between tax aggressiveness and firm value among publicly listed industrial goods companies was examined. Ex-post facto research design was used and data obtained from the financial statements and accounts from 2006-2020. Data (non-debt tax shield, cash effective tax and revenue growth) obtained were analyzed using summary (mean, median, standard deviation, minimum and maximum values, Karl Pearson correlation) and inferential (variance inflation factor, ordinary least square, fixed and random effects, Hausman specification tests) statistical tools. Findings indicated that tax aggressiveness has positive and insignificant impact on firm value on publicly listed industrial goods companies. Given the findings of the study it was recommended that the relevant tax institutional framework and authorities of Nigerian firms must ensure that the corporate governance provisions and tax implementation be strictly followed to by the publicly listed industrial goods companies in Nigeria in order not to compromise the use of aggressive tax mechanisms.

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Keywords: *tax aggressiveness; firm value; cash effective tax; non-debt tax shield; revenue growth.*

JEL Classification: E62; M40; M49

1. INTRODUCTION

In recent times, the nexus between tax planning and firm value has attracted considerable attention in the accountancy literature. This interest emanates from the fact that for a firm's tax burden to be reduced, tax aggressiveness becomes a mechanism management employ. The term tax aggressiveness refers to attempt to use legal hitches to avoid or minimize tax payments (Blouin, Jagolinzer & Larcker, 2015). Thus, tax aggressiveness to a large extent center on institutional arrangement; given the institutional arrangements, it has made the demand for additional information on tax aggressiveness to be ever more intricate (He, Ren & Taffler, 2019; Rui, 2019; Gebhart, 2017; Dyreng, Hoopes & Wilde, 2016).

Hairul, Ibrahim and Siti (2014) see tax aggressiveness as a deliberate cutback in the specific tax liabilities of a firm. Similarly, Martinez, Ribeiro and Funchal (2015) argued that tax aggressiveness gave rise to specific terms like tax planning, management, sheltering and avoidance in the accountancy literature and these terms are interchangeably employed with tax aggressiveness. Desai and Dharmapala (2009); Bradshaw, Liao and Ma (2019); Wang, Xu, Sun and Cullinan (2020) opined that tax aggressiveness covers some levels of mystification and intricacy to avert its detection. For example, when a company uses tax aggressive policies, the managements of such firm is given the opportunity to divert funds for personal gains and use and this exposes the firm to reputational risk.

In Nigerian context, studies on the effect of tax aggressiveness on firm value have remained unexplored as there is lack of research in this area. Prior studies (Onyali & Okafor, 2018; Oyesola & Adelabu, 2017) have focused on the link between corporate tax planning and corporate governance, without due attention on the relationship between tax aggressiveness and the value of firm. Although, there is quite a number of studies on tax aggressiveness and firm value in other nations (Hairul, Ibrahim & Siti, 2014; Dyreng, *et al*, 2016; Gebhart, 2017; Bradshaw, *et al*, 2019; He, *et al*, 2019; Rui, 2019; and Wang, *et al*, 2020).

Consequent upon the gap identified in the accountancy literature, this study was carried out to assess the nexus between tax aggressiveness and firm value of

publicly listed industrial goods companies in Nigeria from 2006-2020. The remaining part of the paper is divided as follows: review of related literature, materials and methods, results, conclusion and recommendations.

2. REVIEW OF RELATED LITERATURE

2.1 Tax Aggressiveness

The concept of tax aggressiveness has been used to describe issues relating to tax planning, sheltering, avoidance, mitigation, minimization, and management etc. Tax aggressiveness is the ability of taxpayer to organize the business operations such that it does not suffer from maximum tax liability. Tax aggressiveness as the modus operandi of arranging the affairs of the business so as to defer, reduce or even eliminate the amount of taxes paid to the relevant tax authorities.

Hairul, *et al* (2014) sees tax aggressiveness as a premeditated decrease in the specific tax liabilities of an entity. In most nations including Nigeria, the use of tax aggressiveness is permitted by the tax law. The underlying philosophy of tax aggressiveness is to reduce tax liabilities and when this occurs, there is the likelihood that the value of firm will increase as well (Annuar, 2014; Edwards, Schwab & Shevlin, 2016; Evers, Meier & Nicolay, 2016; Ogbeide & Iyafekhe, 2018).

The sole aim of tax aggressiveness is to decrease tax burden of firms in order to enhance their market value and performance; this view is supported by Desai and Dharmapala (2009) that when management strives to lower tax burden, market value and performance improve. Thus, the link between tax aggressiveness and firm value abounds in the accountancy literature. Wang, *et al*, (2020) showed that the most vital rationale why firms use tax aggressiveness is to increase their net income (value) which creates positive signal to potential investors.

Notably, while studies found that tax aggressiveness positively and significantly affects firm value and performance (Wang, *et al* 2020; Bradshaw, *et al*, 2019; He, *et al* 2019), there are other studies that found a contrary view (Ogbeide & Iyafekhe, 2018; Evers, *et al*, 2016). In accountancy literature, there are numerous measures of tax aggressiveness; however, this study used non-debt tax shield and cash effective tax as metrics of tax aggressiveness.

2.2 Firm Value

Firm value occupies a central strand in the accountancy literature because all firms (small, medium or large), strive to increase their net worth (Wang, *et al* 2020), which in turn affects their value. Firm value refers to benefits from an entity's

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operations reported in the annual reports and accounts. In the accountancy literature, several ways have been used to assess the value of the firm.

Predominantly, the use of Tobin's Q is more widely used; however, firm value depicts the market value added, annual stock return, market-to-book value, revenue growth, turnover, etc (Kabayah, Nu'aimat, & Dahmash, 2012). Al-Matari, Al-Swidi and Fadzil (2014) opined that firm value maximization objective can be achieved via efficient strategic management. In this study, firm value was measured using revenue growth of the firm.

2.3 Theoretical Background

The study is underpinned on the agency theory which emphasizes the relationship between fund providers (principals) and those assigned to manage the operations of the firm (agents). The agency theory was propounded by Jensen (1976) and suggests that there is agency relationship between the principals and agents, which is viewed as a form of a contract to perform certain services on their behalf involving delegation and concentration of control.

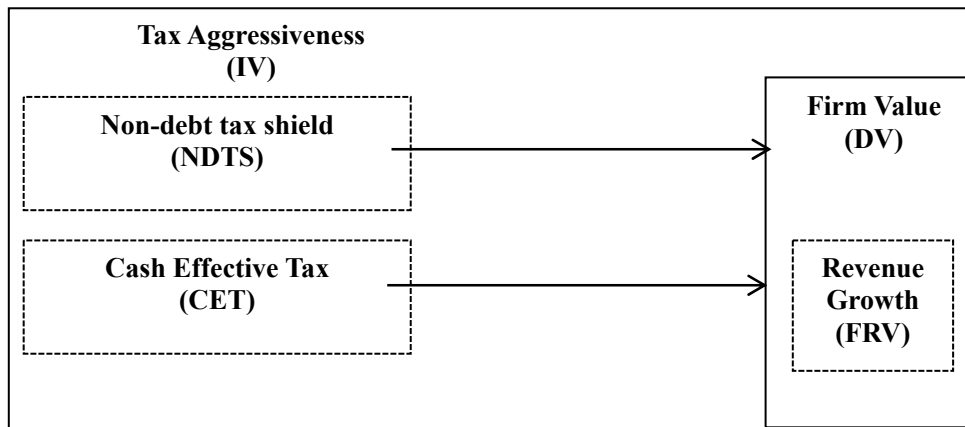


Figure 1. Conceptualized Study Model

Source: Researcher (2021)

The relationship usually leads to what Jensen (1976) described as the agency conflict. The agency theory presumes that tax aggressiveness is a firm's strategic

choice defined by an employment contract (e.g. actual or implied) between owners of wealth and tax managers. Thus, tax managers could create an intent and take undue advantage of the obscure internal control functions for their own private gains at the detriment of wealth owners, thus making the firm tax aggressive. Consequently, we thus conceptualize the model of tax aggressiveness (non-debt tax shield and cash effective tax) and firm value (firm revenue growth) as above.

3. MATERIALS AND METHODS

This study assessed the relationship between tax aggressiveness and firm value of publicly listed industrial goods companies on the floor of the Nigerian Exchange Group. *Expo-facto* research design and secondary data from the financial statements of the industrial goods companies was obtained from 2006-2020. The population of study was made up of all the publicly industrial goods companies and due to the small-sized nature of industrial goods companies, the entire population of ten (10) industrial goods companies formed the sample of study.

Tax aggressiveness (independent variable) was composed of cash effective tax and non-debt tax shield while firm value (dependent variable) was comprised of revenue growth. This study builds on the existing models of He, *et al*, (2019); Rui (2019); Gebhart (2017). Panel data regression was employed and the empirical models of the study are given as follows:

$$Y_{it} = \alpha_0 + \beta bc_{it} + \mu_{it} \text{ ----- eq. 1.}$$

Where: Y_{it} =dependent variable; α =coefficients of independent variable; bc_{it} =independent variable; it := industrial goods companies sampled; μ_{it} = error term.

$$FRV = f(CET, NDTS) \text{ ----- eq. 2.}$$

Given equation 2, the explicit model of the study is expressed mathematically as follows in equations 3:

$$FRV_{it} = \alpha_0 + \beta_1 CET_{it} + \beta_2 NDTS_{it} + \mu_{it} \text{ ----- eq. 2}$$

Where: FRV = Firm value (revenue growth); CET =Cash effective tax; $NDTS$ = Non-debt tax shield. A-priori expectation is that $\alpha_1, \alpha_2, >0$. Hence, we expect that the parameter(α) of the independent variable will have a significant effect on the

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dependent variable. Data were analyzed via summary (mean, median, standard deviation, minimum, maximum, skewness, kurtosis and Karl Pearson correlation) and inferential (regression, fixed and random effect and Hausman specification tests) statistical tools and analysis was carried out via STATA 13.0.

4. RESULTS

Table 1. Summary Statistics of Tax Aggressiveness and Firm Value of Listed Industrial Goods Companies

	FRV	NDTS	CET
Mean	7.7826	3.9897	16.719
Median	8.2533	3.5648	9.5936
Minimum	-37.472	0.2939	-50.655
Maximum	108.35	14.938	251.41
Standard Deviation	20.149	2.4985	29.415
Skewness	0.9734	1.5115	4.9079
Kurtosis	7.9439	6.4008	40.017
Probability	0.0000	0.0000	0.0000
Counts	98	105	105

Source: Computed by the Researcher via STATA 13.0

From Table 1, firm value (*FRV*), non-debt tax shield (*NDTS*), and cash effective tax (*CET*) had positive mean values; the positive values of the mean clearly indicate improvements in the disclosure requirements of the numbers in financial statements and laws regulating tax related-matters in Nigeria. The standard deviations are 20.149(*FRV*), 2.49885 (*NDTS*), and 29.415 (*CET*); the variations as shown in the standard deviation values revealed that high non-debt tax shield and cash effective tax promote firm value of publicly listed industrial goods companies in Nigeria.

Moreover, all panel series (*FRV*, *NDTS* & *CET*) showed non-zero skewness; all variables skewed to the same direction as shown in the positive signs affixed to the skewness values. Besides, all the independent and dependent variables have normal distribution as revealed by the kurtosis and probability values, hence, tax aggressiveness and firm value variables satisfy the normality condition.

Table 2. Karl Pearson Correlation for Tax Aggressiveness and Firm Value

Variables	FRV	NDTS	CET
FRV	1.0000		
NDTS	0.0068	1.0000	
CET	0.0610	-0.0295	1.0000

Source: Computed by the Researcher via STATA 13.0

Table 2 revealed the Karl Pearson correlation result for tax aggressiveness (*NDTS* and *CET*) and firm value(*FRV*). The Karl Pearson correlation coefficients for tax aggressiveness and firm value are positive, suggesting a positive relationship between tax aggressiveness and firm value. Moreover, the highest correlation coefficients did not beat the maximum limit of 0.80, signifying the absence of multicollinearity among pairs of independent variables of the study.

Table 3. Variance Inflation Factors (VIF)

Variables	VIF	1/VIF
NDTS	1.00	0.999129
CET	1.00	0.999129
Mean VIF	1.00	

Source: Computed by the Researcher via STATA 13.0

In Table 3, the mean VIF = 1.00 and did not exceed the VIF limit of 10.0. This indicates the absence of multicollinearity problem in the empirical model of the study.

Table 4 is the ordinary least square, fixed and random effects result for tax aggressiveness and firm value. The result showed that since Prob.> chi2 (0.824 > 0.05), null hypothesis was accepted indicating that RE is more appropriate for use. The ordinary least square result revealed that tax aggressiveness is insignificant at 5% level in explaining firm value (firm growth) of the publicly listed industrial goods companies in Nigeria.

The ordinary least square and RE coefficients for NDTS are 0.0216 and 0.0216 and CET are 0.0227and 0.0227 respectively, signifying that when listed industrial goods companies employ non-debt tax shield aggressiveness, it results to approximately 0.22% increase in firm value; however, with cash effective tax, it

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results to approximately 0.23% increases in firm value. The t-test for NDTs and CET are 1.05 and 1.44 respectively, indicating that there is positive and insignificant relationship between tax aggressiveness and firm value.

Table 4. Ordinary Least Square, Fixed and Random Effects Results for Tax Aggressiveness and Firm Value

Estimator Variable	OLS (Obs.=105)		FE (Obs.=105)		RE (Obs. =105)	
	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
<i>NDTS</i>	0.0216 (1.05)	0.812	0.0315 (1.24)	0.741	0.0216 (1.05)	0.812
<i>CET</i>	0.0227 (1.44)	0.209	0.0736 (1.62)	0.172	0.0227 (1.44)	0.209
<i>_cons</i>	3.1443 (0.37)	0.730	4.3102 (0.54)	0.613	3.1443 (0.37)	0.731
R-Squared	0.0164					
R-Sq. Adj.	0.0009					
F-ratio	1.06					
Prob. F.	0.380					
R-Sq. (within)			0.0369		0.0164	
R-Sq. (between)			0.0095		0.0009	
R-Sq. (overall)			0.0232		0.0087	
Hausman Test						0.824 > 0.05

Source: Computed by Researcher via STATA 13.0; *sig**@5%; Items in parentheses(t & z scores)

Furthermore, the R^2 is 0.0164(RE); this means that tax aggressiveness variables explained about 1.64% variation in firm value (revenue growth). Also, the f-ratio is 1.06 (p-value = 0.380>0.05) which is insignificant, suggesting that tax aggressiveness has insignificant effect on the value of the firm.

Table 5. Wald Statistics for Tax Aggressiveness and Firm Value

Wald Ch2	3.13
Prob. Ch2	0.5031

Source: Computed by Researcher via STATA 13.0

Wald statistic is 3.13 with Prob. value of 0.5031, indicating a rejection of null hypothesis and acceptance of alternate hypothesis that tax aggressiveness has insignificant relationship with firm value. The findings conform to the results of He, *et al*, (2019); however, do not agree with the results of Gebhart (2017); Goh, *et al*, (2016).

5. CONCLUSION AND RECOMMENDATIONS

This study assessed the relationship between tax aggressiveness and firm value of publicly listed industrial goods companies on the floor of the Nigerian Exchange Group from 2006-2020. Fixed and random effects panel data estimation technique was used and findings indicated that tax aggressiveness positively and insignificantly affects firm value; the result was captured by the Wald statistics. The conclusion reached is that tax aggressiveness does not matter for improvements in the firm value.

On the basis of the findings, the study recommended amid others that the publicly listed industrial goods companies on the Nigerian Exchange Group ought not to concentrate on tax aggressive measures aimed at decreasing firm value. Furthermore, the relevant tax institutional framework and authorities of Nigerian firms must ensure that the corporate governance provisions and tax implementation be strictly followed to by the publicly listed industrial goods companies in Nigeria in order not to compromise the use of aggressive tax mechanisms.

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TAXES AND PROFITABILITY OF DEPOSIT MONEY BANKS IN SELECTED AFRICAN COUNTRIES

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Abstract

This study examined the effect of taxes on profitability of Deposit Money Banks in selected African countries. Objectively, the study examined the effect of company income tax and education tax on profitability of DMBs in selected African countries in terms of return on equity and return on assets. Ex-post facto research design was adopted and the population covered all the 14 quoted Deposit Money Banks in Nigeria; out of which, 10 banks were purposively selected. Secondary data obtained from the audited annual financial statement of the selected banks for 10 years spanning from 2010-2019 was used. Panel regression of fixed and random effect estimation was to test the formulated hypotheses and this was carried out after descriptive statistics and Pearson correlation. It was discovered that corporate income tax exerts a positive but insignificant effect on profitability of deposit money banks in terms of return on equity and return on asset to the tune of 0.011 ($p=0.503 > 0.05$) and 0.001 ($p=0.617 > 0.05$) respectively. Education tax was found to have a positive and significant effect on return on equity to the tune of 0.006 ($p=0.047 < 0.05$). However, it has a positive but insignificant effect on return on asset to the tune of 0.0005 ($p=0.317 > 0.05$). Based on the findings made, it was established that there was a statistically significant effect of taxes on the profitability of Deposit Money Banks in Nigeria. Thus, it was recommended that the tenets of the ability to pay tax on company income tax

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and education should be upheld by the relevant tax authorities in Nigeria. This might afford firms with financial crises and low profitability to pay commensurate taxes.

Keywords: *company income tax; education tax; return on equity; return on assets.*

JEL Classification: G21, H71

1.1 Introduction

All over the world, the intermittent increase in the functions of the government in terms of the provision of structures and other important amenities capable of driving economic growth and development has engendered the formulation of different policies to increase the generation of internal revenue. Revenue is, indeed, one of the strongest determinants of the functionality of the government. It determines the magnitude of government expenditures and consequently the development of every segment of the nation. Therefore, for any government to function productively and provide the citizens with goods and services needed to satisfy their needs, it is crucial to generate adequate revenue from all the available sources, part of which is tax revenue which is the focus of this study.

Taxation means the mandatory payments made by individuals and corporations to the government through relevant tax authorities. Chude and Chude (2015) asserted that taxes are obligatory charges that are repeatedly enforced and as a law, not design for any special benefit for each taxpayer, they mainly contribute to the overall government revenue pool through which expenditures are funded. It is the civic responsibility of the citizens because it allowed them to contribute their quota to societal development. Taxes can either be paid directly or indirectly. Direct taxes are company income tax, education tax and withholding tax to mention just a few. On the other hand, examples of indirect taxes are value added tax and custom and excise duties.

These taxes, undoubtedly, are burdens to corporations whose constant aim is to maximize shareholders' wealth and contrarily, it is a revenue for the government for infrastructural development of the nation and other administrative activities. The focus of every shareholder is profit maximization that guarantees their expected returns as and when due since resources are pooled together for that definite reason. Profitability level unveils how efficiently and effectively the

management utilizes its total assets in order to generate earnings. Profitable firms find it easy to pay their shareholders and therefore attract the attention of more investors. Profitability of firms can be ascertained using different ratios, however, in the context of this study return on assets and equity shall be considered.

As much as profit maximization is germane for re-investment and the overall expansion of the private sector, the focus of the government revolves around generating more revenues for governance-related reasons. Therefore, Nnubia and Okolo (2020) argued that the fiscal policy of the country needs to strike the balance with the introduction of tax reliefs that could make a country productive for important economic investments. This has led to many empirical studies across the globe to find a bearable tax rate, based on jurisdictions, with which companies are taxed and the government still has adequate revenue to finance its activities. This might help the development of both private and public sector organizations since investors are interested in a conducive business environment with a reduced tax burden.

Higher rates might breed tax evasion and avoidance. According to Cordelia and Amah (2015), the high rate of education tax and corporation income tax has engendered the issue of tax avoidance in Nigeria. It is suspected that some companies are grievously burdened with the rate company income tax and education tax and therefore engage the services of financial specialists who are versed and highly knowledgeable to find loopholes in tax laws with a singular aim of avoiding the payment of tax. This does not only create a wide vacuum between the expected and actual tax revenue from organizations in Nigeria, but it limits the capacity of the government in terms of budget implementation.

The majority of the studies reviewed except Olaoye and Alade (2019) and Nnubia and Okolo (2018), examined only the connection between company income tax and firms' profitability. However, two major taxes that companies pay are company income tax and education tax. This is the crux of this study to examine how corporates' profitability is influenced by company income tax and education tax. The findings of this study might help the government to remodel their tax rates to ease the tax burden of existing firms and consequently induced more investors. The remaining parts of this study are in four sections. The second section covered the conceptual review, theoretical review and empirical review. This will be followed by the third section that centered on methodology. Section four covered results and discussion of findings while section, the last section, section five, centered on conclusion and recommendations.

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2.0 Literature Issues

2.1 Conceptual Issues

2.1.1 Tax

Universally, the development of any nation solely depends on the availability of resources. Resources are required to satisfy the identified needs of the populace which could be delimited to the provision of infrastructures (such as roads, construction of bridges, schools, hospitals), security (empowerment of the security agency, security agency welfarism), basic needs of the citizen (provision of foods and shelters at a subsidized rate) among others. Out of all the diversified sources of revenue to the government, at various levels, taxation is the most reliable source (Nnubia & Okolo, 2020). Other sources include statutory allocations, rents and rates, royalties, foreign and domestic debts and so on. According to Benson (2018), taxes are the levies imposed by government authorities on individuals, groups and organizations to cater for the needs of the citizens.

Taxes are needed to meet up the need of the populace. However, as a result of the generational disease among the public office holders in Nigeria known as corruption and embezzlement of public resources, satisfaction of public needs had become an everlasting dream without reality. Taxes are imposed by the government on its citizens and failure to comply would result in several authorized penalties (Beigi, Rafat & Panah, 2018). In the view of Cordelia and Amah (2018), taxes are mandatory payments made by individuals, groups and organizations to the constituted authorities (Federal, State and Local). Taxes are paid by individuals (citizens) of a nation which could be indirect to the purse of the government. Also, the compulsory levy paid by groups or organizations includes corporate income tax and education tax, withholding tax and so on. These forms of taxes are paid directly from the profit made.

2.1.1.2 Corporate Income Tax (CIT)

This is one of the basic tools for the development of an economy. The higher the number of corporations/firms in an economy, the higher the revenue generated by the government. Of all the various forms of taxes to the federal government, CIT has the highest rate base on the profit earned by a corporation in a given period. Out of the profit earned at a time, 30% is charged to the government as corporate tax. To explain further, George (2018) defined CIT as one of the most reliable revenue sources to the government. It is the levy charged on the profits of all corporations functioning in a nation. The sudden death of a corporate entity would

end its contribution to the government revenue. As long as corporate firms keep operating in the competitive market, it is made compulsory to comply with the rules guiding CIT. Failure to comply might result in the closure of business activities which could be temporary or permanent. Though not all corporations are chargeable for CIT. There are some firms/corporations exempted from the payment of charges known as CIT (Chude & Chude, 2015). Some of such firms include waste recycling and management firms, petrochemical industry, oil refineries, regional shared service centers, food crop preservation industry among others.

2.1.1.2 Education Tax (EDT)

It is suspected that some Nigerians have not benefited from quality education. Although, public schools are affordable and free from elementary to middle school, the standards of public schools seem to decline due to the shortage of funds. In order to overcome the problem of insufficient funds in public schools, the introduction of an education tax was promoted. According to Cordelia and Amah (2018), education taxes are charges imposed on all registered firms across Nigeria to promote the educational system in the country. The educational tax decree no 7 of 1993 was promulgated to be used exclusively to upgrade the nation's educational infrastructures (Olaoye & Alade, 2019). Education tax is prepared and submitted with annual self-assessment of company income tax to the designated bank and it is charged at the rate of 2% of the corporate accessible profit. This tax is considered not good enough but not repealed. Migwi and Samson (2018) asserted that the following reasons why education taxes are considered not good enough for any tax system which are unnecessarily over burdens tax management. That is, it is capable of causing distortions in the economy.

2.1.2 Profitability

Profitability is the income of an organization that exceeds its expense. Every organization needs to earn sufficient profit in order to survive in the long run. It is the index of economic progress, improved national income and rising standard of living. Basically, profit is usually a measure in monetary terms whereas profitability is the measure of the generated profit on an ongoing basis (Beigi, Rafat & Panah, 2018). Profitability which is on ratio shows a firm's overall efficiency and performance. Profitable firms find it easy to pay their shareholders and therefore attract the attention of more investors. Profitability of firms can be ascertained using different ratios, however, in the context of this study return on

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assets and equity shall be considered. The conceptual framework is depicted in figure 1:



Figure 1: Conceptual Framework
Source: Authors' Design (2021)

2.2 Theoretical Underpinning

Theoretically, this study is underpinned with ability to pay theory and benefits to be received theory. Literature affirmed that ability to pay theory stems originally from the works of Adams Smith in 1776 when he asserted that people should pay tax based on their capacity and competence. Ability to pay theory denotes that the best way for government to acquire taxes is to levy taxes based on taxpayers' strength. In essence, it would be improper for tax authorities to impose high rates on taxpayers who do not have the ability nor resources to meet such levies. Taxpayers in relation to this study refer to companies. According to Oboh, Chinonyelum and Edeme (2018), the higher the profitability of a company, the higher their ability to pay tax and vice versa. Ability to pay theory emphasizes the fact that the best way to get tax from a company is to impose tax rates based on the profitability of the company.

This theory holds some strong connectivity to the study. However, like all good theories, it been criticized based on some limitations. Firstly, this theory does not explain the accountability and transparency of the government in spending tax revenue (Olugbemi, Basse, Michael & Odu, 2020). It only focuses on the aspect of the taxpayers' ability, which is a limitation on its part. In the same vein, this theory was not founded on the premise of any empirical study but was based on strong observations and evaluations. Additionally, it is not far-fetched to assume that imposing taxes on companies based on their ability to pay tax would reduce the incentive for them to improve their performance. This theory holds some strong relevance to the study. Firstly, it equates ability to pay tax of a company to their profitability, which is a very solid point when rendering taxes. Thus, the profitability of a company corresponds with its ability to pay tax.

This theory is widely accepted to have been established by Eric Lindahl (1919). The basic assumption of this theory is that there should be a direct relationship between the tax paid by a citizen and the benefits enjoyed from public services. It appeared that this theory was spurned to cover up the criticisms that most taxes paid by taxpayers were not being enjoyed by them, due to the inconsistency of government to create policies and infrastructures that would benefit the general populace. Thus, this theory ignores the basic hypothesis that tax should be levied on income, and states instead that tax should be levied based on the benefits enjoyed by taxpayers. Uzoka and Chiedu (2018) accentuated that the benefits to be received theory affirms that companies should render tax to the government, based on what they enjoy from the government. This could be in form of public goods and services like stable power supply, good roads and adequate security. Deductively, if this theory is to be followed in Nigeria, it would be politicians that would pay the most tax, because they receive the highest benefits from the activities of the government.

This theory is very logical and straightforward in its assumptions. However, it has been plagued with criticisms based on some constrictions in its explanations. Firstly, this theory fails to explain how benefits received from the government can be calculated with respect to tax payable (Ali, Ali & Mohamed, 2018). In the same vein, this theory is not able to enlighten on how benefits received from the government are consumed. That is, there is no practical way to know if taxpayers are consuming the public goods provided by the government, what quantity they are consuming, and which public good they are consuming. This theory holds some significance to the study because it affirms that if the government would impose taxes on companies based on the benefits they receive from the government, then companies' profitability can easily be maintained in such a way that would make the company maintain its operations. The benefits to be received theory agreed that companies' profitability would be easily sustained if they pay tax based on the benefits they received from the government

2.3 Empirical Review

Available studies on the nexus between taxes and profitability of firms are not without ambiguities. Some of the studies reported a positive (significant/insignificant) relationship and negative (significant/insignificant) relationship. To start with, Ezugwu and Akubo (2014) empirically investigate the effect of high corporate tax rate on the profitability of corporate organizations in Nigeria. The

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study employed multiple regression statistical tool and the result found was that a positive relationship exists between corporate tax rate and realized profit of companies. Similarly, the impact analysis of tax policy and performance of small and medium scale enterprises in Nigerian economy was conducted by Stephen (2015). The study used descriptive and z-test and the result revealed that no significant relationship exists between tax policy and profitability of SMEs in Nigeria.

Chude and Chude (2015) studied the impact of company income taxation on the profitability of companies in Nigeria using Brewery Industry as a case study (2000-2014). The study carried out Augmented Dickey-Fuller (ADF) unit-root test and the result indicated that CIT affects the profitability of Nigerian Breweries significantly. Also, Bolboros (2016) investigated the impact of taxation on financial performance of firms in Vintila. The outcome of the study affirmed that tax rates exert a positive but insignificant effect on the performance of firms in Vintila using regression analysis method to analyze a data set that covered a period of 2009 to 2013.

In United States, Alm (2016) employed regression analysis method to investigate the effects of tax administration on financial performance of manufacturing firms with a data set spanning from 2001-2015. And revealed that changes in tax administration adversely affect the financial growth of manufacturing firms and other sectors of the economy. Pitulice, Nescu, Minzu, Popa and Niculescu (2016) evaluated the impact of corporate tax on financial performance of firms (2012 – 2014). The study used multi-regression for data analysis. The result showed that no significant relationship exists between corporate tax and financial performance of firms.

In the study of Rayler (2017) that examine effect of taxation on performance of micro, small and medium enterprises in Migori county, Kenya. It was shown that taxation significantly influenced the performance of MSMEs in Migori County. The study used correlation analysis method for data covering 1961 to 2015 in Migori County. In a similar study, Nekasa, Namusonge, and Makokha (2017) evaluated the effect of corporate income tax on financial performance of companies listed on the Nairobi Securities Exchange (NSE) in Kenya (2001-2015). The regression result revealed that corporate income tax had significant positive influence on financial performance of companies listed on the NSE in Kenya. The study supported the view that corporate income tax has a significant effect on financial performance and encouraged policies that could ensure that firms promptly pay their corporate taxes to the government.

In Roman, Neghina (2017) investigated the impact of tax on the financial performance of companies listed on the Bucharest Stock Exchange (the Stock Exchange of Romania, the Sovereign State located in the Southeastern Europe). The regression analysis revealed a negative correlation between the effective tax rate, interest rate and performance, and a positive relationship between leverage, firm size, relative growth of the company and financial performance. By using panel regression analysis method, Mayende (2017) examined the effects of tax revenue on firms' performance in Uganda (2000-2014). The panel data analysis method revealed that taxes exert a negative effect on the performance of firms in Uganda under the period covered.

The relationship between business financial performance in East Asian Countries and tax awareness was investigated by SenHadji (2017) covering a period of 1991-2015. Panel data regression analysis model unveiled that a positive but insignificant effect exist between tax awareness and performance of business in most of the East Asian Countries. In United State, Gallemore, Mayberry and Wilde (2017) examine the nexus between corporation taxation and bank outcomes in terms of lending growth, liquid asset holdings and leverage. Multiple regression analysis method was used to analyse a data set that covered a period of 1996 to 2013. The result showed that tax rate had significant effects on specific banks especially during economic downturn and credit risk uncertainty. The study went further to reveal that corporate income tax affected bank outcomes, such as lending and leverage which subsequently affect the capital available for both individuals and non-bank corporations.

However, the study of Rajab, Rafat and Mozafari (2018) focused on the impact of taxation on profitability of firms in developing countries (2001-2015). The study employed panel regression analysis model and revealed a significant but negative effect on the different indices of profitability. Migwi and Samson (2018) conducted a similar study in Kenya covering a period of (1995-2014). The regression result revealed that a rise in taxation would result to a fall in the financial performance of firms. Cordelia and Amah (2018) empirically examine the influence of corporate tax on profitability of deposit money banks in Nigeria covering a period of 2006-2016. The multiple regression result revealed a positive significant impact of CIT on PAT and existence of a positive relationship between PAT and CIT.

In Kenya, George (2018) employed correlation and multiple regression to examine the relationship between taxation and performance of SMEs in Ugenya, Sub county, Siaya using a data set covering a period of 2005-2014. The regression

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result indicated that VAT has a positive and significant effect on SMEs performance, Custom and Excise duty exert a positive but insignificant effect on performance of SMEs while corporate income tax posited a positive but insignificant effect on SMEs performance in Kenya. While, in Nairobi a study on the effect of taxation on performance of medium sized enterprises was conducted by Thoma (2018) using annual time series data from 1991 to 2017 in Nairobi. The result showed that a stable long-run relationship exist among the variables.

Empirically, Benson (2018) conducted a similar study to ascertained the effects of tax administration on the performance and growth of SMEs in Nigeria using time series data. The result from the OLS technique indicated that tax administration has negative effect on SMEs growth while tax administration showed positive effect on SMEs performance. Theoretically, Aoki (2019) investigated the nexus between tax awareness and financial performance in Nigeria. Having reviewed several literatures, the study revealed that high rates of taxes have a negative and insignificant effect on profitability of firms.

Olaoye and Alade (2019) conducted a study to examine the effects of corporate taxation on profitability of firms in Nigeria (2007-2016). By using OLS analysis method, the study revealed that corporate tax, value-added tax and withholding tax exert a positive significant effect on profit after tax. Similarly, Nnubia and Okolo (2020) analyzed the effect of corporate tax on profitability of business organizations in Nigeria. Using OLS, the study revealed a positive significant relationship between corporate tax proxied with marginal tax rate, effective tax rate and average tax rate and profitability proxied with ROE and ROA) in Nigeria Listed Banks.

2.4 Gaps in Literature and Formulation of Hypotheses

To have a common ground where organizations, like Deposit Money Banks, are moderately taxed and adequate revenue is being generated by the government, several studies have been carried out on the subject matter. Worryingly, the findings reported by these studies are not consistent. Consequently, studies on the subject matter in Deposit Money Banks are relatively few in this part of the world and in fact, the periods covered by the available ones leave a gap to be filled. In the same vein, majority of these studies, except Olaoye and Alade (2019) and Nnubia and Okolo (2018), examined only the connection between company income tax and firms' profitability. However, two major taxes that companies pay are company income tax and education tax. This is the crux of this study to examine how

corporates' profitability is influenced by company income tax and education tax. Based on this, the following hypotheses are formulated and tested for the study:

H₀₁: there is no significant effect of company income tax on profitability of Deposit Money Banks in Nigeria;

H₀₂: there is no significant effect of education tax on profitability of Deposit Money Banks in Nigeria.

3.1 Methodology

Ex-post facto research design was adopted for this study and the population covered all the 14 quoted Deposit Money Banks in Nigeria; out of which, 10 banks were purposively selected because of their significant role in the Nigeria financial system and their size and capacity to avert the complete breakdown of the whole economy. These were First Bank of Nigeria Limited, Guaranty Trust Bank Plc, Zenith Bank Plc, United Bank for Africa Plc, Access Bank Plc, Eco Bank, Stanbic IBTC, Wema Bank, FCMB and Fidelity Bank. Secondary data obtained from the audited annual financial statement of the selected banks for 10 years spanning from 2010-2019 was used. The period covered comprised of the global financial and economic crises and the period of domestic economic recession that affected every sector of the economy, part of which is the banking industry. The independent variables were company income tax and education tax while the dependent variable was Return on Assets (ROA) and Return on Equity (ROE). The model used by Cordelia and Ameh (2018) to examine the impact of corporate tax on profitability of Deposit Money Banks in Nigeria was used. However, the model was modified to include other related variables that could affect the performance of banks. These include leverage and total asset. The functional and linear representation of the models are given in equation one and two.

$$ROE = \beta_0 + \beta_1 LCIT_{it} + \beta_2 LEDT_{it} + \beta_3 LTOA_{it} + \beta_4 LEV_{it} + \mu_{it} \dots \dots \dots (1)$$

$$ROA = \beta_0 + \beta_1 LCIT_{it} + \beta_2 LEDT_{it} + \beta_3 LTOA_{it} + \beta_4 LEV_{it} + \mu_{it} \dots \dots \dots (2)$$

Where ROA is Return on Assets, ROE is Return on Equity, LCIT is Log of Company Income Tax, LEDT is Log of Education Tax, LTOA is Log of Total Assets and LEV is Leverage, β_0 is the intercept, β_1 - - - - β_4 are the slop parameters, subscript "it" represents the combination of time and individuality, μ_{it} means error term. The study comparatively adopts fixed effect model and random

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effect model of panel data analysis. Before then, descriptive and correlation analysis were carried out. The fixed effect follows the form presented below:

$$Y_{it} = \alpha_0 + \beta_1 X_{it} + \delta t + \mu_{it}$$

δt is a time varying intercept that captures all the variables that affect Y_{it} that vary over time but are constant across firms. The random effect model follows the forms presented below:

$$Y_{it} = \alpha_0 + \beta_1 X_{it} + W_{it}, W_{it} = \epsilon_{it} + \mu_{it}$$

Where ϵ_{it} measures the random deviation from the global intercept α , subscript "it" represents the combination of time and individuality. U_{it} means error term. The selection of the best suited model from the two is done following the Hausman test.

Table 1. Definitions of Variables

Dependent variables	Measurements	A-priori Expectation
Return on Assets	Net income/ total assets.	
Return on Equity	Net income/ Shareholders' equity	
Independent Variable		
Company Income Tax	30% of Profit before Tax	-
Education Tax	2% of Profit before Tax	-
Control Variables		
Leverage	Debt/equity	+
Total Assets	Logarithm of the total assets.	+

Source: Author's Computation (2020).

4.0 Results and Discussion

4.1 Results

4.1.1 Descriptive Statistics

Mean, standard deviation, minimum and maximum were used to describe all the variables covered by this study.

Table 1. Descriptive Statistics

	ROE	ROA	LCIT	LEDT	LTOA	LEV
Mean	0.272	0.026	15.55	12.842	17.042	1.907
Std. Dev.	1.182	0.029	1.651	1.651	3.356	7.564
Minimum	0.001	0.001	8.907	6.199	12.495	0.011
Maximum	10.750	0.227	17.911	15.203	22.566	62.072

Source: Author's Computation (2021). Where: ROE is Return on Equity, ROA is Return on Asset, CIT is Corporate Income Tax, EDT is Education Tax, TOA is Total Asset and LEV is Leverage

Table 1 depicts that the average value for return on equity is 0.272, with minimum and maximum values of 0.001 and 10.750 respectively. The standard deviation of 1.182 shows that the risk is higher, as it is relatively closer to its mean figure. In the same result, the mean value of return on asset is at 0.026, with minimum and maximum values of 0.001 and 0.227 respectively and a standard deviation of 0.029 which shows that the risk is higher, as it is relatively closer to its mean figure. Also, the mean value of corporate income tax is at 15.55 with a minimum and maximum values of 8.907 and 17.911. Unlike return on asset and return on equity, the standard deviation (1.651) shows that its risk is lower, as it is relatively far from its mean value. For education tax, the mean value stood at 12.842, with minimum and maximum values of 6.19 and 15.203 respectively. The standard deviation (1.651) shows that its risk is relatively low, because its standard deviation value is far from its mean. Also, the mean value of total asset stood at 17.042 with minimum and maximum values of 12.495 and 22.566 respectively. Like education tax, the standard deviation (3.356) shows that its risk is lower, as it is relatively far from its mean value. Finally, leverage's mean value is 1.907, with minimum and maximum values of 0.011 and 62.072 respectively. Its standard deviation of 7.564 shows that its risk is higher, as it is relatively closer to its mean value.

4.1.2 Correlation Analysis

As presented in table 2, there exists a positive relationship between return on equity, return on asset, corporate income tax, education tax, total asset and leverage with the correlation coefficient of 0.067 for return on asset, 0.287 for corporate income tax, 0.187 for education tax, 0.387 for total asset and 0.981 for leverage. This implies that the variables moved in similar directions across the deposit

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money banks in Nigeria for the period covered by the study. Similarly, there is a positive relationship between return on asset, corporate income tax, education tax and leverage with correlation coefficient of 0.102, 0.102 and 0.021 respectively. Contrarily, the result showed that there exists a negative relationship between return on asset and total asset with the correlation coefficient of -0.119. Also, a positive relationship between corporate income tax, education tax and leverage with the coefficient values of 0.163 for education tax and 0.079 for leverage. Furthermore, there exists a positive relationship between education tax and leverage with the coefficient value of 0.079. On the contrary, there exists a negative relationship between education tax and total asset with the coefficient value of -0.189 and a negative correlation between total asset and leverage with the coefficient value of -0.106.

Table 2 Correlation Matrix

	ROE	ROA	LCIT	LEDT	LTOA	LEV
ROE	1					
ROA	0.067	1				
LCIT	0.287	0.102	1			
LEDT	0.187	0.102	0.163	1		
LTOA	0.387	-0.119	-0.189	-0.189	1	
LEV	0.981	0.021	0.079	0.079	-0.106	1

Source: Author's Computation (2021)

4.1.3 Regression Analysis

Model I: Analysis of the effects of (corporate income tax, education tax, total asset and leverage) on corporate profitability (Return on Equity) in Nigeria.

Table 3 disclosed the Pooled estimation result which revealed that when heterogeneity effect across the deposit money banks in Nigeria covered in the study is not given any consideration, corporate income tax, education tax and total asset exert a positive but insignificant effect on return on equity of deposit money banks in Nigeria to the tune of 0.0101 ($p=0.505 > 0.05$), 0.001 ($p=0.434 > 0.05$) and 0.007 ($p=0.341 > 0.05$) respectively. Also, there exists a positive and significant effect of leverage on return on equity of deposit money banks in Nigeria with the correlation coefficient and probability values of 0.154 and 0.000 respectively. The

reported adjusted R-square showed that about 30% of the systematic variation in return on equity can be jointly explained by corporate income tax, education tax, total asset and leverage while the remaining 70% could be accounted for by other variables not covered by this study. The F-statistics of 85.04 along the probability value of 0.0011 revealed that the model is fit.

Table 3: Pooled OLS Estimation Result

<i>Variable</i>	<i>Coefficient</i>	<i>Std Error</i>	<i>T-Test</i>	<i>Probability</i>
C	0.292	0.287	1.02	0.310
LCIT	0 .0101	0.0151	0.67	0.505
LEDT	0.001	0.0006	0.55	0.434
LTOA	0.007	0.007	0.96	0.341
LEV	0.154	0.003	38.44	0.000

R-square=0.3624, Adjusted R-square=-0.3012, F-statistics=85.04, Prob(F-stat) =0.0011
 (*) connotes significance at 5% level of significance

Source: Author's Computation (2021)

Table 4: Fixed Effects Estimates

<i>Variable</i>	<i>Coefficient</i>	<i>Std Error</i>	<i>T-Test</i>	<i>Probability</i>
C	0.091	0.421	0.22	0.829
LCIT	-0.002	0.022	0.09	0.929
LEDT	0.001	0.018	1.21	0.072
LTOA	0.086	0.021	2.31	0.009
LEV	0.155	0.004	42.83	0.000

R-square=0.5621, F-statistics=40.58, Prob(F-stat) =0.0000 (*) connotes significance at 5% level of significance.

Source: Author's Computation (2021)

The fixed effect estimation result was represented in table 4 which includes the cross-sectional estimation result. The results indicated that when the diversity of the operational activities and leadership skills across the deposit money banks in Nigeria are considered, education tax, total asset and leverage exert a positive relationship with return on equity across the sampled deposit money banks in Nigeria. However, the positive effect of education tax unlike total asset and leverage is insignificant to the tune of 0.001 ($p=0.072 > 0.05$), 0.086 ($p=0.009 <$

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0.05) and 0.155 ($p=0.000 < 0.05$) respectively. On the contrary, corporate income tax exert a negative insignificant effect on return on equity across the sampled deposit money banks in Nigeria to the tune of -0.002 ($p=0.929 > 0.05$). The reported R-square revealed that about 56% of the systematic variation in return on equity can be explained by all the predictor variables while the remaining 46% could be accounted for by other variables not covered by this study. The F-statistics of 40.58 along the probability value of 0.000 revealed that the model is fit.

Table 5: Random Effect Estimation

Variable	Coefficient	Std. Error	Z-Test Values	Probability
C	0.292	0.287	1.02	0.307
LCIT	0.011	0.015	0.67	0.503
LEDT	0.006	0.016	0.79	0.287
LTOA	0.007	0.003	2.16	0.039
LEV	0.154	0.003	48.21	0.000

R-square=0.4624, Wald chi2(5) =23.13, Prob> chi2 =0.0034

Source: Author's Computation (2021)

From table 5 above, it was revealed that when the error term absorbed the heterogeneity effect across the sampled deposit money banks in Nigeria and over time, total asset and leverage have a positive and significant effect on return on equity to the tune of 0.007 ($p=0.039 < 0.05$) and 0.154 ($p=0.000 < 0.05$) respectively. Also, corporate income tax and education tax exert a positive but insignificant effect on return on equity across the sampled deposit money banks in Nigeria with the correlation coefficient and probability values of 0.011 and 0.503 for company income tax and 0.006 and 0.287 for education tax. The reported R-square revealed that about 46% of the systematic variation in return on equity can be jointly explained by all the explanatory variables while the remaining 54% could be accounted for by other variables not covered by this study. The Wald Chi of 23.13 along the probability value of 0.0034 revealed that the model is fit.

Table 6 reported chi-square statistic of 0.78 and probability value of 0.8553. The result revealed that there is no enough evidence to reject the null hypothesis that differences in coefficients of fixed effect estimation and random effect estimation are not significant. Therefore, the most consistent and efficient estimation is given by the random effect estimation as presented in table 5.

Table 6: Hausman Test

	Chi-square stat	Probability
Differences in coefficient not systematic	0.78	0.8553

Source: Data Analysis (2021)

Table 7: Other Post Estimation Tests

<i>Wald test</i>		
Null hypothesis	Statistics	Probability
<i>Panel homoscedasticity</i>	0.7437	0.587
<i>Pesaran test</i>		
Null hypothesis	Statistics	Probability
<i>No cross sectional dependence</i>	0.885	0.3760
<i>Wooldridge test</i>		
Null hypothesis	Statistics	Probability
<i>No AR (1) panel autocorrelation</i>	2.4343	0.0972

Source: Author's Computation, (2021)

Results presented in table 7 showed that there is no evidence to reject null hypothesis on panel homoscedasticity, null hypothesis of no cross-sectional dependence and null hypothesis of no AR (1) panel autocorrelation, given the reported probability statistics of $0.587 > 0.05$ for Wald test, $0.3760 > 0.05$ for Pesaran test and $0.0972 > 0.05$ for Wooldridge test. Hence it can be established in the study that assumptions of equal variance of residual terms, cross-sectional independence and absence of serial autocorrelation for the estimated panel-based model is valid.

Model II: Analysis of the effects of (corporate income tax, education tax, total asset and leverage) on corporate profitability (Return on Asset) in Nigeria.

Table 8 represented the pooled estimation result and it revealed that corporate income tax, education tax, total asset and leverage exert a positive but insignificant

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effect on return on asset of deposit money banks in Nigeria to the tune of 0.001 ($p=0.437 > 0.05$), 0.0005 ($p=0.722 > 0.05$), 0.001 ($p=0.329 > 0.05$) and 0.001 ($p=0.975 > 0.05$) respectively. The reported adjusted R-square showed that about 16% of the systematic variation in return on assets can be jointly explained by corporate income tax, education tax, total asset and leverage while the remaining 84% could be accounted for by other variables not covered by this study. The F-statistics of 6.65 along the probability value of 0.04040 revealed that the model is not fit.

Table 8: Pooled OLS Estimation Result

<i>Variable</i>	<i>Coefficient</i>	<i>Std Error</i>	<i>T-Test</i>	<i>Probability</i>
C	0.049	0.015	2.53	0.020
LCIT	0.001	0.002	0.78	0.437
LEDT	0.0005	0.0002	0.91	0.722
LTOA	0.001	0.001	0.98	0.329
LEV	0.001	0.0004	0.03	0.975

R-square=0.2108, Adjusted R-square=0.1611, F-statistics=6.65, Prob(F-stat) =0.0404

(*) connotes significance at 5% level of significance

Source: Author's Computation (2021)

Table 9: Fixed Effects Estimates (Cross-sectional and Period specific)

<i>Variable</i>	<i>Coefficient</i>	<i>Std Error</i>	<i>T-Test</i>	<i>Probability</i>
C	0.061	0.049	1.24	0.220
LCIT	0.001	0.003	0.41	0.681
LEDT	0.0003	0.005	0.38	0.792
LTOA	0.006	0.002	1.29	0.028
LEV	0.00003	0.0004	0.08	0.939

R-square=0.3171, F-statistics=18.56, Prob(F-stat) =0.0017 (*) connotes significance at 5% level of significance.

Source: Author's Computation (2021)

Table 9 indicated that when the diversity of the operational activities and leadership skills across the deposit money banks in Nigeria are considered, corporate income tax, education tax, total asset and leverage exert a positive effect

on return on asset across the sampled deposit money banks in Nigeria. However, the positive effect of total asset unlike corporate income tax, education tax and leverage is significant to the tune of $0.006(p=0.028 < 0.05)$ for total assets, $0.001(p=0.681 > 0.05)$ for company income tax, $0.0003(p=0.792 > 0.05)$ for education tax and $0.00003(p=0.939 > 0.05)$ for leverage. The reported R-square revealed that about 32% of the systematic variation in return on asset can be explained by all the predictor variables while the remaining 68% could be accounted for by other variables not covered by this study. The F-statistics of 18.56 along the probability value of 0.0017 revealed that the model is fit.

Table 10: Random Effect Estimation

Variable	Coefficient	Std. Error	Z-Test Values	Probability
C	0.038	0.019	2.28	0.037
LCIT	0.001	0.002	0.50	0.617
LEDT	0.0005	0.001	0.42	0.317
LTOA	0.004	0.0012	1.02	0.009
LEV	0.00001	0.0004	0.03	0.975

R-square=0.4197, Wald chi2(5) =38.39, Prob > chi2 =0.0170

Source: Author's Computation (2021)

Report from table 10 revealed that corporate income tax, education tax and leverage have a positive but insignificant effect on return on asset to the tune of $0.001(p=0.617 > 0.05)$, $0.0005(p=0.317 > 0.05)$ and $0.00001(p=0.975 > 0.05)$ respectively. Also, total asset exerts a positive significant effect on return on asset across the sampled deposit money banks in Nigeria with the correlation coefficient and probability values of 0.004 and 0.009 respectively. The reported R-square revealed that about 42% of the systematic variation in return on asset can be jointly explained by all the explanatory variables while the remaining 58% could be accounted for by other variables not covered by this study. The Wald Chi of 38.39 along the probability value of 0.0170 revealed that the model is not fit.

Table 11 reported chi-square statistic of 1.15 and probability value of 0.7657. The result revealed that there is no enough evidence to reject the null hypothesis that differences in coefficients of fixed effect estimation and random effect estimation are not significant. Therefore, the most consistent and efficient estimation is given by the random effect estimation as presented in table 10.

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Table 11: Hausman Test

	Chi-square stat	Probability
Differences in coefficient not systematic	1.15	0.7657

Source: Data Analysis (2021)

Table 12: Other Post Estimation Test

<i>Wald test</i>		
Null hypothesis	Statistics	Probability
<i>Panel homoscedasticity</i>	2.067	0.0893
<i>Pesaran test</i>		
Null hypothesis	Statistics	Probability
<i>No cross-sectional dependence</i>	0.056	0.9552
<i>Wooldridge test</i>		
Null hypothesis	Statistics	Probability
<i>No AR (1) panel autocorrelation</i>	1.674	0.7541

Source: Author's Computation, (2021)

The post estimation test result presented in table 12 showed that there is no evidence to reject null hypothesis on panel homoscedasticity, null hypothesis of no cross-sectional dependence and null hypothesis of no AR (1) panel autocorrelation, given the reported probability statistics of $0.0893 > 0.05$ for Wald test, $0.9552 > 0.05$ for Pesaran test and $0.7541 > 0.05$ for Wooldridge test. Hence it can be established in the study that assumptions of equal variance of residual terms, cross sectional independence and absence of serial autocorrelation for the estimated panel-based model is valid.

4.5 Discussion of Findings

It was discovered that corporate income tax exerts a positive but insignificant effect on profitability of deposit money banks in terms of return on equity and return on asset to the tune of $0.011(p=0.503 > 0.05)$ and $0.001(p=0.617 > 0.05)$ respectively. The corollary of this outcome implies that an increase in corporate income tax would increase the profitability of deposit money banks in Nigeria

insignificantly. The salient point to note on these findings is that CIT charge on Nigerian Banks requires a thorough review. The theory of ability-to-pay tax states that firms and individuals should pay tax based on the income available to them which is in line with the principle of fairness and progressive principle of taxation. The application is that Banks who are under serious financial challenges should be given incentive if a thorough investigation is carried out by the relevant tax authority and it is confirmed. This outcome was in tandem with the findings of Cordelia and Amah (2015) and George (2018) that a positive insignificant effect exists between corporate income tax and profitability of deposit money banks in Nigeria. However, this outcome was not in line with the findings of Chude and Chude (2015), Rayler (2017), Nnubia and Okolo (2020) and Olaoye and Alade (2019) that a positive and significant effect exist between tax and performance of organizations.

It was discovered that education tax has a positive and significant effect on return on equity to the tune of $0.006(p=0.047 < 0.05)$. This implies that 1% increase in education tax of deposit money banks in Nigeria could engender a significant increase in their return on equity. This might be due to the effective and efficient utilization of education taxes which promote the growth and development of the nation. This finding gave credence to the conclusion of Olaoye and Alade (2019) that there exists a positive significant relationship between education tax and profitability of firms. Finally, education tax has a positive but insignificant effect on return on asset to the tune of $0.0005(p=0.317 > 0.05)$. The corollary of this outcome is that an increase in education tax would bring about an increase in the return on asset across the sampled deposit money banks in Nigeria insignificantly. The implication of this discovery is that education tax has no capacity to independently improve the profitability of banks in terms of return on asset significantly. This outcome is in support of the findings of Rayler (2017) that a positive but insignificant effect exist between education tax and financial performance of manufacturing firms in Kenya.

5.1 Conclusion and Recommendations

An attempt has been made to unravel the effect of taxes on corporate profitability of Deposit Money Banks in Nigeria. Out of all the 14 quoted banks, only 10 were sampled based on the soundness and ability to withstand economic shock and as indicated by apex bank of the country. Data gathered from the audited and published financial statements was analyzed using Panel regression analysis. Based on the findings made, it was established that there was a statistical

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significant effect of taxes on the profitability of Deposit Money Banks in Nigeria. Thus, it was recommended that the tenets of ability to pay tax should be upheld by the relevant tax authorities in Nigeria. This might afford firms with financial crises and low profitability to pay commensurate taxes. Therefore, new regulations to curtail excess corporate tax is necessary to enable them have enough liquidity to lend to firms. When firms are able to access capital, they will invest and the economic growth in the country will be enhanced. As a direction for future research, we suggest to conduct a survey to determine whether practitioners (investment bank analysts, financial managers, portfolio managers etc.) take into account corporate taxation aspects when measuring companies' performance and assessing their values.

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THE ANALYSIS OF THE FINANCIAL EQUILIBRIUM BASED ON THE FINANCIAL BALANCE SHEET

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Abstract

This piece of work aims to highlight the importance of financial balance in the activity of any enterprise. Thus, we will present the financial balance sheet based on the balance count sheet. In order to establish the financial balance within an economic entity, the financial balance indicators must be analyzed, as well as their role in the analysis of the financial position of the economic agents.

Keywords: *balance sheet; financial sheet; financial equilibrium; working capital; necessary working capital; net treasury.*

JEL Classification: C12, G32

Introduction

Knowing that the economic environment can be unstable, this writing paper presents the analysis of financial balance, showing the importance of static analysis of financial balance indicators of the venture. The financial balance and creditworthiness of the company is determined based on the asset and liability, thus allowing the evaluation of the independence of the enterprise and its market value. The asset sheet is the first document underlying the patrimonial valuation of the enterprise. In the literature, we can identify the following types of balance sheets type: balance count sheet, functional balance sheet and financial balance sheet.

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Literature review

In the writing paper “*Economic modeling. Concepts, theory and case studies*”, the authors Anghelache and Anghel (2014) highlighted the main models for analyzing the financial position of an economic entity. Anca Maria Hristea (2015) sustains that working capital, which is the need for working capital and net cash, expresses the ability of economic agents to meet the due dates, thus "illustrating the ability to transform assets into availabilities".

The analysis of financial equilibrium indicators provides information on the effectiveness of the entity's business.

The financial equilibrium indicators, namely the net situation, working capital, working capital requirements, and net treasury, must answer the questions related to the financial stability of the enterprise and its safety margin, the correlation between the duration of the debt and the maturity of debts, such as and the way in which the company manages the cash availabilities, respectively the existence of the financial balance through the rhythmic collection of the receivables and the fast rotation of the current assets. (Solomon, D. C., Bucur, I.A., 2013)

In general, the balance means the stability of a situation, a harmony between the components of a system, which financially involves the harmonization of the financial resources of the entity with its financial needs. (Paraschivescu et al, 2013)

Financial balance sheet - the document that forms the basis of the analysis of financial equilibrium indicators

Based on the balance sheet, in which the elements are structured according to the destination criteria (investment - operation - treasury), the construction of the financial balance sheet imposes a new classification, this being possible also due to the information in the describing notes.

The financial balance sheet is prepared based on the account balance sheet at the end of the financial year must provide the information necessary to determine the indicators of financial balance, liquidity, and solvency of an economic entity. The financial balance sheet meets the needs of the company's creditors, interested in finding out if the liquid assets can quickly cover the due to debts. Thus, the aim is for the permanent resources to finance at least the minimum permanent needs so that the rest of the assets can cover the due debts.

The elaboration of the financial balance sheet, as well as the functional balance sheet, specific to the static analysis of the financial balance, is based on the classification of the assets according to the degree of liquidity and of the liability

elements according to the degree of exigibility. According to the concept on which it is based, the financial balance sheet is closer than the functional one to the accounting balance sheet, having in its center the notion of patrimony and rights and obligations.

The financial balance sheet studies the risk of non-repayment of debts by the economic agent and the financial structure of his estate. The first ones that have requested financial balance sheets were the banks, which are currently useful to other third parties.

In the asset of the financial balance, the elements are ordered according to their degree of liquidity, keeping the possibility to be transformed into money, in order to quickly recover the invested capital. The first ones that are registered are the least liquid assets, those with the longest recovery period consisting of intangible, tangible, and financial immobilised assets. Due to the long periods of recovery invested capital, these assets are known as permanent (stable or sustainable) *needs, uses, or allocations* and are symbolized "PN". Then the current assets are entered, consisting of stocks, receivables and cash, which are much more liquid, recovery of invested capital is taking place at the end of the operating cycle. Given their increased liquidity and their rapid turnover of invested capital, current assets are called *temporary* (cyclical) *needs, uses, or allocations*, and are symbolized "TN". Cash flows form the treasury needs, and current bank loans (treasury loans or short-term financial liabilities) make up treasury resources.

The liabilities of the financial balance sheet reflect, from a financial point of view, the sources of origin of the capital (own and borrowed of the enterprise). The structure of the liabilities is made according to the degree of eligibility, respective their property become due at a certain moment. First of all, are registered the equity that is not exigible, as it does not have a term in terms of recovery. They have also registered the financial debts, whose term is more than one year (medium and long-term loans). These are called permanent (stable or sustainable) resources and are symbolized "PR", due to their constant nature, respectively to serve in a sustainable and stable way to finance permanent needs (uses, allocations). Then there are registered the short-term debts from the current operating activity, which have a high degree of exigibility and are known as temporary (cyclical) resources, symbolized "TR".

Among the constituents of the balance sheet, the distinction between those that remain on the enterprise disposal on the long-term (over one year) and those that belong only for short-term (under one year).

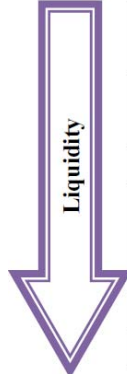
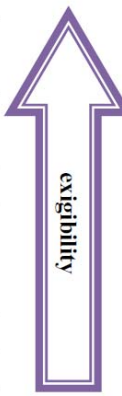
The financial balance sheet can be analyzed for:

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- the upper part, consisting of permanent resources and permanent needs, which reflects the sustainable financial structure of immobilised assets, respectively **the long-term financial equilibrium**;

- the lower part, in which the temporary resources ensure the financing of the temporary needs in order to achieve the exploitation course, which reflects **the short-term financial equilibrium**.

Financial balance sheet

	ASSETS	LIABILITIES
 Liquidity	Net immobilised assets	Equity Medium and long-term debts
	PERMANENT NEEDS	PERMANENT RESOURCES
	Stocks Receivables Availability	Operating debts Short-term financial debts
	TEMPORARY NEEDS	TEMPORARY RESOURCES
	TOTAL ASSETS	TOTAL LIABILITIES
		 exhibibility

The financial equilibrium of the enterprise implies observing the following two rules regarding funding: the permanent needs to be covered from permanent capitals especially from equity and the temporary needs to be financed from temporary resources.

Analysis of financial equilibrium indicators

The analysis of the financial equilibrium supposes the calculation of the following indicators:

- the net situation;
- working capital;
- necessary working capital;
- net treasury

- **Net situation (NS)**

This indicator represents the uncommitted asset and is determined with the help of the formula:

$$\text{NS} = \text{TOTAL ASSETS} - \text{TOTAL DEBTS}$$

Net situation expresses the accounty value of the rights that the owners have over the enterprise and must to be sufficient to ensure the financial independence of the enterprise, excluding from the category of equity the investment grants and regulated provisions.

$$\text{NS} = \text{Equity} - \text{Investment Grants} - \text{Regulated Provisions}$$

A negative net situation reflects a state of pre-insolvency, being the consequence of the conclusion with losses from previous years, losses that exhausted their capitals completely, thus the enterprise being in danger of insolvency. The uncovered part remains exclusively the responsibility of the creditors, this being the risk of insolvency of the enterprise.

- **Working capital (financial, net or permanent) (WC)**

Working capital (WC) is the expression of achieving long-term financial equilibrium and the contribution of this to the financing of net current assets against current debts.

$$\text{WORKING CAPITAL} = \text{PERMANENT RESOURCES} - \text{PERMANENT NEEDS}$$

Working capital can be determined in two ways:

1. for the upper part of the financial balance sheet, the calculating formula is:

$$\text{WC} = \text{Permanent Capital} - \text{Net Immobilised Assets}$$

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In this case, the interpretation of the indicator is as follows:

✓ $WC > 0$ (permanent capital > net immobilised assets) → permanent capital finances a part of the current assets after the full financing of the net immobilised assets; the long-term financial equilibrium is achieved;

✓ $WC = 0$ (permanent capital = net immobilised assets) → is a less probable situation, which implies a total harmonization of the structure of resources with their allocation needs;

✓ $WC < 0$ (permanent capital < net immobilised assets) → reflects a financial imbalance, in the sense that part of the temporary resources was used to finance permanent needs, contrary to the principle of financial administration: "permanent resources are allocated to permanent needs". (Stancu I., 2007)

2. for the lower part of the financial balance sheet, the calculating formula is:

$$WC = \text{Net Current Assets} - \text{Short-Term Debts}$$

We can encounter the following situations:

✓ $WC > 0$ (net current assets > short-term debts) → favorable situation, there is a surplus of potential short-term liquidity compared to the potential short-term exigibility, so the company can meet its obligations at maturity in full.

✓ $WC = 0$ (net current assets = short-term debts) → a less probable situation, in which current assets strictly cover short-term debts, without the possibility of generating an excess liquidity;

✓ $WC < 0$ (net current assets < short-term debt) → current assets convertible into liquidity are insufficient for short-term debt repayment, which leads to an imbalance, disadvantageous situation in terms of the company's solvency.

The working capital allows following how the company respects the financial equilibrium.

- **Necessary working capital (NWC)**

The need (necessary) working capital is the expression of achieving a short-term financial equilibrium. It is determined that the difference between current assets (availability) and short-term debt (excluding current bank loans):

$$\text{NWC} = (\text{Stocks} + \text{Receivables}) - \text{Operating Debts}$$

In the analysis of NVC we can meet the following situations:

- ✓ $\text{NWC} > 0$ (temporary needs $>$ temporary resources) \rightarrow negative situation, in the sense that there is a surplus of temporary needs in relation to the possible temporary sources of mobilization.
- ✓ $\text{NWC} = 0$ (temporary needs = temporary resources) \rightarrow there are rare situations to take into consideration the dynamic permanent character of the activity carried out by the economic agents.
- ✓ $\text{NWC} < 0$ (temporary needs $<$ temporary resources) \rightarrow positive situations, a surplus of temporary sources about temporary needs, which derives from the acceleration of the rotation of current assets and the commitment of operating debts with more relaxed payment terms.

- **Net treasury (NT)**

Treasury analysis represents the analysis of short-term financial balance when comparing a relatively constant size (working capital) with a fluctuating size (need for working capital). Net treasury reflects the quality of the company's overall financial equilibrium.

The working capital is intended to finance the need for working capital. Net treasury (NT) is obtained by comparing working capital (WC) with working capital need (NWC).

Net treasury is determined as so:

$$\text{NT} = \text{Availability} - \text{Current Bank Loans}$$

Net treasury can be positive or negative, as follows:

- ✓ $\text{NT} > 0$ reflected the higher level of working capital compared to the need for working capital, pointing out that the financial year ended with a monetary excess. At the same time, the indicator indicates the financial equilibrium, expressing a financing growth that increases the treasury and guarantees efficiency for the company in terms of availability.

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- ✓ NT < 0 shows a financial imbalance at the end of the year.

Finals Remarks

This analysis highlights the efficiency of ensuring financial equilibrium within the enterprise.

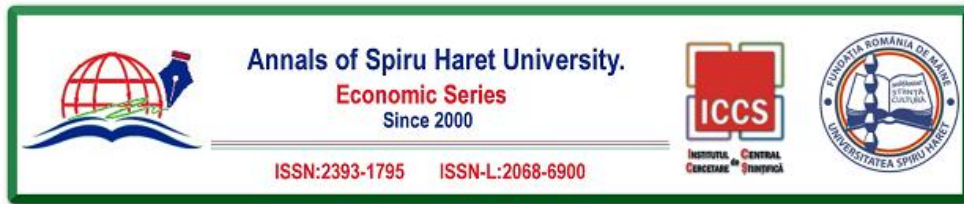
The financial equilibrium indicators must be determined, analyzed and interpreted, each expressing a conclusion about the financial equilibrium of the economic agent.

Based on the information provided by the financial analysis and therefore, the financial equilibrium, the company's management must orientate its policy towards improving the financial situation to obtain economic efficiency.

The analysis of the financial equilibrium is made based on the information provided by the financial balance sheet and by calculating the system of indicators based on which the existing equilibrium/disequilibrium situation is established, at the level of the enterprise.

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THE EXCHANGE RATE AND COVID-19 PANDEMIC: AN APPLICATION TO THE NIGERIAN ECONOMY

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Abstract

The recent tremors in the Naira exchange rate amidst the COVID-19 pandemic are quite worrisome. Countries that depend on the exportation of transport-driven resources could be worse hit. This study aimed to examine the impact of the Covid-19 pandemic on the exchange rate in Nigeria. The Naira exchange rate was made the criterion variable while the Covid-19 pandemic, disaggregated as Covid-19 new cases, Covid-19 period, and Covid-19 new deaths was put as the predictor variables. ARDL technique was employed as informed by the unit root tests. The finding revealed that, in both the short run and long run, the period of COVID-19 had a significant direct impact on the exchange rate in Nigeria. However, COVID-19 new cases and new deaths could not significantly impact the exchange rate. The study, therefore, suggests that Nigerians should be aware that the upsurge in the naira/dollar rate is due to the COVID-19 period, among other causes. The economy should step-up other internationally demanded products like crude oil, and produce in large quantities to cushion the effect of low export.

Keywords: COVID-19 pandemic; dummy variable; exchange rate; time series.

JEL Classification: E58, I18

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Introduction

The study of the exchange rate is apt in economics all over the world due to the non-disposability of most countries and inseparability from the rest of the world. The period of COVID-19 being a time where most transactions between a country with the rest of the world are cut-off and economies, most especially developing nations stand aloof and thus unable to earn any foreign currency, rather, they pay since they still depend on advanced and emerging economies to contain the pandemic, Nigeria is still developing and so it is affected.

The Nigerian government has realized this fact and has been putting many policies in action to lessen to reduce the effect of the pandemic on the Naira exchange rate. Whether COVID-19 has affected the country's exchange rate predominantly measured with the US dollar or not is yet to be empirically investigated and thus, remains an intuition and perception of people. To some economists, it is premonition and pre-sentiment based on the domain of the economist. Hence, the need to dig further by carrying out an empirical study on this aspect of monetary policy.

The connection of the Covid-19 pandemic, the alarming rise in the exchange rate, and its impact on the already fragile Nigerian economy have become a subject of debate for researchers in the first three quarters of the year 2020. The rising cost of goods and services, loss of jobs coupled with lower volumes, and price of our oil exports which constitute the highest percentage of our exports, has led to Nigeria's economy contracting by 6.1% year on year between April and June of this year.

The question on the lips of every Nigerian is that in the 80s, Nigeria exchanges 80k to 1 dollar and in the first quarter of 2020 it was N360 to 1 dollar and with the pandemic it skyrocketed to N470 to 1 dollar, what could have been responsible for all these, Is it bad leadership? Could it be bad economic policies or our international borrowings? Is it a covid-19 pandemic?

The truth of the matter is that, in the 80s, we were far more productive than we are today. In the 80s the key reasons for the economic growth and stability of the naira were because we were a net exporter of refined petroleum products. Today we import all our refined petroleum products; we assembled and produced most components of our cars, buses, Agricultural tractors, and trucks in Nigeria but today, they are all gone. Our television sets, radios, refrigerators, air conditioners were all produced by Sanyo and Thermcool locally. Our textile companies in Lagos, Kano, and Kaduna were producing the clothes we wore, most of our building materials were produced locally, the food that we ate was all produced

locally. We were flying our Nigerian airways, we had our ships, our functioning railway system, but today, we import almost everything which informed the terrible exchange rate we are experiencing today. It is not enough for us to complain about the exchange rate or point out what others are not doing or are failing to do. The key question is what are we producing or what are we planning to produce for export to have a favourable balance of payments and an improved economy? As such, this study answers three main questions: What is the impact of COVID-19 cases on Nigeria's exchange rate? What is the effect of Covid-19 new death cases on Nigeria's exchange rate? And does the period of the COVID-19 pandemic affect Nigeria's exchange rate? Along with these questions are the objectives of the study which are specific to examine the impact of COVID-19 new cases on the naira exchange rate in Nigeria; to examine the effect of Covid-19 new death cases on the naira exchange rate in Nigeria; and to determine the impact of the period of COVID-19 on Nigeria's exchange rate.

Research Hypotheses

H₀₁: COVID-19 new cases have no significant impact on Nigeria's exchange rate.

H₀₂: New death cases of Covid-19 have no significant impact on the exchange rate in Nigeria.

H₀₃: The period of the COVID-19 pandemic does not significantly affect Nigeria's exchange rate.

This study is important in the Nigerian economy due to the paucity of adequate research on the topic and the need to fill this gap. More so, the depletion of the value of the Nigerian Naira calls for a sufficient investigation along the axis of the pandemic.

Literature Review

Exchange rates are determined through the Mint Parity theory, Purchasing Power Parity theory, and Balance of Payment theory (Babalola, 2019).

The mint parity theory is used to determine the exchange rate of one country to the other by the use of the mint price of Gold. The mint price of gold is the rate at which the money of a country is converted into Gold. Although, the mint parity theory of exchange rate has since been abandoned and no country is on the gold standard again (Ishola, 2017).

The Purchasing power parity theory which was developed by Gustav Cassel in 1920 uses the purchasing power of a country's convertible paper currency in

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respect of the purchasing power of another country to determine the exchange rate between the two countries. There is criticism regarding the use of the purchasing parity theory since the cost of production of the goods in both countries is not considered. The balance of payment theory of exchange rate postulates that the exchange rate of a country's currency depends on its balance of payments. Hence, the theory establishes that the exchange rate is determined by the demand for and supply of foreign exchange. Here, it is believed that the higher the export of goods from Nigeria to the USA for instance, the higher the Nigerian foreign reserve, and this will, in turn, strengthen the Nigerian currency because there would be enough dollars for importation and the forces of demand and supply of dollars will make the Naira strong against the Dollar.

The balance of payment theory of exchange rate is also criticized by economists who think that exchange rate cannot be determined by the balance of payments. They believe that the price level is neglected and that is a truism amongst others.

Since these theories, all have their shortcomings, countries all over make use of three exchange rate theories to manage their exchange rate. These policies are fixed exchange rates, which is also referred to as pegged exchange rates, here exchange rate is determined solely by the monetary authority i.e. the government; Flexible exchange rate which is referred to as flexible, floating, or fluctuating rates, is determined by market forces i.e. the forces of demand for and supply of foreign exchange; “Managed or controlled floating system or intermediate exchange rate policy, which has been put into operation when the International Monetary Fund (IMF) came into being to eschew flows inherent in the two extreme systems. In this policy, the authority mediates in the exchange market to smooth out short-run volatilities in exchange rates. This is mostly done by supplying or mopping the country’s exchange reserves. The policy, according to Jhingan (2010), is also known as the policy of leaning against the wind”. This also means that the nation's external reserves will be used to augment the fluctuations in the exchange rate.

In theory, governments are usually active in using fiscal and monetary policies in alleviating the effect of epidemics or pandemics. Most economies have been using expansionary fiscal and monetary policies to contain these economic woes. With specific reference to the Nigerian economy, “the key policy response from the fiscal policy was to adopt a rived budget for 2020, with an N500 billion COVID-19 intervention fund to cater for additional health-related current and capital spending. N7.5 billion was also given to National Centre for Disease Control (NCDC) among others. From the monetary wing, the Central Bank of Nigeria (CBN) cut monetary

policy by 100 basis points and expanded liquidity availability for a non-bank financial institution, reducing interest rates on all applicable CBN interventions from 9% to 5% and introducing a one-year moratorium on its intervention facilities, liquidity injection of 3.6 trillion into the banking system, including N100 billion to support the health sector, N2 trillion to the manufacturing sector and N1.5trillion to the real sector, among other. Still, in response to COVID-19, The official exchange rate was adjusted from N307 per US dollar just before the pandemic to N361 at the start, and then gradually continued to increase up to N385 per dollar and even beyond. There exists an ongoing unification of different exchange rates under the investor and exporter (I & E) window, bureau de change, and retail and wholesale window, with the sole aim of making I&E rate trend in line with the determination of exchange rate according to market forces” (IMF, 2020).

Very few studies have been made with regards to empirical studies of the impact of COVID-19 on the exchange rate. Fang and Zhang (2021) studied the Covid-19 pandemic on the RMB exchange rate in China using the Taylor rule model. They found out that the exchange rate rose steadily before the pandemic but fluctuated amidst the outbreak.

Liu, Yalcin, Fu and Fan (2021) investigated the impact of the Covid-19 non-pharmaceutical interventions and economic support policies on the exchange rate using Explainable Artificial Intelligence techniques. Dataset was between January 2020 and January 2021 for a Group of Ten countries. The result indicated a strong impact of Covid-19 on the exchange rate due to the various measures put in place by the governments of the countries.

Li, Su, Yaqoob and Sajid (2021) examined the connection between the Covid-19 pandemic and the currency market in China and USA using the ARDL technique between January 2020 and May 2021. They used two proxies of the Covid-19 pandemic: Covid-19 infection cases and deaths cases. Their result showed that the Covid-19 pandemic affected the exchange rate negatively in both the short and long run both in china and the USA. Alongside, *Konstantakis, Melissaropoulos, Daglis and Michaelides (2021) studied the fluctuations in euro to dollar exchange rate using data for the exchange rate before and during the COVID periods. Using the Spectral non-causality test, their findings revealed that the COVID-19 pandemic has a significant impact in determining the euro to the dollar exchange rate.*

Singh, Bansai, Bhardwaj and Agrawal (2021) investigated the association between the covid-19 pandemic and exchange rate among others, in Group of

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Seven (G7) industrialised countries, using Wavelet Coherence and Partial Wavelet Coherence techniques. They used the number of confirmed covid-19 infection cases to proxy the pandemic. Their result revealed that the Covid-19 pandemic has a significant long-term impact on the exchange rate in the G7.

Feng, Yang, Gong and Chang (2021) examined the response of volatility in the exchange rate to the Covid-19 pandemic and government interventions in twenty countries between January 2020 and July 2020, using the Generalised Method of Moment. Their findings divulged that increase in confirmed cases of the pandemic significantly raised the volatility of the exchange rate in these countries.

The spillover effect between Covid-19 infection and the global foreign exchange market for six advanced countries in pairs was analysed using Diebold and Yilmaz technique and employing daily data between December 2019 and April 2020. Findings indicated that there was high interdependence between the pandemic and volatility (Fasanya, Oyewole, Adekoya & Odei-Mensah, 2021).

Karakoyun (2020) employed the comparative method of analysis to study the effect of Covid-19 on investment and exchange rates in seven emerging economies that have singular economic indicators. He found out that, uncertainty, broad money supply, foreign reserve, among others are significant factors that affected the exchange rate between January 2020 and the end of August 2020.

Dineri and Cutcu (2020) investigated the impact of COVID-19 on the exchange rate in Turkey. They made use of daily data set between March and May 2020 and employed the techniques of Hatemi-J Cointegration and Hacker-Hatemi-J Bootstrap Causality test. Their finding revealed that there existed a medium- and long-term association with structural breaks between the number of new cases and several new deaths and exchange rate. They concluded that these two variables have a significant effect on the exchange rate of Turkey.

Fernanders (2020) studied the effect of COVID-19 on industry and countries who stated that in the case of this crisis, the economic impact of the crisis varied between 3.5% and 6% and that this impact would depend on the weight of tourism and dependence of countries on foreign trade. Odhiambo, Weke, and Ngare (2020) used a Discrete Markov chain analysis to determine that COVID-19 affects all sectors of the Kenyan economy.

Aslam, Aziz, Nguyen, Mughal and Khan (2020) examined the effectiveness of foreign exchange markets in the first part of the COVID-19 pandemic period using a Multi-fractal Detrended Fluctuation method. They used six exchange rates for six different countries. Their findings revealed that during the pandemic, there was a decrease in the efficiency of the foreign exchange markets.

The only investigation that has been on the Nigerian economy along with this topic, to the best of this study's knowledge, is the study of Onwughai (2020) who investigated the effect of the Covid-19 outbreak on the Nigerian economy using the foreign exchange rate as evidence. He used two variables to capture the Covid-19 pandemic, which are the new cases of infection and new deaths, using descriptive statistics tool only. The result found out that there is no relationship between the Covid-19 (new cases and new death) and the naira exchange rate. Though this study is not exhaustive enough because of the estimation tool used and could not explain whether the relationship was significant or not. The present study is quite different from that of Onwughai (2020) because of the robust estimation technique used and an introduction of a unique dummy variable to capture the period of the pandemic. This is the contribution to knowledge that this study intends. Some other studies similar to this study are those of Ayodele, Oyinlola, Ojedele and Afolabi (2021) and *Saka (2021)*.

The conceptual framework of this work explained the transmission mechanism of the COVID-19 to exchange rate. Figure 1 showcases this mechanism. From figure 1, the COVID-19 pandemic resulted in the lockdown of major socio-economic sectors of the world including Nigeria's major sectors. This brought the world economy to a standstill and affected movement from one place to another locally, nationally, and internationally. Since movement (travels) increases the demand and consumption of crude oil/fuel, then the standstill scrunched the demand for crude oil in the international market making the price to be as low as \$22 per barrel knowing fully well that more than 50% of the Nigerian economy is crude-oil dependent. Also, the nexus of crude oil price and naira exchange rate is quite positive, the higher the crude oil price, the higher the value of the naira in the international market naira appreciates. In essence, during Covid-19, the exchange rate is expected to depreciate in the Nigerian economy and economies with Nigeria's peculiarity.

From figure 1, the COVID-19 pandemic resulted in the lockdown of major socio-economic sectors of the world including Nigeria's major sectors. This brought the world economy to a standstill and affected movement from one place to another locally, nationally, and internationally.

The conceptual framework explains the transmission mechanism between COVID-19 pandemic and the exchange rate in Nigeria.

Conceptual Framework

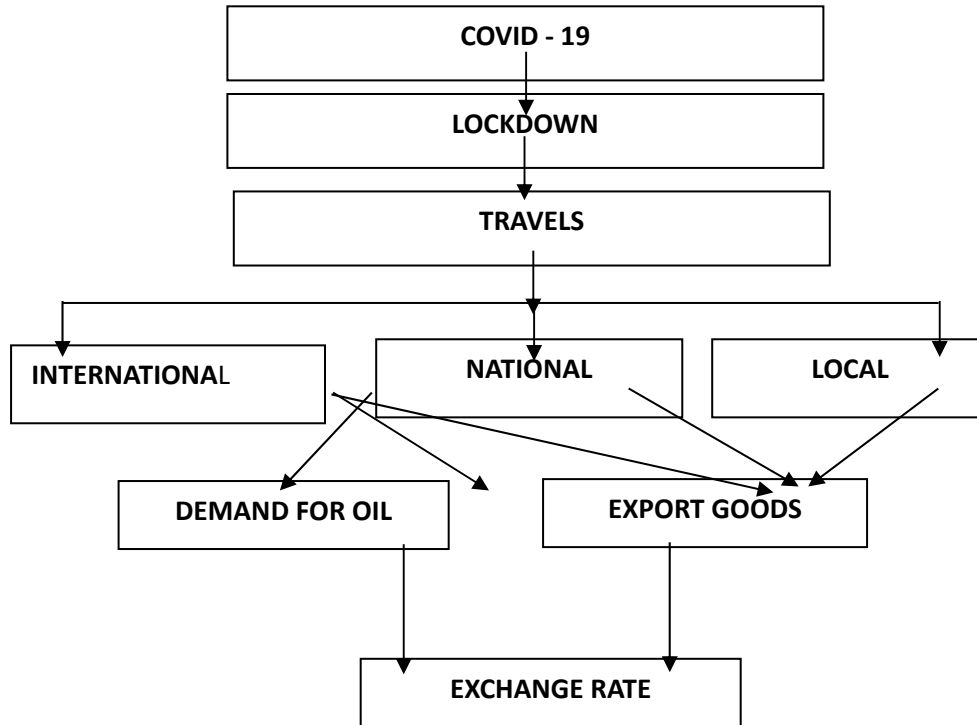


Figure 1: Transmission Mechanism of COVID-19 on Exchange Rate

Source: Author's Computation, 2020.

Since movement (travels) increases the demand and consumption of crude oil/fuel, then the standstill scrunched the demand for crude oil in the international market making the price to be as low as \$22 per barrel knowing fully well that more than 50% of the Nigerian economy is crude-oil dependent. Also, the nexus of crude oil price and the naira exchange rate is quite positive, the higher the crude oil price, the higher the value of the naira in the international market, and therefore the higher the value of the naira. Applying this concept, during Covid-19, the exchange rate is expected to depreciate in the Nigerian economy and other economies with Nigeria's peculiarity.

Theoretical Background

This study adapted the model of Dineri and Cutcu (2020) which specified that Covid-19 new cases and new death cases should stand as the explanatory variables, while exchange rate remains the dependent variable. In this study, a third variable was added to represent the period of the attach and this was represented by a dummy. Thus, the model was specified as:

$$Er = f(C_{nc}, C_{nd}, C_p) \dots\dots\dots 1$$

where,

Er is the exchange rate of Naira to US Dollar, *Cnc* stands for Covid-19 new cases, *Cnd* is Covid-19 new death cases and *Cp* is Covid-19 period of attaching.

In this regard, the econometric model becomes

$$Er = \alpha + \beta_1 C_{nc} + \beta_2 C_{nd} + \beta_3 C_p + \mu_t \dots\dots\dots 2$$

Where μ_t represents the stochastic error term at present time. Taking the log of equation 2 to reduce the trend and examine the responsiveness of the exchange rate to COVID-19, it becomes

$$Er = \alpha + \beta_1 C_{nc} + \beta_2 C_{nd} + \beta_3 C_p + \mu_t \dots\dots\dots 3$$

Hence, equation 3 was employed in the analysis.

The *a priori* expectation is that, when *Cnc* and *Cnd* increase, people will not move around, so their jobs will be hampered because of the fear of contacting COVID-19, demand for oil and export goods will reduce, and therefore the Naira will depreciate, meaning that *Er* will increase. Thus, the higher the COVID-19 pandemic (*Cnc*, *Cnd*), the higher the exchange rate (*Er*). It is also expected that the period of no COVID-19 (*Cp*) will make the exchange rate (*Er*) is low, and *Er* is high in the period of the COVID-19 pandemic. Thus, there is a direct relationship between *Er* and *Cp*.

Data Issues

In measuring the effect of this pandemic, three variables were used. The daily data of a total number of COVID-19 new cases (*Cnc*) and COVID-19 new death

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(C_{nd}) were gotten from the National Centre for Disease Control (NCDC). A dummy variable (C_p) was put up for the period of this attack. As usual, the period of the COVID-19 attack represented 1 while the period of no pandemic represented 0. These are the main variables that represented the pandemic period.

The official exchange rate of United States dollars to the Nigerian naira was employed to cater for the exchange rate, and it was sourced from the Central Bank of Nigeria online database.

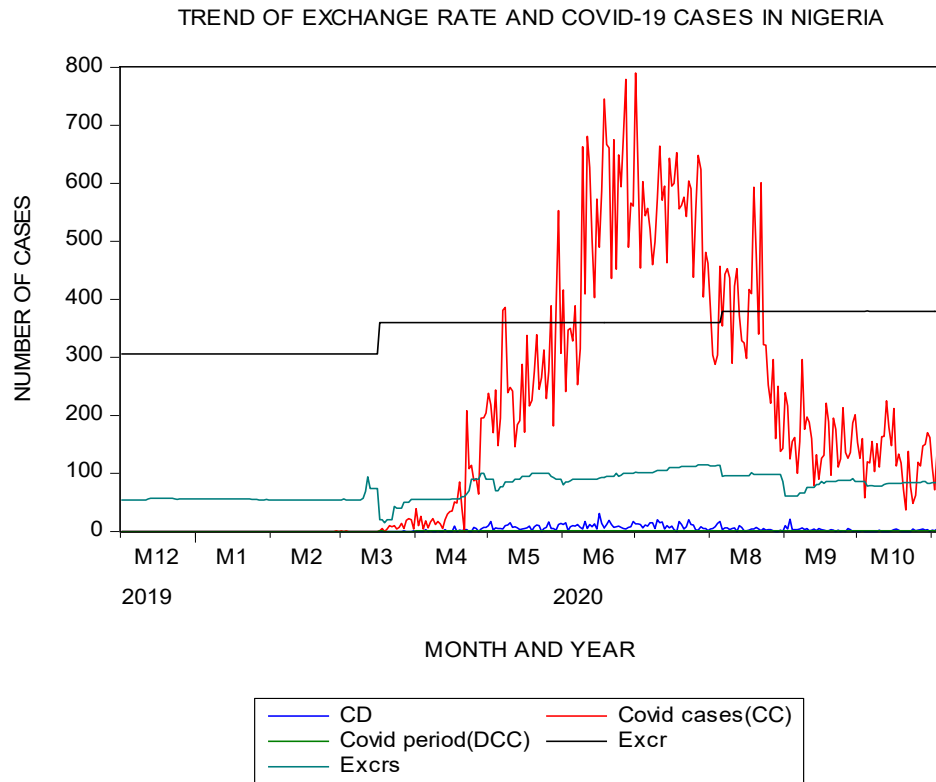


Figure 2: Trend of Exchange rate and Covid-19 cases in Nigeria.
 Source: Author’s extract gotten from E-view 9

Estimation Procedure.

After taking the natural log of the variables in question, except for the dummy variable, a trend analysis would be taken, and then the descriptive and correlation statistics. A pre-estimation technique using unit-roots of Augmented Dicky Fuller and Phillip Peron was employed which informed the study to use the Auto-Regressive Distributed Lag (ARDL) technique. A post-estimation test was carried out comprising of the residual diagnostic and stability tests.

Paper content

Trend Analysis

Figure 2 below is the graph of the trend of exchange rate and covid-19 cases in Nigeria. The Y-axis shows the number of cases while the X-axis shows the month and year. From the graph, the first covid-19 case was recorded in February while the first death was recorded in April 2020. The highest daily case was recorded in July before the country started to experience a fall in the number of daily reported cases. The case dropped drastically at the beginning of August 2020 but increased at a very alarming rate towards the tail-end of August 2020. After August, the cases hovered between 52 and 270 daily infection cases.

Table 1 showcases the descriptive statistics of the dataset with 339 observations. The table shows that the Exchange rate (E_r) has the highest mean followed by Covid-19 cases (C_{nc}), Covid-19 death (C_{nd}), and Covid-19 period (C_p) respectively. Skewness, which measures the asymmetry of the data around its mean, shows that C_{nc} and C_{nd} are positively skewed while E_r and C_p are negatively skewed. The standard deviation shows the rate of the volatility of the dataset. From the Table, the high figures are a result of the fact that logarithm is not taken while C_p has a low figure because of its low dataset between 0 and 1.

The Kurtosis shows that only C_{nc} is approximately 3 i.e. mesokurtic implying a normal distribution. E_r and C_p are less than 3 i.e. Platykurtic distribution meaning that the distribution is flat relative to normal. Only C_{nd} is peaked i.e. Leptokurtic distribution because it is more than approximately 3. The Jarque-Bera shows the normality distribution of data as well. The small Jarque-Bera probabilities as shown in the Table means rejection of the null hypothesis.

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Table no 1. Descriptive Statistics

	C_{nc}	C_{nd}	E_r	C_p
Mean	186.3540	3.395280	348.0029	0.646018
Median	125.0000	1.000000	360.0000	1.000000
Maximum	790.0000	31.00000	380.0000	1.000000
Minimum	0.000000	0.000000	306.0000	0.000000
Std. Dev.	212.4245	4.954537	29.58035	0.478911
Skewness	0.972122	1.840320	-0.572437	-0.610692
Kurtosis	2.761467	6.771148	1.624693	1.372945
Jarque-Bera	54.19737	392.2324	45.23116	58.46462
Probability	0.000000	0.000000	0.000000	0.000000
Sum	63174.00	1151.000	117973.0	219.0000
Sum Sq. Dev.	15251974	8297.032	295749.0	77.52212
Observations	339	339	339	339

Source: Authors extract gotten from E-view 9

Table 2 shows the correlation matrix and its probability of the pairwise relationship between the variables. C_{nc} , C_{nd} and C_p all show a positive relationship with E_r and they are all significant at a 1% level of significance.

Table no 2. Correlation Matrix

Correlation Probability	C_{nc}	C_{nd}	C_p	E_r
C_{nc}	1.000000 -----			
C_{nd}	0.676064 0.0000	1.000000 -----		
C_p	0.646565 0.0000	0.505528 0.0000	1.000000 -----	
E_r	0.520392 0.0000	0.364675 0.0000	0.906047 0.0000	1.000000 -----

Source: Authors extract gotten from E-view 9

The main purpose of this analysis is to diagnose the presence of multicollinearity in the explanatory variables. The coefficients of the explanatory variables (0.68, 0.65 and 0.51) show a fairly average correlation but not high, which implies that the model is free from the problem of multicollinearity.

Result of Unit Root Tests

The Augmented Dickey-Fuller (ADF) and Phillip Peron (PP) are the two unit root tests used in the analysis. The two show that C_{nc} , C_p , and E_r are stationary at 1st difference except for C_{nd} which is stationary at level, at a 1% level of significance.

Table no 3(a). Augmented Dickey-Fuller

Variables	At level	Probability	At 1 st difference	Probability	Remark
C_{nc}	-1.693618	0.4336	-20.72338	0.0000***	1(1)
C_{nd}	-3.304551	0.0154			1(0)
C_p	-1.542987	0.5107	-18.28460	0.0000***	1(1)
E_r	-1.205011	0.6733	-18.39755	0.0000***	1(1)

Source: Authors extract gotten from E-view 9

The result of the unit root tests of Augmented Dickey-Fuller and Phillip Peron informed the study to employ the Auto-Regressive Distributed Lag (ARDL) model in the main analysis.

Table no 3(b). PHILLIP PERON

Variables	At level	Probability	At 1 st difference	Probability	Remark
C_{nc}	-2.785324	0.0614	-39.63274	0.0001***	1(1)
C_{nd}	-11.35493	0.0000***			1(0)
C_p	-1.492065	0.5366	-21.47710	0.0000***	1(1)
E_r	-1.204076	0.6737	-18.39765	0.0000***	1(1)

Source: Authors extract gotten from E-view 9

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Result of Model Selection Criteria

Since ARDL requires lag periods, there was the need to show the best lag selection model among the different possible models. The graph in figure 3 shows the result of the model selection criteria using the Akaike information criteria of the top 20 models. It is clear from the figure that ARDL (2, 0, 1, 0) is the best model and it is therefore chosen because it has the lowest AIC of 4.6075.

Akaike Information Criteria (top 20 models)

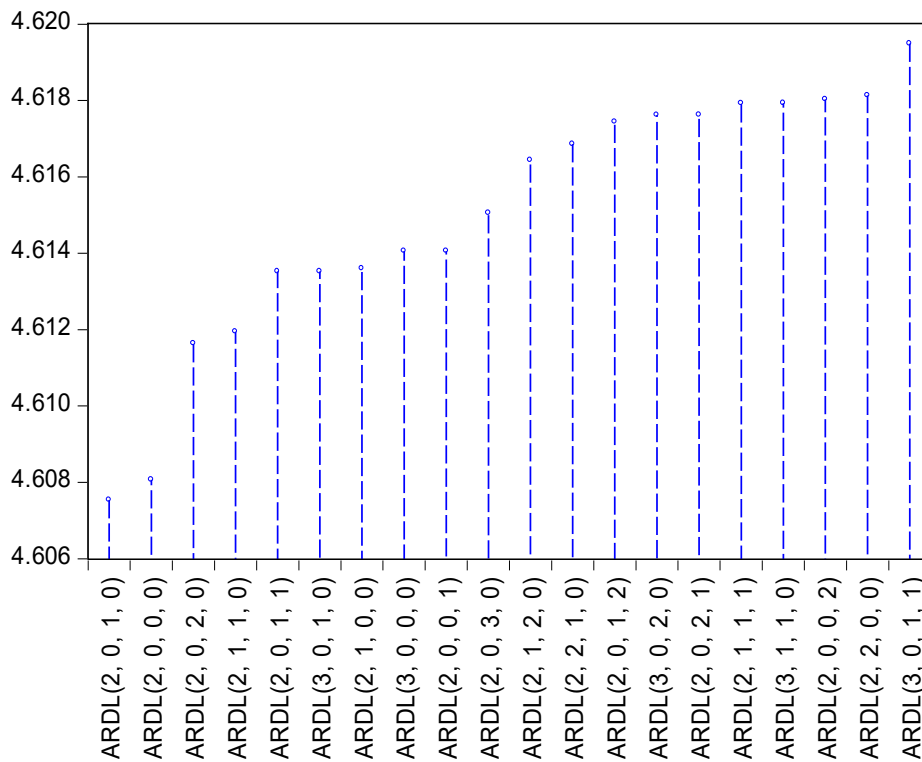


Figure 3: Graph of selected model criteria
Source: Authors extract gotten from E-view 9

The coefficient of C_{no} (-0.001879) and C_{nd} (-0.039961) show that Covid-19 cases and Covid -19 deaths have a negative impact on the exchange rate. This means a 1% decrease in C_{no} and C_{nd} will lead to a 0.18% and 3.9% increase in the exchange rate. The impacts are insignificant at 1%, 5%, or 10% level. The coefficient of C_p (25.57) shows that the covid-19 period has a positive impact on the exchange rate and its impact is significant at a 1% level of significance.

The R^2 indicates that 42.4% of the variation in E_r is explained by the model. This shows that other models are responsible for E_r outside the model. The R^2 adjusted shows about 41% variation which is close to the R^2 , indicating the absence of any redundant variable. The F-statistics (40.35503) and Prob (F-statistic) (0.000000) show that the goodness of fit is significant at a 1% level of significance. The Durbin-Watson stat (1.996875) is approximately 2 which shows that there is no serial correlation in the model.

Table no 4. Results of ARDL Coefficient - Selected Model: ARDL (2, 0, 1, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
DE_r (-1)	0.001019	0.041887	0.024331	0.9806
DE_r (-2)	0.420361	0.050096	8.391041	0.0000
C_{no}	-0.001879	0.001683	-1.116316	0.2651
C_{nd}	-0.039961	0.033990	-1.175684	0.2406
C_{nd} (-1)	0.049568	0.033768	1.467872	0.1431
DC_p	25.56964	1.652864	15.46990	0.0000
C	0.018061	0.166111	0.108727	0.9135
R-squared	0.423949			
Adjusted R-squared	0.413444	Prob(F-statistic)	0.000000	
F-statistic	40.35503	Durbin-Watson stat	1.996875	

Source: Authors extract gotten from E-view 9

Table 5 showcases the bound test which is required to ascertain if the explanatory variables can affect the exchange rate in the long run. From the table, the F-statistic value (42.19288) is outside the 1% bound value (4.29 – 5.61), which is an indication that the model can affect the exchange rate in the long run and therefore, the null hypothesis of no cointegration is rejected.

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Table no 5. Results of ARDL Bound Test

Test Statistic	Value	K
F-statistic	42.19288	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Source: Authors extract gotten from E-view 9

Table 6 showcases the ARDL cointegration equation including the short-run impact and the Error Correction Mechanism (ECM). The short-run impact is not different from the one explained in the ARDL coefficient in Table 4 above. The coefficient of the ECM (-0.578619) shows a negative sign and an average speed of adjustment. This means that about 58% of the disequilibrium is corrected in a day and significant at a 1% level of significance as indicated by its probability (0.0000).

Table no 6. ARDL COINTEGRATION EQUATION AND ERROR CORRECTION MECHANISM

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
$D(DE_r (-1))$	-0.420361	0.050096	-8.391041	0.0000
$D(DC_{nc})$	-0.001879	0.001683	-1.116316	0.2651
$D(C_{nd})$	-0.039961	0.033990	-1.175684	0.2406
$D(DC_p)$	25.569640	1.652864	15.469899	0.0000
ECM(-1)	-0.578619	0.065604	-8.819841	0.0000
Cointeq = $DE_r - (-0.0032 * DC_{nc} + 0.0166 * C_{nd} + 44.1908 * DC_p + 0.0312)$				

Source: Authors extract gotten from E-view 9

Table 7 shows the long-run impact of the model on the exchange rate, Covid-19 case (DC_{nc}) (-0.003247) has a negative long-run impact on the exchange rate and its impact is not significant because its probability is 0.2702, which is more than the

0.05 benchmark. On the same table, the coefficients of Covid-19 death (C_{nd}) (0.016602) and Covid-19 period (DC_p) (44.190770) show a positive long-run relationship with the exchange rate. The covid-19 death is not significant while the Covid-19 period is significant at a 1% level as indicated by their respective probabilities of 0.7445 and 0.0000. It can also be concluded that a 1% increase in Covid-19 cases will result in a 0.3% decrease in the exchange rate, while a 1% increase in Covid-19 death and Covid-19 period will result in a 1.6% and 44.19% increase in the exchange rate.

Table no 7. Results of Long-Run Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
DC_{nc}	-0.003247	0.002940	-1.104531	0.2702
C_{nd}	0.016602	0.050896	0.326195	0.7445
DC_p	44.190770	6.738984	6.557482	0.0000
C	0.031213	0.286628	0.108898	0.9133

Source: Authors extract gotten from E-view 9

Table 8 presents the result of the residual diagnostic test of serial correlation using the Breusch-Godfrey LM test; the heteroskedasticity using an ARCH test; and Normality using the Jarque-Bera test. Their respective probability results are all more than 5% meaning that we accept the null hypotheses that, there are no issues of serial correlation and heteroskedasticity. However, the null hypothesis of the Jarque-Bera test could not be accepted.

Table no 8. Diagnostic Test

Tests	Statistics	Probability values
Breusch-Godfrey Serial Correlation LM Test	0.398505	0.6716
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.026349	0.8711
Normality – Jarque-Bera	170335.00	0.0000

Source: Authors extract gotten from E-view 9

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Result of Stability Test

Figure 4 showcases the stability test result using the Cumulative Sum and Cumulative Sum of Squares tests. From the result, the blue line is within the red lines, and so, we accept the null hypothesis (which is desirable) that the coefficients of the regression are changing systematically and therefore, stable.

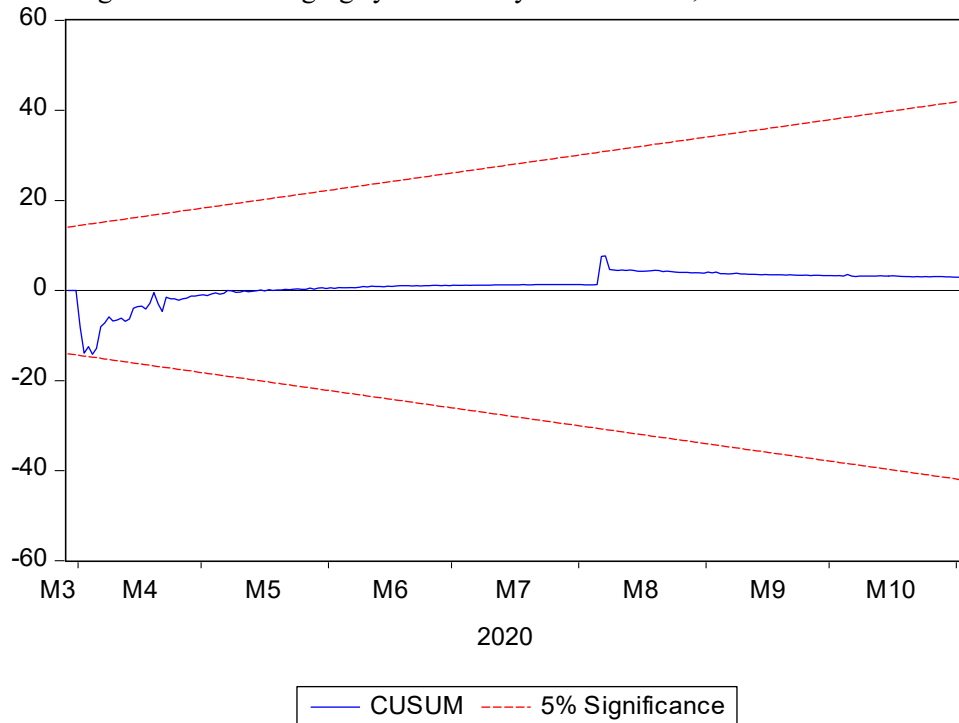


Figure 4: Graph of Recursive Estimate test- CUSUM.

Source: Author's extract gotten from E-view 9

Figure 5 presents the stability test result using the Cumulative Sum of Square test. From the result, the blue line is crossing the red line, and so, we reject the null hypothesis (which is not desirable) that the coefficients of the regression are not changing suddenly and therefore, based on this test, are not stable.

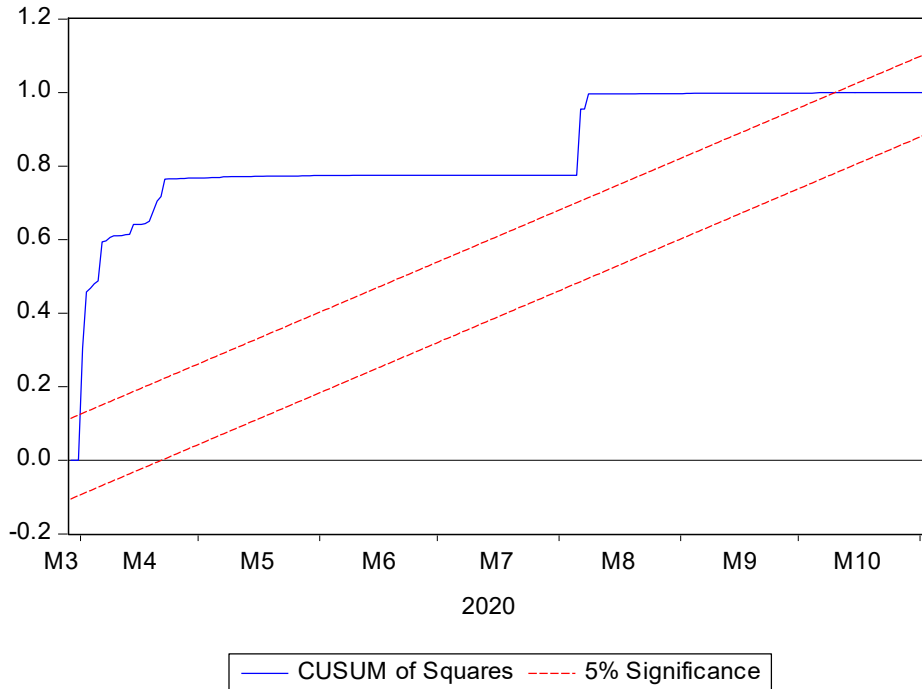


Figure 5: Graph of Recursive Estimate test- CUSUM Square.

Source: Author's extract gotten from E-view 9

However, going to the words of Turner (2010) “when the break is in the intercept of the regression equation then the CUSUM test has higher power. However, if the structural change involves a slope coefficient or the variance of the error term, then the CUSUMSQ test has higher power. This may help to explain why the two tests often produce contradictory findings”, our regression (ARDL) has an intercept and so the CUSUM is higher and better preferred to CUSUM Squares, thus, we conclude that the coefficients of the regression are stable.

Discussion

The study employed ARDL techniques which were based on the information given by the ADF and PP unit root tests. This tool was used to analyze the set data of the study.

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The first objective was to examine the impact of COVID-19 new cases on the exchange rate in Nigeria. The result of the ARDL cointegration test revealed that, in both the short-run and long-run periods, the COVID-19 new cases did not have a significant impact on the exchange rate in Nigeria. Hence, the null hypothesis of no significance could not be rejected. This result is in line with the study of Onwughai (2020) but different from that of Dineri and Cutcu (2020), Liu et al. (2021), Li et al. (2021), Feng et al. (2021) and Singh et al. (2021). This could be due to the peculiarity of Nigerians as many things that affect people in the world may not be the case in Nigerians. Other factors like oil prices would have been responsible for the effect aside from new cases during this period.

The second specific objective was to determine the effect of new death as a result of COVID-19 on the exchange rate in Nigeria. Also, the results of ARDL analysis indicated that new deaths as a result of the COVID-19 pandemic did not have a significant effect on Nigeria's exchange rate within the period under consideration. Thus, we accept the null hypothesis in this regard, that the number of new deaths from COVID-19 does not significantly affect the exchange rate in Nigeria. This finding is in contrast with the findings of Dineri and Cutcu (2020), and Odhiambo, Weke, and Ngare (2020), though Fernandes (2020) finding could still be referred to, that, the impact of COVID-19 pandemic on industry and economies would depend on the weight of tourism and dependence of countries on foreign trade. Since Nigeria does not have many tourist centres that used to fetch the country with lots of foreign exchange,

The third objective was to examine the impact of the period of the COVID-19 pandemic on the exchange rate in Nigeria. The findings of the study discovered that, in both the short run and long run, the period of the COVID-19 pandemic has a very significant impact on the Naira exchange rate. This result is in line with our a priori expectation and line with the studies of Karakoyun (2020), Dineri and Cutcu (2020), Liu et al. (2021), Li et al. (2021), Feng et al. (2021) and Singh et al. (2021), among others, even though they did not use the period as one of their predictors. Hence, we reject the null hypothesis and accept that period of the COVID-19 pandemic has a significant impact on Nigeria's exchange rate.

More so, from the results, the predictors in the model were able to explain about 42% of the variation in the exchange rate in Nigeria within this period of interest. This applies to real Nigeria's situation since there are still many major contributors to the exchange rate like the international liquidity, crude oil prices, and other export goods that have a direct positive impact. Import of goods like used cars, and

mostly COVID-19 test-kits and health care facilities affect the exchange rate negatively by worsening the exchange status of the country. In essence, the high rate of depreciation in the Naira exchange rate is mainly due to the COVID-19 pandemic which energized other variables in the negative. Expectedly, as the pandemic rounds off, the naira exchange rate will keep getting more value against the dollar.

Conclusions

The study focused on the Exchange rate and COVID-19 pandemic, an application to the Nigerian Economy, with a broad objective of examining the impact of the COVID-19 pandemic on the Naira exchange rate to the US Dollar. The Naira exchange rate was made the dependent variable and the Covid-19 pandemic, disaggregated into Covid-19 new cases, Covid-19 period, and Covid-19 new death were put as the predictor variables. ARDL technique was employed as informed by the unit root tests. The finding revealed that, in both the short run and long run, the period of COVID-19 had a significant direct impact on the exchange rate in Nigeria. However, COVID-19 new cases and new deaths could not significantly impact the exchange rate. Generally, it could be concluded that the COVID-19 pandemic exhibited a significant impact on the exchange rate in Nigeria.

Based on the findings of this study, as the COVID-19 pandemic rounds up, the following are suggested:

- i. Nigerians should be aware that the upsurge in the naira/dollar rate is due to the COVID-19 period.
- ii. The economy should step-up other internationally demanded products like crude oil, and produce in large quantities to cushion the effect of low export.
- iii. There is a need for a reduction in imports during this period as it will seriously affect the naira.

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AN EMPIRICAL STUDY IN A REAL ENVIRONMENT ON THE PROBLEM OF STUDENTS' AND CADETS' PERFORMANCE IN THE EDUCATIONAL PROCESS

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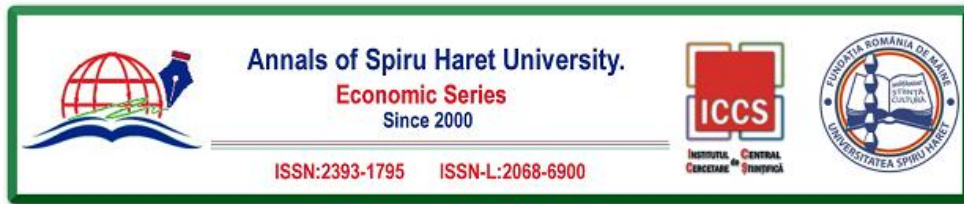
Abstract

The subject of the study is the motivational salience of the students and cadets in higher education institutions, the relation with their performance in the training process and methods used to motivate learners in the field of security and defence. The objects of the study are learners at the National Military University in Bulgaria. The study began in 2012 and ended in 2019. Currently in 2021, its results are implemented by the management at the National Military University.

The collection of the necessary information for the study was carried out by a combination of research methods. The main method used was the empirical statistical study conducted in a real environment. Experts with a major academic and command experience were attracted and provided feedback on presentation of learners in the training process and methods used to motivate learners. Large volume of literature sources was studied in the period from 2002 to 2019 in order to find an appropriate methodology and the research to be scientifically substantiated and conducted in accordance with the scientific requirements.

Keywords: *motivation; performance; educational process; security and defence.*

JEL Classification: I23



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1. Introduction

The nature of the future security requires rapid force projection, including strategic distances; ability to conduct major military operations at the corps level; flexibility, enhanced force readiness and mobility; international cooperation; greater responsiveness; and comprehensive approach to the capability of all military branches and services to conduct joint operations, as well as combined operations with the involvement of both military and civilian elements. The nature of the security environment also requires the ability to respond to the strategic distance and execute operations at the level of higher-level units and groupings, (Procházka, Josef Antonín, Novotný, Richard Stojar, Libor Frank, 2018) which can be achieved through the good training and coaching of future officers, currently cadets who will be responsible for creating a better security environment, so the training processes, learning outcomes, achievements and behaviour of the trainees in the security environment are not unimportant. An important element in the management system of a military university is also the relationship between academic teachers and employees who are not academic teachers, persons holding managerial positions and functions, as well as the relationship between each internal organizational unit of the university and between them. Mutual understanding and help in solving emerging problems and tasks build positive harmony and makes it easier to solve problems and carry out tasks and the implementation of mutual support, clearly and precisely developed procedures in specific situations, may be of great help. (Jałowiec, Tomasz, Ireneusz Miciuła, Piotr Maśloch and Henryk Wojtaszek, 2021)

A timely analysis of motivational excellence in the training process based on higher education institutions in Europe is a prerequisite for forming up a complex picture, characterizing the state of the high educational institutions in terms of the motivation methods used, the individual's satisfaction, the forms and the level of the achieved motivational salience in the training process in the sphere of security and defence. It provides an opportunity to diagnose available problems in terms of motivation and subsequent individual behaviour, to predict the nature and direction of learners' behaviour, to focus on maximizing learning outcomes in the specific environment of the military universities and to develop effective and science-based program of action to improve the learners' motivation and performance in a specific military environment.

2. Object and subject of the research, methodology, literature review

The subject of the study is the motivational salience of the students and cadets in higher education institutions, the relation with their performance in the training process and methods used to motivate learners in the field of security and defence. The objects of the study are learners at the National Military University in Bulgaria. The study began in 2012 and ended in 2019. Currently in 2021, its results are implemented by the management at the National Military University.

Regarding the methodology of the study, the collection of the necessary information for the study was carried out by a combination of research methods. The main method used was the empirical statistical study conducted in a real environment. The study used questionnaires combining questions with answers and open questions for expressing personal opinion. Experts with a major academic and command experience were attracted. Experts were asked to provide feedback on presentation of learners in the training process, methods used to motivate learners, general satisfaction of the trainees in the specific institution.

Large volume of literature sources was studied in the period from 2002 to 2019 in order to an appropriate methodology for work to be developed and the research to be theoretically scientifically substantiated and conducted in accordance with the scientific requirements. More than 300 different sources were investigated, as only a small part of them was reflected in the references of this article (references), namely scientific theoretical and practical-applied developments:

- On the issues of basics of motivation, the relationship between environment and motivation, theories of motivation and motivational behaviour: (Atkinson, John W., 1964), (*Skinner, B. F., 1957*), (Tuckman, B. W. & Jensen, M. A., 1977), (*Vroom V H., 1964*), (*Maslow, A. H., 1943*), (*McClelland, D., 1987*), (Michael, J., 1982), (Murray, H. A., 1938, (Likert, R., 1967), (Ćwik B., Telep J., 2005), (Ćwik, B., 2019), (Čiarnienė, Ramunė, Vienažindienė, Milita, Adamonienė, Rūta, 2020).

- On the differences between internal and external motivation, the relationship between intrinsic motivation and self-determination in human behaviour: (*Bandura, A., 1963*), (Deci, Edward L., Ryan, Richard M., 1985), (*Zuckerman, M., Porac, J., Lathin, D., Smith, R., Deci, E. L., 1978*), (*Locke, Edwin A., 1968*).

- In terms of methodology for conducting the study on motivation for education and on the issues of the motivation in security and defence and professional training of cadets and officers: (Lewin, K., 1947), (Petrova, E., 2015), (Manolov, D., 2016), (Zegoicea Andrei, Petrova, Elitsa, 2013), (Krastev, Kr., 2013), (*Baev, G., 2017*), (Majchút, Ivan, 2017), (Tzvetkov, D., D. Dimitrov, 2015), (Blašková,

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Martina, Figurska, Irena, Adamonienè, Rūta, Poláčková, Kristína, Blaško, Rudolf, 2018).

The article presents module "Students'/cadets' performance in the educational process" and module "Motivational methods used" with the questions asked to the respondents, respectively:

Module. Students'/cadets' performance in the educational process.

Q1. Do the trainees actively participate during the seminars / exercises?

Q2. Do the learners themselves initiate the activities for the purpose of developing their personal and professional qualities and skills?

Q3. Do you think that the learning outcomes really reflect the intellectual effort that learners make?

Module. Motivational methods used.

Q1. What methods do you use to motivate learners to higher academic results?

Q2. Do you use motivation based on rewards and incentives? Please describe.

Q3. Do you use motivation based on sanctions and coercive measures? Please describe.

Q4. Do you apply collective negative reinforcement?

Expert opinions on the motivational expression of the learners in the process of training and daily military activity were provided by experts from the major training departments at the Vasil Levski National Military University, as follows:

- Department of Military Sciences;
- Department of Communication and Information Systems;
- Department of Resource and Technology Management;
- Department of Population and Infrastructure Protection;
- Department of Logistics of Security;
- Department of National and Regional Security;
- Department of Specialized Training.

The questions provided the opportunity for open answers. The variety of answers required further systematization and coding of the answers, as well as the use of a statistical program for processing data from sociological surveys, with the possibility of recording non-parametric data, comprising functions, algorithms, tests and methods, ranging from simple tables to break up extended nonlinear modelling methods of the time series, etc., which are crucial for the success of this statistical survey.

3. Performance in the educational process

The participation of the learners during the seminars and exercises was examined with Question M1Q1. "Do the trainees actively participate during the seminars / exercises?" The statistical processing of the data showed that 70% of the experts were united around the answer that the students participated actively in the seminars and exercises or to a sufficient extent. 20% of the experts answered that the trainees participated, but not to a sufficient extent, and according to 10% the participation of the trainees was reduced only within the set tasks. (Table 1, Fig. 1)

Table 1. Participation of the trainees during the seminars / exercises

Category	Number	Percentage
Yes	8	40.00%
Sufficiently	6	30.00%
Yes, but not sufficiently	4	20.00%
Within the set tasks	2	10.00%
No	0	0.00%
Total	20	100%

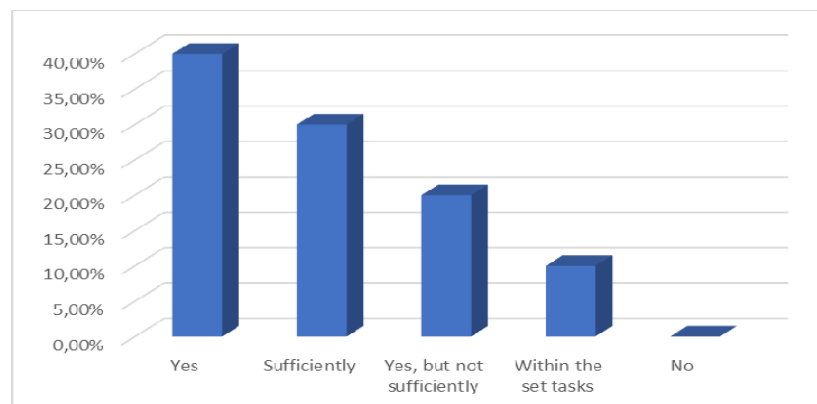


Fig. 1. Participation of the trainees during the seminars / exercises

The experts made some clarifications by providing comments on the issue under consideration. They believed that the learners took an active part in the seminars

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and exercises. In some cases, for objective reasons such as execution of an order, participation in the preparation and conduct of representative events there was lower activity than usual. Some of the experts even mentioned that the learners always take an active part during the seminars and exercises, and consciously strive for a leadership position, while the students rather wait to see if the lesson can be passive. The methodological approach in conducting seminars, type and timeliness of the information being discussed, the pedagogical mastery of the teacher, the personal interest of the learner, the internal motivation for learning and career development are often the factors determining this process.

The initiation activities for developing personal and professional qualities and skills of the learners is examined with Question M1Q2 "Do the learners themselves initiate the activities for the purpose of developing their personal and professional qualities and skills?". Statistical data processing showed that according to 50% of experts, learners initiated this type of activities. According to 30% of the experts, the learners initiated activities insufficiently, and according to 20% of the experts, the learners did not initiate activities in order to develop their personal and professional qualities and skills. (Table 2, Fig. 2)

Table 2. Initiation by the trainees of activities for the purpose of the development of their personal and professional qualities and skills

Category	Number	Percentage
Yes	5	25.00%
Sufficiently	5	25.00%
Yes, but not sufficiently	6	30.00%
Within the set tasks	0	0.00%
No	4	20.00%
Total	20	100%

Experts believed that some of the fourth- and fifth-year cadets independently initiated individual activities related to their development, as some of the more active learners were consulted and then developed their scientific and practical orientated articles for participation in conferences. The cadets initiated various activities more often with a practical application to develop their professional skills. Students initiated low physical activities, such as discussing problems,

participation in case studies in class, project development, teamwork, etc. Regarding the subjects concerning military training, the answers of the experts were more positive, as each trainee was aware of the degree of his personal training and was looking for ways for professional development. The role of the teaching staff is to encourage this process and to motivate the students further.

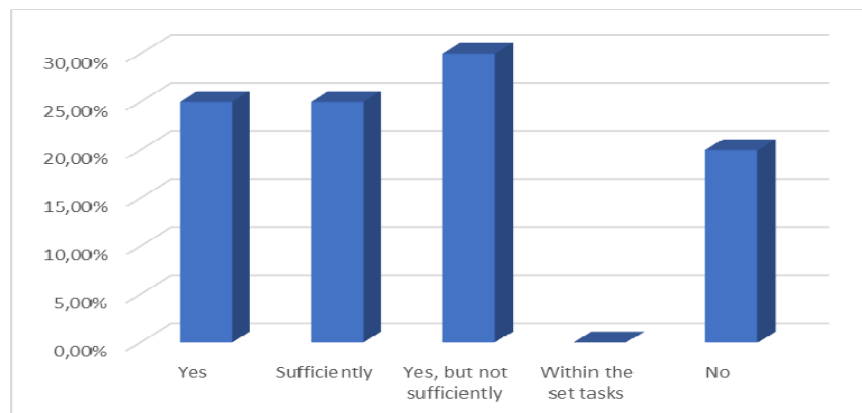


Fig. 2. Initiation by the trainees of activities for the purpose of the development of their personal and professional qualities and skills

Increasingly, students and cadets are becoming more active. Currently in 2021, due to the work of the university management, they actively participate and initiate situational military and business games; logistics activities and support; cultural events; art events; events to preserve the history, traditions, and culture of the country; events preserving the Bulgarian language and literary forms of speech; measures to maintain order, discipline; environmental protection.

The study of the relationship between the intellectual effort that learners make and the results they get is done through the Question M1Q3 "Do you think that the learning outcomes really reflect the intellectual effort that learners make?". The data showed the presence of the effort-result relationship to a large extent - 65%. 5% of the experts did not have an opinion on the issue, and 30% believed that the intellectual efforts that students made do not reflect or rather do not reflect the results obtained. (Table 3, Fig. 3)

According to some experts, learners have greater opportunities, but do not have the necessary motivation, often the learning outcomes in the form of assessments

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are inflated and do not correspond to the intellectual efforts of learners. The opinion was expressed that the trainees do not make sufficient efforts to achieve better results, and the results in military disciplines should be measured not by the achievements in training as an assessment, but by the degree of real training. Therefore, acquired habits and skills are of particular importance.

Table 3. The learning outcomes really reflect the intellectual efforts that the learners make

Category	Number	Percentage
Yes	8	40.00%
More than likely	5	25.00%
Without opinion	1	5.00%
Rather not	3	15.00%
No	3	15.00%
Total	20	100%

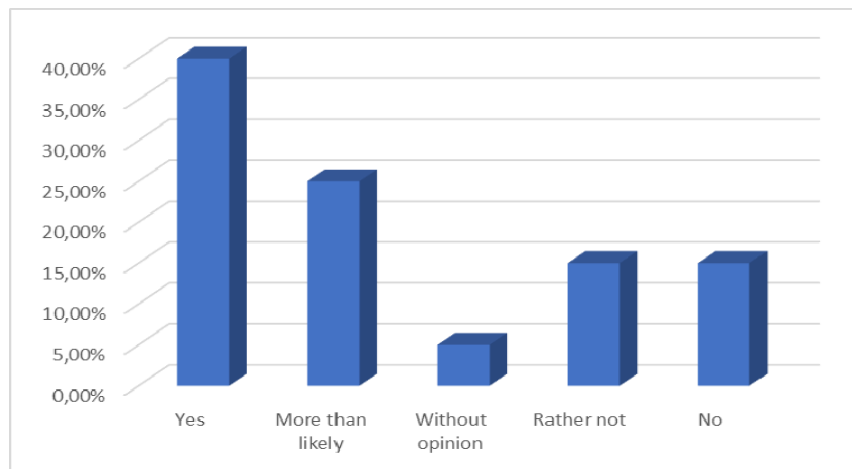


Fig. 3. The learning outcomes really reflect the intellectual efforts that the learners make

4. Motivational methods used

The study of the methods used to motivate learners in order to achieve higher academic results was conducted through the Question M2Q1 "What methods do you use to motivate learners to higher academic results?". The data showed that 95% of experts used positive reinforcements. (Table 4, Fig. 4)

Table 4. Methods used to motivate learners in order to achieve higher academic results

Category	Number	Percentage
Positive support	19	95.00%
I do not use motivational methods	1	5.00%
Sanctions / penalties	0	0.00%
Total	20	100%

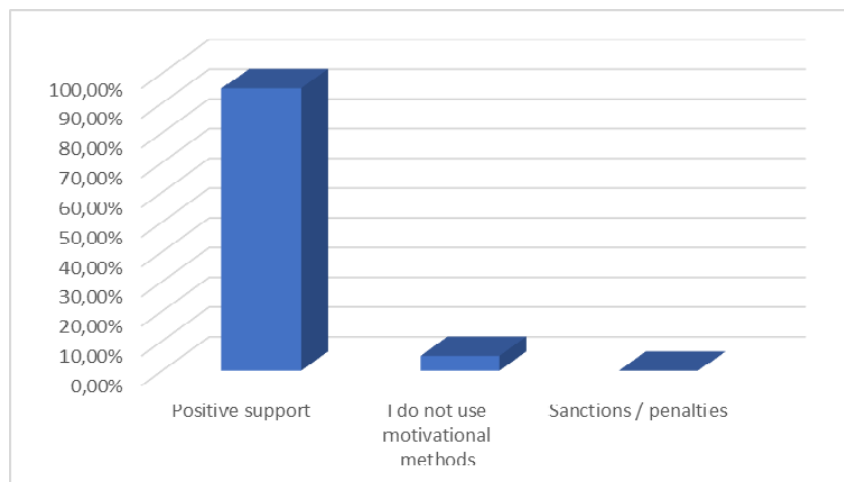


Fig. 4. Methods used to motivate students in order to achieve higher academic results

The experts specified the methods used by them such building teams, motivating through work, developing empathy, exercising leadership, imposing requirements, support with scientific materials and advice in self-preparation, inspiring confidence, discussions, situational games, role-playing games, reporting,

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praise, giving personal example, giving clear and transparent rules of assessment, emphasising on the importance of the profession, setting individual tasks for preparation and implementation, submitting the up-to-date information.

The experts tried to make learners to feel important and significant for the organization, gave examples of successful careers of former graduates of the university, who had shown high results in their education, gave examples from their own experience.

"I try to create a good atmosphere during classes so that learners feel free to ask questions related to the topic of the material being taught."

"I provide the opportunity for feedback."

"I set achievable goals."

"We comment on weaknesses, but I always consider success (progress), no matter how small."

"I always explain what it takes to know and what is being taught."

"I use an explanation of the need for what they are learning for their future work."

"High scientific level of presentation of educational content."

"High level of rigor and objective evaluation criteria."

Opinions of experts "National Military University"

The use of motivation based on rewards and incentives was explored through the Question M2Q2 "Do you use motivation based on rewards and incentives?". 60% of the experts answered positively, 10% answered negatively, and 30% answered that there was no established system of motivation based on rewards and incentives, the motivating tools were limited, and the regulations and organization of the learning process did not allow such measures. (Table 5, Fig. 5)

Table 5. Use of motivation based on rewards and incentives

Category	Number	Percentage
Yes	12	60.00%
There is not an official system of motivation in the learning process	6	30.00%
No	2	10.00%
Total	20	100%

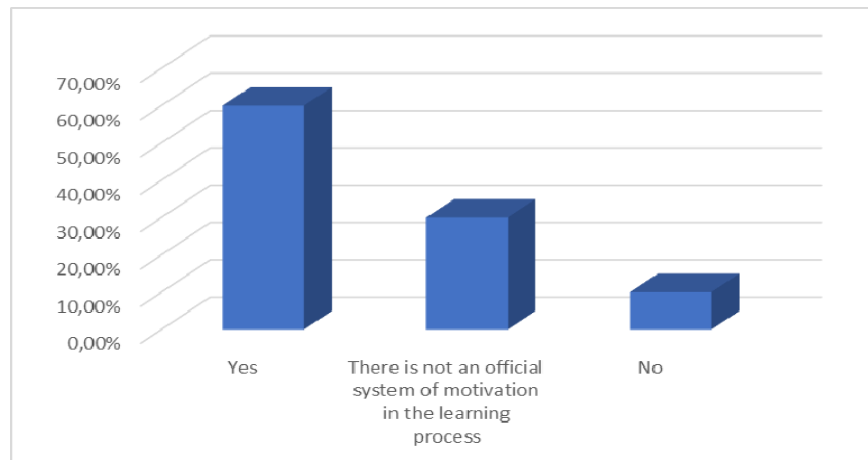


Fig. 5. Use of motivation based on rewards and incentives

Experts pointed out that the rewards that could be applied are not material in nature, but were based on verbal encouragement, setting an example, sharing positive experiences. The awards and incentives are directed to the deserving and achieved high objective results, which are registered in the evaluation of the active forms of education. In the case of cadets, the positive reinforcements are applied in the form of announcing awards according to the Law on Public Administration, the Regulations for application of the Law on Public Administration and the Statute of the Armed Forces of the Republic of Bulgaria. Other forms of positive reinforcement used by the academic staff are gratitude, praise to the class, the awarding of a diploma on behalf of the department, which lead to increased motivation, encourage subsequent motivational expression, and testify that learners' efforts do not go unnoticed.

The use of motivation based on sanctions and coercive measures was examined through the Question M2Q3 "Do you use motivation based on sanctions and coercive measures?". 50% of experts answered that they did not use motivation based on sanctions and coercive measures, 20% answered that such a system of motivation did not exist, and 30% answered that they used negative reinforcements. (Table 6, Fig. 6)

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Table 6. Use of motivation based on sanctions and coercive measures

Category	Number	Percentage
Yes	6	30.00%
There is not an official system of motivation in the learning process	4	20.00%
No	10	50.00%
Total	20	100%

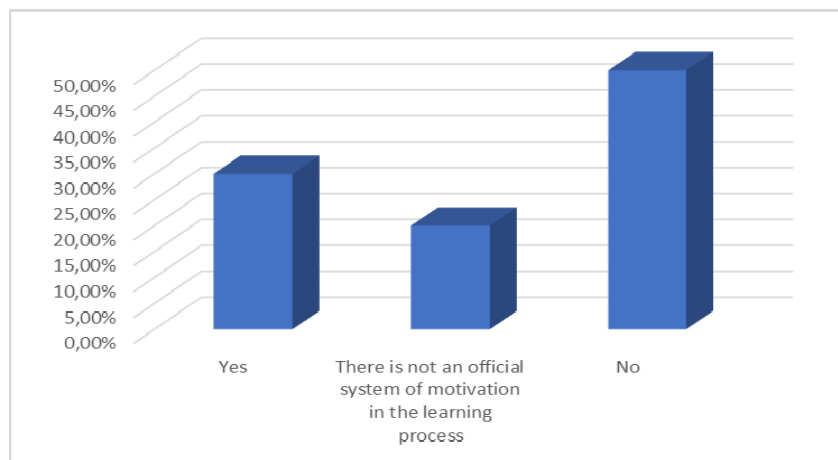


Fig. 6. Use of motivation based on sanctions and coercive measures

Experts added that the Law on Defence and the Armed Forces in the Republic of Bulgaria, as well as bylaws did not allow usage of such measures, and they did not have delegated rights to do so. Experts who support these measures specified that these are mainly remedial exams, registration of poor results in the course of training and mandatory in creating conditions for danger to the learners' life or health, in case of recurrence of wrongdoing and especially in demonstrative behaviour or disregard for requirements. Other cases in which sanctions and coercive measures are used are:

- in cases of non-fulfilment of the set goals of the training, methods are used, allowing the trainees to increase their skills, by performing preparatory exercises;

- in cases of non-fulfilment of the set tasks by the theoretical component - measures aimed at providing additional time for self-preparation, additional consultations, etc. are applied.

"I use sanctions and coercive measures only at the beginning of my work with a certain category to emphasize that violating safety measures or incompetent handling of weapons, ammunition or imitation weapons endangers the health and life of all of us. When you reach an understanding in the team that any mistake, ignorance or incompetence can lead to fatal consequences, sanctions and coercion are no longer needed. You receive both personal motivation from each trainee and internal control within the military unit."

Opinion of an expert from the National Military University

The application of collective negative reinforcement was studied through the Question M2Q4 "Do you apply collective negative reinforcement?". 75% of the academic staff declared that they did not use or apply collective negative reinforcements, and 25% declared they did. (Table 7, Fig. 7)

Table. 7. Application of collective negative reinforcement

Category	Number	Percentage
Yes	5	25.00%
I do not use collective negative reinforcement, I use individual ones	0	0.00%
No	15	75.00%
Total	20	100%

The experts who answered that they did not use collective negative reinforcements specified that in the Armed Forces of the Republic of Bulgaria the use of collective punishment is prohibited, while the group of experts who disagreed specify that in case of non-compliance a collective task gives the whole team the opportunity to increase their teamwork skills, this should not be classified as a collective negative reinforcement, but rather as a new opportunity, which had to be a very extreme measure, but it had its positive results.

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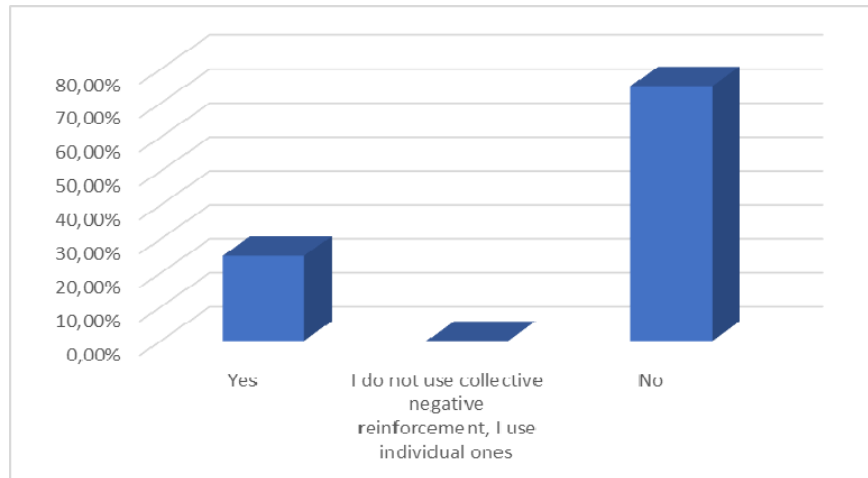


Fig. 7. Application of collective negative reinforcement

Conclusion

The analysis of the results obtained from an experimental study in a real environment on the problem of students' and cadets' performance in the educational process at the National Military University, Bulgaria, taking into account the opinions of academic and command staff found some positive trends.

- Participation of the trainees during the seminars and academic and training exercises was at a satisfactory level, but there was still something to be achieved as a result, as 20% of the surveyed experts believed that the participation is unsatisfactory, and 30% believed that it is only in accordance with the set tasks.

- Initiation by the trainees of activities for the purpose of the development of their personal and professional qualities and skills was at a satisfactory level, but a result signalled that there were some learners who did not take such initiatives.

- Learning outcomes really reflected the intellectual efforts that the learners made in a total of 70% of cases.

- As methods used to motivate learners in order to achieve higher academic results the positive motivation and the motivation based on sanctions and rewards was indicated. Methods of motivation in the training process based on coercive measures were also indicated but rather as setting a common task to carry out or make a joint effort, rather than involving any corporal punishment.

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**BENCHMARKS RELATED TO FINANCING,
ACCOUNTING AND BENEFITS OF THE PROJECTS
FINANCED WITH EUROPEAN FUNDS, WHICH CAN BE
IMPLEMENTED BY ENTITIES IN THE MINISTRY
OF NATIONAL DEFENCE**

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Abstract

The core of the papers consists in the ineluctable explanation of the amount to which the European funds absorbed, a strategic resource, influence the development of the Ministry of National Defence (MND), through the essential financial support, valuable in the implementation of the economic, social, health, political and military processes.

The purpose and motivation of this paper are professional, as in my position of public officer of the Romanian state, I am in search of the most efficient financing solutions and means, considering the national interest, the essential pillar ensuring permanent support for the economic progress, as well as for the stability of the society as a whole.

In developing the topic of the: “Benchmarks related to financing, accounting and benefits of the projects financed with European funds, implemented by entities in the Ministry of National Defence”, I have used quantitative and qualitative methods of research, comparative analysis of the data and information selected and we are going to present thus various considerations, findings and approaches at theoretical level as concerns the European financing and the use of the European funds in Romania.

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The most remarkable motivation for selecting the topic is to express in a balanced manner the impact the European funds have on the development of Romania, as there have been quite heterogeneous discussions.

In the final part, I have pointed out the role of the accounting in the implementation of such projects in entities under the Ministry of National Defence.

Keywords: *economy; European funds; implementation; projects; education; digitalization.*

JEL Classification: F36; F63; O19

Introduction

The economy of the country has been substantially affected by the COVID-19 pandemics, the contemporary society facing a complex and hardly manageable phenomenon. Therefore, Romania has elaborated a comprehensive plan for reforms and investments, called National Recovery and Resilience Plan (NRRP). I consider that the effects triggered by the COVID-19 pandemics is a reason that justifies the need to assess and analyse the manner in which our country manages to improve its financial sustainability.

This is because the European funds play an essential role in the crisis we are facing and can boost the economy, by Romania managing and implementing an ambitious agenda of reforms and investments presented in the NRRP. These investments and reforms will contribute to the concretization of the European Union priorities in economic, health, social, environment issues or in the digital modernization of the state.

Since 2019, the personal contribution to the European funds aspects, support for the MND, has taken shape through the studies at the Ph.D. School, presenting the scientific papers during the national and international conferences, publishing the scientific papers in specialized publications and, mainly, through the participation and involvement, with the teams appointed, in the elaboration of the NRRP, as I have been appointed in charge for the elaboration of the Pillar II Digital Transformation through order of the minister.

In this context, the paper also examines the multidimensional perspective provided by the National Defence Strategy of the Country for the period 2020-2024 *“Together for a safe and prosperous Romania in a world marked by new challenges”*, the strategic concept of the European funds, as well as the dimensions

for the achievement of the security of the citizens, communities and nation. Therefore, the following conclusion arises: “The sum of these dimensions ensures and generates the practical-applicative nature of national security, defining and describing how public institutions will size and calibrate their actions and activities⁶” [President of Romania, 2020].

It has to be pointed out as well that the current stage, correlated with obtaining European funds, starts producing an increased interest among theoreticians, aiming at achieving a maturity in accessing European funds, contributing to a “functional Romania, providing to its citizens all the prerequisites to lead a better, safe and secure life, a country which protects its identity, values, heritage and resources, as well as the guidelines of the rule of law⁶” [President of Romania, 2020].

As it is already known, the European Union has developed a financial instrument called “Next Generation EU”, amounting to 750 billion euro, aiming at overcoming this significant crisis of the health, social and economic system, caused by the COVID-19 pandemics, “The Facility is the centrepiece of NextGenerationEU, a temporary recovery instrument that allows the Commission to raise funds to help repair the immediate economic and social damage brought about by the coronavirus pandemic. The Facility is also closely aligned with the Commission’s priorities ensuring a sustainable and inclusive recovery that promotes the green and digital transitions.¹” [European Commission, 2021]

In this context, the recovery and resilience mechanism in the centrepiece of “NextGenerationEU” and has a total budget of 672.5 billion EUR, of which loans amounting to 360 billion EUR and grants amounting to 312.5 billion EUR. RRF aims at mitigating the economic, social and health impact of the COVID 19 pandemics, as for the economies and societies to be “more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions²” [European Commission, 2021].

Therefore, this stage of our scientific analysis was based on and started from the question: can we identify and provide elements useful to the Romanian society, by the Ministry of National Defence accessing European Funds, as to reach the strategic security objectives, as well as the success of national defence? I consider that, from a theoretical point of view, considering the results of these instruments, the aim can only be positive. Romania is prepared to efficiently use the funds provided by the European Union.

In these conditions, our purpose is to outline the main factors related to the organizational structure of the Ministry of National Defence. The findings reveal their complexity and diversity, including various bodies, from those of strictly

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military nature to the economic, social, cultural, health, education, culture, sport and many other issues, which are meant to be correlated with similar structures in other administrative bodies, as well as to other elements in the economy with which these factors must correctly interact, in order to ensure the systemic functionality of all the structural components of our country as a EU and NATO member state.

1. Implications

It is known that Romania has prepared a package of reforms and investments in line with article 18 in the Regulation (EU) 2021/241, by elaborating a National Recovery and Resilience Plan.

In the first place, the NRRP which Romania has submitted to the Commission complies with the eligibility criterion, the country specific recommendations (CSR) 2019 and 2020 for Romania, according to the European semester, as well as with the climate and digital objectives, through the allocation of 37% and 20% of its expenditures.

Thus, the amount related to the implementation of the Recovery and Resilience Plan is 29,181,842,750 EUR. Romania has requested non-reimbursable financial assistance amounting to 14,239,689,750 EUR and loans amounting to 14,942,153,000 EUR under the Recovery and Resilience Facility. Together, these represent 13.09 % of the 2019 GDP³ [European Commission, 2021]. At the same time, we can say that in order to access these funds, Romania has elaborated and completed the NRRP, under which the needed reforms and investments have been analysed and identified, in order to overcome the crisis caused by the COVID-19 pandemics.

At present, the National Recovery and Resilience Plan was adopted by the European Commission on 27 September 2021 and contains 171 measures (64 reforms and 107 investments). Moreover, the NRRP represents a comprehensive description of the economic situation in Romania and contributes to the six pillars mentioned under article 3 in the Recovery and Resilience Facility Regulation (RRF)⁵ [European Commission, 2021] i) green transition, ii) digital transformation, iii) smart, sustainable and inclusive growth, iv) social and territorial cohesion, v) health and economic and social resilience and vi) new generation.

In order to respond the country specific recommendations 2019 and 2020, the plan includes the following components:

1) “Green Transition” pillar: 1. Water management, 2. Forests and protection of biodiversity, 3. Waste management, 4. Sustainable transport, 5. Renovation Wave, 6. Energy;

2) “Digital Transformation” pillar: Pillar “Smart, sustainable and inclusive growth”, 8. Fiscal reform and pensions reform, 9. Support for the business environment, RDI;

3) “Social and Territorial Cohesion” Pillar: 10. Local fund for green and digital transition, 11. Tourism and culture;

4) “Health and Economic and Social Resilience”, 12. Health, 13. Social reform, 14. Good governance;

5) “New Generation” Pillar: 15. Educație³ [European Commission, 2021].

The absorption of the European funds is a tool for the economic development of our country, and therefore we have focused on the projects already implemented or being implemented at the level of the MND, which is the element that encouraged us to choose this topic.

We have also considered the *improvement of the quality, equity and relevance in the labour market of the education and training, as well as the development of the basic skills and digital competences, essential for the economic recovery and strengthening the resilience*³ [European Commission, 2021].

The evolution of the doctrine system, with its specific planning documents, took place in conditions of volatility of the international security environment, through a permanent harmonization of these documents, i.e.:

1) Defence Strategy of the Country for the period 2020-2024 - “*Together for a safe and prosperous Romania in a world marked by new challenges*”, elaborated as a programmatic document by the institution of the President.

2) Defence White Papers 2020, the defence policy of the state is the shape taken by the activities and measures constantly carried out for the defence of the independence, sovereignty, territorial integrity, and unity of the country. The states usually present their defence policy in a document called “Defence White Papers”. The document presents the objectives of the defence policy of the main institutions involved in national defence and security environment, as well as the measures taken by these institutions for the training of the forces participating to ensuring security and national defence⁵ [Government of Romania, 2020].

According to the National Defence Strategy of the Country 2020-2024, “*The difficulties in managing the European funds and implementing the projects still have a significant impact on accessing and absorption of the community funds allocated to Romania*” [President of Romania, 2020] and the “*The state institutions’ ability to assess and mitigate the risks and threats’ impact is limited by the persistence of certain vulnerabilities in terms of: public funds’ allocation and management, more*

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*precisely in accessing European funds (including those subsequent to the Multiannual Financial Framework 2021-2027); regulating and organising key areas such as health and education; the institutions' capacity to implement state policies for the benefit of the citizen is limited by maintaining certain vulnerabilities from the perspective of the efficient use of public money, accessing and managing European funds and implementing viable development and upgrading projects for large public systems and local infrastructure.*⁶ [President of Romania, 2020]. At the same time, the educational, health, social and demographic dimension aim at “*Improving the education system's financing and more efficient investments in the human capital, by making better use of the synergies among different sources of funding: National budget, European grants or external (non-) reimbursable funds as well as Erasmus funding*”⁶ [President of Romania, 2020].

1.1. Digitalization – solution for the development of the human society

What is truly new is that, in general, digitalization can be defined by cyber-physical systems, IoT (Internet of Things), cloud and AI (Artificial Intelligence) and can bring contributions through a package of benefits, such as rendering certain activities and processes more efficient, as well as the simplification of the consumption of material resources. Thus, the effects of automation of production and of interconnection of processes are reflected in the educational systems, as integrated packages/systems of equipment, IT systems and mobile devices, having the capacity to communicate between them.

The most important value of an organization is the human resource. For a better performance, the military and civilian staff of the MND have to assist and participate to a multitude of complex activities related to the educational process, such as class training, online courses, simulated exercises, practical training, as well as other forms of education, both formal and informal.

However, it is only after the outbreak of the COVID-19 crisis that the necessity of distributed learning systems to ensure the continuity of the training activities has become obvious, that unitary measures related to the evolution of the civil and military educational systems have been taken and digital solutions have been implemented. The specificity of the educational process is shifting permanently, therefore there can be no progress in the organization without well trained and skilled people.

Essentially the methods used at present to manage the evolution and progress of the trainees are led by old and traditional teaching models. Starting from these

considerations, at present, the education and development efforts in the MND, for the purpose of the online integration in the operational systems, are hampered by resources constraints, as well as by security concerns and inconsistent testing and assessment approaches. But how can we complete these actions and activities? Such questions have also been asked at European and NATO level, in countries such as Norway, Poland, Denmark, USA, concerns that appeared after 2018, including by development qualification and skills management digital tools for the development of the military career.

Moreover, the pandemic situation at presents, as well as the social distancing rules imposed, pushed the military educational system, which had to transform, adapt and improve the internal relations within the educational process, for the purpose of improving the training level of all the categories of graduates. Considering this, the communications, data and services infrastructure has been developed as to respond punctually to the education and training needs, the process being still to be completed.

The requirement now is to standardize the communication among all the actors involved in the educational process, by using the new IT educational standard IT (xAPI) and developing AI (Artificial Intelligence) applications. Once these conditions have been met, the digital system of the MND will operate in a consolidated manner, at an optimal capacity, becoming an example of best practices in reforming the educational system through IT&C, for the governmental environment.

1.1.1. Recommendations on the MND obtaining European funds

The paper reviews and provides recommendations as concerns the writing and implementation of the projects financed with European funds, both for the current and for the next programming period, for the MND.

The opportunity for the MND to obtain European financial support relies on entities such as military universities, colleges, high schools, as well as on the scientific research institutes of the army, which have obtained funds for European projects in the field of human resources, through the Sectoral Operational Programme Human Resources Development (SOPHRD) or through the Operational Programme Human Capital (OPHC), or are likely to obtain funds under the Operational Programme Education and Occupation (OPEO) or the Operational Programme Inclusion and Social Dignity (OPISD) during the new programming period 2021-2027. Moreover, the other entities that can be eligible are: the sectoral pensions house, the military circles, the cultural and artistic groups, the sports clubs and associations or the churches in the military units and garrisons.

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There are also entities such as the military universities and scientific institutes that can benefit from financing for projects of applicative scientific research both under the Operational Programme Competitiveness (OPC), currently being implemented and under Smart Growth, Digitalization and Financial Instruments Operational Programme (SGDFIOP) for the new programming period 2021-2027.

Obviously, it is important to take into consideration the army hospitals and medical centres which can be involved in future projects in the health sector, with a view on the need that appeared as a result of the Coronavirus pandemics. These can obtain funds under the Operational Programme Health (POH) in the programming period 2021-2027, but we have to point out that the MND can also obtain assistance and funding under the NRRP, according to art.16 in the Law 95/2006 on the reform of the health sector, for the telemedicine IT system.

Starting from the outstanding challenges, it is easy to understand that there are entities in the army that can be involved in financing projects under the Regional Operational Programmes (ROP), which are to be implemented also in the new programming period 2021-2027.

1.1.2 Feasible projects implemented by the structures subordinated to the MND (hospitals, academies, colleges, agencies, institute, university) together with other entities

At the current pace of the progress, more precisely in the past five years, MND has implemented European funds projects both as unique beneficiary and in partnership with other national and international entities.

Projects have been implemented in order to increase the capacity to manage the emergency situation caused by the health crisis in the context of the COVID -19 pandemics, as well as to strengthen the capacity to manage the crisis generated by the infection with the SARSCOV-2 virus, for the protection of the medical and auxiliary staff in the public health units of the MND, as well as for the protection of the military and civilian staff participating to actions related to fighting the spread of the SARSCOV-2 virus.

Moreover, the health units have been provided with protection equipment for the medical and auxiliary staff, while the civil and military staff involved in the management of the situation caused by the SARSCOV-2 virus have been provided with disinfection and protection equipment.

Another issues that has to be taken into consideration is providing the specialized clinic with medical equipment (including equipment and devices dedicated to the supporting units serving the clinics).

A real challenge is the acceptance for funding of certain projects related to:

1)the improvement of the skills of the professionals in the medical sector, higher professional competence of the medical staff in the national defence, public order and national security system;

2)coverage of the bonuses granted to the staff during the emergency period;

3)the students in the target group have benefited from counselling, training and programs aiming at facilitating the access to the labour market in the navy and port sector, as well as students which will benefit from counselling and internship and training in cybersecurity;

4)development of new generation of mobile cybernetic tools;

5)creation of an excellence centre for cybernetic security and resilience of critical infrastructures;

6)development of the specialized universities in the Black Sea region and of an online platform for didactic materials;

7)organization of career path activities and stimulation of knowledge among students in the field of astronomy;

8)creation of a database concerning the naval incidents and development of risk management scenarios, using navigation simulators;

9)development and implementation of smart digital systems for the evaluation of the students and pupils in the public order and national security system;

10)mobility for military students, professors, researchers and trainers;

11)better educational services provided through quality international training of the professors, identification, application and development of the most adequate European practices for the approach of diversity, in order to strengthen the motivation of the students and to align the training-educational process to the European educational standards;

12)advanced programme for pilots training, using virtual reality and advanced augmented reality technologies.

Once all the above-mentioned projects have been implemented we can consider there is a proper management at the level of the MND.

1.1.3. Projects funded with European funds implemented by the structures subordinated to the MND

Such projects referred to:

1)restoration, rehabilitation, preservation and creation of an exhibition at the monument Commemoration Cross for the Romanian heroes in the First World War (Heroes Monument “Caraiman Cross”/Heroes Monument (Cross) on the Caraiman

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summit, a project for the promotion of the national history and identity through preserving, protecting and making use of a reference cultural and historic cultural monument in Romania;

2) other types of funded projects, of a major relevance, refer to the rehabilitation of certain building, in order to increase the energy efficiency through thermal rehabilitation, smart management of energy and use of energy from renewable sources;

3) the intervention works on the façade of the National Military Circle, aiming at restoring, preserving and protecting the Palace of the National Military Circle (historical monument) are very important as well.

1.1.4. Recommendations on the accounting of the operations related to the such projects for entities of the Ministry of National Defence

The accounting of the European projects of any type, including those under the NRRP (to be implemented in the next period) requires the understanding of the manner to allocate the amounts and of the legal framework under which the expenditures are booked as eligible expenditures under the project, in compliance with the general eligibility rules.

The accounting of the projects financed with European funds plays a crucial role both in granting and in recovering the pre-financing of the projects. A good accounting will ensure the reimbursement of the expenditures made under the project, as well as the final reimbursement, and an accounting expert completes the work of the accountant and of the financial officer by reviewing the accounting records of the project. An external financial auditor is supposed to supervise the accounting part of the projects, as well as other operations related to the management and to the public procurement under such projects.

The accounting of the European projects requires basically the accounting record of each operation under the projects the drafting of the project balance sheet and the correlation of the analytical balance sheet of the project with each reimbursement of payment application;

The accounting proper of the project, mainly for the project partners, requires the following operations:

1) the analytic accounting of the project, ensuring the transparency of the records and the easy identification of all the project revenues and expenditures;

2) recording the financing contract, the pre-financing, the amounts requested for reimbursement by the partners, the advances paid to them, as well as the amounts paid to the suppliers;

3)preparation and approval of a set of accounting policies and procedures to be used during the implementation;

4)settlement of all the issues related to human resources and salaries: ensuring the correct record of the hourly wage of the staff to comply with the maximum hourly rates, without exceeding the hours approved under the financing contracts.

As concerns the reference period, the accounting of the project has to ensure the verification of the reconciliation of the end and beginning periods, as to ensure there are no documents settled two or more times during or beyond the reference period.

As concerns each reimbursement and payment application and the supporting documents, the accounting of the European projects, including those under the NRRP, involves the elaboration of these documents, and the amounts requested for reimbursement must be accurate, real, eligible and duly requested.

At the level of each economic operator implementing such projects, a general manual of accounting policies and procedures specific for each projects must be elaborated.

A final issue we have to reveal is that the operations must be implemented in compliance with the public accounting, as most entities of the Ministry of National Defence implemented such projects are public institutions.

Conclusions

Our analysis aims at recognizing and identifying niches for access to such projects financed with European funds, for as many and diverse entities of the Ministry of National Defence, as well as military entities, as possible, as for a broad range of entities in the army to be able to access these additional funding sources, besides their own revenues or the state budget.

It is important that, at EU level, the educational systems are changing influenced by the new technologies, and the development of the skills of the citizens participating to various educational activities is of paramount importance and relevance in ensuring the national security of Romania.

As presented above, the need identified have been transposed in action plans/investment priorities, in order to contribute to the digitalization process, i.e.:

A. integrated digital system for the management of knowledge and education in the military education institutions, at all levels;

B. advanced system for the management of skills and competences in the development of the professional career, in the military sectors.

Our proposal is to obtain non-reimbursable financial support as concerns the reform of the digital system of the MND, proposed to be achieved through the

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implementation of several applications, resulting in the development of an accurate system to assess the completion of the educational phases, as to render the internal processes more efficient on a long term.

The relation between this reform and the economic growth is given mainly by time resource savings, as well as by saving of other resources, by strengthening the adaptability of the educational system to new crisis situations, facilitating the investments, settling various administrative issues that naturally occur in the society.

At the same time, these visible improvements may lead to a higher integration of the military environment in the professional training area, with an easier recognition of the studies. By applying, centralizing and processing the staff training information, the professionalization of the Romanian Army is to be improved.

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augmented-reality
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