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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 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.

In the published materials, there are analysed theoretical and practical issues of edification and consolidation of the Romanian market economy, as well as the fundamental directions of the technical and scientific progress, the actual state, and ways of its promotion in the Romanian economy, the issue of developing the new world economy, the directions of globalization and contemporaneous economic integration and Romania's participation to these processes. Also, there are hosted articles that refer to different aspects of economic phenomena from all over the world.

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FOREWORD

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It is with great pride and pleasure that I introduce Issue 3/2024 of the *Annals of Spiru Haret University. Economic Series*. This issue represents not only the diverse range of topics currently shaping the fields of economics and management but also the breadth of intellectual inquiry that underscores the interdisciplinary nature of modern economic challenges.

As economies worldwide continue to evolve amid technological innovations, sustainability concerns, and post-pandemic realities, the research contributions in this edition offer vital perspectives, addressing both macro and microeconomic challenges.

The present issue, Issue 3/2024, begins with a focus on the tourism sector, an industry that has undergone transformative shifts in recent years. In their article, called *Frequency and Main Motives for Travel of Serbian Tourists*, authors Š. Milica Čolović and Vladimir Mitić explore the behavioral patterns of Serbian tourists, providing an empirical investigation into the underlying factors that drive travel decisions. Their work is particularly timely, offering fresh insights into consumer preferences and regional travel trends, which are essential for developing robust tourism strategies in both emerging and established markets.

Transitioning from tourism to the academic-business nexus, Rukmal N. Weerasinghe and his co-authors delve into the dynamics of university-enterprise collaborations, focusing on the role of University Business Linkage (UBL) cells as facilitators of innovation and knowledge exchange. In today’s knowledge-based economies, where the boundary between academic research and industry applications continues to blur, this study highlights critical measures and success factors that can enhance collaborative efforts, creating a more integrated approach to innovation.

The human element in organizational settings takes center stage in several significant contributions in this issue. Patrick Qena Radebe and Temidire Messiah Ekujumi explore the complex interplay between *perceived organisational support, frustration with work, and occupational commitment among educators*. Their findings shed light on how these variables influence employee morale and

retention, providing valuable guidance for policymakers and educational leaders looking to foster supportive and engaging work environments.

Building on the theme of organizational development, Oluwatoyin Stephen Ore and Dayo Idowu Akintayo investigate *the impact of green human resource management practices on business performance in manufacturing industries*. With sustainability becoming a cornerstone of corporate strategy, this research offers critical insights into how environmentally-conscious HR practices can drive both ecological and financial performance, making it essential reading for those interested in sustainable business models.

The global COVID-19 pandemic has left an indelible mark on organizations, prompting new challenges in human resource management. In their timely article, Muideen Olawale Aremu and colleagues provide an in-depth exploration of *The COVID-19 Pandemic and Human Resource Management: Consequences, Possibilities, Difficulties, and Future Organisational Paths*. Their work reflects on how organizations have adapted to unprecedented disruptions and offers strategic insights into future pathways for organizational resilience.

Flexible work arrangements have emerged as a key theme in post-pandemic organizational life, and this topic is further examined by Michael Olanipekun Aremo, Olajide Idowu Okunbanjo, and Michael Ogu in their article on *Flexible Working Arrangements and Continuance Commitment of Employees in Financial Technology*. As the fintech sector continues to expand, their study presents important findings on how flexible work policies influence employee loyalty and engagement, contributing to ongoing debates about the future of work.

Strategic management, particularly in the financial sector, is addressed in the research by Dinko Herman Boikanyo and Godknows Gomwe, who discuss *Knowledge Retention Strategies Employed by Banks to Execute Strategy Implementation*. As banks face increased competition and regulatory challenges, their ability to retain critical knowledge becomes paramount to effective strategy execution. This article offers practical recommendations on knowledge management, essential for any organization navigating complex strategic environments.

Similarly, the role of *Employee Satisfaction on the Performance of Microfinance Banks* is analyzed by Abass Adekunle Adewale and his team. Their research underscores the critical link between employee well-being and organizational performance in a sector that plays a pivotal role in financial inclusion and economic development, particularly in emerging economies.

Strategic agility, a concept that has gained considerable attention in recent years, is the focus of the work by Liteboho Phaila, Dinko Herman Boikanyo, and

Godknows Gomwe. Their study on *Strategic Agility as a Competitive Advantage in the Banking Industry* offers a compelling argument for the adoption of agile management practices as a means of maintaining competitive edge in an increasingly volatile financial landscape.

In addition to organizational strategy, this issue addresses several facets of sustainable management practices. The article by Marinela Geamănu and her colleagues on the *Role of Preventive Financial Control in Sustainable Management* is a critical contribution to the discourse on governance and accountability in financial management, highlighting how preventive controls can serve as a foundation for long-term sustainability.

Technological innovation it is a theme with global implications, as seen in Aylin Nasibova's evaluation of *How Artificial Intelligence Impacts Employment in the US, UK, and China*. This comparative study addresses one of the most pressing questions of our time: how AI technologies are transforming labor markets across different economic contexts. The research offers a nuanced understanding of the complex interactions between technological progress, employment, and policy.

Blockchain technology is another frontier of digital transformation explored in this issue. Elena Gurgu, Luciana Raluca Bufalino, and their team present a forward-looking analysis of *Blockchain Technology: Transparency and Accountability in Sustainable Management*, emphasizing the potential of blockchain to enhance transparency and accountability in business processes, particularly in fostering more sustainable management practices.

Rounding out the technological discourse, Luminita Ionescu's article on *Generative AI Chatbots and Digital Automation Technologies in Accounting Services* presents a timely examination of how automation is reshaping professional services, offering both efficiencies and challenges for the accounting profession in the digital age.

Finally, this issue concludes with two insightful articles that extend the discussion into global economic and managerial contexts. *Data-Driven Decision Making: A Catalyst for Sustainable Management in the Digital Age* by Corina GUDEI and her colleagues explores the growing importance of data analytics in strategic decision-making, while Baktybek Isakov's article on *Disinformation in the Context of Center-Periphery International Economic Relations* provides a thought-provoking analysis of how disinformation impacts global economic dynamics.

The field of project management is experiencing significant transformation due to advancements in technology, evolving methodologies, and the increasing complexity of organizational environments. The paper called *Project Management*

in the Current Stage by the author Dumitru Raluca explores the current stage of project management, highlighting key trends such as the adoption of agile and hybrid methodologies, the impact of digital transformation, the management of remote and distributed teams, the integration of sustainability and social responsibility, and the heightened focus on risk management and resilience.

As editor, I am confident that this issue offers significant contributions to the ongoing conversations in the fields of economics, management, and sustainable development. The range of topics covered in this edition reflects the journal's mission to foster interdisciplinary dialogue and present cutting-edge research that addresses the most pressing challenges facing today's economies. I extend my deepest gratitude to the authors for their dedication and to the reviewers for their invaluable contributions to ensuring the quality of the research published herein.

As we navigate these transformative times, the insights offered within this issue are more pertinent than ever. We hope that the research and discussions encapsulated here will not only enrich your understanding of the current economic climate but also inspire further inquiry and dialogue in this ever-evolving field.

Together, let us embark on a journey of discovery, exploration, and enlightenment, as we strive to understand, analyze, and shape the economic landscape of tomorrow.

It would make us very happy to know that you found this issue of *The Annals of Spiru Haret University. Economic Series* both informative and inspiring. We look forward to your continued engagement and support in our scholarly endeavors.

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If you want to publish an article in our journal, we invite you to expose your ideas in new studies released by us.

Finally, if you found Issue no. 3/2024 being interesting, inspiring and informative 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!

Elena Gurgu
Deputy Editor-in-Chief
Annals of Spiru Haret University. Economic Series



ACADEMIA PAPERS

FREQUENCY AND MAIN MOTIVES FOR TRAVEL OF SERBIAN TOURISTS

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Abstract

Tourism can be very significant for the economic growth and a weighty source of income for the state as well as for the whole economy and the population. The main goal of this research is to examine the frequency and the main motives of travel of Serbian tourists when it comes to the different type of tourism and the preference of domestic and foreign destinations. Gender and age differences in travel motives were also found. The sample consisted of 250 respondents of different gender and level of education from Serbia. The data were processed with the SPSS program. In addition to descriptive statistical measures, the Mann-Whitney U test and Kruskal-Wallis test were also been used. The results show that in general tourists from Serbia choose different types of tourism. The most popular is by far coastal tourism, and when domestic destinations are taken into account, the spa and mountain tourism are most prefer. It has also been shown that women prefer Spa tourism the most, while men prefer adventure turism. People with higher education level more often decide to travel for medical reasons, while gastronomic (culinary) tourism is favourite for people with a lower level of education.

Keywords: *motives, travel, frequency, tourism, destination, gender, age.*

JEL Classification: L83,Z32,D12,R41,J22

Introduction

Tourism as one of the important economic branches can be very significant for the economic growth of the country and a weighty source of income for the state as well as for the whole economy and the population. It represents one of the most promising and fastest growing economic branches in the world (Tang & Tan, 2015) and makes up about 11% of the world economy. In addition to the positive and major impact on the economy, tourism has a great impact and a significant role in creating new jobs and improving the standards of citizens (Berbel-Pineda et al., 2019; Zada et al., 2022). The importance of tourism for the creation of new jobs can be seen based on data from the World Tourism Organization, according to which in 2019, every tenth worker was employed in the field of tourism. The Covid-19 pandemic reduced tourist traffic and its negative effects were felt at the global level in the tourism sector, to a greater or lesser extent, depending on the tourist regions and countries (Dragut and Gurgu, 2023). However, some tourist facilities such as hotels that invested in human capital felt the effects of the crisis less and maintained somewhat profitability (Ognjanović et al., 2022). After the pandemic of the Covid-19 virus, which negatively affected employment in this branch of the economy as it eliminated 62 million jobs in tourism, this industry is begin to slowly recover. Compared to the previous recorded it is again recording business growth and an increase in jobs, so in 2021, there is a creation of 18.2 million new jobs (WTTC, 2022). In general, the Covid-19 pandemic affected all industries to a greater or lesser extent and affected the increase in unemployment, the reduction of GDP and the standards of citizens (Mandlazi and Nyasha, 2023). Also, the crises caused by today's wars, terrorism, crime, environmental degradation, as well as other negative events, have a negative impact on the global economy, and therefore on tourism as its integral part (Petrova, 2023).

Given the fact that tourism represents one of the most important service industries, a large number of countries invest a lot of money to support and develop this industry, thereby achieving the improvement of the entire economy (Moral-Cuadra et al., 2020; Payandeh et al., 2022). This is reflected in the fact that tourism contributes to the development of other industries as well as local economies with significant encouragement of entrepreneurship, especially "green" tourism that promotes local development and sustainable use of resources (Han & Yoon, 2015).

When it comes to the Republic of Serbia, in 2019, for the first time, a greater number of foreign tourists than domestic tourists was recorded, as well as an increase of 8% compared to the previous year (Bakić, 2020). This had a positive

effect on the increase in the number of jobs as well as on the increase in the inflow of foreign currency, which contributes to better economic stability and development of both tourism and the entire economy (Dašić, 2018). However, the Covid-19 pandemic had a negative impact on business in the field of tourism, so the profitability of hotels in Serbia was reduced due to a lower influx of guests in 2019 compared to the previous period (Mitrović et al., 2021).

According to data from the Ministry of Trade, Tourism and Telecommunications, the number of tourists who visited Serbia in the first two months of 2021 is almost 40% lower compared to the same time period in the previous year. However, the crisis of domestic tourism compared to the global level is lower, considering that due to the closure of borders and the general recommendation not to travel abroad due to the increased risk of the virus, a large number of domestic tourists decided to visit the domestic destination and spend their holidays in Serbia (Mandarić & Sekulić, 2021).

Literature Review

Due to different travel motives and preferences of the tourists themselves, it is necessary for tourist destinations to meet the expectations of tourists so that they decide to visit them again and pass on good experiences to friends and relatives, which would have a positive effect on the number of tourists.

Considering the large number of tourist destinations and the differences that exist between them, there is a wide range of tourist services that include urban tourism, rural tourism, mountain tourism, seaside tourism, spa tourism, religious tourism, cultural tourism, sports tourism, health tourism, hiking tourism, adventure tourism, wine and culinary tourism (Camilleri, 2017).

Gastronomic (culinary) tourism shows constant growth in recent years, and for about 15% of tourists when choosing a tourist destination, the main motive is local food and drink (Ullah et al., 2022). Consuming different types of food is no longer just a basic human need, but also one of the main motivational factors for people when making travel decisions and visiting certain tourist destinations to enjoy local food and drink (Mak et al., 2017). Gastronomy became popular in the Balkan countries after the 90s, so even though it is often criticized as negatively reflecting and slowing down its future development (Kukanja & Pestek, 2020) it still has a good perspective and is successfully developing due to the positive experience of consumers as it represents a combination of experience, cultures and food and drink tastings (Mason & Paggiaro, 2012). Gastronomic tourism itself represents the activity of researching and getting to know different cultures and history through

food, which creates an unforgettable experience (Vukolic, 2020) and achieves the loyalty of tourists towards this type of tourism and its destinations (Gajić et al., 2021). Thanks to its geostrategic position, natural resources and tradition in the preparation of high-quality and tasty food, the Republic of Serbia has great potential for the development of products with geographical indications and organic agriculture (Mitić & Čolović, 2023), which could improve the agricultural sector and rural areas through ethno-tourism (Kovačević et al., 2022). Tourists interested in rural, ecological and gastronomic tourism can be offered local dishes and drinks, as well as the most commonly consumed foods of organic origin such as fruits and vegetables (Čolović and Mitić, 2023c; Čolović and Mitić, 2024).

The emergence of health tourism is linked to certain mountain, spa and tourist centers that, by emphasizing their health services along with other tourist facilities, tried to increase the number of tourists (Hall, 2011). This type of tourism shows a huge market growth and potential, whose revenues are estimated at over 100 billion dollars (Fetscherin & Stephano, 2016), based on which it can be concluded that tourist destinations that provide this type of service have been in high demand among tourists for many years (Han et al., 2018).

Medical, wellness, and spa tourism represent certain types of health tourism. Medical tourism is based on the travel of tourists in order to provide them with medical assistance and medical treatment, while spa and wellness tourism refer to the travel of tourists for the purpose of prevention and improvement of the health condition using medicinal waters and other substances. The modern way of life, which implies a lot of stressful situations and a chronic lack of free time (Čolović & Mitić, 2022), has led to increased interest in health tourism as a need for people to do something for their own health (Gašić & Perić, 2023). Health tourism represents one of the fastest growing types of tourism in Serbia with an annual growth rate of 15 to 20% (Ostojić et al., 2021).

When it comes to religious tourism, it originally meant going on pilgrimages (Fleischer, 2000; Chianeh, et al., 2018), while today it has largely expanded to include visiting religious buildings (Kruger & Saayman, 2016; Wang t al., 2016). The value of the annual global religious tourism market is about \$20 billion (Askin, 2012), while there are about 16.3 million religious tourists who go on religious trips every year (Ruggia, 2012). Along with the development of religious tourism in the world, there is growing interest in religious buildings in Serbia, which are very numerous thanks to its turbulent history and fragile area (Đorđević et al., 2020). Religious tourism in Serbia is very significant because it contributes to regional development and familiarization with cultural values and is largely

developed in these areas thanks to the large number of monasteries and churches that have true value for the Serbian people (Petrović et al., 2020). Thanks to the large number of tourists, religious tourism represents a significant source of income for many rural areas (Kilipiris & Dermetzopoulos, 2016).

Adventure tourism is based on outdoor physical activity and ranges from moderate adventure such as hiking, diving and the like to severe adventure such as rock climbing, navigating the wilderness and other intense physical activities, so as many as 22 dimensions of adventure tourism have been identified (Janowski et al., 2021). It is often difficult to precisely define adventure tourism, given that its characteristics largely coincide with other types of tourism, such as sports tourism (Dimitrovski et al., 2021), rural tourism (Leković et al., 2020) and ecotourism (Luković & Šilc, 2021). Therefore, there is no generally accepted definition of this type of tourism, as well as clear boundaries between this type of tourism and other types (Beames et al., 2019; Cheng, 2017). Considering that it represents one of the fastest growing types of tourism both in the world and in Serbia, a large number of researches are conducted on the topic of adventure tourism in order to more closely define its areas and users (Buckley, 2006; Cheng et al., 2018; Rantala et al., 2016). According to some estimates, the adventure tourism market at the global level has a turnover of almost one trillion dollars and includes approximately one fifth of global tourism (Buckley, 2010) and since 2012 has recorded an annual growth of 21% (ATTA, 2018).

Increased concern about the impact of tourism on the environment has contributed to the development of sustainable types of tourism such as ecotourism, which since its inception in the 1980s (Donohoe & Needham, 2006) has seen great growth and has become one of the leading forms of tourism (Carvache-Franco et al., 2020). Ecotourism includes visiting relatively little-exploited natural destinations so that tourists can enjoy local cultures in an authentic environment without endangering the environment (Lee & Jan, 2019). Although it is found under different names "soft tourism", "green tourism", "responsible tourism" (Jaafar & Maideen, 2012) they all refer to nature and the emphasis is on tourists visiting natural areas taking care of the environment while enabling local communities certain benefit (Hussain, 2022). In this way, tourists explore the natural environment while doing a good deed at the same time (Thulasimala et al., 2010). Ecotourists take care not only of nature, but also of respecting local communities and their cultural heritage (Pavlović & Jovanović, 2009). Therefore, ecotourism contributes to the preservation of culture and nature in protected areas with little impact on nature and its ecosystems (Pablo-Cea et al., 2021). The main

problem of ecotourism development in protected areas is that it exerts pressure on natural resources, but because of this, the visited destination achieves multiple benefits (Stojanović et al., 2021). Also, the activities of tourists such as hunting wild animals, dumping and littering have a negative impact on nature and its ecosystems (Buckley et al., 2016; Geffroy et al., 2015).

In recent years, an increasing number of tourists decide to visit rural areas and spend their holidays in less populated areas in order to escape from the city noise and fast-paced lifestyle. Due to the greater interest of tourists in rural tourism, it is becoming more and more attractive both for the general public and for scientific research on this topic (Kastenholz et al., 2021). Rural tourism can be a significant driver of local economies and some kind of developmental engine of less developed rural areas (Lun et al., 2016; Rogerson, 2019). In addition to the fact that residents of rural areas earn income by renting accommodation to tourists, they also earn income by selling agricultural, craft and other products to tourists (Ciolac, 2021). Therefore, rural tourism can be used as a tool to equalize uneven geographical development (Nel & Rogerson, 2016).

In the Republic of Serbia, about 45% of the entire population lives in rural areas, and about 58% of the poor live in them. That's why the development of rural tourism is very important in order to keep young people in those areas and raise the standard of that population. However, problems such as poor road infrastructure, inadequate rural tourism development plan by the authorities, lack of activities, good accommodation and attractions in rural areas have a negative impact on the visitation by tourists, which results in an extremely low utilization of accommodation capacities, which averages only 4% (Dašić et al., 2020). It is interesting that during the Covid-19 pandemic, rural tourism, along with mountain tourism, was the only one that recorded growth, even though the number of tourists decreased in tourism in May 2020 compared to the previous one by as much as 87.6%, while the number of foreign tourists decreased by 97.8 % (Gajić et al., 2023).

Mountain tourism can be seen as part of rural tourism, but also as a special type of tourism, considering that there are significant differences between these two types in some characteristics. A large number of mountain areas, with their beauty and natural resources, attract many tourists looking for vacations and activities that only mountains can provide (Chiodo et al., 2019) and are becoming more and more attractive among tourists (Hibner et al. 2018; Telbisz et al. 2020). This type of tourism can be a significant driver of rural development (Lun et al., 2016), thus ensuring a better life for local communities (Magadán-Díaz & Rivas-García, 2019).

However, although it is a significant source of income, it might have a negative impact on the environment and mountain ecosystems (Nepal & Chipeniuk, 2005). Research conducted in the region of Western Serbia and Šumadija, which included the six most visited and most attractive mountains, showed that tourists were mostly satisfied with the destination and conditions, but it is still necessary to harmonize with world trends in order to increase the number of overnight stays and fill the accommodation capacities to the full extent (Milićević et al., 2021).

A large number of tourists decide to spend their vacations by visiting big cities so that they can better get to know the culture and mentality of their inhabitants and visit cultural and historical monuments and other interesting buildings, which represent urban tourism. In the EU countries, an increase in the number of overnight stays in the period from 2004 to 2017 was recorded by about 27%, where urban tourism recording a higher growth compared to other types of tourism (Nilsson, 2020). A sample that included 12 large cities in Europe achieved an average growth rate of around 43%, with significant differences between these cities in attendance (Eurostat, 2019). Although this is also a large growth, it even underestimates the actual growth of urban tourism, considering that it does not take into account day trippers and tourists who are not registered since they stay in some private accommodations that are not registered as accommodation service providers, and their number has increased significantly in recent years and increased its accommodation capacity due to increased income (Ioannides et al., 2018). Insufficient accommodation capacity, especially in smaller cities, is often a limiting factor that negatively affects the growth of urban tourism (Milano et al., 2019; Peeters et al., 2018).

Theoretical Background

The main subject of this paper refers to the examination of the frequency of travel of domestic tourists when it comes to the type of tourism and the choice of destinations in the country or abroad. The following research questions and objectives stand out from the subject defined in this way. It is determined whether there are any differences in the type of tourism preferred by tourists from Serbia. It is also examined whether domestic tourists prefer foreign or domestic destinations. It will also be determined the type of tourism that is most prevalent among domestic tourists, when local and foreign destinations are taken into account. The sample consisted of 250 respondents of different gender, age, level of education, marital, work and material status from Serbia. The subject and goals of the research were tested through the following hypotheses: There are differences in the type of

tourism chosen by tourists from Serbia (H1). The largest number of tourists from Serbia choose coastal tourism (H2). Tourists from Serbia mostly choose foreign destinations (H3). Tourists from Serbia most often choose local destinations when it comes to mountain and spa tourism (H4). It is assumed that women have different travel motives than men (H5). People with different levels of education prefer different types of tourism (H6). The SPSS program version 26 is used for data processing, within which certain descriptive statistical measures are applied, which are presented graphically and tabularly. In addition, the Mann Witneu U test was applied to determine the differences between two groups of respondents (gender), as well as the Kruskal-Wallis analysis of variance test to determine the differences in scores between several groups of respondents (different level of education).

Result and discussion

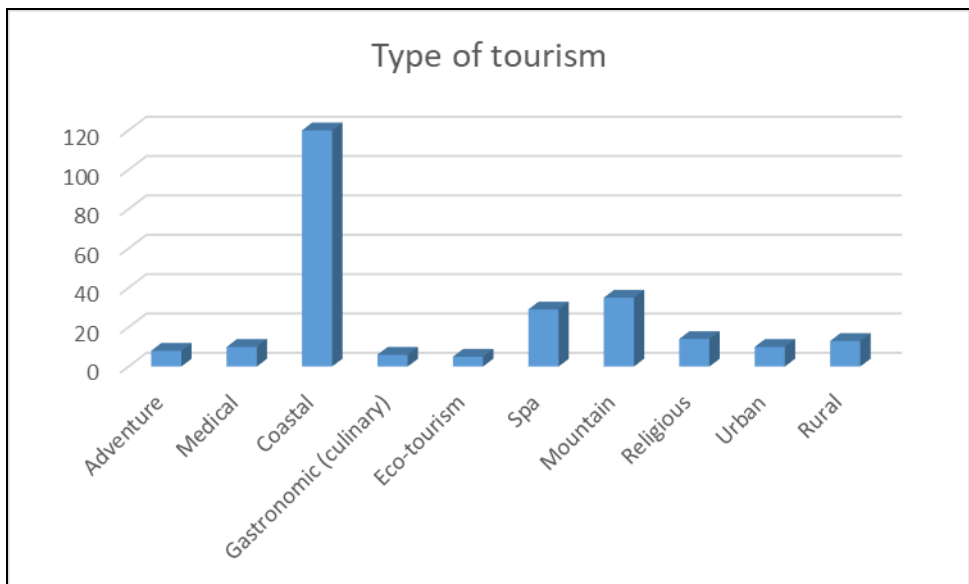


Figure no. 1. Preferences of Serbian tourists for different types of tourism

Source: Author's calculations

From graph 1, we can see that the first hypothesis has been confirmed, i.e. that tourists from Serbia in general choose different types of tourism. The most popular

is by far coastal tourism, which will be discussed more in relation to testing the second hypothesis. This is followed by mountain tourism (which is chosen by 14% of respondents) and spa tourism (11.6% of respondents). Domestic tourists are also interested in religious tourism (5.6% of respondents), as well as the rural tourism (5.2% of respondents). It is interesting that an equal number of respondents decide to travel for medical tourism (4% of respondents) and visit large cities and metropolises (4%). Tourists from Serbia are least interested in adventure tourism (3.2% of respondents), gastronomic tourism (2.4% of respondents) and ecotourism (2% of respondents).

Table no. 1. Representation of certain types of tourism among Serbian tourists

Types of tourism	N	%
<i>Adventure</i>	8	3.2
<i>Medical</i>	10	4
<i>Coastal</i>	120	48
<i>Gastronomic (culinary)</i>	6	2.4
<i>Eco-tourism</i>	5	2
<i>Spa</i>	29	11.6
<i>Mountain</i>	35	14
<i>Religious</i>	14	5.6
<i>Urban</i>	10	4
<i>Rural</i>	13	5.2
Total	250	100

Source: Author's calculations

Based on the obtained results, which are presented in Table 1, it can be seen that the second hypothesis was also confirmed. As many as 48% of tourists from our country decides for coastal tourism. Some of the potential reasons for this could be that employees generally choose vacations in the summer months when the weather is warm and most suitable for destinations at sea. Besides, tourists who want to rest and relax enjoy sunbathing and lying on the sand, which can significantly reduce the professional stress present in everyday life (Čolović et al., 2022). In this way, they can be revitalized and recharged with energy for new business challenges and everyday life stress in the best possible way. The positive effect of sea water and its vapors on health is well-known, so that a certain number of tourists want to improve their general state of health and rest at the same time.

In the following table we can see that the largest number of tourists from Serbia actually choose foreign destinations. Almost 70% of respondents stated that they prefer foreign destinations, thus confirming the 3rd hypothesis of this research.

Table no. 2. Choice between domestic and foreign destinations

Destination	Domestic	Foreign
N	77	173
%	30,8	69,2

Source: Author's calculations

When it comes to the domestic tourist offer, as part of the last hypothesis, we assumed that the largest number of tourists from Serbia visit spas and mountains in our country and that they do so in greater numbers rather than choose those destinations abroad.

Table no. 3. Parallel representation of Serbian tourists' preferences between foreign and domestic destinations

Types of tourism	Destination			
	Domestic		Foreign	
	N	%	N	%
<i>Adventure</i>	4	1,6	8	3,2
<i>Medical</i>	5	2	7	2,8
<i>Coastal (maritime)</i>	0	0	150	60
<i>Gastronomic (culinary)</i>	7	2,8	6	2,4
<i>Eco-tourism</i>	3	1,2	3	1,2
<i>Spa</i>	102	40,8	6	2,4
<i>Mountain</i>	68	27,2	28	11,2
<i>Religious</i>	21	8,4	5	2
<i>Urban</i>	15	6	35	14
<i>Rural</i>	25	10	2	0,8
Total	250	100	250	100

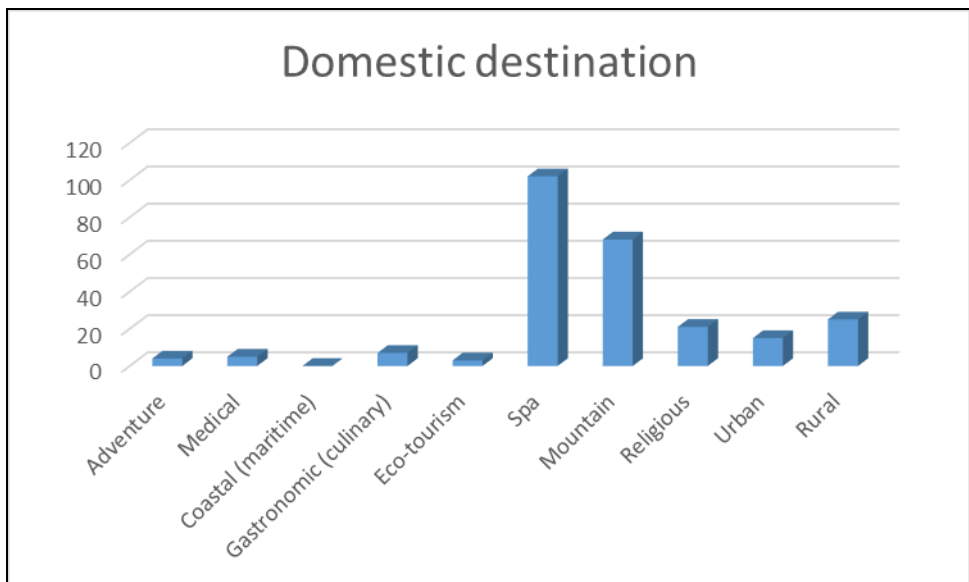
Source: Author's calculations

In the previous table, we can see that the obtained data confirm the last tested hypothesis. The largest number of tourists, almost 41%, said that when it comes to domestic destinations, they prefer spas. Right behind them, in terms of their attractiveness, are the local mountains, so slightly more than 27% of the

respondents decide to go for them. Attractive destinations in Serbia also include rural areas (10%), monasteries, churches and other religious buildings (8.4%) as well as larger cities (6%). On the other hand, tourists see the least areas in Serbia as desirable destinations when it comes to eco-tourism (1.2%), adventure tourism (1.6%) and gastronomic-culinary tourism (2.8%).

The above can represent good indicators and guideposts for the development of these branches of tourism in our country, which is very rich in natural beauty, wild and undiscovered landscapes, unexplored nature and beautiful flora and fauna. However, it is necessary to increase people's awareness of the importance and importance of environmental protection, a more responsible approach to nature and the natural beauty that Serbia is rich in.

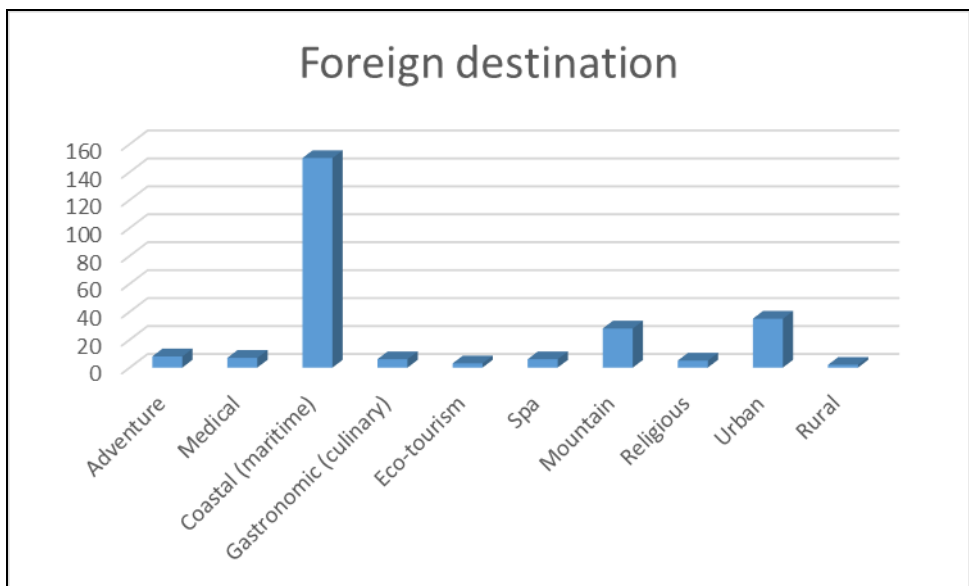
In the following text, a graphic representation of the preferences of Serbian tourists for certain types of tourism is presented, especially when considering domestic destinations (Graph 2) and foreign destinations (Graph 3).



Graph no. 2. Preferences of Serbian tourists when it comes to domestic destinations

Source: Author's calculations

On the basis of a mutual comparison of domestic and foreign destinations due to the preferences of Serbian tourists, it can be seen that spa, mountain and rural tourism are leading in Serbia, while for foreign countries it is coastal, with a convincing advantage (as many as 60% of respondents stated that they go abroad exclusively for maritime tourism), while urban (14%) and mountainous (11.2%) follow with a lower percentage of preference.



Graph no. 3. Preferences of Serbian tourists when it comes to foreign destinations

Source: Author's calculations

The attractiveness of mountains abroad for domestic tourists, who normally choose our country for their vacation and mountain tourism, sets high goals and challenges for this type of tourism in our country. In addition to already well-known domestic and international tourist offers, domestic mountains such as Kopaonik, Tara and Zlatibor, perhaps a good strategy for our country would be to invest in other mountain beauties that are still not sufficiently promoted and highlighted, and undoubtedly have beautiful nature, unpolluted environment and represent real gems of mountain tourism such as: Stara planina, Suva planina, Zlatar, Rtanj, Jastrebac, Rudnik, Golija, Fruška gora and many others.

By testing the 5th hypothesis, the Mann Whitney U test was used to determine the statistical significance of the obtained gender differences in scores, when different types of tourism are taken into account. The results are presented in the following table.

Table no. 4. Mann-Whitney U test results

	Adventure	Medical	Coastal (maritime)	Gastronomic (culinary)	Eco-tourism	Spa tourism	Mountain	Religious	Urban	Rural
Mann-Whitney U	11695.500	13236.500	14174.00	18539.00	16837.500	10439.500	19270.500	21156.00	13174.00	13786.00
Sig.	.000	.210	.437	.542	.339	.000	.376	.463	.184	.274

Source: Author's calculations

Based on the obtained results, it can be seen that there are statistically significant differences in scores between male and female respondents when considering only Adventure (U=11695.500, $p < 0.001$) and Spa tourism (U=10439.500; $p < 0.001$) (Table 4).

Table no. 5. Size of gender differences

Type of tourism	Gender	N	MR	ΣR
Adventure	Male	119	324.72	152751.50
	Female	131	282.41	36836.50
	Total	250		
Spa tourism	Male	119	274.50	29736.00
	Female	131	314.75	13247.00
	Total	250		

Source: Author's calculations

A more detailed insight at the results shows that a significantly larger number of men opt for adventure tourism (MR=324.72), while, on the contrary, women visit

spas much more and turn to spa tourism (MR=314.75). The mentioned differences in the scores, when it comes to these types of tourism are statistically significant and drastic, and it has been shown that only they reflect trends in the population. Other obtained differences were not of sufficient intensity to reach the level of statistical significance, so they can be attributed to chance.

One of the possible reasons for the obtained results is that mostly men are more prone to risk and prefer more dynamic activities that lead to an adrenaline rush, which is often an integral part of adventure tourism. On the other hand, women are generally oriented towards relaxation and a more peaceful way of spending their holidays, so they generally enjoy massages, swimming, walks....

Based on the obtained and considered results, it can be said that the 5th hypothesis is partially confirmed.

The Kruskal-Wallis test was used to determine potential differences in the respondents' scores regarding the preferences of different types of tourism depending on the level of education. It's results are shown below.

Table no. 6. Results of the Kruskal-Wallis test

	Adventure	Medical	Coastal (maritime)	Gastronomic (culinary)	Eco-tourism	Spa tourism	Mountain	Religious	Urban	Rural
χ^2	9.325	18.363	7.957	19.231	12.528	4.243	5.843	9.217	11.967	11.527
df	9	9	9	9	9	9	9	9	9	9
Sig.	.438	.000	.318	.000	.189	.754	.643	.449	.293	.256

Source: Author's calculations

The obtained results show that people with different levels of education choose different destinations only in the case of Medical ($X^2=18.363$, $p<0.01$) and Gastronomic (culinary) tourism ($X^2=19.231$, $p<0.01$) (Table 6)

For the better visibility of the results, only the mentioned differences in scores that were at a statistically significant level were shown and discussed.

Table no. 7. Differences in travel motives between people with different levels of education

Type of tourism	Educational level	N	MR
Medical	Primary school	7	265.89
	High school	118	283.85
	Higher school/vocational studies	51	296.63
	Faculty/master studies	69	302.74
	PhD	5	331.96
	<i>Total</i>	250	
Gastronomic (culinary)	Primary school	7	302.14
	High school	118	339.57
	Higher school/vocational studies	51	287.64
	Faculty/master studies	69	267.63
	PhD	5	272.52
	<i>Total</i>	250	

Source: Author's calculations

As for the differences in scores, when it comes to medical tourism, a certain trend has been registered that with the increase in the level of education, the need for people to travel for medical reasons increases linearly. Thus, medical tourism is mostly decided by people with a PhD degree (MR=331.96), while such travel motives are present to the smallest extent by people with the lowest level of education (MR=265.89) (Table 7).

Some of the possible explanations for these results lie in the fact that people with higher levels of education are more aware of their health (Čolović & Mitić, 2023a), that they take more care of their physical appearance (Čolović & Mitić, 2023b), and that they generally engage in more stressful and responsible jobs (Čolović, et al., 2022) and that is why they most often prefer medical tourism.

Interesting results were also obtained when it comes to Gastronomic (culinary) tourism too. It has been shown that people with the lowest levels of education (MR=302.14), despite generally having lower incomes, are still the most willing to allocate their funds to enjoy food and drink the mostly.

One of the possible reasons could be that they most likely do not have the necessary funds for other types of tourism and going to distant destinations, that is, other types of tourism for the most part are unavailable to them. On the other hand, people with a higher educational level prefer this type of tourism less, so it is least present in the preferences of people with Faculty/master studies (MR=267.63) and

PhD (MR=272.52) (Table 7). As mentioned, the last 6th hypothesis was also partially confirmed.

Conclusions

Based on all that has been said, we can conclude that Serbia really has something to offer both its own and foreign tourists, when it comes to the wealth of content, natural beauty, cultural, historical and religious treasures that it is rich with. But in spite of that, based on the results of numerous researches including this one, it can get the impression that all of this may not have been marketed, promoted and presented to tourists from Serbia, let alone those from abroad, in the right way or to a sufficient extent. In addition to mountain and spa tourism, which rebounds when it comes to the domestic offer and attendance by our tourists, other types of tourism are lagging behind, although in reality the opportunities for them in Serbia are not less, nor would they be of lower quality.

The lack of the sea, as a destination for which the largest number of people in our country, as well as in general in the world, decide is something that we cannot change. But certainly work can be done on the promotion and presentation of all other types of tourism, both to domestic and foreign tourists.

Women generally choose Spa tourism, while men prefer adventure tourism. When it comes to education, a certain trend has been registered that with an increase in the level of education, the awareness of the importance of preserving one's own health and the health of one's relatives also increases, so that people with each increase in the level of education prefer medical tourism to a greater extent. On the other hand, people with lower levels of education generally decide to Gastronomic (culinary) tourism.

Further research into this issue can provide more precise answers to who are the typical tourists that choose domestic destinations, what is their age, work, marital and financial status, what is their psychological profile, interests, basic motives and obstacles that guide them in choosing a destination for their travel.

Better knowledge of the target group towards which we direct promotional activities with adequate knowledge of all the resources and potential at our disposal, with nurturing and adequate care of all the beauties of our country, the hospitality of our people, delicious food, a handful of spas, health resorts, natural springs, rivers, canyons, gorges, caves, endemic species will provide a wide range of offers and activities.

Research and further studies on these topics should be conducted frequently, systematically and planned because they are in the interest of the prosperity of the

entire estate. This could be realized within the framework of various projects of our state and scientific institutions, which would have an identical goal. On the one hand, the sustainable development of the tourist offer, and on the other, as detailed knowledge as possible of the demographic, psychological and social characteristics of tourists. This will create a synergy between the supply and demand of our country when it comes to tourism, as an economic branch that is continuously developing and certainly brings great profits, if it is approached responsibly, with dedication and planning.

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KEY MEASURES AND SUCCESS FACTORS OF UNIVERSITY-ENTERPRISE COLLABORATIONS: UBL CELLS AS BOUNDARY SPANNERS¹

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Abstract:

The gap between knowledge creation and application is a widely discussed challenge in development-oriented studies. This issue leads to a "valley of death," where created knowledge fails to yield socio-economic benefits. Jackson (2011) describes this phenomenon. The key to bridging this gap lies in an industry-fit institutional setup in universities and a knowledge-friendly culture in industries. UECs ensure the effective utilization and commercialization of knowledge, serving academia and society. In response to global learning experiences, the World Bank and the Government of Sri Lanka supported the establishment of University Business Linkage (UBL) Cells. This study focuses on recent initiatives in Sri Lankan universities, exploring the experiences, critical measures, success factors, performance, challenges, and sustainability of UBL Cells. Document review, web content analysis, and in-depth interviews with key personnel were used to collect data for the study, and followed qualitative data analysis methods to make this critical inquiry.

Findings confirm that two measures -'Proactive Approach' and 'Collaborative Platform' have supported institutional, partnership, output, and framework factors for the success of UBL Cells. Meanwhile, the other four measures - 'Entrepreneur Skills to Drive Research Adoption,' 'Awareness about Product/ Business,' 'Education,' and 'Alumni formation' are yet to be aligned.

Keywords: *University-Enterprise Collaborations (UECs), University Business Linkage (UBL) Cells, knowledge and technology transfers, key measures, success factors*

JEL Classification: I23, L24, O32, M13, L26

1. Introduction

The contribution of universities and higher education institutions has played a crucial role in shaping policies related to economic development, education, science, technology, innovation, investment, and trade. The studies aimed to transform universities into more research-oriented entities with enhanced economic

and social contributions during and after the First World War. This transformation led to the developing Model systems within universities, focusing on knowledge production within laboratories. However, the early stages of Mode I systems indicated a gap between knowledge creation by universities and its application by enterprises, which was discussed through the 'Challenge Basin' or 'Death Valley' by Jackson (2011).

Various challenges associated with University and industrial sectors contribute to these broad challenge basins. Policymakers and researchers have sought to reduce this gap by promoting effective collaborative research, technology transfers, consultancy, training, advisory programs, shared facilities, incubators, and work-integrated learning. Drawing inspiration from the German education system in the late 19th century, the USA, particularly universities like Cornell University and MIT, developed University-Enterprise Collaborations (UECs) in the early 20th century, contributing to establish the Silicon Valley.

UECs spread globally, reaching countries like the United Kingdom, France, and Japan. During Post-World War II, these collaborations expanded as businesses recognized the importance of research and innovation for competitive advantage. Researchers like Galli & Tuebal (1997) and Etzkowitz & Laydsroff (2000) investigated UECs, leading to the establishment of University-Interface Units such as science parks, techno-centers, and incubators. Effective UECs provide a dynamic platform to address global challenges outlined in the Sustainable Development Goals (SDGs)- fostering sustainability through collaborative research, building human capacity, promoting social entrepreneurship, efficient resource utilization, social inclusiveness, and policy advocacy. These collaborations leverage academia and industry strengths to drive innovation and contribute to equitable and sustainable economic progress.

Inspired by the success stories of developed nations in establishing effective UECs, developing countries, including Sri Lanka, have actively aligned their policies to replicate these achievements. Sri Lanka has been a focal point for numerous studies on UECs, exploring various perspectives (Larsen, Bandara, Esham, & Unantenne, 2016; Wickramasinghe & Malik, 2018; Jayaisiri, Siriwardena, Hettiarachchi, Dissanayake, & Bandara, 2018; Randil, Jayasiri, Perera, Siriwardana, Liyanage, Hettiarachchi, & Haigh, 2018; Weerasinghe & Jayawardane, 2018; Ariyawansa, 2022; Tucker, et al., 2023). While these authors have identified some trends, the overall attention dedicated to UECs in Sri Lanka must be increased, signaling the need for substantial policy interventions to fortify and expand these collaborations (Aturupane, 2018). To address this gap, Circular

number 10/2016 was issued by the University Grant Commission (UGC) to establish University Business Linkage (UBL) Cells with the support of the government and World Bank. This proactive initiative by the UGC underscores a commitment to fostering innovation, economic growth, and sustainable development in Sri Lanka. By 2023, all universities established UBL Cells, yet challenges persist, prompting this study. The investigation aims to explore critical measures, success factors, the current status of UECs in Sri Lankan universities, and the establishment of UBL Cells. Findings will inform strategic and policy implications for sustainable UBL Cell growth in state-sector higher education institutions, enhancing collaboration between academia and industry.

2. Methodology

This qualitative exploration delves into the nature of UECs, specifically focusing on the roles, performance, enablers, challenges, and future sustainability of UBL Cells within Sri Lankan universities. The conceptual framework for understanding UECs and related concerns, including University Enterprise Units, was established through a comprehensive review of theoretical models and relevant literature. Both primary sources, such as policy documents and circulars, and secondary sources, including academic articles, case studies, and expert opinions, informed the study design and provided empirical evidence. A systematic literature review, employing search strategies in research databases, was conducted to identify prior studies related to UECs in Sri Lanka. Combinations of search terms, such as University, Enterprise/Industry, Collaborations, and Sri Lanka were used to secure 21 relevant research papers. The quality of the literature was assessed based on citation levels and journal indexing.

Web content analysis of UBL cell websites in Sri Lankan universities was undertaken to understand performance, roles, and engagement levels in UECs. Semi-structured interviews were conducted with 13 experts, including university leaders, directors, and managers of UBL Cells, to collect relevant data and validate the web content. Data matrices were created to synthesize information and concepts, employing constant comparison and qualitative content analysis methods to ensure validity and reliability. A concept-centric approach was utilized to synthesize respondent opinions until data saturation was achieved. The study authors engaged in an iterative review process to interpret findings from document analysis and interviews, ensuring a comprehensive understanding of UBL Cells' roles, functions, challenges, and sustainability across Sri Lankan universities while maintaining the study's validity.

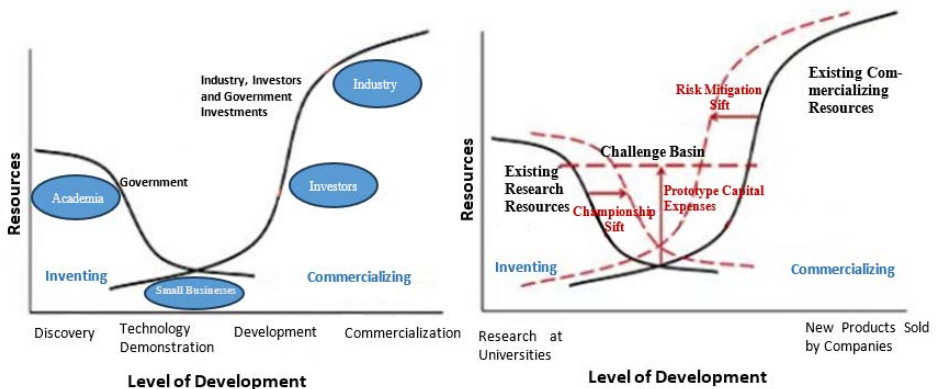
3. Literature Review

3.1 UECs

While the primary focus of this study revolves around University-Enterprise Collaborations (UECs), the investigation also delves into studies related to University-Industry Collaborations (UICs). Both terminologies have been interchangeably used in the research domain without a significant gap in meaning. Al-Tabbaa & Ankrah (2016) conducted a systematic review, analyzing 109 research papers from 1500 publications. Their findings identified that universities and industries, despite differing goals (social well-being for universities and profit for industries), collaborate by balancing goal conflicts. Establishing and sustaining such collaborations pose challenges due to the divergent objectives of these entities.

Effective UECs enable academia to engage in timely, problem-based projects. These collaborations attract external funds, allowing academic institutions to meet performance expectations while contributing valuable knowledge and skills to address real-life problems (Larsen et al., 2016). Researchers in the field have expressed significant concern about the need for more, or slow, commercialization of knowledge and new technologies developed within the University. This challenge of inefficient knowledge transformation from creators to users is vividly depicted in the 'Valley of Death and Challenge Basin,' as illustrated in Figure 1.

Figure 1: Valley of Death and Challenge Basin



Source: Jackson, 2011

The university sector needs help to effectively translate its created knowledge into actionable ideas, resulting in the loss of valuable concepts. Simultaneously, the industrial sector needs more novel knowledge to enhance business performance. Figure 1 illustrates the knowledge transition gap between the university sector and industry, emphasizing the challenges Jackson (2011) addressed in bridging this divide. Figure B suggests that effective University-Enterprise Collaborations (UECs) can narrow the breadth of the challenge basin, urging both parties to reduce the distance and mitigate traditional challenges proactively.

Galli & Tubal (1997) introduce Mode 2 systems, proposing the System 2 (S2) configuration for effective UECs. They advocate for more independent University Interface Units (UIUs) to shift from the University's traditional internal focus and promote UECs. UIUs are pivotal in expanding university boundaries by providing research outcomes, technology, and industry-specific training. The Triple Helix Model by Etzkowitz & Laydsroff (2000) emphasizes the collaborative roles of universities, industries, and the government to reduce the challenge basin's breadth and translate research outcomes into commercial success. To address the societal involvement gap in the Triple Helix Model, the Quadrupole Helix Model broadens the University's role beyond UECs by engaging with businesses, organizations, citizens, and the entire society (Boelman, Kwan, Lauritzen, Millard & Schon., 2014; Hasche Höglund, & Linton., 2020).

For industry, pressures have included rapid technological change, shorter product life cycles, and intense global competition that have radically transformed the current competitive environment for most firms (Al-Tabbaa & Ankrah, 2016). Steenkamp & Rigard (2019) have mentioned that the effectiveness of UECs is represented by the active university-enterprise linkage units such as innovation centers, incubators, and technology transfer offices and labeling them as entrepreneurial universities, explains universities' role, which is more socially oriented.

Attention to UECs initially emerged in developed countries in the late 20th century before extending to developing nations. Developing countries, particularly newly industrialized ones like Japan, South Korea, and Singapore, initiated UECs earlier, focusing on building capabilities. However, limitations persist in developing countries due to weak research and development capacities. After that, much conceptual and empirical research has been published on the UECs in developing countries, including India, China, Malaysia (Ariyawansa, 2022), and other African countries.

3.2 Progressive UECs in Sri Lanka

In Sri Lanka, academics adapt to entrepreneurial roles, particularly in activities related to University-Enterprise Collaborations (UECs), as a strategic approach to thrive in a resource-constrained environment. Despite facing challenges such as resource scarcity, Sri Lankan universities are increasingly contributing to economic development through education programs, knowledge dissemination, sustainable innovation development, and advocacy for the country's value creation process (De Silva, Uyarra, & Oakey, 2012).

UECs serve as a crucial means to deliver the best outcomes for universities and industries by bridging theory and practice. They can be viewed as a subcategory of collaborations, where various stakeholders combine their assets, shared interests, and skills for the community's benefit (Randil et al., 2018). According to Larsen et al. (2016), promoting research, innovation, and technology development is strategically essential to enhance the productivity and competitiveness of Sri Lanka's economy across agriculture, manufacturing, and services. UECs play a vital role in increasing the relevance of research and development investments and fostering labor mobility between the public and private sectors.

Challenges, however, arise due to the need for support procedures and a comprehensive university policy to promote academic entrepreneurship in Sri Lanka (Wickramasinghe & Malik, 2018; Larsen et al., 2016). Government-driven mechanisms have been sequentially implemented to address this issue. The first step, initiated in 2005, allowed senior academics to work in enterprises officially, as announced by the UGC. In 2014, the government introduced a triple tax deduction for enterprises collaborating with universities on research. Subsequently, formal units committed to UECs were established in universities like the Open University of Sri Lanka, the University of Kelaniya, and the University of Colombo. The third step, introduced in 2015 by the UGC, granted funding for university enterprise collaborations within various areas, including innovations and research, postdoctoral research, and training programs for academic staff.

Despite these initiatives, weak networking relationships and limited UECs were observed in Sri Lankan state universities (Weerasinghe & Jayawardane, 2018). Existing UECs often focus on finding training placements and employment opportunities for students, with limited collaborations for research and innovation. Ariyawansa (2022) highlights barriers such as limited state sector funding and weak financial contributions from the industrial sector. Factors affecting the effectiveness of UECs in Sri Lanka include University- and industry-related aspects.

Larsen et al. (2016) emphasize the need for critical policies formulated and implemented by the government, corporations, and universities to promote and strengthen UECs. They suggest three central policy mechanisms: allocating funds to universities and enterprises, regulatory systems outlining administrative rules, and establishing intermediate organizations such as science and technology parks, business incubators, and technology transfer offices. Initial efforts to coordinate UECs have been undertaken by individual academics, research teams, department heads, and deans.

3.3 Collaborative Platforms

Different authors have proposed various mechanisms and collaborative platforms to address the gap between the university and industrial sectors. One approach is the System 2 configuration introduced by Galli & Tubal (1997), which advocates for establishing University Interface Units (UIUs) within universities. These internal subunits, dominated by academia, offer flexibility and independence to operate closely with external parties, facilitating effective UECs. Larsen et al. (2016) also stress the importance of establishing intermediary units in policy initiatives to strengthen UECs in Sri Lanka.

Alternatively, Thune (2007) and Calder (2007) introduce the concept of 'Boundary Spanners' or 'Agents' to facilitate collaboration between universities and industries. These key players, such as Technology Transfer Officers and Innovation Managers, operate in entities like Techno-Centers, University-Enterprise Cells, and Incubators. Boundary Spanners play a crucial role in overcoming traditional barriers associated with academic dominance, fostering collaboration and knowledge transfer between the two sectors.

Collaborative platforms' success depends on factors related to universities and industries, as revealed in a study conducted in the USA. Social connectedness, technology transfer, intellectual property policies, trust, technological relatedness, and technological capability are identified as the main enablers for effective university-led collaborative platforms (Santoro & Bierly, 2006). Negotiations on intellectual property (IP) are crucial, and establishing a solid framework with clear IP policies and contracts is recommended to overcome barriers related to IP rights (Awasthy, Flint, Sankarnarayana & Jones, 2020).

Leadership commitment, a long-term vision, and allocation of sufficient resources are essential for building collaborative platforms and strengthening UECs (Rybnicek & Königsgruber, 2019). Financial resources are particularly crucial in the initial stages for acquiring or developing infrastructure essential for

UEC effectiveness. Social capital resources, associated with humane features like trust and mutual understanding, are critical for effective UECs (De Wit-de Vries, Dolfsma, van der Windt & Gerkema, 2019). The visibility of research and technology outputs should be enhanced through collaborative platforms, utilizing digital and online tools for effective communication and idea-sharing.

Cultural and organizational differences between universities and enterprises challenge effective collaborations, necessitating a positive attitude, mutual respect, and commitment from all partners (Dryden & Erzurumlu, 1996; Prigge, 2005). Strategic alliances require careful nurturing over time, and a win-win scenario can be achieved by selecting appropriate partners based on their compatibility with the collaboration's goals (Bloedon & Stokes, 1994; Barnes, Pashby & Gibbons, 2002). Different types of linkages should be maintained to match the requirements of potential partners, ensuring a diverse range of effective collaborations (Bloedon & Stokes, 1994).

Rybnicek & Königgruber (2019) has categorized the main concerns into four success factors of effective UECs: Institutional, Relationship, Output, and Framework. Although the four-dimensional classification helps recognize the critical concerns of developing effective UECs, the practical guidelines for initiating such collaborative platforms are missing. The collaborative framework suggested by Awasthy et al. (2020) has supported the development of practical guidelines with six measures. These six measures can be matched with four success factors suggested by Rybnicek & Königgruber (2019) as in Table 2 to identify the effectiveness of the initiatives of spanning the boundary by narrowing down the wideness of the challenge basin (Figure 1).

Table 2: Metrix of Assessing the Success of UECs

Measures of Effective UECs (Awasthy et al., 2020)	Success Factors of UECs (Rybnicek & Königgruber, 2019)			
	Institutional	Relationship	Output	Framework
1. Proactive Role of Universities	Resources, structure, willingness to change, processes,	Communication, commitment, trust, culture, partner selection, image,	Objectives, knowledge transfer, and technology transfer	Environment, intellectual property rights, contracts,
2. Collaborative Platform				

3. Entrepreneur Skills to Drive Research Adoption	and controls Rybnicek & Königsgruber (2019) Dryden and Erzurumlu, (1996)	expectations, experience, the role of leadership, team expertise, and conflicts	Rybnicek & Königsgruber (2019) Bloedon and Stokes (1994)	geographical distance Rybnicek & Königsgruber (2019)
4. Awareness of Product/Business	(de Wit-de Vries et al., 2019)	Rybnicek & Königsgruber (2019)		Santoro and Bierly (2006)
5. Education		Ehrismann and Patel (2015)		Rohrbeck & Arnold (2009)
6. Improve Alumni Association				

Source: Compiled by the authors

Overlapping among the collaborative framework and success factors of UECs is inevitable as these explanations are non-quantifiable behavioral judgments on the same social concept, the UECs. However, it can be concluded that the strength of the ‘Boundary Spanners’ is increased by the application of practical guidelines presented by the collaborative framework of Awasthy et al. (2020), and meanwhile, performance effectiveness and the speed of mobility are determined by the four success factors - institutional, relationship, output and framework factors introduced by Rybnicek & Königsgruber (2019).

4. University Business Linkage (UBL) Cells in Sri Lankan Universities

Under pressure from various stakeholders, the government and authorities in Sri Lanka have recognized the invaluable benefits of University-Enterprise Collaborations (UECs) for effective knowledge utilization in economic development. Emphasizing the significance of UECs, the University Grants Commission (UGC) took initiatives in collaboration with the 'Accelerating Higher Education Expansion and Development (AHEAD)' project, supported by the World Bank and the Government of Sri Lanka. The third result area of the AHEAD project, titled 'Promoting Research, Development, Innovation and Commercialization,' underscores the importance of establishing University Business Linkage (UBL) Cells or similar entities in all universities and higher

education institutions in Sri Lanka. These cells are envisioned as 'Boundary Spanners,' crucial in bridging the gap between academia and industry.

Six focal areas of UECs were identified as the functions of the UBL Cells:

- Developing practice and business-oriented student projects.
- Organizing training and coaching activities for businesses.
- Implementing (technical) consulting services for businesses.
- Implementing an IP policy at the university level.
- Promoting the creation of university spin-offs.
- Encouraging research cooperation between businesses and the University.

To ensure the successful implementation of UBL Cells within the university system, Commission Circular No. 10/2016 provided three specific directions for their initial operations:

1. Working closely with faculties and academic departments to develop 'industry linkages' with private and state-owned businesses and their representative organizations.
2. Initiating or facilitating projects identified as focal areas for UECs.
3. Conducting and promoting seminars, conferences, workshops, exhibitions, etc., to create awareness and foster the development of University Business Linkages.

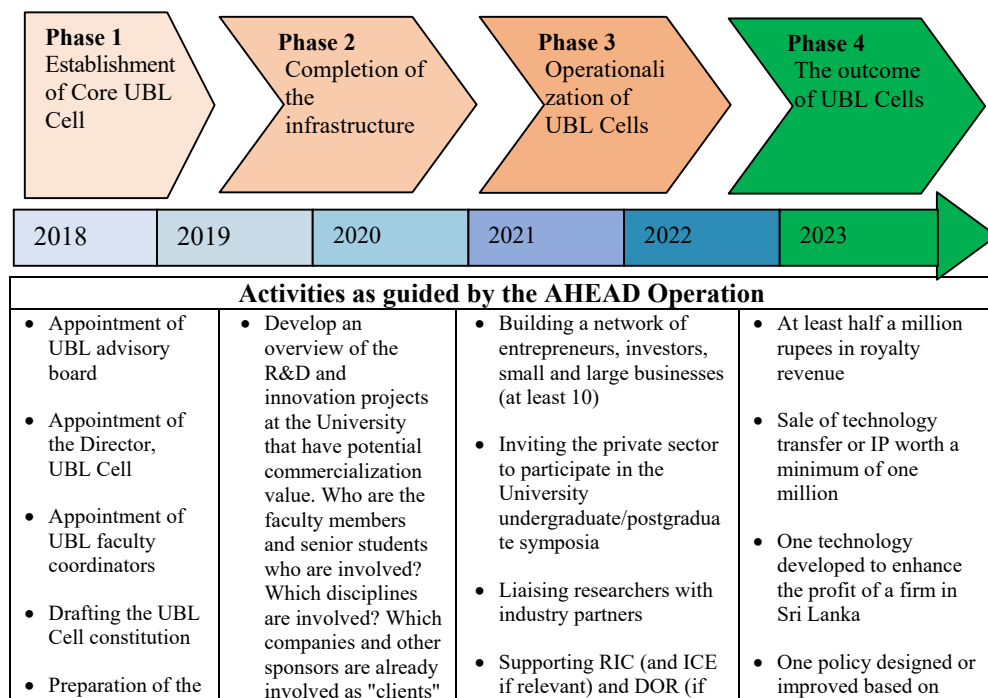
The guidelines for establishing UBL Cells include forming an advisory board chaired by the Vice-Chancellor, with representatives from various stakeholders. The board reports to the university council and the UGC standing committee. The circular recommends appointing a director for UBL internally (Senior Lecturer or above position), with roles and responsibilities outlined in the guidelines. An operational committee of UBL coordinators from each faculty supports the director in implementing UBL Cell initiatives. Although not explicitly mentioned in the circular, the practice involves appointing a capable person as the UBL Cell manager and other staff assistants on a contract basis. The UGC has established a UBL Steering Committee to advise and guide UBL Cells at the university level.

The establishment of UBL Cells is guided and funded by the AHEAD project, with financial support provided in four phases (Rs. 15 million per University). The respective universities are responsible for providing physical resources, such as office space, meeting rooms, furniture, computers, and transportation means. Financial resources for operational expenses, including telephone, electricity, stationery, water, and payment for visiting staff or resource persons, training programs, workshops, and events, are also the universities' responsibility. Monitoring and evaluation guidelines are provided, with the UBL Advisory Board

monitoring progress every three months and reporting to the university council. Universities must report progress to the UGC every six months based on key performance indicators. The circular suggests establishing a scheme for distributing income from consultancy services or contract research in line with Commission Circular No.04/2016.

Operationalization of the UBL Cells is guided by the AHEAD Operations office, which developed a Scorecard for the Development of University Business Linkage Cells at State Universities in Sri Lanka. The Scorecard identifies four phases of the UBL operationalization process and outlines critical activities under each phase (Figure 2). Performance in each phase determines the release of Rs. 15 million grants in four installments. In response to challenges posed by COVID-19 and economic crises, UBL Cells were offered an additional Rs. 5 million to alleviate the impact. Flexibility in determining timeframes for each University, within the constraints of the AHEAD Project's completion time, has been provided.

Figure 2: Four stages model for initiating UBL Cells





<p>action plan for UBL activities at the Faculty level</p> <ul style="list-style-type: none"> • Identification of monitoring and evaluation system for UBL activities • Preparation of UBL Cell benefit sharing plan • Adopting the Intellectual Property policy with suitable changes (Council approval date) • Finalizing the Invention Disclosure form (IDF) • Finalizing a template for a Non-Disclosure Agreement (NDA) • Finalizing template for license agreement • Finalizing template for Material Transfer Agreement (MTA) • Identification of a procedure to enable faster and more flexible procurement processes • Identification of a procedure to enable faster and more flexible 	<p>in these projects?</p> <ul style="list-style-type: none"> • Identification of UBL cell physical resources • Preparation of a procurement and expenditure plan • (PEP) for purchase of physical resources from • AHEAD • Completion of the procurement • Establishment of a Technology Innovation Support Centre (TISC) • Availability of permanent office space for UBL Cell (including TISC) • Availability of furniture for UBL Cell • Availability of office equipment for UBL Cell • Availability of internet and telephone facilities for UBL Cell • Availability of support staff for UBL Cell 	<p>if relevant) and DOR (if</p> <ul style="list-style-type: none"> • the potential is found) grants winners in commercialization endeavors • Supporting other (non-AHEAD) grant winners in commercialization endeavors • Number of MOUs or Number of collaborative research agreements • Number of Invention disclosure forms submitted • Number of assignments completed • Number of license agreements • Number of assignments under implementation 	<p>research conducted by STEM, HEMS, or the combination of STEM and HEMS research</p> <ul style="list-style-type: none"> • One industry process/logistics improved through research conducted by STEM, HEMS, or the combination of STEM and HEMS • One company investing to commercialize a technology developed by STEM, HEMS, or the combination of STEM and HEMS • One foreign direct investment to commercialize a technology developed by STEM, HEMS, or the combination of STEM and HEMS • One Business Process Outsourcing solution developed via research • One e-commerce solution • One PCT (Patent Corporation Treaty) submitted by • STEM, HEMS, or the combination of STEM and HEMS • One international trademark developed by STEM, HEMS, or the combination of STEM and HEMS • One startup company based on a technology
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financial processes			<p>developed by STEM, HEMS, or the combination of STEM and HEMS</p> <ul style="list-style-type: none"> • Creation of employment opportunities (at least two) by a startup company • Any other proposed activity based on the work conducted in Phase 3 will be agreed upon with the MHEH through the OMST and with no objection from the World Bank
Funds allocation			
Rs. 4 million	Rs. 2 million	Rs. 4 million	Rs 5 million +5 Million for Some UBL Cells

Source: Author compiled based on AHEAD Project Office (2018)

While the AHEAD Project was initially scheduled to conclude in June 2023, unforeseen challenges posed by the pandemic and crises in Sri Lanka have led to its extension until December 2023. This extension reflects the need for flexibility in project timelines to navigate the evolving circumstances.

The emphasis on sustainability has become increasingly important. The collaborative efforts of the government, universities, and external stakeholders will play a pivotal role in securing the future success and impact of UBL Cells beyond the project duration.

5. Results

The University Grants Commission (UGC) initiated a transformative project in 2018, aiming to establish University Business Linkage (UBL) Cells within 15 state universities. This undertaking received crucial support through funding from the Accelerating Higher Education Expansion and Development (AHEAD) project. In 2022, two additional state universities joined this initiative following their formal

establishment. The allocation of AHEAD project grants to universities was contingent on individual project proposals. AHEAD Operations presented a unified framework to guide fund distribution for the project's third result area. This focus aimed to foster research, development, innovation, and commercialization within the university landscape.

The impetus behind state universities engaging in establishing UBL Cells was primarily driven by the financial incentives provided through AHEAD grants. In the empirical phase of this study, a comprehensive investigation unfolded to assess the effectiveness of implementing UBL Cells in state universities. The research delved into understanding universities' role in setting up these units, evaluating their performance, and identifying constraints affecting their operational efficacy and long-term sustainability. The investigative approach included document and web content analyses, complemented by insightful interviews.

Out of the 17 listed UBL Cells on the AHEAD Operations website (<https://ahead.lk/ubl-cell-web-links/>), 15 UBL Cells have functional web addresses, while the newly established universities are in the early phases of performance. The web content analysis revealed comprehensive insights into the establishment, operations, and performance of UBL Cells, detailed in Appendix 1.

The study unveiled that the 15 universities engaged in the project since 2018 completed all four phases by 2023, with the newly established universities still navigating the initial stages. The UGC conducted performance evaluations for 15 UBL Cells, confirming the achievement of all Key Performance Indicators (KPIs) across four phases, aligning with the 'Scorecard for the Development of University Business Linkage Cells at State Universities in Sri Lanka.' These proven performances resulted in the release of total funds across four stages, with an additional Rs. 5 million granted to universities for further development.

The study findings were organized based on a matrix that merged six measures of University-Enterprise Collaborations (UECs) by Awasthy et al. (2020) and four success factors of UECs by Rybnicek & Königgruber (2019). Table 3 provides a detailed discussion of the study's outcomes within this framework.

Table 3: Findings on Key Measures and Success Factors of Establishment of the UBL Cells

1. Proactive Role of Universities	
Institutional	<p>The national-level panel of experts conceptualized UBL Cells, and implementation responsibility was transferred to them with funding and advisory support from the AHEAD project and the UGC. Hence, this is aligned with the national-level vision and has derived a common strategy and structure for all the universities. More robust guidance and support from the top-level leadership strongly support the stable foundation and sustainability of the UBL Cells. The importance of such a top-down approach was justified by the opinion of the following two statements of the experts interviewed.</p> <p><i>"I initiated the same establishment to connect the University with enterprises in early 2000 in our University based on my experience in foreign universities and connections developed in the business community. It was doing well with the funding support from one international project. However, it collapsed due to a non-supportive environment, and even I had to answer some audit quarries after a few years due to the failure." Respondent 1</i></p> <p><i>"We developed a budget proposal in 2016 and even obtained the initial approval from the National Planning Department to establish a business incubator. However, it was tough to implement the idea as it was a bottom-up approach for making a structural change." Respondent 2</i></p> <p>Hence, this top-down approach is more appropriate and quicker to make strategic and structural changes than the bottom-up approach. However, one of the challenges is that some universities with less strategic orientation on UECs still need to adapt and adjust to the new strategic initiative in the University's strategic direction. It has created a dilemma on the sustainability of UBL Cells.</p>
Relationship	<p>Many universities in Sri Lanka have already adopted the expansion of the traditional role of universities (De Silva et al., 2012), and the transition has already happened in universities inculcating entrepreneurship culture, introducing entrepreneurship curriculum, setting up technological and business incubators, and introducing internship as part of the curriculum (Tucker, et al., 2023). This coincidence was justified by one of the respondents as follows.</p> <p><i>"We have introduced entrepreneurship education as a major into the curriculum from 2010. Further, we recognized the importance of allocating unlimited funds for the research and development activities of the staff members. We included this as the main goal</i></p>



of the University's corporate plan in 2009. We created a conducive environment for establishing a Research Council 2014 at the university level as our main arm to generate new knowledge and technologies. Then, we identified the importance of setting up a mechanism for knowledge and technology transfers and promoting business startups. We established an apex body named Invention Innovation Venture Creation Council to work as our university-enterprise interface." Respondent 3

The above statement showed clear evidence of the preparedness of some universities to collaborate with the industry. However, it took much work for some newly built and more Social Sciences and humanities-oriented universities.

"We had never thought of commercialization until the recent introduction of the UBL Cells concept. We were worrying about transferring our tacit skills to students, and earning and business were not part of our academic life." Respondent 4

This statement reflects how it was a complex process to adapt to the new orientation through this forceful process, and such universities still need help to adapt to the functions of the UBL Cells.

Output

Many universities have understood the importance of UECs and had a competition among universities to secure high university rankings; they have understood the different dimensions of ranking systems, the importance of research and development, and the commercialization of outcomes with industry partnerships. Furthermore, universities focused on entrepreneurial culture and the employability of the graduates.

"Since 2010, we have well-prepared corporate plans for every five years, and we annually work on rolling our plans to adjust to new challenges. One of our main concerns was adjusting to the university ranking and quality assurance dimensions with a long-term orientation. Hence, our key results were research and development, invention and innovation, business startups, patents, technology transfers, and collaborative research projects. We have developed KPIs for all these areas from the year 2010." Respondent 3

"One of our first successful commercialized products was introduced in 2016, and it is still generating income for the University. Hence, we were in the outcome-oriented process for a long time." Respondent 5

According to the statement, it is justified that many universities in Sri Lanka have played a proactive role in generating UEC-led outcomes.

Framework

Some well-established universities with strong STEM education



backgrounds have created UIUs such as techno-centers, science centers, business linkage centers, and incubators. However, all these UIUs were based mainly on individual initiatives based on their personal experiences earned through their studies abroad or engagements in collaborative research projects. Hence, the expansion and sustainability of such initiatives were vulnerable. This vulnerability is justified by the above-quoted statement of Respondent 1.

This missing strategic orientation on structuring UECs in Sri Lanka was emphasized by Larsen et al. (2016), who suggested the implementation of planned UIUs through policy initiatives. Hence, the suggested common framework for establishing UBL Cells is a timely, crucial strategic initiative to strengthening UECs.

2. Collaborative Platform

Institutional

Introduced UBL Cells work as the collaborative platforms established in the Sri Lankan university system. Leadership, human resources, structure, functions, and operating procedures are clearly defined and communicated through the 'Scorecard for the Development of University Business Linkage Cells at State Universities in Sri Lanka' developed by AHEAD operations as in Figure 2. Phase I of the project initiative was dedicated to appointing an advisory board with the leadership of the Vice Chancellor while including critical leaders of the University as well as industry representatives, appointing the director and management team, and developing a constitution, operational guidelines, monitoring, and evaluation system for UBL Cells.

“It was a great conviviality to establish the UBL Cells due to the clear guidance provided by the AHEAD Operations. We wanted to appoint a capable person as a Director of the UBL Cell. Then we guided him to carry out the operations with AHEAD operations and the UGC to establish UBL Cell.” Respondent 6

However, the appointment of UBL directors was sometimes challenged as some UBL directors were more academic and research-oriented than building partnerships and facilitating the commercialization process. Their commitment was also questioned;

“I think the UBL Director should be more external oriented, and he/she should possess entrepreneurial oriented rather than academic oriented. He is good at doing research projects but not good at partnering with external industry partners. The director solely depends on the UBL Manager for operations of UBL Cell and even missing in many advisory board meetings.” Respondent 7

Recruitment of a talented and entrepreneurial person as the director will



help to span the boundaries of UBL Cells. Hence, recognizing the capable and self-motivated outward person as the director and developing the capabilities over time will ensure the effectiveness and sustainability of UBL Cells.

Phase II of the project has guided and facilitated the strengthening of the UBL Cells with the physical infrastructure needed for effective UECs. Recruiting a UBL Manager was also included in Phase II of the project. Project managers were guided to identify resource needs and take actions to acquire those basic needs, such as furniture, office equipment, and communication facilities, as required for basic operations of the UBL Cell by utilizing funds released for Phase I and II of the project.

Although smooth operations were ensured during the project period till December 2023, there is significant doubt about the operations of UBL Cells after the AHEAD project closed.

"We are in a dilemma about UBL's operations after December 2023. Ahead will not continue funding for the UBL managers' posts. We worked for more than four years on a contract basis as UBL managers. The government has allocated only five cadre positions to the 17 UBL Cells established. Even the new post is named 'UBL officer.' I do not know how many experienced existing personnel will be retained under these conditions. Respondent 8

Even the appointment of the director for three years and the manager on a contract basis is also considered a challenge.

"They get all the training and experiences through the project funding period and learn the posts by making the investment in capability useless. Newly appointed people should start it from the beginning." Respondent 7

These human resource-related issues will create significant disturbances to the UBL operations soon. Hence, individual universities, as well as collectively as a cluster with the coordination of the UGC, are responsible for ensuring the sustainability of the UBL Cells to facilitate instructional factors after winding the AHEAD Project.

Relationship

The Scorecard (Phase 1) has identified key policies, strategies, and guidelines to develop a conducive culture and build trust among partners for UECs. Accordingly, developing a benefit-sharing plan, adopting an IP policy, preparing an invention disclosure form, and creating templates for non-disclosure agreements and templates for licensing agreements are the tasks to be completed. All these tasks were completed successfully by the 15 universities during 2018 and 2019.

Many universities did not have an IP policy before and formulated the policy as a project activity by sharing experiences. The opportunity for experience sharing was one of the most significant advantages of establishing UBL Cells as a national project. New universities with weak UECs could learn from the experiences of more established, industry-oriented universities.

Phase II of the AHEAD project has guided the strengthening of UBL Cells' relationship platforms by developing an overview of the R&D and innovation projects at the University and identifying ideas or products with potential commercialization value. Recognizing the faculty members and students involved in R&D, inventions, and technology developments with commercial values in different disciplines are encouraged to pool the internal resource persons while recognizing and approaching the companies and other sponsors already involved and potential to partner as "clients" in these projects. However, many universities experienced grievances related to this relationship-building function in the early stages.

“I had to wait an unreasonable duration while trying to get the service of the UBL Cell. It was their primary duty then, and after several inquiries, UBL staff stopped responding to me. I had to report my quarry to the Advisory board for a solution.”
Respondent 9

It is a general occurrence in the initial stages of the projects, such as complaints related to delays, non-responsiveness, and other bottlenecks. However, it can cause the loss of capable resource personnel who are the key to producing the knowledge and technologies transferable to industry. Hence, a focus on protecting such key resource persons is significant irrespective of the limitations faced by the UBL Cells—better operational guidelines and operational procedures should be established to minimize such complaints and errors.

Output Output indicators of the UBL Cells are mentioned in the Scorecard (Figure 2) of Project Phase III and IV. Accordingly, building a network of entrepreneurs, inviting the private sector to participate at the University undergraduate and postgraduate symposia, liaising researchers with industry partners, Supporting Research centers and grants winners as well as non-grant winners in commercialization endeavors, signing MOUs or collaborative research agreements, submitting Invention disclosure forms, completing projects and assignments are the result areas of Phase III. Some specific indicators are also mentioned for the evaluation purposes of the AHEAD Project. Royalty revenue earned, sale of technology transfer or IP, technology

developed to enhance the profit of firms in Sri Lanka, policy designed or improved based on research conducted by STEM, industry process/logistics improved through research conducted, companies investing to commercialize a technology developed, foreign direct investment to commercialize a technology developed, BPO solutions developed via research, e-commerce solutions, PCT (Patent Corporation Treaty) submitted, international trademarks developed, startup companies based on a technology developed, and employment opportunities by startup companies are the critical performance areas indicated by the Scorecard. The minimum requirement performance indicators are mentioned in the same Scorecard as in Figure 2. According to the project detail, 15 UBL Cells have completed all four phases. Hence, they should meet the performance standard as in the Scorecard.

Framework

The developed framework with the title of the UBL Cell seems a well-designed framework for encouraging effective UECs. Functions, activities, and performance indicators match with creating a conducive environment for sharing IP-based knowledge and technology transfers.

"We developed the IP policy for the University and supported filing patents locally and internationally. We spend money and our time to make inventors convenient in this process. We relate to the National Intellectual Property Office and get their support for educating on Ips. Furthermore, we try to reduce bottlenecks in the IP registering process. The University's IP policy is desirable and motivates inventors to engage in more marketable innovations". Respondent 10

All the universities have developed IP-related policies while attempting to conduct awareness sessions for training and educating the academic staff members and students. In addition to supporting services and funding for IP-related activities, benefit-sharing schemes have been developed to encourage academic staff members. The performance achieved through these initiatives is summarized in Appendix 1.

3. Entrepreneur Skills to Drive Research Adoption

Institutional

The institutional setup for entrepreneurial skill development through UBL Cells still needs to be stronger in the universities. The UBL Cells focus more on collaborative activities in the initial stages by strengthening internal research and deployment activities.

"We wanted to initiate our activities by transferring what we have developed and what we are developing yet. Hence, we could not get chances to conduct educational or awareness sessions to

develop entrepreneurial skills to adopt research outcomes. Instead, we approached potential entrepreneurs individually and started communicating to encourage them for collaborative projects.” Respondent 11

However, several activities related to industry engagements created opportunities for aware entrepreneurs, as presented in Appendices 1 and 2. Many activities conducted in collaboration caused skills transfer instead of engagement in direct skill development.

Relationship Focused activities on relationship building for technology transfer might help to improve entrepreneurship skills in adopting research-based outcomes in future business activities.

“Our relationships developed through technology transfers and industry meetings will help to engage in entrepreneurial skill development activities in the future. At present, we are limited to essential activities.” Respondent 11

Output Such outputs still need to be visible. The programs suggested in the Scorecard can be considered as skill development outcomes.

“It needs time to see the result. Through our programs, we have created some awareness. However, our capacity is also limited. We had to focus on establishing UBL Cells, which was new to us.” Respondent 11

Conducted related activities are summarized in Appendix 1. Some universities already connect with multiple industrial partners and maintain long-term relationships according to the available information.

Framework It is understood that existing policy and the framework do not directly imply the need for demand-driven knowledge and technology developments. The developed framework follows the Push approach.

“We are considering developing IP policy and procedures for technology transfers as given directions instead of promoting entrepreneurial skills in this stage. Some minimum requirements in the Scorecard were addressed within our limited capacity.” Respondent 8

4. Awareness of Product/ Business

Institutional It provides sufficient guidance with the institutional framework. One of the main functions is making awareness of products and businesses. Facilities and funding were allocated for launching products, meetings, workshops, and visits.

“The product and business awareness were institutionalized. We are directed that resources be provided. It was very convenient to us.” Responded 11

Relationship	Still, relationship-building activities are general. However, those activities will help to create product and business awareness while engaging in general activities.
Output	<p>There needs to be more evidence on arranging industrial visits and industrial training, although such directions are included in the Scorecard.</p> <p><i>“We need to report the progress in multiple areas. We tried to adhere to the KPI introduced by Scorecard as it was connected to our continuation of disbursing funds. However, the performances are subjected to our limited capacities,” Responded 12</i></p> <p>Awareness building on products and business-related outcomes are summarized in Appendix 1.</p>
Framework	The existing policy framework is more oriented to IP awareness and training. There should be policy guidelines for engagement in industry training for staff and students to engage in industry-based research and technology development activities.
5. Education	
Institutional	<p>Education related to IP and commercialization is included in the constitution of the UBL Cells. Student and staff education is more focused than education for industry and the public.</p> <p><i>“We do not have a clear mandate for formal education programs. Education is the responsibility of the relevant Faculties. We can facilitate workshops, training, and awareness sessions by connecting different resource persons within our boundary.” Respondent 12</i></p> <p>However, it was evident that some facilities and networks developed can provide education services to researchers, inventors, students, entrepreneurs, and other interested parties with the support of internal resource persons in multiple disciplines.</p>
Relationship	Still, relationship-building activities are general. However, those activities will help to create product and business awareness while engaging in general activities. It is observed that UBL Cells have conducted some limited training programs and awareness sessions by connecting with experts and entrepreneurs.
Output	Limited educational-related outcomes can be observed, as indicated in Appendix 1 and 2.
Framework	Due to the present policy framework focusing on IP protection and technology transfers, education only covers these aspects. It covers the role of education indirectly.

6. Improve Alumni Association

<p>Institutional</p>	<p>This is a new area of concern while studying the UBL Cells operations in Sri Lankan Universities.</p> <p><i>“Students and Alumni are more connected with our universities’ faculties and study programs. Further, their academic workload is too much, and there is no one academic year plan for all the faculties. It makes it difficult to engage with students as we expected. We just tried to meet the minimum requirements.”</i></p> <p><i>Respondent 13</i></p> <p>University-level alum creation and activation can be observed in recent times. However, the institutional platform needed more robust to support UECs through such alum associations.</p>
<p>Relationship</p>	<p>Participation of the alums is also not included in the guidelines and the Scorecard. Hence, it was ignored in the present relationship-building platforms. However, university alums work more closely with the industrial sector, and some alum members are in strategic positions in many organizations. They work as change agents to develop trust and mutual understanding between the two sectors. Hence, alums can be a more practicable and effective strategy for building long-lasting relationships.</p>
<p>Output</p>	<p>There are no Alumni-related outcomes observed. Only existing students’ ventures are promoted in the Scorecard. Respondents agreed that engaging with alums is possible and the most viable option. However, KPIs needed to guide them more to engage in such activities.</p>
<p>Framework</p>	<p>The existing framework does not have provisions for alum participation and encouragement.</p>

Source: Authors developed

The participants in our interview displayed a high level of enthusiasm, willingly sharing valuable insights into the challenges and future sustainability of the University Business Linkage (UBL) Cells. The information gathered through these interviews and the comprehensive content on the UBL Cells’ websites proved invaluable. However, it is noteworthy that one out of the 15 universities is still actively constructing a website for its UBL Cell. Additionally, the two newly entered universities have yet to take the necessary actions to publish web pages for their UBL Cells.

A meticulous approach was taken to ensure the validity of the data. Multiple researchers were engaged in the qualitative data collection process, and the

qualitative data were transcribed into table formats. The authors conducted a cross-check to ensure the quality and accuracy of the collected data.

6. Discussions and Implications

This study investigated the procedure followed for establishing the UBL Cells in Sri Lankan state universities as discussed in section 4, and document analysis, web content analysis, and interviews with experts were used for our empirical study. Based on the Matrix developed in Table 2 provided the framework for the present study, and a two-dimensional analysis was conducted combining 'Measures of Effective UECs' (Awasthy et al., 2020) and 'Success Factors of UECs' (Rybnicek & Königgruber, 2019). The study's findings are presented in Table 3 based on our matrix model. Study findings supported that the first measure, the 'Proactive Role' for effective UECs emphasized by Awasthy et al. (2020), is well aligned with establishing UBL Cells in the state sector universities in Sri Lanka.

However, it could have been a more strategic initiative as planned by individual universities, as Awasthy et al. (2020) suggested. This project has been strategically designed at the national level with a long-term orientation and practical guidelines to turn the strategy into action, as illustrated in Figure 2. Hence, high prominence was given to the project, and working as a cluster of universities pushed all universities forward to meet the targets and deadlines. More futuristic universities adopted the system very quickly and performed even better than expected; meanwhile, less proactive and weak universities got to learn from the leaders and catch up by meeting expected progress. Hence, all fifteen universities completed all four phases within the planned project period. This strategic and proactive approach helped secure a positive impact through institutional, relationship, output, and framework factors, as Rybnicek & Königgruber (2019) suggested.

There are some futuristic and broad initiatives in a few universities, even beyond the expectations of the AHEAD Project. Invention, Innovation and Venture Creation Council of the University of Sri Jayewardenepura (<https://innovation.sjp.ac.lk/>), Eco System of the University of Moratuwa (<https://ublc.uom.lk/eco-system/>), Business Linkage, Innovation, Incubation and Technology Transfer Office (BLII-TTO) of the University of Peradeniya (<https://site.pdn.ac.lk/centers/ubl/>) are some excellent proactive initiatives for strengthening UECs. Other universities can study and adopt similar futuristic strategic initiatives to strengthen the institutional framework for better performance of UEC activities, ensuring sustainability. However, it recognized possible future challenges in resource allocation, skill retention, structural expansion, and building

a conducive culture if the universities need help finding proactive solutions for the problems highlighted in Table 3 after completing the AHEAD project. The funding facilitation was the primary motive for UBL Cells to ensure their performance during the last five years. Hence, the real motivation to sustain and grow UBL Cells is to be best aligned with the future benefits obtained strategically through effective UECs.

Awasthy et al. (2020) emphasized that establishing a Collaborative Platform' emerged as a pivotal expectation in establishing UBL Cells in Sri Lankan universities. The Scorecard developed for the project outlines activities and performance indicators intricately tied to creating a robust collaborative platform. Each of the 15 UBL Cells played a commendable role in meeting minimum targets, with some universities demonstrating outstanding performance in fostering collaborative environments.

The effectiveness of these collaborative platforms is evident in the excellent outcomes achieved through successful collaborations, particularly highlighted during the initial stages of the project and, notably, in response to the challenges posed by the COVID-19 pandemic. Some UBL Cells played a significant role in developing and commercializing solutions related to COVID-19 issues, showcasing the agility and problem-solving capabilities inherent in the collaborative platforms.

Maintaining excellent records on dedicated websites reflects these platforms' commitment to transparency and open communication systems. Several universities have met key performance indicators and engaged in public media coverage, social media utilization, and other activities to enhance visibility. There are opportunities to further strengthen communication platforms by enhancing web interfaces, utilizing public and social media more effectively, and conducting interactive discussions through forums.

The websites of specific UBL Cells, such as those at the University of Moratuwa, the University of Sri Jayewardenepura, and the Sabaragamuwa University of Sri Lanka, serve as exemplary models for other universities to adopt. The success of these collaborative platforms is underpinned by the presence and support of all four success factors – institutional, relationship, output, and framework – as indicated by Rybnicek & Königsgruber (2019). This comprehensive support contributes to successfully establishing collaborative platforms in Sri Lankan state universities, paving the way for effective and impactful university-industry collaborations. In addition to the measures and success factors, student internship programs and industry-based projects have been

recognized as solid avenues to initiate UECs in Sri Lanka (Weerasinghe & Jayawardena, 2018; Wickramasinghe & Malik, 2018; Larsen et al., 2016). These internship and employment-related activities are carried out by the Career Guidance Centers of the Sri Lankan Universities; meanwhile, students' industry-based projects are handled by academic departments. Hence, solid internal links should be developed within these subunits to strengthen UECs in Sri Lankan universities with the support of already performing students-based industrial links.

While the AHEAD project has effectively guided the development of a systematic configuration to establish a collaborative platform in state universities proactively, it indirectly addresses three critical measures proposed by Awasthy et al. (2020): 'Entrepreneur Skills to Drive Research Adoption,' 'Awareness about Product/Business,' and 'Education.' Recognizing the challenges of mobilizing limited resources for all key measures during the initial stages of UBL Cells, it becomes crucial to strategize at individual university and UGC levels. Ensuring conducive institutional, relationship, output, and framework factors, as suggested by Rybnicek & Königgruber (2019), is essential for the sustained success of the initiative.

However, a notable gap in the UBL Cells initiative is the absence of the 'Improve Alumni Association' measure proposed by Awasthy et al. (2020). Despite various initiatives to develop Alumni Associations in Sri Lankan universities, there needs to be a more visible connection with alums for effective UECs. While considering student participation in startups and R&D projects, the AHEAD project's Scorecard overlooks the importance of alum involvement. Alum members, often employed in the industrial sector and working abroad, play significant roles, including business ownership and partnerships. Many alums are entrepreneurs contributing to various sectors.

The existing institutional, relationship, and framework factors minimally support measures related to alum associations. Strategic alignment of this alum strength with developed UECs through UBL Cells intervention is essential. Recommendations by Rohrbeck & Arnold (2009), such as employing postdoctoral students inclined towards application-oriented research, defining policies related to publications and intellectual property rights, and enhancing interaction through various means, emphasize the importance of effective UECs. Universities must strategically leverage the strength of alums, supporting them with enhanced capabilities through the intervention of UBL Cells. This strategic alignment can significantly contribute to the holistic and sustainable growth of UECs in Sri Lankan universities.

7. Conclusion

This study aimed to assess the status of the UECs in Sri Lankan universities, outline key measures and success factors for effective UECs, evaluate the establishment of UBL Cells, and offer strategic implications for sustainable UBL Cell growth to ensure benefits from UECs. A systematic literature review identified the existing level of UECs in Sri Lankan universities, and a theoretical framework for successful boundary spanners was developed based on recent literature. Qualitative data were collected through documents, web content, and semi-structured interviews.

The study introduced the process of establishing UBL Cells as boundary spanners for UECs in Sri Lankan universities, presenting a comprehensive overview for similar entities to learn from Sri Lanka's experiences. Findings were organized into a two-dimensional matrix, elucidating key measures and success factors. The 'Proactive Role' played by the University Grants Commission (UGC), backed by the World Bank and the Sri Lankan government, significantly contributed to successfully establishing UBL Cells. This proactive role supported necessary institutional, relationship, output, and framework factors for stabilization and strengthening.

Central to the UBL Cell initiative was building a 'Collaborative Platform,' successfully developing a comprehensive and conducive platform for encouraging UECs. The study affirmed that the strategic measures of a 'Proactive Approach' and a 'Collaborative Platform' were effectively addressed, aligning well with project success factors. However, four key measures - 'Entrepreneur Skills to Drive Research Adoption,' 'Awareness about Product/Business,' 'Education,' and 'Alumni Formation' - still required attention for sustainable UBL Cell growth. Although 'Alumni Formation' was omitted in the initiative, the other three measures were indirectly covered in project initiation.

The AHEAD Project's funding was crucial in motivating universities to establish and operationalize UBL Cells, guiding and evaluating their performance. However, as the project concludes in December 2023, universities need to strategize for the continued growth of UBL Cells. Individual universities should carefully manage this transition with support from the UGC and the Sri Lankan government to maximize returns on investment and contribute to the country's socio-economic development through effective UECs.

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Appendix 1: Summary of the Web Contents of the UBL Cells in State Universities in Sri Lanka

UBL Cell	Staff	Success Stories, awareness programs, and events	Nature of the Web	Performance-based on KPIs	Missing items
University of Colombo UBL Cell https://cmb.ac.lk/ubl/	UBL Director, UBL Manager	<ol style="list-style-type: none"> Signed Memorandum of Understandings (MOU) with: <ul style="list-style-type: none"> Mr Walpola Gamage Chandrasena, Indurusiri Furniture, Kalutara, on February 24 2023, to produce biodegradable plates using leftover banana leaves. The Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB) and Food and Nature (Pvt) Ltd on January 17, 2023. Long collaborative commitment with FADNATea (Food & Nature (Pvt) Ltd) and the Institute of Biochemistry, Molecular Biology, and Biotechnology was a great success, which led to the development of new products launched to the market on August 23, 2022. Hosted 'A Workshop on Successful Grant Writing: Principles, Pearls, and Pitfalls,' its inaugural event on August 30, 2019, at the Senate Hall of the University of Colombo. Four new products were launched on August 23, 2022, with Food and Nature (Pvt) Ltd under brand QofL. A Workshop on Successful Grant Writing: Principles, Pearls and Pitfalls on August 30, 2019. 	It is a simple one-tab website with basic information and a description of UBL Cell. Links on the web have provided IP policy, research policy, and other information but are not accessible publicly to the materials except the research policy. Three successful stories and one news item are included.	There needs to be more sufficient data presented related to performance. According to news items, three MOUs have been signed, four new products were launched, and two workshops were conducted during this period.	Ready-to-market products and technologies are not visible—initiatives presented online are only from some university institutes. The web is not updating regularly.
University of Peradeniya Business Linkage, Innovation, Incubation and Technology Transfer Office (BLII-TTO) https://site.pdn.ac.lk/centers/ubl/	Director, Technology Manager	<ol style="list-style-type: none"> Signed a non-disclosure agreement (NDA) with Aara Herbs and Spices to produce herbal porridge and the production process. Coffee Chat is an initiative organized with the International Finance Corporation (IFC). The event was held successfully on January 26, 2023. Establishment of the social innovation cell in collaboration with the British Council Meeting with Cargills PLC regarding the commercialization of products based on research carried out at the University Meeting with NEDS Chairman & Hons Minister Wimal Weerawansa regarding commercialization of products based on carried out at the University 	The web is general web content in six tabs, and the scope of the UBL CELL is expanded. IP Policy and other relevant documents, forms, and guidelines available for researchers and inventors. In addition to other general functions, there is a separate tab for the Talent Development & Co-Creation Lab, funded by ERASMUS+.	There needs to be more sufficient data presented related to performance.	Patenting and commercialization activities should be highlighted sufficiently. There is no list of ready-to-commercialize technologies. The outcomes of the meetings need to be visible. Announcements related to activities were published in 2020, and no updates exist.



<p>University of Sri Jayawardenepur a USJ Tech Transfer Office (UBL Cell) http://ublccl.sjp.ac.lk/ Connected to the web of the 'Invention, Innovation and Venture Creation Council (IIVCC), the apex body of the University. IIVCC has a broader scope covering all the areas related to invention innovation and venture creation.</p>	<p>UBL Director, UBL Manager</p>	<p>1. The following list of products the University owns is ready to commercialize. Bed to Trolley (Smooth Lateral Patient Transfer Device), Drinking yogurt product produced with Moringa oleifera dried leaf powder extract and Phyllanthus emblica fruit extract, Natural plant extracts incorporated cane sugar product (Low GI Sugar), Confectionery to combat Micro-Sleepiness; Using natural plant-based constituents, A calcium carbide detecting mobile application system, Domestic drinking water filter capable of removing drinking water contaminants, A method to treat textile dye contained wastewater effluents using natural soil, microbial consortium and aquatic floating plant. 2. Beam Hela Osu Lanka (Pvt) Ltd. has signed product commercialization agreements to market Sudarshana Suspension.</p>	<p>A content-rich and attractive website with six tabs is available. And they are linked to the FB page (https://www.facebook.com/USJTT). The web is interactive with a live chat facility. Available services for industries and researchers are informed, and resources are organized for easy access.</p>	<p>The number of disclosed inventions is 70+, the number of Intellectual property filings is 65+, the number of Intellectual property received is 20+, the number of licensing agreements signed is 6+, the total value of signed licensing agreements is LKR 6 million+, Royalty distributed among inventors LKR 600,000+ and ten ready to commercialize technologies are published.</p>	<p>Success stories and details about the performance should be presented.</p>
<p>University of Kelaniya UBL Cell https://ublc.kln.ac.lk</p>	<p>UBL Director, UBL Manager</p>	<p>1. The University of Kelaniya signed five license agreements with Orel Corporation Pvt Ltd on July 21, 2023, and two License Agreements with Susen Holdings Pvt Ltd on May 2023. 2. Signing a groundbreaking data licensing agreement alongside the esteemed Cambridge Enterprise Limited from the University of Cambridge in the UK on May 30, 2023. This collaboration solidifies the University's global presence, marking its first international data licensing agreement. 3. The stage was set for innovation as the "NATIONAL INDUSTRY EXHIBITION & INNOVATION ARENA 2023" took the central stage at BMICH from June 22 to 25th, from 9 am to 9 pm. Amidst the vibrant atmosphere, the University</p>	<p>The home page is attractive, but other pages need to be configured better. The web has been developed with five tabs. IP policy, information, and forms are available for IP filing. Four news items are included; however, those need to be configured better.</p>	<p>20 invention disclosure forms, 10 non-disclosure agreements, 2 MoUs, 12 patent applications, 8 industrial design applications, 5 trademark applications, 1 startup formation, 11 patent agreements, 3 published PCT applications, 5 granted</p>	<p>Ready-to-commercialize technologies have yet to be revealed.</p>



		<p>of Kelaniya joined the event, presenting a spectrum research endeavor.</p> <p>4. A technology transfer workshop was held from September 25–29, 2022, in Kathmandu, Nepal, and was attended by all directors and managers of UBL and HEI Cells. The was organized by the US Department of Commerce's Commercial Law Development Program (CLDP) in collaboration with Cornell University and the US Patent and Trademark Office.</p>		<p>patents (local), 4 granted industrial designs. UBL Cell of the University of Kelaniya Successfully Completes Phase 4 Evaluation. June 2023 Eight partner institutions are informed.</p>	
<p>University of Moratuwa UBL Cell http://ublc.uom.lk</p>	<p>UBL Director, UBL Manager</p>	<p>1. The University Business Linkage Cell, University of Moratuwa, completed the World Bank's final phase (phase IV) evaluation as the first University in Sri Lanka and was approved to release the final grant for UBLC, UOM. The total grant amount is 15 million rupees.</p> <p>2. UBLC, UOM was chosen for the first TV program to showcase the work done by UBLC on air due to the successful completion of the final evaluation phase in the first place. The program aired on MTV TV I as part of the "Jathika Mehewara" program, where we provided opportunities for all startups and teams who strongly supported the evaluation's success.</p> <p>3. MagicBit is the first successful Sri Lankan Kickstarter project. The inventors planned to use the collected funds (About 40,000 USD) to start mass-scale manufacturing of the platform for worldwide shipping by October 202. But there is no news after that.</p>	<p>An attractive website with 12 tabs is available. Informative and up-to-date. Attractiveness has been maintained through graphical interfaces. It announces, "UBL Cell, UoM, completed the World Bank's final phase (phase IV) evaluation as the first University in Sri Lanka and was approved to release the final grant for UBLC, UOM. The total grant amount is 15 million rupees." Explained what the KPIs achieved in 2021, 2022, and 2023 were. The web is open for interactions by commenting on posts. IP policy, commercialization policy, and relevant forms, agreements, and documents are available. Three USA advisors are mentioned. Six allies, three companies, and</p>	<p>A list of 26 obtained patents in 2020, 2021, and 2022 are revealed with details of patents for commercialization purposes. Four patents are being processed. One PCT is included. 3 registered industrial designs, 6 trademarks, 21 former startups, 6 current startups (in 2020, no updates after that). University incubator providing space, registration, and secretarial support for seven startups. 16 new technologies/products are available for licensing.</p>	<p>Information will be completed until 2022; limited information will be available in 2023—many programs on awareness of patenting, business startups, and acceleration.</p>



			three government institutions are partnered.		
University of Ruhuna UBL Cell https://www.dce.u.ruh.ac.lk/tto/index.php	UBL Director, Technology Transfer Manager	<ol style="list-style-type: none"> The Technology Transfer Office gave a helping hand in commercializing the following innovative products owned by the University of Ruhuna. Fully Autonomous All- Sky Camera, MedBot. Robot for Covid19, MEDICUS+ Signed the Non-disclosure agreement with Cargills Ceylon PLC Signed the licensing and non-disclosure agreements with Heritage Teas (Pvt) Ltd. in 2020. 	Basic information is available in six tabs. Details are limited, and some links need to be fixed. IP policy and relevant applications are available for researchers.	Three products (Fully Autonomous All-Sky Camera, MedBot_Robot for COVID-19, MEDICUS+) are ready to commercialize. The newsletter "RUBLink" was published in September 2021.	Updated performance and ongoing activities are not reflected. No news was posted after September 2021.
University of Jaffna UBL Cell https://ubl.jfn.ac.lk	UBL Director, UBL Manager	<ol style="list-style-type: none"> On August 17, 2023, the University of Jaffna (UBL-Jaffna) and Yarl IT Hub signed an MoU Established Startup Incubation centers at UOJ to support entrepreneurs and their products, services, or research. AHEAD Operation of Sri Lanka organized an event to Recognise the Successful Commercialisation of University Research at BMICH, Colombo, on May 02, 2023, from 9.00 am onwards. Recognized Successful Commercialization of University Research 2023. Bael Drinking Yoghurt with Mullai Milk Processing and diarization with Avonet Technologies Awareness Session on Commercialization of Research Through Spinoff and Startup Culture-Dr. Sabesan Sithampanathan. The Agriculture Products Management System (Inthiramart) inauguration for the centralized management of agricultural products for farmers, December 06, 2023. The application is Licensed to Inthira Group (Pvt) Ltd. Four licensing agreements are presented as success stories. Signed 4th licencing agreement April, 2023 Licensing Agreement Signing for Bio Plastic No.2022 Licensing Agreement Signing for Super Compost. Oct 2022 	Informative web with eight tabs. Faculty-wise progress was presented. However, the Faculty of Agriculture is more active, while the Faculty of Science has also published some news and performances. Other faculties seem inactive. There are many details on workshops conducted, discussions, awareness programs, and community engagement activities: guidelines, opportunities, documents, and forms required for inventors and researchers available.	Eight patents were obtained in 2020 and 2021. Completion of Phase 4 Evaluation. April 2023	The attractiveness of the web and material organization should be increased by reducing repetition and appropriately categorizing.



		<p>Licensing Agreement with the Mullai Milk Processing Industry</p> <p>7. Product Launching Ceremony Mullai Milk Processing Industry (Mullai MPI) Oct 2022</p> <p>8. The first patent, titled "An automated faucet with an integral liquid washing dispenser for regulated handwashing," was awarded to the University of Jaffna in Aug 2022.</p>			
<p>Open University of Sri Lanka - Industry Liaison Center</p> <p>https://sites.google.com/view/public/home?pli=1</p>	<p>UBL Director, UBL Manager</p>	<ol style="list-style-type: none"> The three success stories presented are the Peacock Craft Paper Quilling Machine, E Gravity Solutions Electronic Demonstration Kit, and a Multi-colour QR code. Signed a Technology Transfer Agreement with Growthex Marketing on February 27, 2023. Signed an MOU with Telimac (Pvt) Ltd. on February 27 2023. Product launch of the Electronic Demonstration Kit. You are licensing the Paper Quilling Technology with Peacock Crafts. MOU signing between The Open University of Sri Lanka and the Institute of Astronomy. MOU Signing between the Open University of Sri Lanka and SLASSCOM. Collaborative Research Agreement between The Open University and Heals Lanka (Pvt) Ltd. MOU signing between the Open University and Startup X foundry. 	<p>The web domain is outside of the university web. It provides information in seven tabs to present the role of the cell and communicate the general information, services, and success stories to encourage partnering. Download the required documents, and the IP policy is available. Some vacancies in ILC are posted.</p>	<p>There needs to be more sufficient information related to the performance of the UBL Cell.</p>	<p>The web should be connected to the university domain. There is no information related to ready-to-transfer technologies.</p>
<p>Eastern University UBL Cell</p> <p>http://esn.ac.lk/ubl</p>	<p>UBL Director, UBL Manager</p>	<ol style="list-style-type: none"> Recognizing Successful Commercialization of University Research on May 02, 2023, at BMICH Lotus Hall The Employment Career Fair and Career Motivation Programme 2019 was organized to create youth access to corporate internships, job placement, and career information, and it also provides opportunities for relationship building between young people and corporations. UBL Cell of Eastern University, Sri Lanka, has decided to conduct a Competition on best business-related research among final year students of all faculties to recognize the creativity among graduates of EUSL. This initiative aims to increase the motivation of undergraduates to be actively involved in research activities 	<p>The web website contains eight tabs but contains widespread information about UBL Cells and its operations. IP policy and other relevant forms and guidelines for researchers/inventors are available. One logo and one trademark are available; however, no description is given.</p>	<p>Pictures are related to recognizing the successful commercialization of University Research on May 02, 2023, at the BMICH, Colombo. But details still need to be made available.</p>	<p>More information on ongoing projects and market-ready technologies or products must be provided. Three awareness workshops were conducted in 2016, and a notice on the business solution award was presented. Notice on career fair 2019 is included. It does need to be regularly</p>



		<p>related to the needs and opportunities of the local businesses, technologies, and problems existing in society in the region.</p> <p>4. Workshop on Practical Thesis Award Planning was conducted in 2016, conducted by Mr. Alfredo Suvelza, GIZ</p> <p>5. The Business Model Innovation Workshop was conducted in 2016. The resource person was Mr. Peter Sammon, GIZ, and Staff members,</p> <p>6. The Budget Planning and Working Group Building workshop was hosted by Mr. Alfredo Suvelza, GIZ.</p>			updated.
<p>Sabaragamua University of Sri Lanka UBL Cell https://www.sab.ac.lk/ublc/</p>	<p>UBL Director, UBL Manager</p>	<ol style="list-style-type: none"> 1. Implementing the university IP policy to identify, protect, evaluate, commercialize, and realize the value of the IP. 2. "Diabe Tea Sabaragamuwa," formulated by Sabaragamuwa University of Sri Lanka, has been launched to the market. March 2022 3. The official signing of two Exclusive Licensing Agreements with Lalan Rubbers Pvt Ltd. Apr 2023 4. Officially Entered into an Exclusive Licensing Agreement with Cargills Ceylon PLC, marking its 05th Licensing Agreement in History in Dec 2022 5. Signed Exclusive Licensing Agreement for Black Soldier Fly Larvae Incorporated Animal Feeds in Dec 2022 6. Partnered with Cargills Ceylon PLC to Establish Ceylon Cinnamon Title in the International Market Places Nov 2021 7. I transferred its research knowledge to Cap Organic Pvt. Ltd Apr 2021 	<p>Attractive web interface with six tabs. The content is rich with the required details. 14 government and private sector partners are presented. Required information, policies, and documents are available for researchers and industry. Information availability and organization are excellent. The web is rich with relevant information. In addition, annual reports were produced and published on the web for 2019, 2020, 2021, and 2022.</p>	<p>20+ patent applications submitted, 30+ industrial collaborations, 20+ Invention Disclosure Forms received, 4+ international patents applied. Two products (Cinnamon leaf tea and Diabe tea) are available in the market. The innovation outlet is a new concept that includes 30 products in eight categories to promote new products developed and tested by the university staff and students—statistics on innovation activities available for 2020 and 2021. 8 technologies are available</p>	<p>Need to update with information in 2023</p>



				for commercialization.	
Wayamba University of Sri Lanka UBL Cell https://www.wy.b.ac.lk/ubl/	UBL Director, UBL Manager	<ol style="list-style-type: none"> Intellectual property (IP) policy has been adopted to promote research cooperation between industry and the University. The UBL Cell also aims to facilitate the development of an entrepreneurial mindset among the university community to go beyond the traditional educational paradigm to contribute to the national economy. In collaboration with Wayamba University, Trace held an introductory webinar on March 03, 2021, via ZOOM under the Raise project. A session called "How to start an export business" was conducted online on 16th July 2021 by Mr. Shehan Perera, Chairman of CED, Centre of Enterprise Development. An essential "Business Proposal Writing" session was held on June 18, 2021, via ZOOM by Prof. HMA Herath, Professor of Business Management at Wayamba University. 	A primary website with five tabs. Standard information related to researchers and inventors is available. Related materials, forms, and procedures can be downloaded.	Seven food and food-related products were presented. Chia Pudding, Banana Coating, Non-Diary Drinking Yogurt, Tender Jackfruit Spicy Burger Patty, C Food System (Color Sorting Software), High Protein Meat Snack. There is a video presentation on the above innovative food and food-related products.	It lacked information related to performance, such as IPR and technology transfers. The web could be more attractive and market-oriented. News and events show only four workshops conducted in 2021 and 2022. It requires updating continuously.
The Rajarata University of Sri Lanka UBL Cell https://www.rjt.ac.lk/university-business-linkage-cell/	UBL Director, UBL Manager	<ol style="list-style-type: none"> Signed a MoU with the North Central Province Chamber of Commerce Industry and Agriculture (NCPCCIA) in January 2021 Joined hands with Gunawardhana Ayurveda Holdings (Pvt) Ltd to develop commercialized research outcomes-2022 Jan Commercializing RUSL Research Outcomes: Omega 3 Incorporated. Four license agreements were signed enabling Lakmece Exports Lanka (Pvt) Limited to develop Omega 3-added food items Food. 2022 Nov Signed the memorandum of understanding (MoU) between the RUSL and the Ulankulama Dairies (Pvt) Limited to commercialize two research outcomes. Dec. 2022 A Memorandum of Understanding (MoU) was signed with Ceylon Agro Food Technologies (Pvt) Limited. Research and commercialization of the Trichoderma virens culture and 	Have an essential website with five tabs. Workshops, training, meetings, and student competitions are published as a mix. IP policy, forms, guidelines, and other relevant resources are available to download.	Eighteen technologies ready to commercialize are published attractively. Successfully completed phase IV evaluation at University Premises on January 12, 2023. The RUSL UBLC is the sixth national University to complete the Phase 04 evaluation.	Less attractive due to needing to be more organized. Continuously updated.



		<p>solid-based formulation of <i>Trichoderma virens</i>, a Faculty of Agriculture research output. March 2023</p> <p>6. Recognized successful commercialized products with the respective commercial partners for the Omega -3 incorporated sauce, jam, and jelly with the Lakmee Exports Lanka (Pvt) Limited and the Ayurvedic Foot Care Cream with Gunawardene Ayurveda Holdings. May 2023</p> <p>7. Entered into an MoU with L.B. Kangara Aushadhalaya (Pvt) Limited to commercialize Ayurvedic skin care soap. September 2023</p> <p>8. A virtual session was held on May 25, 2022, via ZOOM under the Business Talk session 1 -topic "Generate Your Business Ideas," and the resource person was Mr. Tharaka Amarasena.</p> <p>9. Master Potter-Mr conducted a virtual session. Ajith Perera on July 25, 2022, via ZOOM under the topic "A pot full of Money" – Business talk session 3</p> <p>10. Under the Business club, A webinar was held with industrial experts, and the 01st Session was "How to Register Your Business".</p> <p>11. RUSL Business Club – A webinar with the Export Development Board in Sri Lanka (EDB), "Know Your Export Market", on September 21, 2022</p> <p>12. RUSL Business Club in collaboration with the Department of Registrar of Companies – A webinar with The Department of Registrar of Companies, "How to Register Your Company." Sessions 1 & 2, October 15 and November 20, 2022, conducted by Heshan Muthugamage, Assistant Registrar General of Companies</p>			
<p>Uva Wellassa University of Sri Lanka UBL Cell http://www.ubl.uwu.ac.lk/</p>	<p>UBL Director, UBL Manager</p>	<p>1. UBL Cell organized three workshops for the Department of Co-operative Development to enhance their Managerial skills, leadership qualities, and computer literacy.</p> <p>2. The workshop "Post Covid 19 Era & Innovations" was successfully held on December 16, 2021, from 10.00 am to 12.00 Noon at the Main Lecture Theater (MLT). Prof. S. B. Navaratne, University of</p>	<p>An average website with six tabs provides standard information related to the UBL Cell. News is related to meetings, training workshops, and promotion programs. There</p>	<p>11 inventions were published and filed patent applications in 2019 and 2020. No updates were available about those.</p>	<p>There is limited information related to performance indicators. The web is not up to date.</p>



		<p>Sri Jayewardenepura, Senior Prof. K. K. D. S. Ranaweera, Chair/ Department of Food Science and Technology, University of Sri Jayewardenepura, Senior Prof. R. M. G. Rajapakse, University of Peradeniya, and Dr. D. P. N. De Silva, Uva Wellassa University were participated as the guest speakers at this event.</p> <p>3. The workshop "Patents & Commercializable Products" was successfully held on November 26, 2020, from 10.00 am to 12.00 Noon at the Main Lecture Theater (MLT). Prof. E. D. N. S. Abeyrathne, Faculty of Animal Science & Export Agriculture, Dr. A. A. K. K. Jayawardhana, Faculty of Management, Dr. Y. N. S. Wijewardana, Faculty of Technological Sciences, and Dr. A. S. Rathnayake, Faculty of Applied Sciences participated as the guest speakers at this event.</p>	needs to be Policy documents, forms, and other materials to download.		
South Eastern UBL Cell https://www.seu.ac.lk/ubl	UBL Director, UBL Manager	Not available	The primary web is available with four tabs.	No present projects and progress are included.	Web is under construction. There is no related information included yet.
University of Visual and Performing Arts https://ubl.vpa078.ac.lk/	UBL Director, UBL Manager	Not available	A new web is being constructed. The old link is not working. Still, data is yet to be available.	Not available	The web is not available
University of Vavuniya There is no dedicated web yet	UBL Director	Not available	UBL Advisory Board was appointed in January 2022. UBL manager appointment – called application Sep 2023	Not available	The web is not available
Gampaha Wickramarachchi University of Indigenous Medicine There is no dedicated web yet	UBL Director	Not available	Not available	Not available	The web is not available

EXPLORING THE RELATIONSHIP BETWEEN PERCEIVED ORGANISATIONAL SUPPORT, FRUSTRATION WITH WORK AND OCCUPATIONAL COMMITMENT AMONG EDUCATORS

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Abstract

The study was conducted among educators in public secondary schools. The primary objective of the study was to investigate the relationship between employees' productive worth (POS-J), caring for the well-being of employees (POS-R), frustration with work and occupational commitment among educators, heads of departments, deputy-principals and principals. To achieve the primary objective of the study, a cross-sectional survey using non-probability sampling was utilised to garner data from 240 educators, heads of departments, deputy-principals and principals on POS- J, POS-R, frustration with work and occupational commitment. Data were analysed using descriptive statistics, CFA, and SEM utilising SPSS and AMOS version 28. The findings of the study confirmed the proposed research model to have an acceptable fit with the data. Furthermore, the results demonstrated a positive association between the variables, except for POS-R, which had an insignificant effect on occupational commitment and the hypothesis relating to

this latter relationship between relevant variables was rejected, while the rest of the hypotheses were supported. Based on the findings, it was recommended that the education districts and school managers should undertake concerted efforts to support educators in their delivery of effective teaching. Further recommendations are stipulated in the paper.

Key words: *perceived organisational support, frustration with work, occupational commitment, educators.*

JEL Classification: J24,J28,M12,I21,M54,D23,J45,J53

Introduction

The dawn of democracy in South Africa in 1994 necessitated concerted interventions aimed at correcting the injustices of the past, leading to the unification of the racially fragmented 19 departments of education into one department – the Department of Basic Education. Policy reforms to deracialise schools were initiated, a new curriculum was developed and a new funding model that reflected the principles of the new government was introduced (Department of Planning, Monitoring & Evaluation, 1994-2014). In line with the education reforms, public secondary school education in South Africa was classified into two phases: General Education and Training phase; and Further Education and Training phase (Lebohla, 2017). The General Education and Training phase consists of grades 7 to 9, while the Further Education and Training phase is made up of grades 10 to 12. Although school life spans from grade R to grade 12, compulsory schooling for learners ends at the completion of grade 9 or age 15, depending on which event comes first (Lebohla, 2017).

The Department of Basic Education was further divided into 86 education districts, with an average number of 10 education districts per province (Department of Basic Education, 2013). The names of the provinces in South Africa include Western Cape, Eastern Cape, Northern Cape, KwaZulu Natal, Free State, North- West, Gauteng, Limpopo and Mpumalanga (Nel, Krygsman & De Jong, 2008). The education districts were demarcated using district municipalities based on the geographical size, the number and type of schools served and the poverty profile of the communities (Department of Basic Education, 2013). Furthermore, the education districts are charged with the responsibility of dealing directly with schools in terms of administrative and management issues and

ensuring that they keep abreast with provincial education priorities (Department of Basic Education, 2013).

Similar to other professions, the teaching profession is characterised by an increased turnover rate (Rasanen, Pietarinen, Pyhalto, Soini & Vaisanen, 2020; Sorensen & Ladd, 2020). In fact, various researchers observe that a significant number of educators are leaving the teaching profession as compared to other professions (Carver-Thomas & Darling-Hammond, 2019; Rasanen *et al.* 2020). Carver-Thomas and Darling-Hammond (2019) ascribe the teacher turnover to organisational factors such as inadequate salaries, prolonged working hours, poor teaching facilities and the lack of assistance at the workplace.

Kamau, Mauthe and Wainaina (2021) argue that the impact of turnover could be so devastating that it leads to demotivation among new educators who are entering the profession, interrupted day-to-day work schedules, limited opportunities for schools to pursue growth strategies and hampered institutional performance. Furthermore, an overwhelming task of finding suitable and qualified staff replacement through recruitment and selection processes, as well as the training of newly hired educators constitute an enormous cost to schools (Sorensen & Ladd, 2020).

In previous studies, the focus was on the relationship between POS and employee outcomes such as burnout (Zeng, Zhang, Chen, Liu & Wu, 2020), counterproductive work behaviours (De Clercq, Kundi, Sardar & Shahid, 2021), turnover intention (Wang & Wang, 2020), organisational commitment (Jais & Mohamad, 2013; Scott, 2014, Lee, Nie & Bai, 2020), professional commitment (Novitasari, Riani, Suyono & Harsono, 2022) and career satisfaction (Oubibi, Fute, Xiao, Sun & Zhou, 2022). However, no comprehensive study on the relationship between POS, FW and OC has ever been conducted within the educational sphere. Therefore, this study strives to fill the research gap by investigating the relationship between POS, FW and OC among public secondary school educators in the Sedibeng West District only.

The significance of this study lies in identifying factors pertinent to POS, which, if taken care of, could imbue educators with a feeling of being supported. When educators believe that they are supported by the school managers, they will develop a positive perception about their value and importance, leading to improved contribution and commitment to schools. Furthermore, the positive perceived support will generate a sense of being accepted and wanted, thus creating an enhanced sense of obligation toward the welfare of schools. Masindi, Onojaefe, Tengeh and Ukpere (2023) contend that employees' positive perception of organisational support elicits commitment and loyalty to their profession.

Literature review

Theoretical framework

Social exchange theory

Social exchange theory (SET), expectancy theory and side-bet theory constituted the bedrock for this study. SET is premised on the notion that the employer and the employee engage in a social exchange relationship because they expect social benefits from each other (Cortez & Johnston, 2020). Social exchange is based on the feelings of reciprocity in which case the relationship is characteristically mutually satisfying (Wang, Xiang, Yang & Ma, 2019). A mutually satisfying relationship emboldens each participant's contribution in the relationship (Tsai & Kang, 2019). In an employee-employer relationship, employees are constantly engaged in a trade-off effort and loyalty with the organisation for organisational inducements such as tangible benefits and rewards (Santiago, 2020). When employees perceive that their organisation is supportive of them, they tend to reciprocate by behaving pro-organisationally (Akarsu, Foroudi & Melewar, 2020).

Within the context of schools, if educators perceive that they are being supported, they would reciprocate by advancing and promoting school activities and display organisational citizenship behaviours (Elstad, Christophersen & Turmo, 2011). Furthermore, if school managers create a supportive environment in which educators are offered growth opportunities and develop policies that foster high performance, protect educators' rights and support innovation, the educators would in return exchange such kind gestures with pro-social behaviours such as commitment to the school (Elstad *et al.*, 2011). Conversely, educators who do not feel that their schools support them are prone to develop work deviant behaviours and negative attitudes toward their schools (Holsblat, 2014).

Expectancy theory

Vroom's expectancy theory assumes that the tendency to behave in a particular way is dependent on the expectation that the behaviour will be rewarded and that the reward will be attractive to the employee concerned (Chopra, 2019). Werner, Bagraim, Cunningham, Potgieter and Viedge (2016) identify the following three beliefs that determine the motivational drive of an employee: expectancy belief, instrumentality belief and valence. Expectancy belief is a belief based on whether an employee's concerted efforts will result in improved performance (Nel, Werner,

Botha, Du Plessis, Mey, Ngalo, Poisat & Van Hoek, 2014). Instrumentality belief relates to whether the performance will yield organisational reward; and valence is whether that organisational reward will assist an employee to achieve his/her personal goals (Moerdyk, Dodd, Donald, Kiley, Van Hoek & Van Hoek, 2015). Pertaining to schools, educators would expend efforts toward increasing the pass rate of their learners if they expect some form of recognition or promotion for doing so.

Several organisational factors that increase the frustration of employees with work include too many rules and regulations, work overload, role conflict and unclear job function or role ambiguity (Perkins & Oser, 2014). Thus, when faced with frustrating work experiences, the employees' possible responses could include aggression, withdrawal, adjustment in the implementation of a task, relinquishment of a goal or the use of a different approach to achieve a goal (Heacox & Sorenson, 2004).

Side-bet theory

Occupational commitment is premised on Becker's side-bet theory. The side-bet theory propounds that the relationship between employees and an organisation is founded on behaviours that are bound by a contract of economic gains (Ghosh & Swamy, 2014). In such a contract, employees are committed to their occupation because they have side-bets that they have made during their membership in their chosen occupations (Scales & Brown, 2020). Abdirahman, Najeemdeen, Abidemi and Ahmad (2018) refer to side-bets as an accumulation of investments valued by an individual, which would be lost if s/he were to leave a specific occupation. For fear of forfeiting the accumulated investments or side-bets, employees continue to be members of the profession of their choice (Singh & Onahring, 2019). In the context of schools, the accumulation of side bets such as retirement package, participation in interesting projects, job stability, social status, rank and comparative salary could compel educators to remain in their teaching profession (Mathou, Sarazin & Dumay, 2023).

Perceived organisational support

POS is traceable to the pioneering efforts of Eisenberger, Huntington, Hutchison and Sowa (1986), who define the concept as "employees' global beliefs concerning the extent that the organisation values their contributions and cares about their well-being". In a related observation, Iqbal and Hashmi (2015) view POS as the sensitivity and opinion of employees regarding the degree to which

their involvement is appreciated and recognised by their organisation. Mohamed and El-Shaer (2013) further extended the concept of POS to embrace the perception of employees about approval, esteem, remuneration, advancement, access to information and other forms of support that are needed to effectively execute an assigned task.

By valuing employees' contributions and caring for their well-being, the organisation demonstrates its commitment toward the employees in the same way that the organisation expects the employees to show commitment toward it (Beheshtifar & Herat, 2013). Pattnaik, Mishra and Tripathy (2020) hold the view that employees who perceive their organisation as providing them with adequate levels of support tend to develop a strong affinity to their jobs. They also tend to work harder, perform extra-role activities and become committed to their organisation (Satardien, Jano & Mahembe, 2019). In addition, Mnyani, Onajafee and Ukpere (2023) assert that employees with higher levels of POS appraise their jobs more favourably and in turn their levels of job satisfaction increase.

Nayir (2012) observes a supportive organisation as having the following organisational practices: supporting employees' ingenuity and encouraging them; valuing employees; rewarding employees; maintaining a positive communication within the organisation; being fair; building trust in the organisational environment; and applying organisational policies consistently. Bowra and Naeem (2013) add that employees consider supportive organisations as those whose managers react fairly to their illnesses, performances and mistakes. In the context of schools, school managers acting as a proxy to the Department of Basic Education could provide support to educators through confirmative leadership, career advancement opportunities, developmental programs, granting of study leave, organising of seminars, workshops and conferences for information sharing (Saleem & Amin, 2013).

Although POS is considered a unidimensional construct, several studies suggest that it should be structured to constitute two factors in to understand it better and predict its potential consequences (Muse & Stamper, 2007; Perryer, Jordan, Firms, & Travaglione, 2010; Scott, 2014). Perryer *et al.* (2010) identified these two factors as those relating to the productive worth of an employee and the caring of the well-being and valuing of an employee, hereafter referred to as POS-J and POS-R respectively. This two-factor structure is adopted in this study and is reflected in the conceptual framework.

Scott (2014) considers POS-J as the extent to which the employing organisation values the individual's productive worth. In this instance, employees' work

performances and work inputs are acknowledged and valued. In other words, the employees' contributions to the attainment of organisational objectives are cared for and supported (Muse & Stamper, 2007). On the other, POS-R refers to caring about employees' well-being and valuing them as persons (Perryer *et al.*, 2010). Scott (2014) amplifies that POS-R is the concern managers, as representatives of an organisation, have toward employees' welfare and the favourable treatment they accord employees in different situations.

Frustration with work

Frustration with work occurs when there is an inhibiting condition that interferes with or stops an employee from realising organisational goals (Ntsiful, Ahiakpor, Damoah & Wee, 2018). The inhibiting conditions are either internal or external to the organisation (Radebe & Dhurup, 2016). Internally, these inhibiting conditions consist of deficiencies within an individual such as the lack of knowledge, skill or physical ability, while externally, they are made up of conditions in the work environment and social or legal barriers such as laws that impede employees to attain organisational goals (Lazar, Jones & Sneiderman, 2006).

Ugwu and Onyishi (2018) attest that frustration with work occurs when satisfaction is not gained from a job and hopes of self-actualisation are thwarted. Leonard, Chukwuemeka, Stephen, Collins and Rachael (2020) maintain that frustration with work has, as its defining feature, the element of barrier or obstruction. Its prevalence inhibits employees to carry out their daily duties. According to Perkins and Oser (2014), the following conditions in the work environment are identified as sources of frustration with work: lack of participation in decision making; poor relations between employees and supervisors; role conflict; job uncertainty; work overload; too many work rules and regulations; incompatibility between efforts and rewards; and role ambiguity.

Occupational commitment

The various foci of commitment that exist within the working environment include commitment to the job, the work group (and/or union), the organisation and the profession (Cohen, 2004). However, the focus in this study is on commitment to the occupation. Commitment to the occupation, which is referred to as occupational commitment (OC), is also known as professional commitment or career commitment (Kim & Mueller, 2011; Fung, Ladkin, Osman and Wong, 2015). According to Vandenberg and Scarpello (1994), OC is defined as “a

person's belief in and acceptance of the values of his or her chosen occupation or line of work and a willingness to maintain membership in that occupation". OC is, therefore, a psychological chord between an employee and his/her chosen occupation and is grounded on an affective reaction to that occupation (Yetgin & Benligiray, 2019). Thus, an employee with a high OC will strongly identify with and experience more positive feelings towards his/her occupation than the one with a low occupational commitment (Spurk, Hofer, Burmeister, Muehlhausen & Volmer, 2019). In more simple terms, OC is an employee's attachment to or desire to work in a career role (Satoh, Watanabe & Asakura, 2017; Yulianti, Zarkasyi, Suharman & Soemantri, 2024).

Ching and Kee (2012) conceive OC as the strength of one's motivation to remain in a chosen career role and measures the extent to which a person wishes to experience development and advancement in his/her chosen career. Fung *et al.* (2015) further describe OC as identification and involvement of an individual with a profession; commitment and dedication to the profession; and the acceptance of ethics and goals of the profession.

Like organisational commitment, Meyer, Allen and Smith (1993) propound the three-component model for OC. According to these authors, the three components of the model are affective occupational commitment, continuance occupational commitment and normative occupational commitment. Affective OC implies positive feelings of identification with, attachment to and involvement in an occupation (Rogosic & Perica, 2023). Radebe and Dhurup (2016) identified the willingness of an employee to remain in an occupational role because of his/her emotional attachment to the occupation as another defining feature of OC. On the other hand, continuance OC connotes an employee's continuation in his/her chosen occupation because of the high costs associated with leaving as opposed to the benefits associated with staying (Ivtzan, Sorensen & Halonen, 2013). Lastly, normative OC refers to a sense of moral obligation or the feeling of loyalty by an employee to remain in a chosen occupation, thus retaining membership of that occupation or profession (Blaique, Pinnington & Aldabbas, 2022). These perceived costs include accumulated investments or side bets such as the time spent in education and training in one's occupation and perceived limited occupational alternatives (Ozgenel, 2019).

Hypotheses development

Prior research illustrates that POS-J, which is the extent to which managers value employees as persons and care about their well-being, generates positive

moods, reduces stress levels, increases levels of job satisfaction and low levels of FW (Kahya & Kesen, 2014). In support of this view, Kose (2016)) asserts that employees whose organisation adequately addresses their personal needs tend to experience high levels of job satisfaction and low levels of FW. On the other hand, when an organisation treats its employees unfavourably, increased levels of FW occur and such a treatment meted out to employees is also associated with physical health problems, intention to quit and withdrawal tendencies (Perkins & Oser, 2014). Kahya and Kesen (2014) concur that employees who feel that their organisation cares less about their well-being and/or treats their needs as inconsequential become less motivated and display negative behavioural tendencies at work such as work sabotage, high accident rate, absenteeism, turnover and FW. The findings necessitated the development of the following hypothesis:

H1: There is a significant negative relationship between POS-J and FW.

There is evidence to suggest that POS-R, which refers to the valuing of employees' contribution to the attainment of organisational goals or their productive worth, induced a sense of accomplishment, satisfaction with the job and less frustration with work (Kahya & Kesen, 2014) The study of Mnyani *et al.*'s (2023) further attest that employees whose productive worth is acknowledged by their organisation tend to appraise their jobs more favourably and experience reduced levels of FW. Conversely, employees whose performances are not appreciated are prone to experience increased levels of FW and low levels of job satisfaction (Perkins & Oser, 2014). In view of this finding, the following hypothesis was postulated:

H2: There is a significant negative relationship between POS-R (care about employees' well-being and respect) and FW.

Teaching is generally considered a demanding and stressful profession owing to several potential stressors: learners' misbehaviours, time pressure and workload, conflicts with colleagues, lack of administrative support and value conflicts (Liu & Onwuegbuzie, 2012). The presence of these potential stressors in the workplace increases stress levels among educators and may lead to feelings of burnout and increased intentions to quit the profession (McInerney, Korpershoek, Wang & Morin, 2018). Considering this empirical evidence, the following hypothesis was posited:

H3: There is a significant negative relationship between FW and OC

The study conducted by Mohamed and El-Shaer (2013) reveals that POS-J positively correlates with professional commitment. The authors ascribed the finding to career growth opportunities that are offered to employees, which induce the desire to advance their careers and stay in their chosen occupations. Furthermore, the perception of being supported by the organisation and the nature of work that the employees do engender a sense of commitment to their profession (Rogosic & Perica, 2023). Sungu, Weng and Xu (2019) believe that providing an enabling environment for the promotion of the ideals and goals of a specific occupation infuse OC among employees. These findings led to the development of the following hypothesis:

H4: There is a significant positive relationship between POS-J and OC.

Skaalvik and Skaalvik (2016) observe that employees whose organisation demonstrates concern toward their welfare tend to develop strong affinity toward their occupation/profession. Gilbert, Adesope and Schroeder (2014) further assert that employees who perceive their organisation as valuing them as individuals/persons tend to reciprocate by remaining committed to their profession. Based on this empirical finding the following hypothesis was suggested:

H5: There is a significant positive relationship between POS-R and OC.

Conceptual framework

Figure nr.1 depicts the relationship between POS (POS-J and POS-R as independent variables), FW (both dependent and independent variable) and OC (dependent or outcome variable) among public secondary school educators in the Sedibeng West District.

Research methodology

Research paradigm, design and approach

This study is located within a positivist research paradigm because it enables the researcher to make deductive conclusions from a precise measurement of quantitative data (Rehman & Alharthi, 2016). Furthermore, a quantitative research approach was employed and a descriptive research and correlational designs, utilising a survey to garner respondents' views on biographical information, POS-J, POS-R, FW and OC, were carried out

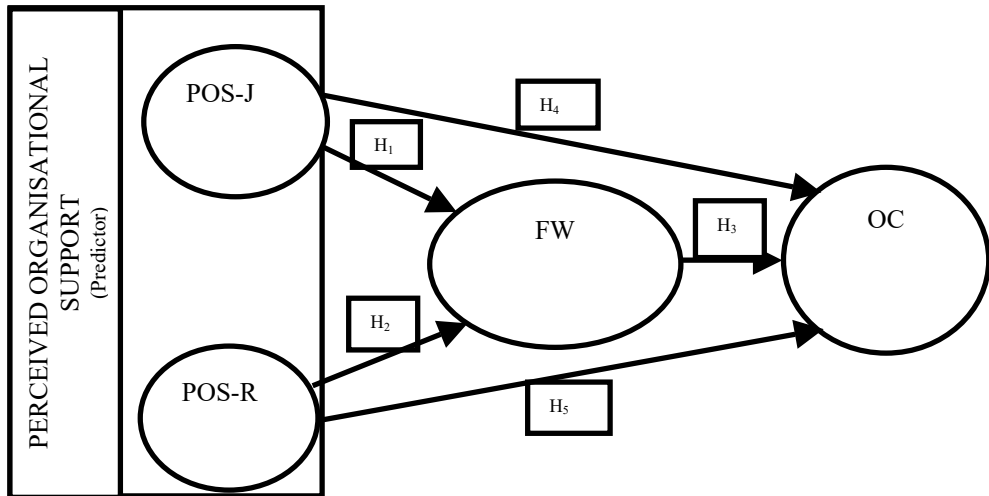


Figure nr.1. Conceptual framework

Target population and sampling technique

The study is in the education district in South Africa. The target population constituted all the educators, heads of departments, deputy-principals and principals in the public secondary schools in Sedibeng West District (N=1 797). Male and female educators who held permanent, temporary or contract positions for more than one year at their individual schools made up part of the study.

A non-probability convenience sampling technique was utilised to select sample respondents and a self-administered structured questionnaire was used to garner data. The sample size was 373 (n=373) participants that complied with the recommendation that 20 percent of the sample should be selected for a population of about 1 500 (N=1 500) (Leedy & Ormrod, 2013). Two hundred and forty questionnaires (240) were completed and retrieved and the response rate (64.3%) exceeded the threshold of 50 percent, which is considered adequate for statistical analysis (Rubin & Babbie, 2010).

Method of data collection and measuring instruments

A structured questionnaire consisting of four sections was self-administered to respondents to elicit responses. Section A solicited biographical information pertaining to gender, marital status, age category, race, qualification, years of

service and the position held in a school. The measuring instruments were adopted from various authors: Section B comprised the 17 items of POS-J and POS-R (Eisenberger *et al.*, 1986); Section C covered FW using five items (Peters, O'Connor & Rudolf, 1980) and Section D comprised the seven items of Blau's (1989) OC measuring instrument.

Statistical analysis

The data obtained from the respondents were captured into an Excel spreadsheet for data preparation and processing and the Statistical Package for Social Sciences (SPSS) 28 was used to compute descriptive and inferential statistical analysis. Confirmatory factor analysis (CFA) using Analysis of Moment Structures (AMOS) 28.0 was invoked to confirm the factor structure of the constructs in the study and to determine if the data fitted the model, while correlation analysis was employed to examine the nature of the relationships between the constructs to confirm convergent validity. The structural equation modelling (SEM) was used to confirm the structural fit of the model, and path analysis was applied to test the hypothesised relationships.

Results and discussion

Demographic profile of respondents

Regarding the biographical information collected, females (69.60%; n=167) were in majority, and a significant number of the respondents were married (61.25%; n=147). Many of the respondents were within the age category of 21 to 30 years (32.10%; n=77), while Africans constituted most of the units of analysis (52.92%; n=127). Many of the respondents also held a degree qualification (45.42%; n=109) and many of them were employed for less than 10 years (45.00%; n=108). Finally, a considerable number of the respondents were educators (76.25%; n=183).

CFA model and the measurement fit

The CFA model constructed in Figure 2 proposes the existence of four distinct latent variables for the study, namely POS-J, POS-R, FW and OC. The model postulates the prevalence of the correlations between the variables that demonstrates their distinctness from one another. For each latent variable, there are corresponding observed variables and error terms. The measurement fit of the model was tested using AMOS version 28 and the CFA analysis results are reflected in Table no.1.

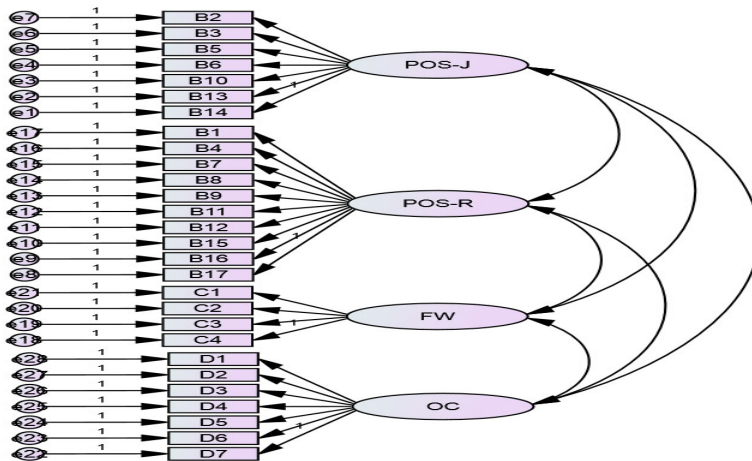


Figure nr.2: CFA model

Reliability and validity of the measurement items

It can be observed from Table no.1 that the Cronbach and composite reliability values exceeded the threshold values of 0.7 (Suarez-Albanchez, Blazquez-Resino, Gutierrez-Broncano & Jimenez-Estevez, 2021). In addition, the factor loadings or regression weights for all the observed variables met the requirement of 0.5 (Ngirande, 2021). All these values confirmed the reliability of the measurement instrument utilised in the study.

Three types of validity, namely convergent validity, discriminant validity and construct validity were utilised to measure the validity of the variables in the research model. AVE was used to measure convergent validity and the values of AVE for all constructs ranged from 0.523 to 0.678. These AVE values were within or exceeded the threshold of 0.5 (Dilekli & Tezci, 2019). Thus, the research instrument was valid. In respect of discriminant validity, the maximum squared correlations ranged from 0.723 to 0.823. Clearly, these values are well above the values of the construct correlations, thus confirming that the constructs in the research model were distinct from each other. Lastly, the fit indices, affirmed the unique feature of the constructs from each other and these fit indices are explained in the following paragraphs.

The measurement fit indices with their respective values reflected in Table no.1 were $\chi^2/df = 1.685$; $GFI = 0.85$; $RMSEA = 0.054$; $NFI = 0.859$; $TLI = 0.930$; and $CFI = 0.937$. The guidelines for acceptable fit by Simon Kriston, Loh, Spies, Scheibler, Wills and Harter (2010) confirm that the proposed measurement model explained the phenomenon under study. In a nutshell, the proposed measurement model constituted a satisfactory or acceptable fit.

Table no.1. Standardised regression weights, α -values, C.R, AVE and MSV of items and variables

Latent variables	Observed variables	Standardised regression weights	Cronbach alpha values (α -values)	Composite reliability (C.R)	Average variance extracted (AVE)	Maximum squared correlations MSV
POS-J	B2	.568	0.853	0.86	.523	.723
	B3	.690				
	B5	.692				
	B6	.553				
	B10	.831				
	B13	.587				
POS-R	B14	.791	0.941	0.94	.620	.787
	B1	.790				
	B4	.825				
	B7	.822				
	B8	.861				
	B9	.781				
	B11	.605				
	B12	.808				
	B15	.800				
FW	B16	.742	0.840	0.88	.577	.759
	B17	.811				
	C1	.677				
	C2	.820				
D	C3	.840				
	C4	.688				
	D1	.607				
	D2	.600				
	D3	.549				

OC	D4	.749	0.844	0.844	.678	.823
	D5	.686				
	D6	.641				
	D7	.786				
Construct correlations: POS-J – POS-R = .769; POS-J – FW = -.553; POS-R – FW = -.472; FW – OC = -.563; POS-J – OC = .469; POS-R – OC = .44						
Fit indices: χ^2/df = 1.685; GFI=0.853; RMSEA=0.054; NFI=0.859; TLI=0.930; CFI=0.937						

Results of the structural equation modelling and path analysis

The structural equation modelling (SEM) using AMOS version 28 was used to test the structural fit of the conceptual or research model. The results of the model fit test were $\chi^2/df = 2.519$; GFI=0.821; RMSEA=0.080, NFI= 0.788; TLI=0.846; and CFI=0.859. The model fit indices fitted satisfactorily with the data set, implying that the hypothesised conceptual model had an acceptable fit with the data set (Hu & Bentler, 1999; Bagozzi & Yi, 2012). Following the confirmation of the structural fit of the research model, path analysis was invoked to test the hypotheses and the results are presented in Table no.2.

Table no. 2. Results of the hypotheses test

Hypotheses	Proposed paths	Path coefficients	Standardised estimates	Critical ratios (t-values)	P-values	Decisions
H1 (-)	POS-J → FW	-.420	.071	-5.937	***	Supported at p<0.001
H2 (-)	POS-R → FW	-.140	.061	-2.281	.023	Supported at p<0.05
H3 (-)	FW → OC	-.345	.077	-4.466	***	Supported at p<0.001
H4 (+)	POS-J → OC	.111	.050	2.230	.026	Supported at p<0.05
H5 (+)	POS-R → OC	.101	.057	1.771	.077	Not supported at p>0.05
<p>***p-value<0.001; **p-value<0.05; *p-value<0.1; critical ratio (t-value) that exceed 1.96 is significant POS-J, perceived organisational support (the job-related factor); POS-R, perceived organisational support (the relationship factor); FW, frustration with work; OC, occupational commitment</p>						

H1: The hypothesis, *there is a significant negative relationship between POS-J and FW*, was supported because the path analysis results (path coefficient = -0.420 ; $p < 0.001$) showed that lack of POS-J among educators contributed to the occurrence of FW. The conclusion derived from the data was that educators whose performance or contribution to the attainment of schools' goals was not nurtured or taken cognisance of, experienced frustration with work. The finding is consistent with Cheng and O-Yang's (2018) assertion that employees whose performances are not appreciated by their employing organisations are prone to experience an increased level of FW and low level of job satisfaction.

H2: The hypothesis, *there is a significant negative relationship between POS-R and FW*, was accepted as the findings proved that lack of POS-R contributed to the prevalence of FW among educators (path coefficient = -0.140 ; $p < 0.05$). According to Lanre-Babalola, Oginni, Obidiya and Adewole (2024), when an organisation treats its employees unfavourably, an increased level of FW sets in, which is accompanied by physical health problems, intention to quit and withdrawal tendencies.

H3: The hypothesis, *there is a significant negative relationship between FW and OC*, was sustained because data revealed that reduced levels of FW contributed to the increased levels of OC (path coefficient = -0.345 ; $p < 0.001$). This finding resonates with Hoeve, Brouwer and Kunnen's (2020) finding that employees whose work environmental factors are less supportive of their performances or self-actualisation in their current job or organisation tend to pursue other career or employment prospects.

H4: The hypothesis, *there is a significant positive relationship between POS-J (care about employees' outcomes and performance) and OC*, was also accepted as the findings illustrated that lack of POS-J contributed to the occurrence of OC (path coefficient = 0.111 ; $p < 0.05$). This finding is embraced in Singh, Zhang, Wan and Fouad's (2018) contention that the desire by employees to further their careers and remain in their chosen occupation is fostered by the sense of value that the organisation places on the employees' work inputs and the acknowledgement of employees' productive worth.

H5: The hypothesis, *there is a significant positive relationship between POS-R and OC*, was rejected as the results highlighted that POS-R had no significant contribution to the incidence of OC (path coefficient = 0.101 ; $p > 0.05$). This finding is in contradiction with Zeng, Zhang, Chen, Liu and Wu's (2020) assertion that when employees perceive that their organisation values them as individuals/persons, they tend to reciprocate by remaining committed to their profession.

Limitations and future research opportunities

First and foremost, this study employed the use of only one research approach, namely quantitative research approach, in exploring the relationship between POS-J, POS-R, FW and OC. Future studies should consider utilising a mixed method approach to the garner robust or intensive data to explain the phenomena comprehensively. Secondly, the results in this study should be interpreted with caution because the educators, HODs, deputy-principals and principals that formed part of the study were conveniently sampled from the Sedibeng West District. Future research should utilise random sampling technique in collecting data to give effect to the generalisation of findings to a larger population. Thirdly, the collection of data in this study was susceptible to common method bias because it was based on self-reports by educators, HODs, deputy-principals and principals. Future studies should integrate district managers' views in the collection of data to confirm the educators, HODs, deputy principals and principals' perceptions in relation to the variables in the study. Lastly, the collection of data in this study was at a single point in time, a practice that excludes changes in perceptions that could occur immediately after the administering of the research instrument. Future studies should consider conducting a longitudinal study to improve the quality of information and obtain better findings over a period.

Conclusion and recommendations

Based on the empirical findings in this study, it is imperative for policy makers as well as school managers to create programmes that ensure equitable compensation of educators based on their outcomes and performances, instead of a one-size-fit-all approach. As supported by Vroom's expectancy theory, employees evaluate the feedback that they receive based on effort-performance relationship, performance-reward relationship and rewards-personal goal relationship (Chopra, 2019); thus, demonstrating that the attractiveness of the reward for outcomes and performances by educators is hinged upon their personal preferences or the ability of the reward to personally satisfy each educator's needs as against the generic one-size-fit-all approach.

Research implications

Past and current research are devoid of the frustration educators experience in the discharge of their duties. In this paper, the concept of frustration with work was researched and elaborated on to provide a better understanding of factors that give rise to this phenomenon among educators. The research on the association between

frustration with work, perceived organisational support (POS-J and POS-R) and occupational commitment has equally unravelled that ensuring educators stay in their profession, district managers and school managers need to ramp up support to educators by recognising their contribution to the management of the school through participatory decision-making and effective implementation of a performance management system. The research on the association between the variables in this paper, one of its kind, highlighted the interlinkages that could enhance professional commitment among educators. Furthermore, this paper demonstrated that human resources practices that contribute to the well-being of educators tend to create an inclination among them to stay in the teaching profession and such educators are less frustrated with their work. To this end, national education policy makers, district education regulators and school managers should develop and implement those human resource management practices that improve the well-being of educators, such as equitable distribution of workload and resources, including a fair compensation system.

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IMPACT OF GREEN HUMAN RESOURCE MANAGEMENT PRACTICES ON BUSINESS PERFORMANCE IN MANUFACTURING INDUSTRIES

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Abstract

This study aims to examine the contributions of the combined green human resource management practices to business performance and determine the relative contributions of each of the green human resource management practices to business performance. The descriptive survey research design was adopted for the study. A total of 2, 492 respondents were selected using the purposive and proportionate stratified sampling techniques. A set of structured questionnaire was used for data collection. The findings reveals that green human resource management practices had a strong association of 71.6% with business performance, the r squared value show 0.513(51.3%), which denotes the goodness of fit of the independent variables (green human resource management practices), in the regression model. The result also revealed that all the independent variables are statistically significant at 95% confident level, p value <0.05. Constant (t value = 7.593; p.value <0.05) denotes

evidence against the null hypothesis, hence it is rejected, and the alternate hypothesis is accepted. The study concluded that employees in the selected organisation are not novice to green human resources practices. This denotes that the green HRM practices are actually carried out in the companies.

Keyword: *business performance, green human resource management, green recruitment and selection; green human resource planning*

JEL Classification: O15, M12

Introduction

In the recent times, organizations had become so much conscious of the returns they earmarked from their daily transactions. Most of the time, organization depend largely on the business environment by drawing their inputs from the environment, processed it to outputs, in form of products and services, and finally return the same to the same environment for profit maximization. This suggests the need for organizational adaptation and integration with the business environment for competitive advantages. However, most managers in work organization including the employers of labour found it difficult to sustain the natural resources that could be beneficial to organization as a means of promoting environmental friendly human resource management. This attitude has led to low productivity and poor organizational performance in some industries (Akintayo, 2021).

Business performance is a broad and complex area of study that encompasses a range of factors, including financial performance, customer satisfaction, employee engagement, and operational efficiency. This study focuses on financial performance as metrics of business performance. Numerous studies have explored the factors that contribute to business performance and the strategies that organizations can use to improve their performance. One of the key factors that had been shown to impact business performance is leadership. A study by KPMG (2022) found that companies with strong leaders tend to outperform their peers in terms of revenue growth and profitability. Similarly, a study by McKinsey (2022) found that companies with effective leadership teams are more likely to achieve sustained high business performance. Another factor that has been shown to impact business performance is organizational culture.

Green human resource management refers to systems, practices, and policies that categorize employees in a firm as green, and it serves the interests of the environment, businesses, people, and society at large (Renwick et al., 2020).

Meanwhile, the relationship between an organization and environmental preservation is defined in green human resource management by using several unique approaches that could foster the needs for environmental friendly human resource management practices. Also, it emphasizes the vulnerability of the ecosystem and the negative environmental effects of the organization's economic activity (Mishra et al., 2021; Driessen & Hillebrand, 2019, Krambia-Kapardis & Zopiatis, 2019).

Literature has demonstrated that green human resource management (GHRM) increases social and economic well being of firms and their employees from a broad perspective while also raising knowledge of environmental challenges. It is helpful in reducing carbon footprints and costs, fostering employee productivity and environmental awareness (Ahmad, 2022). The green human resource management procedures could aid in boosting employees' productivity and dedication to enhance environmental efficiency (Krambia-Kapardis & Zopiatis, 2020; Delmas & Burbano, 2019, Chen, Paillé & Boiral, 2023).

Business performance has become an issue of concern among the employers of labour and all stakeholders in the business organization. The problem of goal realization as an evidence of business performance has been mostly affected by environmental degradation and economic recession. Most of the organizations in Nigeria are not even environmental friendly to the extent of demonstrating negative interest on sustainability of preservation of natural resources that could have engendered high business performance. This study aims to achieve the following objectives

- i. examine the contributions of the combined green human resource management practices to business performance
- ii. determine the relative contributions of each of the green human resource management practices to business performance.

Research Hypotheses

- i. There is no significant contribution of combined green human resource management practices and business performance.
- ii. There is no significant relative contributions of each of the green human resource management practices and business performance

Literature Review

Green Human Resource Management

Green Human Resource Management (GHRM) is an emerging field or branch of Human Resource Management (HRM), which is a profound field of organizational management and is a subject or work that is essential for all types of managers working in any organization irrespective of their fields of specialization and interest (Opatha & Hewapathirnaa, 2019). GHRM is relatively a new phenomenon in the academic world as well as the practical world of HRM and managing organizations. Evolution of this term 'Green HRM' was brought about through in the year 1996, by Wehrmeyer in his book 'Greening People', where he talked about increasing sustainability through the most important resource – people (Gupta, 2021).

Going green does not mean an environment has to be painted green, but it means the measures where organizations operating in a business area are been conscious of their environment (Kapil, 2022). It applied to industry, finance, building construction, education, maintenance of offices, agriculture, trade, etc. But in the real sense, it is meant to conserve nature as far as possible in its original state. It is felt more than ever in the 21st century that we need to recycle the limited resources we have, minimize our aggressive behaviour towards nature, and thereby save the environment from pollution (Hossan, 2021).

Meanwhile, for further understanding of the concept, the green human resource management (HRM) has been defined by different scholars in different ways. According to Mwita (2019), Green HRM is simply integrating Human Resource Management with Environmental related issues. Kennedy and Toffler (2021) have referred Green HRM as all those activities, involved in development, implementation and on-going maintenance of a system that aims at making the employees of an organization green. According to them, it is the side of HRM that is concerned with transforming normal employees into green employees so as to achieve environmental goals of the organization and finally to make a significant contribution to environmental sustainability. Similarly, Watson and Kavid (2021) defined green HRM as the set of policies, practices and strategies pertaining to HR discipline, which can ensure the achievement of overall sustainable business model in an organization. Peter and Lanos (2022), on the other hand have defined green HR as the initiatives to reduce wastes. Observation of Peter and Lanos (2022) has remained focused on resource wastage in an organisation, which traditional HR has been accused of.

Green Human Resource Planning

At present, some companies engage in forecasting number of employees and types of employees, needed to implement corporate environmental management initiatives/programs/activities. These are good practices some leading companies have adopted to manage their environmental issues. The corporate environmental management initiatives demand some new job positions and specific set of skills.

Green human resource planning gets required in this context. In addition these companies engage in deciding strategies to meet the forecasted demand for environmental works (e.g. appointing consultants/experts to perform energy or environmental audits) and sometimes they are outsourcing. As far as existing literature is concerned, it did not clearly specify the practices under the function of green human resource planning. However, based on the observations of the industries and organisations, it is possible to identify certain green human resource planning practices.

Green Recruitment and Selection

Recruitment is considered as an entry point to the organisation. It gives an organisation an opportunity to attract a pool of candidates so that the right ones can be selected to join. Green recruitment means paper free recruitment process with minimal environment impact (Chaderjeet, 2022). Green recruiting is a system where the focus is given on importance of the environment and making it a major element within business organisations. For instance, applications are invited through online mediums like e-mail, online application forms or the Global Talent Pool. Furthermore, the recruiting can be done as paper less interviews, eco-friendly locations and also other practices in the recruitment portfolio.

Green Reward and Compensation Management

Conventional wisdom suggests that a well-designed reward system can help motivate employees to achieve satisfactory performance levels, including environmental performance (Mwati, 2019). The idea of a green reward is very vital to enhance employees to appreciate ecological and be friendly environmentally (Emmanuel et al., 2020). Recognition-based awards will highlight green employee contributions through wide-ranging advertising and public recognition and appreciation by top managers of green initiatives (Ullah, 2022). Attainment of specific environmental initiatives should be integrated into the compensation system by offering employees a benefit package that rewards employees for green performance (Uddin & Islam, 2022).

Green Training and Development

The green training and development is a practice that focuses on development of employee's skills, knowledge and attitudes (Chaderjeet, 2022). Green training and development educates employees about the value of Environmental Management, train them in working methods that conserve energy, reduce waste, diffuse environmental awareness within the organisation, and provide opportunity to engage employees in environmental problem-solving (Zoogah, 2019). As suggested by Hosain (2023) training supervisors should use more on online course materials and case studies rather than printed handouts, books and brochures to reduce the use of paper. This gives an opportunity for e-learning platforms to take chance in training and development programmes. The use of digital platform may help to reduce consumption of papers and ultimately save trees for the current and future generations (Mwita, 2019).

Green Performance Management

Performance management is a systematic process for improving organisational performance by developing the performance of individuals and teams (Armstrong, 2006). Performance management usually involves evaluation of an employee and teams basing on certain agreed criteria and goals (Mwiti, 2019). Green performance management involves linking performance evaluation to green goals and tasks specified in the job description (Mehta & Chugan, 2022).

Green Employee Relations

Employee relations are that aspect of HRM, which is concerned with establishing harmonious employer and employee relationship. The cordial relationship facilitates increase in the productivity. Several workers in their study concluded that individual empowerment positively influences productivity and performance, and facilitates self-control, individual thinking, and problem-solving skills (Banerjee & Dutta, 2022).

Challenges of Green Human Resource Management

Apart from the above mention advantages or benefits, green HRM faces certain challenges. The challenges of Green HRM as identified in Deshwal (2022) are as follows: It is difficult to alter the behaviour of employees in a short span of time, not every employee is equally motivated to participate in the promotion of Green HRM practices in the organization, Developing the culture of Green HRM in entire organization is a cumbersome and lingering process, it requires high investment at initial stage and comparatively slow rate of return, Sourcing and recruitment of green employees with quality talents is a challenging task, It is difficult to measure

the effectiveness of green HR practices in employees' behaviour, HR professionals faced problems of being expected to provide the essential green structures, green processes, green tools, and green thinking to make the best selection and develop the future green leaders of the organization.

Business Performance

According to Jensen (2001), business performance refers to how effectively a company is able to achieve its objectives and generate value for its stakeholders, including shareholders, customers, employees, and suppliers. It is often measured in terms of financial metrics such as revenue, profit, return on investment, and cash flow, but can also include non-financial indicators such as customer satisfaction, employee engagement, and environmental sustainability. By implications, effective business performance requires a clear understanding of the company's strategic goals, a well-defined set of performance metrics, and the ability to analyze and improve performance over time. Key factors that can impact business performance include the company's competitive environment, industry trends, technological advancements, and regulatory changes.

Similarly, business performance according, Deloitte (2022) refers to the extent to which a company achieves its objectives and goals, as well as the effectiveness with which it utilizes its resources to do so. It can be measured in a number of ways, including financial performance, operational performance, customer satisfaction, employee engagement, and environmental impact. In order to enhance business performance, companies may employ a variety of strategies, such as investing in new technology, improving operational efficiency, developing new products or services, expanding into new markets, and building strong relationships with stakeholders. Continuous monitoring, analysis, and improvement of business performance are essential to ensure the company remains competitive and sustainable over the long term.

Theoretical Review

Resource-Based Theory

The core of the resource-based theory of the firm lies in a fundamental heterogeneity in the production processes of firms. Given certain inputs, each firm will apply these inputs in a different way, resulting in different outputs or products. As a consequence, sustained competitive advantage will result for those firms whose production process proves to be most efficient and whose outputs best meet

demand. Inputs are usually divided in three categories: physical resources, organizational resources and human resources (Koch & Kok, 1999).

Barney (2001) stressed that these resources are bundles of tangible and intangible assets, including a firm's management skills, its organizational processes and routines, and the information and knowledge. Resources are important to the organizations since they are valuable, rare, costly to imitate, and non-substitutable (Armstrong & Shimizu, 2007).

Basing on this theory a competitive advantage can be gained by a firm if human resources are acquired and developed hence possess competences that cannot be imitated by its rivals (Armstrong, 2006). This entails that organizations are supposed to create environment that attract employees that can meet organizational needs and that allows continuing learning of their employees in various ways.

Ability-Motivation-Opportunity (AMO) Theory

This theory is considered as one of the most dominant theories for explaining green practices and their outcomes both on employee and the organisation. This theory tacitly insinuated that HRM practices in sustaining the environment can only be achieved through the enhancement of employees' ability; that is, by attracting and developing employees abilities on green concerns; enhancing employees' motivation and level of commitment using strategies such as trainings, effective education; and availing employees the opportunity to engage in knowledge sharing and problem solving activities through the provision of employee involvement programmes. In summary, this theory, affirms that human resource management practices can be employed to influence employees' discrete behaviours towards sustaining the environment using green training and development practices (Shen et al., 2022).

Methodology

The descriptive survey research design was adopted for the study. A total of 2,492 respondents were selected using the purposive and proportionate stratified sampling techniques. A set of structured questionnaire titled "Green Human Resource Management Practices and Business Performance Questionnaire (GHRMP&BPQ) with reliability coefficient of 0.76 and 0.85 respectively was used for data collection. The data collected was collated and analyzed using the Multiple and Linear Regression Analysis, ANOVA, Canonical Correlation, and t- test statistics at 0.05 alpha levels.

Discussion and Findings

Hypothesis One

Ho: There is no significant contribution of combined green human resource management practices and business performance.

Table 4.1: Analysis of the Interaction between combined green human resource management practices and business performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.716 ^a	.513	.512	1.31697
a. Predictors: (Constant), Green Employee Relations Management, Green Performance Management, Green Compensation Management, Green Training and Development, Green Recruitment and Selection				

Source: Author's Computation using SPSS 26.0, (2023)

The summary result in table 4.3 revealed the r and r square value of the regression analysis on the combined green human resource management practices and business performance. The degree of influence of the independent variables put together (green human resource management practices) on the dependent variables (business performance) is determined from the result. R value showed 0.716(71.6%), which indicates that green human resource management practices had a strong association of 71.6% with business performance. The r squared value show 0.513(51.3%), which denotes the goodness of fit of the independent variables (green human resource management practices), in the regression model. It implies that green human resource management practices has strong influence on business performance, i.e., 51.3% variation in business performance is explained by green human resource management practices and the remaining 48.7% variation is explained by other variables not identified in the regression model, they are categorized under the error term.

Table 4.2 Regression Showing Significance of Predictors to Business Performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4533.712	5	906.742	522.794	.000 ^b
	Residual	4303.083	2481	1.734		
	Total	8836.795	2486			
a. Dependent Variable: Business Performance						
b. Predictors: (Constant), Green Employee Relations Management, Green Performance Management, Green Compensation Management, Green Training and Development, Green Recruitment and Selection						

Source: Author’s Computation using SPSS 26.0, (2023)

Table 4.2 represents the ANOVA table of the regression analysis result. It reveals the F stat value 522.794, i.e., the combined green human resource management practices (Green Employee Relations Management, Green Performance Management, Green Compensation Management, Green Training and Development, Green Recruitment and Selection) as identified in the study strongly predicted business performance (earning per share; return on investment, return on equity, return on capital employed, return on asset, dividend per share, and profit after tax) in the selected manufacturing companies. It also indicates that the overall regression model is highly statistically significant in terms of its goodness of fit since the value of F_{cal} (522.794). The Sig value $0.000 < 0.05$ denotes that the variables are statistically significant at 95% confident level. There is strong evidence against the null hypothesis following the Sig. value, $0.000 < 0.05$. Hence, the study concluded that there is significant contribution of combined green human resource management practices (Green recruitment and selection; green human resource planning, green training and development, green compensation management, green performance management and green employee relations management) and business performance (earning per share; return on investment, return on equity, return on capital employed, return on asset, dividend per share, and profit after tax).

Hypothesis Two

There is no significant relative contributions of each of the green human resource management practices and business performance

Table 4.3: Relative contribution of integrated talent management strategies to employees’ turnover intention

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.079	.274		7.593	.000
	Green Recruitment and Selection	.200	.021	.198	9.491	.000
	Green Training and Development	.229	.020	.229	11.253	.000
	Green Compensation Management	.167	.020	.167	8.234	.000
	Green Performance Management	.147	.021	.147	7.135	.000
	Green Employee Relations Management	.127	.018	.127	6.844	.000

a. Dependent Variable: Business Performance

Source: Author’s Computation using SPSS 26, (2023)

Table 4.3 shows the regression coefficients of the significant relative contribution of green human resource management practices to business performance. The results show Green Recruitment and Selection ($\beta= 0.198$ and t value =9.491) contribute positively, meaning that 1% increase in Green Recruitment and Selection plan will lead to 19.8% positive improvement on business performance and vice versa. Green Training and Development show ($\beta= 0.229$ and t value = 11.253), meaning 1% increase in the level of Green Training and Development plan implementation will enhance the level of business performance by 22.9% and vice versa. Green Compensation Management ($\beta= 0.167$ and t value = 8.234), which indicates business performance will increase by 16.7% when Green Compensation Management policy is increased by 1% and when decreased business performance decreases as well. Green Performance Management ($\beta= 0.147$ and t value = 7.135), i.e., 1% increase in Green Performance Management policy will improve business performance by 14.7% and vice versa. Green Employee Relations Management policy ($\beta= 0.127$ and t value = 6.844), this indicates that business performance will improve by 12.7%,

when Green Employee Relations Management plan is increased by just 1% and when it is reduced, business performance reduces by the relative percent.

The result also revealed that all the independent variables are statistically significant at 95% confident level, p value <0.05. Constant (t value = 7.593; p.value <0.05) denotes evidence against the null hypothesis, hence it is rejected, and the alternate hypothesis is accepted that there is significant relative contributions of each of the green human resource management practices and business performance.

Conclusion and Recommendation

The study concluded that green human resources practices (Green recruitment and selection; green human resource planning, green training and development, green compensation management, green performance management and green employee relations management) have a positive and significant impact on business performance (earning per share; return on investment, return on equity, return on capital employed, return on asset, dividend per share, and profit after tax) of manufacturing companies in South-west, Nigeria. The study concluded that employees in the selected organisation are not novice to green human resources practices. This denotes that the green HRM practices are actually carried out in the companies.

Based on the finding on the influence of green human resource management practices, the study recommended that more emphasis should be placed on green training and development programmes for employees. Employees should be adequately educated on the importance of environmental management to efficient business performance. In essence, employees should be trained in working methods that conserve energy, reduce waste, diffuse environmental awareness within the organisation, and provide opportunity to engage employees on environmental problem-solving.

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THE COVID-19 PANDEMIC AND HUMAN RESOURCE MANAGEMENT: CONSEQUENCES, POSSIBILITIES, DIFFICULTIES, AND FUTURE ORGANISATIONAL PATHS

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Abstract

All organisations have been profoundly shaken by the COVID-19, which has made things difficult and complex for managers and human resource management (HRM) professionals. These professionals must come up with creative solutions to keep their businesses running smoothly and assist their staff in overcoming this unprecedented crisis.

There are few studies discussing how this crisis has affected HRM. This analysis of the general literature attempts to extend the reach of management research by examining the COVID-19's effects on human resource management. It highlights the primary difficulties and chances brought about by this new pandemic and provides managers and HRM professionals with

information on potential future organisational paths that may result from these opportunities.

Keywords: *remote work, work from home, COVID-19, crises, Human Resource Management (HRM).*

JEL Classification:J81, J88, M12,M54,I18, O33

Introduction

The world has been rocked by the unprecedented COVID-19 health catastrophe, which has caused widespread dread and anxiety. It has had a significant effect on workers, organisations, society, and economies. The outbreak of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in December 2019 in Wuhan, China, marked the beginning of this crisis. The virus spread quickly, and on March 11, 2020, the World Health Organisation declared a global pandemic (WHO, 2020).

These nations have put in place a number of non-pharmaceutical measures, like social separation, in an effort to slow the COVID-19 virus's rapid spread. People were placed under quarantine, lockdown procedures were implemented, schools, colleges, non-essential companies, and non-governmental organisations were temporarily closed, travel was restricted, flights were cancelled, and social gatherings and large public gatherings were outlawed (Brodeur, Grey, Islam, & Bhuiyan, 2020; Gourinchas, 2020).

In addition to these steps, the COVID-19 pandemic had caused a notable slowdown in global economic activity (Brodeur et al., 2020; Gourinchas, 2020), which had resulted in furloughs and layoffs (World Economic Forum, 2020), raising the unemployment rate in numerous nations. According to Kretchmer (2020), "The current G7 jobless totals vary widely, from 30 million in the United States to 1.76 million in Japan." Gourinchas (2020) claims that COVID-19 has created a situation in which 50 percent or more of the workforce may not be able to work in the near future.

In an attempt to recover from the economic shock, businesses have begun to reopen in the midst of the pandemic (Major & Machin, 2020) under extraordinary rules and a new functioning that involves physical distancing in the workplace (Shaw, Main, Findley, Collie, Kristman, & Gross, 2020) and whose end is unpredictable. As a result, it is clear that this pandemic has created a complex and demanding environment for managers and human resource management (HRM)

professionals, who must come up with creative solutions to maintain their business's operations and assist staff members in overcoming the difficulties of this extraordinary circumstance.

There are not many studies on the effects of COVID-19 on HRM, its difficulties, and its prospects for HRM in organisations in this context, while managers and HRM practitioners require pertinent data to help them navigate this crisis successfully and efficiently in order to support their staff and keep their business afloat. In actuality, organisations typically lack the necessary resources to handle crises when they arise (Wang, Hutchins, & Garavan, 2009).

This is why it is crucial that the scientific community help organisations by giving them pertinent knowledge about this new pandemic. Therefore, the main objectives of this study are to examine how COVID-19 has affected HRM, to pinpoint the major obstacles and possibilities, and to offer suggestions for future developments in this field. Given the dearth of studies on this subject, the scientific goal of this work is to increase the scope of management research.

Methodology

This work is a general assessment of the literature with an educational goal, looking at pertinent and recent studies that looked into how COVID-19 affected HRM. Studies looking into this influence are quite rare. As a result, we began looking for publications that looked at the connection between COVID-19 and HRM in general. Next, we looked for articles that looked at the specific effects of the pandemic on each HRM function and practice, such as staffing (recruitment) and remuneration. Using a mix of terms relating to coronavirus OR COVID-19; human resource management; HRM; pandemic and HRM functions (e.g., compensation and staffing), we searched Google Scholar, Ebsco, and Semantic Scholar for papers. The process of finding articles was done by hand. Articles released between December 2019 and February 2021 were the focus of our search. Articles about epidemiology have been omitted. All of the articles that were examined for this work are included in the "References" section.

Literature Review

COVID-19 and Human Resource Management: Consequences and Obstacles

HRM is "the study of how individuals are hired, developed, and managed in organisations." (Taylor & Armstrong, 2020). COVID-19 has had a major impact on

it, posing serious difficulties for managers and HRM professionals. In relation to strategic HRM and working conditions, as well as HRM functions—specifically, staffing, performance management, training and development, pay management, safety and health management, and employee relations—this impact and these problems are examined in this section. Although each HRM function is explained separately, they are all connected. This implies that modifications made to one HRM function will have an impact on the other (Mondy & Martocchio, 2016).

COVID-19 and the Strategic Management of Human Resources

According to Wright and McMahan (1992), strategic HRM is the vertical relationship between HRM functions and organisational strategy as well as the horizontal coherence between HRM functions. According to Chapman, Sisk, Schatten, & Miles (2018), Navío-Marco, Solórzano-García, & Palencia-González (2019), and Schuler (1992), its primary goal is to efficiently use human resources to support the organization's strategic needs. Strategic agility is necessary to guarantee the accomplishment of the organisational goals during a crisis (Liu, Lee, & Lee, 2020). According to Liu, Lee, and Lee (2020), organisations must possess the ability to plan and distribute their resources, coordinate the necessary mechanisms, and make appropriate use of their organisational knowledge and resources. In this particular context, the COVID-19's uniqueness and complexity provide a serious obstacle that could jeopardise the accomplishment of organisational objectives.

Baert, Lippens, Moens, Sterkens, and Weytjens (2020) state that traditional economic models in establishments are primarily developed using data from the perspective of "normal times." Predictions concerning "abnormal times" are so difficult. This may imply that forecasting matters pertaining to the operations of the corporation, such as the planning and distribution of resources, may be a challenging task. In actuality, COVID-19 has caused ambiguity. While many economists believe the effects of this pandemic will persist until 2021, some authors (Regmi & Lwin, 2020) go so far as to anticipate the COVID-19 endemic (Akkermans, Richardson, & Kraimer, 2020). Even with the recent invention of several vaccines, nobody now knows when this virus will cease or if its effects on work patterns in organisations will be temporary or permanent (Bartik, Cullen, Glaeser, Luca, & Stanton, 2020). (Yu et al., 2021). Thus, for managers and HRM practitioners, carrying out strategic planning or putting the first one into practice can be difficult.

While having clear workplace guidelines during difficult times helps to reduce employees' stress and to increase their motivation and confidence (Wong, Ho, Wong, Cheung, & Yeoh, 2020), most organisations in this case were unable to provide their employees enough information about their management plan or their intended reactions towards the pandemic (Elsafty & Ragheb, 2020). According to Elsafty and Ragheb's (2020) study, staff retention is strongly correlated with having access to information and updates regarding the pandemic. However, given the novelty of this pandemic, it may be challenging for organisations to attain this goal if they are unable to obtain this information, particularly when they are in a reactionary and survival mode. To maintain the organization's longevity in the COVID-19 era, it is imperative to enhance organisational resilience, notwithstanding its challenges (Ngoc Su, Luc Tra, Thi Huynh, Nguyen, & O'Mahony, 2021). In fact, organisations must create creative strategies to deal with disruptions that endanger their survival, even in the midst of the uncertainty this epidemic has created (Ngoc Su et al., 2021). In fact, organisations must build creative strategies to deal with disruptions that endanger their survival, even in the midst of the uncertainty this epidemic has created (Ngoc Su et al., 2021).

Conditions of Work

According to the ILO (2020), working conditions are "the core of paid work and employment relationships." "A wide range of topics and issues are covered, including working time (hours of work, rest periods, and work schedules), compensation, and the physical and mental demands that are present in the workplace."(ILO, 2020). The COVID-19 pandemic has had a significant impact on workplace conditions. In fact, the majority of businesses have adopted remote working policies that mandate employees work from home in order to maintain business continuity (Aitken-Fox et al., 2020a, 2020b; Gourinchas, 2020; Koirala & Acharya, 2020). For instance, whereas Twitter employees were granted the option to work remotely permanently, Google declared that its staff will remain remote until at least Summer 2021 (Leonardi, 2020). However, the percentage of workers who work from home is still relatively low (Gourinchas, 2020). This is primarily due to the fact that remote work is not appropriate for manufacturing industries (Koirala & Acharya, 2020) and cannot be used for all job positions (Bartik et al., 2020).

For businesses whose operations prevent them from adhering to these kinds of working standards, there were two options available in this situation. Employers should decide whether to fire staff members or mandate that they be physically

present, wearing personal protective equipment, and according to physical distancing protocols (i.e., allowing two minutes between people) (Blustein, Duffy, Ferreira, Cohen-Scali, Cinamon, & Allan, 2020). According to a 2020 study by Adams-Prassl, Boneva, Golin, and Rauh, workers who are unable to complete their work from home are at a higher risk of losing their jobs. In such cases, HRM professionals are advised to determine which job roles are capable of being completed remotely, which ones may be performed in an office setting, and which positions require layoffs as a result of the pandemic-induced crisis. Consequently, managers and HRM professionals face substantial hurdles as a result of these abrupt and dramatic organisational changes.

Furthermore, they may have a major impact on workers' mental health (Hamouche, 2020), their perception of the person-environment fit (Carnevale & Hatak, 2020), and their experience with their jobs, workspace, and interactions with coworkers and managers (Aitken-Fox et al., 2020a). Work schedules for distinct employee groups have been implemented, and strict protective measures (such as physical separation and the wearing of protective masks) have been used to preserve physical presence in workplaces (Akbarpour et al., 2020). Ensuring adherence to these protective measures and creating work plans that take into account the circumstances of the employees present the main challenges in this situation.

As for remote working, it seems that managers and HRM practitioners have faced major challenges. First, to ensure that employees working from home have the necessary tools to perform their job (Aitken-Fox et al., 2020b; Hamouche, 2020). Actually, remote working requires the availability of technological tools which will facilitate communication between employees and managers, such as Zoom, Microsoft remote desktop, team viewer, and Microsoft team (Prasad & Vaidya, 2020), that cannot be afforded by all organizations, considering that the financial capacity varies from one organization to another. Secondly, to guarantee efficient communication, oversight, assistance, performance evaluation, and remuneration restructuring for remote workers (Aitken-Fox et al., 2020b). Additionally, managers who are managing remote teams for the first time require assistance from HRM practitioners (Caligiuri, De Cieri, Minbaeva, Verbeke, & Zimmermann, 2020). Lastly, HRM practitioners should be aware that working remotely may cause employees to become more isolated because of the lack of peer support, one-on-one communication, and workplace interaction. These factors can all be stressors that can negatively impact an employee's mental health (Prasad & Vaidya, 2020).

Given the potential for family distractions and the various tasks that they must play when working from home, it can also be psychologically taxing for these workers (Prasad & Vaidya, 2020). Furthermore, the growing usage of information and communication technology (ICT) may create expectations regarding employees' constant availability by creating a sense of perpetual urgency (Molino et al., 2020). Given that employees frequently utilise their emails when working from home, this could also result in an increase in the amount of information handled by them (Leonardi, 2020). According to several writers, employees who work remotely are seeing a rise in technostress associated with their usage of ICT (Molino et al., 2020). Employees' psychological well-being may be harmed by this, particularly if they choose to communicate only via email and isolate themselves.

Creating virtual socialisation activities, such virtual lunch or coffee breaks, is one of the many HRM practitioners' initiatives to support their staff members (Carnevale & Hatak, 2020; Maurer, 2020). These procedures unquestionably aid in supporting workers throughout this trying time when they are separated from one another and their place of employment (Hamouche, 2020). They also pose a significant challenge to organisations because, in addition to being implemented in an environment of unanticipated change, these practices are novel to managers and staff, who have not received prior training or psychological preparation for such adjustments. This could increase their perceptions of person-environment misfit and dissatisfaction if they long for the in-person interactions they had before the pandemic outbreak (Carnevale & Hatak, 2020). Additionally, virtual contacts may have an impact on the socialisation process, which is acknowledged as being crucial in assisting staff members in learning the implicit knowledge associated with the company culture and in fostering its growth (Asatiani, Hämäläinen, Penttinen, & Rossi, 2021).

Recruitment

According to Ployhart (2006), recruitment also known as staffing is "the process of attracting, selecting, and retaining competent individuals to achieve organisational goals." COVID-19 had a significant impact on it, changing the way that it functioned in organisations (Campello, Kankanhalli, & Muthukrishnan, 2020). The majority of COVID-19's effects on industries were asymmetric (Aitken-Fox et al., 2020; Giupponi & Landais, 2020). The majority of COVID-19's effects on industries were asymmetric (Aitken-Fox et al., 2020; Giupponi & Landais, 2020). During the pandemic, several sectors had a severe fall in business, forcing some of them to temporarily close their doors (Bartik et al., 2020). Conversely,

other industries saw a rise in revenue (Giupponi & Landais, 2020). As such, the effects of COVID-19 on staffing vary depending on the organisation.

Due to the pandemic, organisations that were having financial difficulties have resorted to downskilling, which involves hiring fewer people for high-skill positions relative to those for low-skill positions in an effort to cut costs and maintain operations (Campello, Kankanhalli, & Muthukrishnan, 2020). Alternatively, they have frozen or reduced hiring altogether, or they have let go of staff members (Campello, Kankanhalli, & Muthukrishnan, 2020; Giupponi & Landais, 2020). In fact, the COVID-19 pandemic caused millions of individuals to lose their jobs (Blustein et al., 2020; Elsafty & Ragheb, 2020). Cheng et al. (2020) noted that the return of employees to their physical workplace during lockdown is mostly responsible for the increase in employment activities following the companies' reopening in several US states. However, the chances of reemployment significantly decrease for workers who took a longer leave of absence from their place of employment.

Performance Management

The definition of performance management is "a continuous process of identifying, measuring, and developing individual and workgroup performance and aligning performance with the organization's strategic goals" (Aguinis, 2019: 8). Making sure that worker performance is in line with the organization's strategic goals is essential (Ismail & Gali, 2017). Employees must continue to work well in order to keep the business afloat in the face of a catastrophe such as COVID-19 (Sembiring, Fatihudin, Mochklas, & Holisin, 2020). But it appears that the COVID-19 pandemic has also changed how companies handle performance. According to some authors, the complexity and novelty of COVID-19 caused most organisations to become overwhelmed with the challenges it presented, including how to measure employee performance and the disruption to performance-based pay. As a result, some of these organisations reduced or even abandoned performance management (Aguinis & Burgi-Tian, 2020). Given the changes to working circumstances during this crisis, it can sometimes be difficult to gauge how well staff are performing. Additionally, a variety of COVID-19-related issues could affect how well employees perform.

Within this framework, Prasad and Vaidya's (2020) study found that occupational stress factors (role ambiguity, role conflict, career, and job-control) and workplace isolation—which have emerged as a result of COVID-19, primarily among employees working from home—as well as a lack of communication, role

overload, and family distractions are significant predictors of employees' performance. Additionally, managers' comprehension of what it takes to manage a remote team affects how well their staff performs when working remotely (Aitken-Fox et al., 2020b). According to some authors, managers may be reluctant to allow remote work because they believe it will have a negative impact on workers' performance. This could result in the adoption of micromanagement, which workers may interpret as a sign of their lack of trust (Aitken-Fox et al., 2020b), which could exacerbate tensions between workers and their supervisor.

Training and Career Development

In times of crisis, like pandemics, training is crucial (Devyania, Jewanc, Bansal, & Denge, 2020; Hamouche, 2020). It aids in the development of the necessary skills for workers (Akkermans, Richardson, & Kraimer, 2020); raises awareness of COVID-19, lowers the chance that the virus will spread, and guards against mental health problems (Quaedackers et al., 2020). Supporting workers as they make the switch to remote work is also helpful. Since some employees lack the digital skills necessary to handle the changes brought about by ICT use, it is necessary to train them in its use. This will help to facilitate their work and allow them to communicate with their manager and peers while they are not in the office (Greer & Payne, 2024). In order for organisations to meet the demands of the new "distance economy," reskilling and upskilling their staff is a challenge, according to Przytuła, Strzelec, and Krysińska-Kościańska (2020).

The primary challenge for HRM practitioners in this situation may be creating a training program that is tailored to the new reality of the company and the employees, as well as selecting the appropriate training techniques while taking physical distance measures and the need for employees to start working as soon as possible to maintain business operations into account. This implies that managers and HRM professionals should look beyond the conventional approaches to training. In this instance, Devyania et al. (2020) advised modifying staff training curricula to guarantee a sustained shift to the new working practices. Managers' comprehension of the virtual supervision of staff members is also essential to the effectiveness of remote working (Aitken-Fox et al., 2020b).

In this situation, HRM professionals should take a proactive approach by assisting and educating these managers on how to lead a remote team, helping them get beyond these obstacles, and assisting them in adjusting to the demands of working remotely so they can better support their colleagues (Hamouche, 2020). In addition to training, COVID-19 has presented substantial obstacles for professional

advancement within companies. Some authors (Akkermans, Richardson, & Kraimer, 2020; Baert et al., 2020) claim that COVID-19 has caused a major career shock. Based on an analysis of the effects of COVID-19 on career outcomes and aspirations among a panel of 3,821 employees, Baert et al. (2020) found that employees were fearful of losing their jobs in the near future as a result of the COVID-19 issue. Furthermore, a few of them anticipated that if this crisis had not occurred, they would have missed out on a promotion that they were due to earn.

Compensation Management

The term "compensation management" describes the internal and external benefits that workers obtain for carrying out their duties. It includes both monetary (bonuses and base salary) and non-monetary (benefits to employees) rewards (Martocchio, 2017). Salary has an impact on workers' performance, motivation, and retention (Safuan & Kurnia, 2021; Sembiring et al., 2020; Elsafty & Ragheb, 2020). According to Elsafty and Ragheb's (2020) research, there is a substantial correlation between staff retention and financial advantages like bonuses during COVID-19.

In response to the COVID-19 pandemic, several nations have put laws into place that urge workers and organisations to abide by the stay-at-home directives while also offering financial support during this health emergency. For example, in the United States, the federal government implemented a temporary paid sick leave program that grants employees in both the public and private sectors two weeks of paid sick leave for isolation, COVID-19 treatment, caring for a family member afflicted with the virus, and childcare resulting from the closure of a school or nursery school (Andersen, Maclean, Pesko, & Simon, 2020).

Part-time work, sometimes referred to as short-term compensation, has also been embraced to support the economy and safeguard employment opportunities for businesses and workers. This involves providing workers with a short-term reduction in hours worked, which will aid companies facing a decline in demand in keeping their workforce and preventing layoffs (Giupponi & Landais, 2020). These actions change an organization's policy and strategy for paying employees. Moreover, they could produce a complicated and demanding environment for managers and HRM professionals.

Some scholars claim that paid sick leave may cause workers' absences from work to rise (Maclean, Pichler, & Ziebarth, 2020). However, it also serves to keep workers from reporting absenteeism when they are ill (Schneider, 2020). Furthermore, policies of this kind, like paid sick leave, aid in expanding their

application in sectors where workers have never received such benefits (Maclean, Pichler, & Ziebarth, 2020). This implies that managers and HRM professionals should consider how to maintain them in order to keep workers motivated in the wake of the pandemic. Przytuła, Strzelec, and Krysińska-Kościańska (2020) discussed the significance of intrinsic motivation in this setting, emphasising the need to increase employee autonomy as one way to retain staff.

Safety and Health Management

It is the duty of employers to ensure their workers' safety during work hours. They are responsible for making sure that there are no hazards at work that could hurt employees physically or psychologically or even result in their death. A new workplace risk brought about by COVID-19 has been identified by Hecker (2020), Shaw et al. (2020), and Hamouche (2020) as a major cause of stress for workers and a major problem for managers and HRM professionals. The influence on workers' well-being differs according to the workplace and the individual's professional function (Brooks, Dunn, Amlôt, Rubin, & Greenberg, 2018). In this situation, it is possible to identify two major challenges: how to stop the virus from spreading and shield employees from infection, and how to raise employee understanding of the significance of respect the safety precautions put in place at work.

Guidelines for organisations to follow in order to protect workers have been issued by the WHO (WHO, 2020a); nonetheless, managing employee behaviour may prove difficult, since some individuals may choose to disobey directions to isolate themselves (Gourinchas, 2020). The development of COVID-19 vaccines has been a source of hope for people all over the world, but it has also presented two new challenges for organisations: managing workplace vaccination campaigns and their ability to sponsor and pay for them in light of the financial difficulties these organisations have experienced as a result of the pandemic (Rothstein, Parmet, & Reiss, 2021).

According to several studies (Brooks et al., 2020; Chen, Ning, Yu, Huang, Li, & Luo, 2020; Hamouche, 2020; Qiu, Shen, Zhao, Wang, Xie, & Xu, 2020), COVID-19 poses a serious risk to people's mental health in addition to their physical health. Employees who work from home may find it mentally taxing since they may feel alone and conflicted about their personal and professional lives (Prasad & Vaidya, 2020). Additionally, workers who must be physically present at work may be afraid to return to work for fear of getting the virus or passing it on to their family (Tan et al., 2020). This could raise their stress levels and raise their

risk of mental health problems (Hamouche, 2020), particularly for people who, before the pandemic, were subjected to high psychological demands at work (Quaedackers et al., 2020) or who hold a high-risk employment, like healthcare personnel (Hamouche, 2020). In this situation, identifying risk factors and putting appropriate preventative measures in place at work, including for employees who work from home, provide the most challenges for managers and HRM practitioners (Hamouche, 2020).

Employment Relationship

According to Budd and Bhawe (2010), an employment relationship is "the connection between employees and employers through which individuals sell their labour." From the standpoint of labour law, COVID-19 has presented significant difficulties for both employers and workers (Biasi, 2020; Sagan & Schüller, 2020). Both parties were unable to fulfil their contractual responsibilities as a result of the lockdown and the required company shutdown (Biasi, 2020). The typical connection between an employee and his company has actually changed as a result of the issues brought about by COVID-19 (Leighton & McKeown, 2020; Spurk & Straub, 2020).

Many nations and businesses have adopted work from home policies (Spurk & Straub, 2020). As a result, the lines that once defined the workplace have vanished (Leighton & McKeown, 2020). According to Sachs (2020), COVID-19 has positioned the government more as a planner than a regulator in this context. This presents a challenge for organisations that must modify government plans and regulations to fit their organisational structure while also taking the needs of their workforce into account.

Given the uniqueness of this epidemic, the majority of nations don't only depend on current laws. In order to assist employers and safeguard employees, they have quickly and efficiently modified a number of labour regulations (Sagan & Schüller, 2020; Alhambra, 2020; Mangan, 2020; Sachs, 2020; Sagan & Schüller, 2020). The primary obstacle was how to safeguard workers without jeopardising the economy's viability (Sachs, 2020). A few nations have enacted legislation to regulate and temporarily forbid layoffs of employees in groups (Biasi, 2020). For instance, a decree law forbidding organisations from starting a collective layoff procedure for a duration of sixty days has been issued in Italy (Biasi, 2020). In addition, a number of regulations and legal measures have been implemented to assist workers during the school lockdown and closure. For example, workers were granted paid time off to care for their families. The primary obstacle is that it is still

unknown when nations will be able to declare the pandemic to be at "end" (Spurk & Straub, 2020). This poses a serious problem for figuring out how long workers should be protected, which could damage the rapport between employers, workers, and their representatives (Biasi, 2020). COVID-19 is a unique crisis that has led to unique responses.

Businesses cannot force employees to work remotely, as is the case in France and many other nations. Nevertheless, in many cases, businesses have forced workers who have jobs that can be done from home to adopt this working style (Sachs, 2020). The primary issue in this situation is the potential for disagreements to occur between employers and workers who were not given the option to work from home or who became infected with COVID-19 while at work (Sachs, 2020).

In fact, Sagan and Schüller (2020) state that it is feasible to dispute an employer's compliance with labour rules in the absence of a contractual agreement.

Since the development of COVID-19 vaccines recently, managing the vaccination campaign in terms of application and costs while guaranteeing compliance with national regulations has become the primary challenge for organisations when it comes to employment relationships (Rothstein, Parmet, & Reiss, 2021). This development also calls into question the employer's authority to enforce it on their staff. A strict, aggressive approach may exacerbate the hesitation of those who are still unsure about the vaccine, according to Rothstein, Parmet, and Reiss (2021). Instead of enforcing vaccinations, these authors recommended that employers inform staff members about the advantages of immunisations and help them obtain one by providing time off for immunisations (Rothstein, Parmet, & Reiss, 2021)

Possibilities, Prospective Organisational Paths, and Perceptions of HRM Interventions

In addition to presenting significant problems for managers and HRM professionals, COVID-19 has also created opportunities that should be recognised and understood in order to guide organisations' future activities. In fact, a crisis may present organisations with unanticipated chances, claim Demirkaya and Aydın (2006). We will talk about these prospects and how they relate to possible future directions in HRM in this section.

COVID-19 has prompted conversations about the future of work and tested organisations' inventiveness and inventiveness (Hite & McDonald, 2020). It has expedited the introduction of future-oriented scenarios and the disruption of HRM (Hite & McDonald, 2020). Additionally, it has forced businesses to reconsider their

HRM plans and move past the conventional approaches to managing human resources by highlighting new IT as a vital ally for their continued existence and long-term viability. In this regard, new laws have been passed in a number of nations to assist organisations through this abrupt and unplanned change. For instance, new laws in Germany have been passed to allow video conferencing in two domains (Sagan & Schüller, 2020), to aid in the adoption of remote work within businesses.

Consequently, the adoption of remote working appears to be the new norm in offices at the time. Nonetheless, other writers assert that it is too early to say with certainty that every company that has embraced remote work will do so going forward, even after COVID-19 (Aitken-Fox et al., 2020b). Given that this is their first time implementing the work organisation, they are likely evaluating its efficacy before making a choice. As a result, they are yet unsure of how it may impact workers' output and performance (Aitken-Fox et al., 2020b). However, it appears that remote work and virtual meetings will continue, albeit less intensely than during the height of COVID-19, according to a recent report released by McKinsey Global Institute. The study evaluated the long-term impact of COVID-19 on labour demands, occupations, and workforce skills in eight countries (China, France, Germany, India, Japan, Spain, the United Kingdom, and the United States) (Lund et al., 2021).

Despite its drawbacks, remote work gives workers the chance to try new ICT, have flexible work hours, reduce commute times, and maintain job control (Prasad & Vaidya, 2020). Additionally, it gives businesses the chance to maximise the utilisation and reduce the expenses of their resources, such office space. In fact, business sectors in certain nations—like Korea, for instance—see room for expansion in the non-contact industries, which include online education, telecom, and remote support services (Liu, Lee, & Lee, 2020).

Additionally, COVID-19 gives organisations the chance to improve employee autonomy, modernise their digital competencies, and extend the scope of their competency development. In addition, the epidemic has made new technology an attractive strategic ally for businesses. It has aided in the survival of companies and reduced the gap between workers and their bosses while maintaining worker safety. It has encouraged managers' and HRM practitioners' innovation and made the shift from conventional in-person socialisation techniques to virtual ones—such as virtual meetings, lunches, and coffee breaks—easier (Carnevale & Hatak, 2020). Maintaining staffing levels in organisations while adhering to physical separation regulations has also been made easier by it.

The administration of health and safety in the workplace has also benefited from modern technology. The choice to keep workers at home and shield them from infection risk while they continue to work for the company has been implemented with its assistance. Additionally, it has aided medical professionals—such as psychologists—who have persisted in providing telemedicine services to the public while honouring physical segregation laws. For example, during the pandemic, mental health services have been offered in China through a variety of channels, including hotlines, online consultations, online courses, and telemental health services (Gao et al., 2020). (Zhou et al., 2020).

Lund et al. (2021) suggest that COVID-19 could hasten the implementation of automation and artificial intelligence (AI) in industries that include significant human interaction, like healthcare and personal care (e.g., gyms and hair salons). Therefore, in order for organisations to be able to continue operating during extreme crises, it is imperative that they grasp ICT and make it available to all of its members. While maintaining physical distance and employee safety, several authors emphasised the significance of utilising AI for HRM during a health crisis and suggested doing so as a useful tool to avoid operations and management procedures from being disrupted (Devyania et al., 2020).

In a similar spirit, Liu, Lee, and Lee (2020) suggested the creation of predictive models that account for risk factors and uncertainties in proactive supply scheduling and planning. These models may assist decision makers in developing a variety of dynamic scenarios that can be automated through the use of artificial intelligence. During this pandemic and beyond, the use of new technologies also supports data analytics that can assist HRM practitioners in optimising and improving HRM functions and practices in organisations, such as talent management, recruitment, and workforce planning (AM, Affandi, Udobong, & Sarwani, 2020).

Recognising the potential presented by COVID-19 can assist HRM professionals in creating effective HRM interventions and future plans of action. However, it is crucial to remember that organisations around the globe are still dealing with the widespread effects of this pandemic, which does not appear to be ending anytime soon. Enhancing organisational resilience is definitely necessary. Organisations in this situation must be able to create creative answers in order to successfully absorb and deal with disruptions that endanger their existence (Ngoc Su et al., 2021).

HRM professionals should collaborate with managers and staff to turn COVID-19's challenges into opportunities. They should also reevaluate their HRM

functions and practices, such as performance management and compensation, and modify them to fit the new working conditions that the COVID-19 crisis has brought about for employees. By redefining the new trends in HRM practices, organisations need to create new foundations, according to Przytuła, Strzelec, and Krysińska-Kościańska (2020). Actually, after operating primarily remotely for almost a year, organisations need to reassess their situation, examine the new HRM trends brought about by this unanticipated catastrophe, and determine whether they still make sense.

Organisations should choose to adopt a hybrid workplace model in light of the unpredictable nature of the current situation and the high degree of uncertainty surrounding its end (AM et al., 2020; Kaufman, Lovich, Bailey, Messenböck, Schuler, & Shroff, 2020; Przytuła, Strzelec, & Krysińska-Kościańska, 2020). This model is adaptable enough to enable the organisation to quickly and effectively adjust to the demands of this new situation and beyond. HRM professionals must modify job roles and concentrate on job redesign inside the company. Here, Lund et al. (2021) proposed that in order to improve an organization's operational flexibility and agility, it would be better to highlight the essential tasks and activities associated with a job rather than the job itself.

Workers should be given the organisational assistance they need to learn the skills they'll need for this pandemic and beyond, as well as career trajectories that will improve their employability and provide opportunities for upward mobility (Ngoc Su et al., 2021). These kinds of interventions ought to improve employee motivation and retention while also cutting down on recruitment-related expenses (Lund et al., 2021). In order to help employees learn how to adapt to the uncertainty that can be generated by an unexpected crisis and to thrive in a dynamic environment, some authors even go so far as to suggest that organisations should reinvent themselves by integrating entrepreneurship competencies among their employees (Carnevale & Hatak, 2020; Liu, Lee, & Lee, 2020).

Given that entrepreneurship is based on exploration, evaluation, discovery, and the ability to turn obstacles brought on by an unclear context into opportunities, it may be able to assist employees in exploring, evaluating, and taking advantage of opportunities that arise in a dynamic and unstable environment (Carnevale & Hatak, 2020).

Furthermore, managers and HRM professionals should be compelled by the new technology's crucial role in the epidemic to investigate efficient methods of incorporating it into HRM and customising it to their organization's needs. Furthermore, since not every employee—including managers—has the necessary

technological competencies, they must determine the individual training needs. Employee participation is necessary to make sure that this organisational reform is successful. Maintaining contact with them should also assist in lowering their stress levels and boosting their confidence in the company (Hamouche, 2020).

Contribution and Practical Implication for Organisations

In the world of business, crises are unavoidable. Nobody could have predicted, nevertheless, the scope of the COVID-19 pandemic, which has accelerated the disruption of conventional HRM techniques and presented serious challenges for managers and HRM practitioners who lacked the knowledge, tools, and skills necessary to handle the pandemic's complexity and novelty. In addition to these difficulties, COVID-19 has created opportunities that companies need to be aware of in order to appropriately guide their future HRM initiatives. This basic literature study can assist managers and HRM practitioners in understanding the primary opportunities and difficulties associated with COVID-19. It offers pertinent and helpful information. They ought to be able to create an intervention plan that is tailored to the requirements of their companies and workforce with the aid of the insights this paper offers regarding the future directions in HRM.

Conclusion and Future Studies

However, there are some limitations that should be taken into account while evaluating this paper's contribution. First off, the fact that our study is a general assessment of the literature with an instructive goal raises the chance that the literature was chosen subjectively. Nevertheless, the most referenced publications are available in the databases we have used, which include Google Scholar, Ebsco, and Semantic Scholar. Furthermore, a thorough analysis of the literature is not necessary for this paper's goal or useful nature. Secondly, COVID-19 was still active at the time this study was written. As such, it is impossible to pinpoint the long-term opportunities and problems with accuracy. To find these potential and problems, longitudinal analysis should be the focus of future study.

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FLEXIBLE WORKING ARRANGEMENT AND CONTINUANCE COMMITMENT OF EMPLOYEES IN FINANCIAL TECHNOLOGY

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Abstract

The arrival of COVID 19 change organisational practices all over the world. These practices are extended to the behaviour organisational workplace. This study therefore examined flexible work arrangement and organisational performance of fintech firms in Lagos. The study adopted self-rostering, telecommuting, and job sharing as the proxies for flexible work arrangement. The study used descriptive research design with multi-stage sampling (stratified and simple random methods). The study collected data from the employees of the selected fintech firms: E-Tranzact, Paystack and Moniepoint using questionnaire. The data were analysed via descriptive statistics and regression analysis. The findings showed that self-rostering has a significant effect, and job sharing has a significant effect on employee continuance commitment. However, it was found that telecommuting has not

significant effect. It is concluded that self rostering, and job sharing have significant contribution to the performance of Fintech employees in Nigeria, however, telecommuting has no significant contribution. The study therefore recommended that Fintech firms should pay attention to self rostering, and job sharing as components of flexible work arrangement.

Keywords: *flexible work arrangement, self-rostering, telecommuting shift-work, job sharing, continuance commitment.*

JEL Classification: J81 , J63 , J22 , M54 , O33

Introduction

Employee commitment is a global construct that is shown in the actions of the employee. As employees are the most important resource composition in an organisation, their commitment or lack of commitment is crucial in goals attainment ruining the goals (Zheng, Sharan & Wei, 2019). The nature of today's business world demands committed employees in order to be relevant in the markets. As noted by Andrew (2017), committed workforce improves organisational fortunes. Commitment especially continuance commitments reduces the employee turnover, decline in lateness to work, absenteeism as well as employees lackadaisical attitudes (Tijani & Okunbanjo, 2020). Organisational commitment is the bond between organizations and its employees through its three dimensions- affective, normative and continuance. However, the focus of the study is on continuance commitment.

Maduagwuna, Anah and Ohanyere (2023) stated that continuance commitment is not just a concept for human relationship but an element of generating and activating the energy for human mind. Employee continuance commitment aids in developing a bond with an organisation. The onus relies of employee continuance commitment lies with the management team of an organisation. Conventionally, Tijani and Okunbanjo (2020) opined that employee continuance commitment has been attributed to be determined by certain factors which include high and regular payment of salary, annual leave, regular promotional exercises among others. However, the disruption brought by Covid 19 which work flexibility is among has not been seen on how it could affect the commitment of employees. The costs that influence continuance commitment of employees include but not limited to tenure, pay, benefits, vesting of pensions and family commitment connected in relation to leaving the organization (Timoti, 2020).

In the view of Melan and Cascino (2022), work flexibility arrangement has been a crucial factor in today's working condition. The flexible work arrangement determines the hourly, daily, and weekly shift in the workplace (Antunes, 2021). The flexible work arrangement is shaped in line with the international and national legal framework on working time as stipulated in the operating labor law and the constitution (Garde, Nabe-Nielsen, Jensen, Kristiansen, Sørensen, & Hansen, 2020). Organisations determines the flexible work arrangement within the legal framework of daily, weekly and monthly hours. (Austin-Egole, Iheriohanma and Nwokorie, 2020) expressed that flexible working arrangements (FWA) serves as the organisational practice adopted in accordance to the changes in work environment. In the view of Klindzic and Marić (2019),

FWA is meant to enable the employee to experience freedom in scheduling their time and responsibilities to the organisation. It aids balancing the work and life of the employees. Okolie and Egbon (2023) mentioned that FWA helps organisation to reap increased productivity, reduce absenteeism as well as commitment on the part of the employees it makes employees to have the liberty to discharge the tasked assigned to them outside the physical structure of the workplace. (Rau, 2013). FWA as pointed by Joseph, Ebiegberi and Uelee (2023) is part of the strategies of an organisation towards retaining and motivating the employees which results in benefits for the parties involved

Statement of the Problem

The type of business organisation has been extended since the arrival of 21st century. New business activities and new business opportunities have emerged. Among this new business activities is Financial technology (Fintech). The job descriptions in Fintech organisations demand a 24 working hours because it is about provision of financial services to the customers though the use of the internet. According to Gupta and Agrawal (2021), the arrival fintech changes workplace structures. Employees in today's organisation are findings it difficult to balance their personal, family and professional lives due to the fact 24 hours working time (Rahman, Kistyanto & Surjanti, 2020). This according to Priya, Garg and Tigga (2020) led mental stress, physical stress as well as emotional stress which could affect the performance of the employees and the organisation performance as a whole. The resultant effect of long hours of working in this FINTECH industry could be lack of commitment on the part of the employees.

It has been observed that FINTECH employees in Nigerian business conditions struggle to attend to social functions, family issues, political events due to the

demand nature of their jobs. The complaints of customers from different parts of Nigeria on their e-financial transactions due to the internet network issues needs to be attended. Maduagwuna et al, (2023) opined that most of the Fintech employees experienced marital difficult, divorce, poor parenting, separation among others in the early lives of the financial technology activities, thus, affecting the commitment of the employees. Due to this, flexible arrangement has been adjudged to be a way forward.

The arrival of Covid 19 made the world to adopt flexibility in the work structure among Fintech firms since internet is in most rural and urban places in Nigeria. It is not yet ascertain if it has contributed as it is expected to the performance of the employees through the commitment of the employees. Nwekpa, Offor and Ezezue (2020) asserted that inflexibility work arrangement does not make employee to be committed especially the normative commitment. Okolie and Egbon (2023) observed that flexible work arrangement has not been extensively investigated in developing economies compared to developing and emerging economies. Lack of infrastructure for information technology and technical know-how have been attributed to the low adoption of flexible work arrangement which make it difficult for employee continuance commitment (Okolie & Egbon, 2023; Adonis & Kabanda, 2019). Also, most studies on flexible work arrangement did not see how employee commitment could be influenced in an industry that emerged in the 21st century. Based on this, the study investigated flexible working arrangement and employee continuanc commitment of Fintech firms in Lagos State caapturing self rostering, telecommuting, shift work and job sharing.

Literature Review and Hypotheses Development

Flexible Work Arrangement

Flexible working arrangements according to Nwite (2023) is the way which employees in an organisation can influence the working time, workplace and the manner of doing the work. FWA is the platform for employees to have a choice on when, where and how the tasks assigned can be carried for a certain periods (Onyekwelu, Monyei & Muogbo, 2022). Flexible working arrangements are means of achieving work life balance by reducing work-life conflict and absenteeism (Clarke & Holdsworth, 2017). Anekwe (2019) expressed that FWA is the organisational practice that permit the employees to choose the process of dischargging the assigned responsibilities. Onyekwelu et al. (2022) noted that there are two basic domains that have been hypothesized in the flexible work arrangement which are physical context which represents the off-site work and

time-context which implies how long it will take to complete the tasks (Chikwe, Ukegbu & Offurum, 2023).

Hypotheses Development

Self-Rostering and Continuance Commitment

Self-roistering is a pattern which employees design their work schedule when staffing is needed for a specific unit in an organisation. Self-roistering is an approach employed to meet the preference of employees in an organisation. It enhanced job satisfaction, employee commitment and fosters cooperation. Self-roistering is a method of work shift pattern to meet operational demands (Barrett & Hom, 2018).

According to Gacheri (2022), self-roistering allows employees to choose their working place and time themselves because it is an element of self roistering. As pointed by Stavrou and Kilanitois (2010), it makes employees to balance the demands of family and work. This is because employees could control the duration, position, and distribution of the work time (Mgbemena et al., 2022). Gacheri (2022) grouped self-roistering into five groups which are: shift exchange, wish-roistering, shift-picking, matching, and full self-roistering. It is not cleared if the continuance commitment of the employees could influenced. Continuance commitment occurs as a result of an employee decision to stay with the organization because of what he or she has invested in the organisation in terms of time and resources also weighing the costs of changing jobs (Timoti, 2020) and studies have been explored on the concept.

Mgbemena, Oraegbunam, Oluonu and Goddy-Utazi Esther (2022) demonstrated that self-roistering has a significant positive influence on employee. Uzochukwu, Nduka and Enaihi (2019) reported that there is a significant relationship between self-roistering and employee retention, in the manufacturing firms in Anambra State. Similarly, Tamunomiebi (2018) found self roistering to be significant among the employees in tertiary institutions in River State. Thus, continuance commitment was not the problem that was solved. Okolie and Egbon (2023) focused on coninuance commitment but did not see self roistering as a factor that could solve the problem of continuance commitment. However, Kiprono (2018) reported that a negative effect of self roistering on performance of employees in Kenyan government owned Hospitals. Based on this, there is a need for clarification which makes the study to hypothesized that: Self roistering does not have significant effect on employee continuance commitment of FINTECH firms in Lagos State

Telecommuting and Continuance Commitment

Telecommuting is a work arrangement that allows employees to work from home as long as their employers enable it. According to Omozuapo (2023), telecommuting is a flexible work arrangement for the organisational members to perform the assigned tasks from home or places other the physical workplace (Omozuapo, 2023). It is otherwise known as working from home (WFH), teleworking, mobile working or home working.

Telecommuting as expressed by Shaanika and Bhebhe (2023) is aided by information and communication technologies (ICTs) which makes employees to work from different locations. The use of ICTs create the opportunities for the employees to engage in regular tele-interactions with work customers or clients, supervisors, subordinate and/or colleagues. It reduces the cost of acquiring office space especially in the urban areas (Okolie & Egbon, 2023). According to Jaafar and Rahim (2022), telecommuting worked well but not without challenges. When the challenges occur and persist, it could not be said if commitment of the employees would be affected.

According to Otuohere (2021), continuance commitment refers to an awareness of the employees on the costs associated with leaving the organisation. Continuance commitment is on two angles-perceived sacrifices associated with leaving i.e. social and economic costs; and secondly, employee perception of lack of alternatives (Culpepper, 2011). Based on this, Ajayi, Olaniyi and Abubakar (2022) showed a significant relationship exists between telecommuting and employee performance. Gacheri (2022) revealed that telecommuting positively and significantly affected employee performance. Shaanika and Bhebhe (2023) posited that telecommuting is the appropriate alleviative strategy for most office-based jobs during pandemics. Telecommuting has significant contribution organisational success, normative commitment (Joseph, Ebiegberi & Nyone, 2023; Okolie & Egbon, 2023; Kandie & Chepkilot, 2022; Choudhury, Foroughi, & Larson, 2020; Kangogo & Wanambiro, 2019). These showed that most of the studies reviewed found telecommuting to be significant with different problems identified in organisations to be solved. Yet, continuance commitment was not considered. Thus, it is hypothesized that: Telecommuting does not have significant effect on employee continuance commitment of FINTECH firms in Lagos State.

Job Sharing and Continuance Commitment

Job-sharing is a novel and inventive method of flexible work arrangements that allows an organization to designate two or more employees to carry out specified

tasks cooperatively or jointly. Job-sharing, according to Kottey and Sharma (2016), is essentially dividing up the workload among employees such that their combined weekly work hours match the regular weekly working hours of one person. Similarly, Anekwe (2019:3) sees job-sharing as a work structure that is based on division of work responsibilities between or among employees that are engaged to a full time job.

Organisations adopt job-sharing when there is shortage in supply of opportunities for part-time schedule provisions (Brainine, 2014). Job-sharing also aids work-life-balance. It makes provision for the employee job on track while giving more time personal and family purposes. This fosters employment commitment especially the continuance aspect of employees (Otuohere, 2021). All these have made researchers to explore job sharing

Al-Ahmadi, Alghamdi and Bedaiwi (2023) showed that a significant impact of task sharing on the productivity. Austin-Egole et al (2022) asserted that task sharing is not common among production firms. Karia and Saleh, (2021) results showed that female entrepreneurs demonstrated positive attitude when it comes to job sharing. Job sharing determines the performance employees especially during Covid 19 and aftermath. Thus, firms benefits from task sharing (Chukwudi, Ukegbu & Anthony, 2022; Olayo & Lewis, 2021; Kangogo & Wanambiro, 2019).

Theoretical Underpinning

Border Theory

Border theory is the theory that emphasizes on the commitment and performance of employees when they work from home and/or workplace. Border theory focuses on the problem that this study intended to solve. According to Shaanika and Bhebhe (2024), border theory stresses on how employees can accommodate the issues relating to the domains of work and the work itself. Flexible working policies has been part and parcel of Nigerian organisational practice. However, the practice is not tailored towards the interest of the employees but the interest of the employers. This makes FWA to be distorted from its purpose and thus having unfavourable implication on the employment commitment. To thrive in the current competitive economic landscape, Nigerian companies must essentially adapt their beliefs and cultures to incorporate multifaceted strategies such as remote work, job-sharing, flexible scheduling, and similar practices.

This is to allow the employees, especially in information and communication technology (ICT) which FINTECH is among to determine when and how the tasks assigned will be carried out as specified by the management. The possibility of

FWA “helps employees to achieve competence that could lead to commitment on the part of he employees. Thus, effect of flexible working arrangements on employee continuance commitment is in line with the tenets of the border theory.

Methodology

The study adopted cross-sectional rsearch design because the data for this study are collected at a single point in time. The population size is the number of financial technology firms operating in Nigeria which is 1,443. The chosen Fintech firms are e- E-transact, Moniepoint and Paystack. The population for the study is the total number of employees in the selected financial tecchnology (FINTECH) firms in Nigeria- The selected FINTECH firms are E-transact, Moniepoint and Paystack. The population for the selected firms are 290; 1379 and 191 respectively according to the website/annual reports of the FINTECH firms. Thus, the total employees for the firms to be 1860.

Therefore, the total population of the study is 1860. The study dermined the sample size using Taro Yamane formular and 329 was arrived at. Due to the variance in population size among the chosen Finch firm, proportionate formular was adopted. Proportional formular was adopted for the purpose of allotting or identify the number of respondents for each stratum-Fintech firms selected. The population and sample size proportationate were displayed in the table below:

Table 1: Population and Sample Size

S/N	FINTECH Firms	Population	Sample Size
1	E-tranzact	290	53
2	Moniepont	1379	243
3	Paystack	191	33
	Total Population and Smple Size	1860	329

Source: Firms Website/Annual (2024)

The study adopted multi-stage sampling technique which involved the following techniques stratified sampling technique and simple random sampling techniques. Stratified sampling allows the stratification of the sample of the study to identify the respondents for each stratum. The simple random sampling aids in equality in the selection of the respondents. Primary source of data was used to collected data from the respondents via questionnaire as research instrument. 6-point

likert scale (strongly agree, agree, fairly agree, fairlly disagree, disagree and strongly disagree) was used to rank the responses of the respondents on items of each variables employed in this study. The items in the questionnaire were adapted from the studies of Shaanika and Bhebhe (2023); Nwaniki (2022); Onyekwelu et al (2022); Uzochukwu et al (2019) for flexible work arrangement dimensions while items for continuance commitment were adapted from the studies of Adeoye (2021); Tijani and Okunbanjo (2020). The items in the questionnaire were subjected for validation which was done by academicians and IT experts. The items were screened to 6 items for each variable employed in the hypotheses. The study adopted simple regression analysis as the statistical tool to test the hypotheses.

Results

The study conducted reliability and validity test on the responses of the respondents. The results are presented below:

Table 2: Flexible Work Arrangement and Employee Continuance Commitment

S/N	Variables	Reliability	Validity	Number of Items
1	Self Rostering	0.786	0.696	6
2	Telecommuting	0.834	0.820	6
4	Job Sharing	0.729	0.657	6
5	Continuance Commitment	0.897	0.692	6

Source: Researcher’s Computation, 2024

Cronbach Alpha was used to compute the reliability test and Kasier Meyer Olkin (KMO) measure of sampling adequacy as it is shown in Table 4.3. The reliability test was conducted based on the hypotheses formulated are tested in line with the objectives. The table showed all the variables- Self-rostering, telecommuting, job sharing, and continuance commitment had reliability values of 0.786; 0.834; 0.729; and 0.897 respectively and these values are all greater than 0.70. According to Nunnally (1967), reliability coefficient of 0.70 and above is acceptable. This means that the responses show that on the dimensions of flexible work arrangement have responses that can be rely on for further analysis. Also, the validity values using KMO signified all the items in the variables measure what it intends to measure. The values for self-rostering, Telecommuting, shift work, job sharing, and continuance commitment were 0.696; 0.820; 0.657; and 0.692

respectively were greater than 0.60 which showed that the responses of the respondents are valid.

Test of the Hypotheses

Hypothesis One: Self rostering does not have significant effect on employee continuance commitment of FINTECH firms in Lagos State

Table 3: Regression Results for Self-Rostering and Continuance Commitment

Independent Variable	Coefficient	Std. Error	T-statistic	P-value
Constant	1.718	.351	4.898	.000
Self-Rostering	.223	.079	2.818	.005
R-Square= 0.093		Adjusted R-Squared = 0.029		
F-Statistic = 7.939		P-value (F-statistic) = 0.000		

Dependent Variable: Continuance Commitment

Source: Researcher’s Computation, 2024

The regression results for hypothesis one is shown in table 3. The table showed that 9.3% ($R^2 = .093$) of the variations in continuance commitment is caused by self-rostering while the remaining 91.7% is caused by other factors not captured in this hypothesis. The table revealed the value of F statistic of 7.939 with significant value of .005. This implied that the model for the hypothesis is fit to achieve its objective. The results further showed that self rostering has a positive and significant effect on continuance commitment ($\beta = 0.223$, $t = 2.818$, $p\text{-value} = .005 < 0.05$). Based on these findings, thus, the null hypothesis is rejected. Therefore, this study accepts that self-rostering has a significant effect on continuance commitment.

H₀₂: Telecommuting does not have significant effect on employee continuance commitment of FINTECH firms in Lagos State

Table 4: Regression Results for Telecommuting and Continuance Commitment

Independent Variable	Coefficient	Std. Error	T-statistic	P-value
Constant	2.730	.298	9.163	.000
Telecommuting	-.007	.066	-.099	.921
R-Square= 0.036		Adjusted R-Squared = 0.162		
F-Statistic = 1.010		P-value (F-statistic) = 0.921		

Dependent Variable: Continuance Commitment

Source: Researcher’s Computation, 2024

The regression results for hypothesis are shown in table 4. The table showed that 3.6% ($R^2=0.036$) of the changes in continuance commitment is explained by telecommuting while the remaining 96.4% is caused by other factors not considered in the hypothesis. The table revealed the value of F statistic of 1.010 which is low with significant value of .921 which is higher than the 0.05 significant level. This implies that the model is not significant. The results further showed in telecommuting does have a negative and insignificant effect on the employee continuance commitment ($\beta = -.007$, $t = -.099$, $p\text{-value} = .921 > 0.05\%$). Based on these findings, thus, the null hypothesis is accepted. Therefore, this study accepts that telecommuting does not have significant effect on continuance commitment

H₀₄: Job Sharing does not have significant effect on employee continuance commitment of FINTECH firms in Lagos State

Table 5: Regression Results for Job Sharing and Continuance Commitment

Independent Variable	Coefficient	Std. Error	T-statistic	P-value
Constant	4.341	0.288	8.134	0.000
Job Sharing	0.561	0.053	9.676	0.000
R-Square= 0.239		Adjusted R-Squared = 0.237		
F-Statistic = 93.606		P-value (F-statistic) = 0.000		

Dependent Variable: Continuance Commitment

Source: Researcher's Computation, 2024

Table 5 showed the regression results for the effect of job sharing and continuance commitment. The findings revealed that job sharing has positive and significant effect on the continuance commitment ($\beta = 0.561$, $t\text{-statistic} = 9.676$; $p\text{-value} = 0.00$). This was further demonstrated as the half of beta value (coefficient) is greater than the standard error. It was also revealed that R^2 which is the coefficient of determination indicates that 23.9% (0.239) variations in continuance commitment is explained by job sharing while the remaining 76.1% is explained by other factors not captured in the hypothesis. The F-statistics value 93.606 with $p\text{-value} 0.000 < 0.05\%$ significant level showed that model for the hypothesis is fit to achieve the objective of the study. Thus, the null hypothesis is rejected.

Discussion of Findings

The nature of technical and professional tasks in financial technology paves room for remote working approach or practices. Fintech business activities have become part of the new normalcy in the world of today. The finding demonstrated the flexible work arrangement is a practice that is common among information and communication technology (ICT) in Nigerian financial sector which financial technology is one of the leading ICT firms in developing economy like Nigeria. It is noticeable that employees in fintech industry jumps from one firm to another. There is an element of lack of commitment which has been verified to be much work load with no flexibility.

The findings showed self rostering has a positive as well as significant influence of the continuance commitment of the employees. This implies that when the employee design their working period of time, it tends to induce the employee to be commitment and not thinking of leaving the organisation. It is evidenced that a high rate in the self rostering leads to a rise in the continuance commitment of the employees. Self rostering enables the employees to have the freedom to plan their schedule in executing the tasks that are expecting from them for the purpose of achieving the objectives and goals of the financial technology firms.

Relatively, the non-physical appearance of the employees in Fintech does not move in line with their commitment. Telecommuting has a negative and insignificant influence on the continuance commitment of the employees. It is indicated that a change in an aspect of telecommuting will result in a decline in the continuance commitment. The means that the employees are allowed to work with being physically presence at the workplace, the feelings of leaving the firm will work. Telecommuting creates avenue for the employees to see or encounter better offer and job description in another firm which could be in the same financial technology line of business, information and communication technology firms or in another industry or sector.

The findings on job sharing revealed that tasks are distributed among the employees in financial technology firms in Nigeria. The higher the job sharing, the larger the continuance commitment of the employees. It is revealed that when job and tasks are share which represents an element of division of labour, employees tends to develop the feeling of continuing working as staff of the firms. A change in the unit of the job sharing will result in the increase of employee continuance.

The findings of the study corroborates with the reports of past studies on the subject matter. The studies of Joseph et al.,(2023); Al-Ahmadi et al., (2023); Onyekwelu et al. (2022); Kandie, and Chepkilot (2022); Ajayi et al (2022);

Mgbemena et al. (2022); Gacheri (2022); Idowu (2020); Apuko (2021); Chung (2020); Karia and Saleh, (2021); Kangogo and Wanambiro (2019); Sam, Ejo-Orusa and Baridam-Ngobe (2020); Uzochukwu et al., (2019). However, the findings of the study disagreed with the findings of Okolie and Egbon (2023); Shaanika and Bhebhe (2023) who found telecommuting to be positive and significant, Kiprono (2018) who reported insignificant result

Conclusion and Recommendations

The aim of the study is to examine flexible work arrangement and performance of Fintech firms in Nigeria. This objective has been achieved. Therefore, it is shown self-rostering has a positive and significant effect on employee continuance. Telecommuting has a negative and insignificant effect on the employee continuance commitment. Job sharing has a positive and significant influence on employee continuance commitment in Nigerian Fintech firms. Thus, it is concluded that self rostering and job sharing have significant contribution to the performance of Fintech employees in Nigeria, however, telecommuting has no significant contribution. In line with the conclusion of the study, the study put forward the followings as recommendations.

- i. Fintech firms in Nigeria should continue to create a platform for self rostering which will aid the employee to decide their time of resumption and closing time for the work activities
- ii. The management of Fintech firms in Nigeria should stop practising telecommuting because it does not aid the continuance commitment of the employees. Employees are to be forced to be physical presence in the workplace.
- iii. Jobs should continue to be shared among the employees of fintech firms in Nigeria. When jobs are being shared, it will reduce workload on a particular employees and this will save the employee from being burn-out.

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KNOWLEDGE RETENTION STRATEGIES EMPLOYED BY BANKS TO EXECUTE STRATEGY IMPLEMENTATION

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Abstract:

Employee retention tactics are crucial to the effectiveness of modern business operations. The way an organisation uses and manages its people resources determines how effective it is. Employers today struggle to find and keep skilled and innovative staff members in an increasingly competitive marketplace. The triangulation design and the survey method were utilised by the study to collect data. Information was gathered from a bank in South Africa. Twenty-five professional employees, including fifteen supervisors from several bank departments, made up the population sample. The investigator gathered information through conducting manager interviews and making observations. This study additionally indicated that preventing a "brain drain" is important to the effective implementation of strategies. As such, the bank should establish a succession planning programme prior to use to prevent critical dependence on particular individuals and guarantee that critical institutional knowledge is maintained when employees leave, retire, or

relocate abroad. It also emphasised how crucial it is for the bank to create a consistent culture throughout all of its business units, since this will affect how its staff conduct and are motivated during the strategy's implementation phase. Finally, the report recommended that middle management be included while senior management is developing the overarching bank strategies.

Keywords: *brain drain, knowledge retention, strategy implementation*

JEL Classification: M20; M21

1. Introduction

In the Fourth Industry Revolution (4IR), knowledge is valued more highly than other resources such as land and financial resources (Adekanmbi & Ukpere, 2023). Although it is a given that knowledge leaves organisations through a variety of means, including retirement, resignation, and death, it does not appear that businesses are taking any proactive measures to hold onto this essential component of output and service provision (Enakrire & Smits, 2023; Jalil et al., 2023). The knowledge retention tactics used by banks were examined in this study. This study set out to determine how knowledge is acquired and maintained in these kinds of organisations. The study set out to determine the kinds of tactics the bank uses to acquire and hold onto knowledge; to ascertain how the organisational cultures of the banks facilitate knowledge acquisition, sharing, transfer, and retention; and to ascertain the function of ICTs as instruments and facilitators of knowledge creation, retention, transfer, and sharing in the banking industry (Gurgu & Kuleto, 2023).

A limited local skill set and lack of information is the result of highly skilled persons leaving the country, a phenomenon known as the "brain drain" or "knowledge emigration" (Azizullah & Mughal 2024). According to Essien et al. (2024), knowledge loss can also result from workers quitting their jobs or retiring from the organisation in question. The performance of an organisation is adversely affected by knowledge outflow in the absence of appropriate policies and practices (Pokharel et al., 2024). Organisations of all sizes, both public and private, are gradually realising the importance of knowledge retention as a result of this increasing recognition and awareness (Olalekan et al., 2023). Organisations are gradually losing valuable staff members as a result of globalisation, which has also increased knowledge attrition. A growing concern about the loss of important expertise in the banking industry became the motivation for this investigation. This convinced the researcher to investigate the strategies used by South African banks to

preserve knowledge. The researcher has good reason to think that individuals leaving the banking sector, retiring, or finding new employment has resulted in attrition, which has caused the broadcasting organisations to lose important knowledge. The banking industry loses a great deal of important knowledge when people depart, although this is the most important asset to manage (Khasawneh et al., 2024). Due to shifting labour relations, professionals are becoming more mobile than ever through retirement, job rotation, reorganisation, and shift employment. This is causing a loss of strategic knowledge (Jalil et al., 2023; Lin & Powell 2023).

Sustaining knowledge entails storing information for future use. Five distinct knowledge reservoirs were identified by Enakrire and Smits (2023): people, culture, transformations (i.e., formalised systems and procedures), structures (i.e., formal and informal networks), and external activities. This is the segment of an organisation where knowledge can exist or be preserved. The managerial aspect of this study will be evaluated namely how management encourages the retention of important knowledge. When an organisation is losing important personnel and trying to retain knowledge using techniques like exit interviews, the retention of knowledge shouldn't start (Mok et al., 2022). However, knowledge retention ought to be included into the organization's operations and should start far in advance of a critical employee's anticipated departure. Although few businesses have formal knowledge retention plans, knowledge retention is crucial for the long-term survival and development of organisations (Lin & Powell, 2023).

One crucial component of knowledge management that every organisation must manage is the preservation of organisational information. Knowledge loss can be caused by a variety of factors, including employee turnover, learning resistance, outsourcing, information technology malfunctions, or unforeseen circumstances (Jalil et al., 2023). Knowledge retention can be increased, and negative consequences from knowledge loss can be mitigated when continuous knowledge transfer plans are in place, including planning, prioritisation, implementation, and monitoring (Azizullah & Mughal 2024). The management of numerous organisations has realised that they need to create an efficient knowledge management strategy as the business environments are changing so quickly (Speculand, 2021). They are using the top knowledge specialists and skills to help their organisations develop their growth strategies. However, it is unfortunate that many organisations still struggle to define knowledge and find it difficult to create and use knowledge to enhance organisational performance (Pokharel et al., 2024).

1.1. Objective of the Study

The objective of this research is to examine the knowledge retention strategies in order to enhance the implementation of executive strategies. The objective of the study is to investigate knowledge management in the following domains: Knowledge retention procedures applied in the banking industry and enhancing organisational performance

2. Literature Review

2.1. Knowledge Retention

Knowledge retention, as defined by Spiegel & Nivette (2023), is the process of holding onto knowledge that an organisation would lose if its members leave. Depleting the brains of workers who might be considering retirement, taking a new job outside their current employer, or even considering emigration abroad is the primary objective of knowledge retention. Many organisations currently struggle with sustainable development as a result of improper knowledge application (Khasawneh *et al.*, 2024). Enhanced and appropriate knowledge management has the potential to yield substantial advantages and contributions for corporate entities (Jalil *et al.*, 2023). Knowledge management is defined as a methodical process that uses people, processes, and technology to improve organisational performance and create value. It involves identifying, creating, capturing, organising, acquiring, storing, sharing, transferring, sustaining, renewing, retrieving, evaluating, and using both implicit and explicit forms of knowledge at the individual, group, organisational, and community levels (Ntini & Dewah, 2023).

The process of preserving knowledge involves preserving knowledge for later use. People, culture, transformations (i.e., formalised systems and processes), structures (i.e., formal and informal networks), and external activities are the five distinct knowledge reservoirs (Olalekan *et al.*, 2023). Within an organisation, this is the domain where knowledge can reside or be kept. We'll look at the managerial component of this research, namely how management promotes the retention essential knowledge. The retention of information shouldn't begin when an organisation is losing key workers and attempting to preserve knowledge through strategies like exit interviews (Ntini & Dewah 2023). Instead, knowledge retention should be integrated into the organization's daily activities and should begin far in advance of the scheduled departure of a key employee (Spiegel & Nivette 2023). Knowledge retention is essential for an organization's long-term survival and growth, even though few businesses have formal procedures in place for doing so (Essien *et al.*, 2024).

Preserving organisational information is an essential aspect of knowledge management that all organisations need to handle. A number of things, including as staff turnover, outsourcing, learning resistance, information technology issues, or unanticipated events, can result in knowledge loss. Information retention can be improved and the detrimental impacts of information loss can be prevented with the deployment of continuous knowledge transfer activities, which include prioritisation, planning, monitoring, and implementation (Pokharel et al., 2024). Knowledge is seen as a resource that improves organisational and individual performance and helps both reach desired outcomes. One of the biggest obstacles to an organization's success is knowledge and knowledge management. Therefore, it is essential that business organisations implement their knowledge management strategy correctly (Adekanmbi & Ukpere, 2023).

2.2. Brain Drain and Knowledge Loss in the Banking Sector

Dreyer (2022) claims that COVID-19 led to a "Great Resignation" in which women resigned from corporate roles. Issues with organisational culture and insufficient information transfer protocols worsen memory loss, especially in the financial sector. Depending on the demands of the clientele and the nature of the business, it is necessary to put strategies in place to enhance knowledge preservation. In the modern world of remote and hybrid work, documenting processes and insights requires decentralised, asynchronous, and transparent solutions (Sokolic, 2022). Traditional hierarchical cultures make it difficult to share knowledge, which calls for reflection and awareness. Statistic South Africa (2023) state that South African financial technology and financial services industry needs to foster an information-sharing culture in order to remain competitive globally. Sawan (2021) explained that a further challenge that the bank has to address is internal organisational dynamics. These are controlled and reflecting the "in-house" conditions of the organisation. Organisations are usually in charge of their managerial positions, environmental elements, organisational systems (such value chain systems), knowledge/brain drain, and organisational structures (Ntini & Dewah, 2023). This paper will look at "The Brain Drain" and knowledge retention rules and processes as barriers to strategy execution at a South African bank (Mok et al., 2022). Azizullah and Mughal (2024), examined that migration of highly skilled workers from the nation causes a shortage of information and a weak local skill set; this phenomenon is called the "brain drain" or "knowledge migration." (Pokharel et al., 2024) state that knowledge loss may also occur from employees leaving the organisation via resignation or retirement. In the absence of suitable

rules and practices, knowledge outflow has a negative impact on an organization's performance.

2.3. The Banking Industry

The economy of South Africa contrasts with that of other developing nations due to its distinct blend of first- and third-world characteristics. The nation's first-world position is largely due to the South African Reserve Bank (SARB), the banking sector, financial and accounting services, the legal system, and the South African Constitution (Pheiffer, 2020). Despite having the second-biggest economy in Africa, there is a significant amount of income inequality and high unemployment. South Africa's financial sector is vital to the regional economy and market and provides the nation's economy with a competitive edge. South African banks must ensure that the banking sector within the financial sector is successful and efficient in order to maintain a first-rate banking system and achieve macroeconomic goals (Weli, Okereke & Nnamdi, 2022). To remain relevant and competitive in the market, banks need to assess the degree of rivalry in the financial industry (Rapapali & Simbanegavi, 2020; Fadun & Akindipe, 2023). In light of this, strategic planning becomes even more important today, given the way Romanian society and the economy have developed since the 1990s, the complexity of the environment in which commercial agents operate generally, and the market in particular. These and other processes led to numerous and significant changes in society's way of life as well as implicitly in microeconomic activity, which in turn affected market agencies regardless of their type of activity, ownership structure, or organisational style. These are just a few of the factors that the banking societies need to think about because the rivalry is fierce in this industry (Batatunde, 2022).

3. Research Method and Design

This investigation was centred on a bank in South Africa. The target population for the study consisted of ten senior managers with principle titles, fifteen middle managers with vice president titles, and fifteen junior managers with assistant vice president titles. Twenty-five South African bank employees who have a combined history in strategy implementation are included in the study. The report also assessed previous research in order to support the research aims that were used to determine the research gaps. Interviews and a checklist guide were utilised to collect primary and secondary data, respectively. Validity and reliability tests were performed, and the results were interpreted using Atlas-ti. Content analysis was

used to ascertain the link between the independent and dependent variables. The study employed both the triangulation design and the survey approach to gather data. The principal objective of the researcher's data collection process was to furnish a comprehensive comprehension of the knowledge retention tactics employed by the banking sector.

4. Research Results and Discussion

4.1. Biographical Information of Despondency

All the participants interviewed have experience with knowledge retention strategy and strategy implementation.

Table 1: Demographic profile and contribution of participants

Participant no.	No. of years at the bank	Current Position	Management level	Duration in position	Participant contribution (references)
1	16	MD of Unit Trusts Investments	Senior manager	7 years	27
2	21	Portfolio manager	Middle manager	15 years	24
3	13	Sales manager	Junior manager	5 years	26
4	8	Regional segment head for growth in commercial banking	Senior manager	4 years	29
5	13	Senior executive	Senior manager	2 years	35
6	7	Sales and segment specialist	Middle manager	3 years	31
7	27	Managing executive commercial business	Senior manager	3 months	21
8	6	Area segment	Middle	6 years	27



Participant no.	No. of years at the bank	Current Position	Management level	Duration in position	Participant contribution (references)
		manager for growth area	manager		
9	10	Head of wealth and private bank	Senior manager	8 years	26
10	2	Specialist credit risk analyst	Junior manager	2 years	27
11	14	Head of an investment business unit	Senior manager	8 years	19
12	17	Head of sales and service enablement	Junior manager	2 years	18
13	10	Wealth banker	Junior manager	9 years	16
14	16	Head of future fit operations	Senior manager	2 months	26
15	27	MIS data analyst	Junior manager	2 years	17
16	7	Area segment manager for Private Wealth banking	Middle manager	3 months	28
17	39	Head of physical channels	Senior manager	4 years	35
18	16	Managing executive: SME	Senior manager	3 months	21
19	5	Regional manager for financial advisers	Middle manager	5 years	21
20	12	Senior manager for SLA and contract management	Middle manager	1 year and two months	23
21	20	Regional manager	Junior manager	7 years	15

Participant no.	No. of years at the bank	Current Position	Management level	Duration in position	Participant contribution (references)
22	14	Senior manager. On the distribution side	Middle manager	5 years	20
23	9	Head of savings and investment at everyday banking	Senior manager	4 years	19
24	23	Sales and enablement specialist	Middle manager	3 years	20
25	17	Personal executive sales and distribution	Middle manager	4 years and 10 months	24

Source: Researcher's Own Work

Demographic Profile and Contribution of Participants

Every participant contributed to the coding procedure that produced the quotations and references for this paper. The number of quotes derived from each participant's transcript is indicated in the references. Software for qualitative data analysis, Atlas.ti 23, was used to find the references. With 35 references taken from their interview, participant 5, who has been a senior executive for two years in their current role and has 13 years of bank experience, gave the most references to this study, as seen above in Table 1. 35 references were also provided by participant 17, who has 39 years of experience as the head of physical channels in the banking industry. With just fifteen quotes taken from their interview, participant number twenty-one made the fewest references to this research.

Questions and a summary of responses from the participants during the semi-structured are as follows:

When asked what knowledge retention practices and policies does the bank have in place? Knowledge retention practices and policies: The bank reportedly has a required "succession planning" framework in place to protect key jobs and stop information leakage or brain drain from the organisation. This was confirmed by Participants 1, 3, 9, 17, 18, 20, 21, and 25. "Succession planning is

implemented; in fact, the bank requires this procedure." This ensures that these important jobs will remain open in order to keep the business from losing knowledge or experiencing a brain drain.

However, participants 7, 10, 15, 16, and 24 highlight that the bank does not currently have any policies or processes in place for knowledge retention, as far as they are aware of. I'll be blunt here. I don't know of any for this one. I'm reacting to it because I think we've lost a lot of really knowledgeable and experienced people over the past several years.

When asked do you believe that your colleagues across the organisation in the bank understand the bank's overall strategy and how goals should be achieved?

Understanding of the bank's overall strategy and goals: Eight respondents—2, 3, 6, 7, 12, 16, 19, and 24—said that the bank's employees as a whole lack understanding of the organization's overall strategy and the most effective means of achieving goals. Participant 2, a middle management position holder, stated that improper communication of the plan to all bank employees has resulted in a lack of understanding. Furthermore, it is not being tracked or measured, which implies that bank staff members are not paying it the attention it needs to be and that it will eventually be minimised. The only levels of the bank that are aware of and understand the strategy are senior management and middle management; junior management and front-line staff are not. Participant 3: *depends on her experience as a junior manager, who is just acquainted with the strategy of the department. "No, I don't believe so." I'm not even familiar with the overall bank strategy aside from where I am right now.*

Participants 4, 5, 9, 11, 15, 21, and 25 believe that co-workers throughout the bank are aware of the strategy that needs to be followed and the way that objectives are expected to be fulfilled, in contrast to participants 2, 3, 6, 7, 12, 16, 19, and 24. "I believe that, in general, we do know what the bank's objectives are, and it is everyone's duty to actually work towards accomplishing their strategy," (Participant 15).

When asked what knowledge retention practices and policies can the bank employ to execute strategy implementation effectively?

Recommendations for knowledge retention

The participants in this study offered recommendations for knowledge retention at the bank after exploring the practices and policies instituted for this purpose. The frequency table below is an analysis of the recommendations articulated by the three management layers of the bank. This analysis revealed that some of the policies and practices recommended here have already been put in place by the bank.

Table 2: Frequency table showing the recommendations for knowledge retention

	Junior management	Middle management	Senior management
Adopt a succession planning policy	1		
Build people through talent management	1	1	4
Commit to retention plans			1
Conduct occupational skills assessment		1	
Continuous engagement with staff on strategy		1	1
Divest knowledge in the bank structures	1		
Document processes	2	5	1
Encourage job shadowing	1		
Enforce terms and conditions to bursary scheme			1
Enhance skills transfer in under skilled areas			1
Incentivise customers and staff for strategy implementation			1
Institutionalise coaching and mentoring	1	2	
Keep to current practices	1		
Practise job rotation	1	1	
Produce a training manual	1		
Provide adequate remuneration for skills and reward employees	1	1	1
Skilled staff to impart knowledge in sessions		1	

Source: Researcher's Own Work

Furthermore, three managers—a junior, a middle, and a senior—explained that the bank needs to pay employees fairly for their skills and abilities in order to ensure that information is retained. It's a good idea to modify the way you pay them as well. As a result, their pay should include more than just a cost to the organisation and a discretionary incentive. No, it won't be enough to keep them in-house. They might also need an incentive plan that lasts a long time, like option shares that are granted to participants and then roll over for two to five years. In this scenario, the participants are effectively kept and the shares invest. Over time, these programmes have the effect of keeping certain capabilities within the organisation.

4.2. Recommendations and Conclusion

The study found that there are notable variations in management, business practices, and culture within countries and among banks within countries. To ensure that everyone is aware of the goals and how their duties fit into them, all bank levels should be involved in the strategy development or formulation phase of a strategic management process during the implementation phase. The research recommends that the bank establish a uniform culture across all of its business units to influence employee motivation and behaviour during the plan implementation period. A bank's junior, middle, and senior management tiers all execute out certain tasks, and for the implementation phase to be successful, these tiers must work together harmoniously.

Therefore, it is essential that the change management team be involved in the process of developing a new strategy in order to achieve the intended objectives. Because they will support daily by clearly outlining the benefits of the knowledge retention as well as the reasons and rationale for the change, the change management team will be very helpful in ensuring that everyone in the organisation is focused on the new strategy and that its implementation is successful. Change management is a methodical approach to overseeing the shift or alteration of an organization's objectives, guiding principles, protocols, or technological infrastructure. (Kumarasinghe et al., 2021). As a result, this study looked at the knowledge retention techniques used to carry out strategy execution. Limited organisational knowledge, learning, and transfer may also arise from inadequate documentation and performance transfer. The banking industry's deficiency in delivery management expertise may lead to inadequate strategy implementation, and project partners' unsuitable organisational cultures may result in resistance to the adjustments required for organisational expansion. Even if the views expressed

above are based on a small sample of respondents—particularly those who work for the banking industry's clients—they are nevertheless informative.

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EFFECT OF EMPLOYEE’S SATISFACTION ON PERFORMANCE OF MICROFINANCE BANKS

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Abstract

The study investigates the nexus between employee satisfaction and the performance of selected Microfinance banks in Nigeria, with a focus on five banks in Osun State. It aims to discern the relationship between employee satisfaction and bank performance, while pinpointing key factors that influence employee satisfaction, such as prompt salary, job security, and fringe benefits. Utilizing a purposive sampling technique, data from 40 employees were collected through structured questionnaires, and subsequent analysis involved descriptive statistics and regression. Results indicate a robust positive correlation between employee satisfaction and bank performance, with prompt salary payment, job security, and fringe benefits emerging as significant influencers of satisfaction. The study underscores the importance of proactive

measures by microfinance banks to augment employee satisfaction, particularly in these critical areas. Strengthening employee engagement is posited as pivotal for sectoral performance enhancement. By prioritizing the well-being and contentment of their workforce, microfinance banks can cultivate a conducive work environment conducive to heightened efficiency and effectiveness.

Keywords: *employee satisfaction, microfinance banks, job security*

JEL Classification: G21; G32; J28; L21; M12; J24; M14

Introduction

Employee satisfaction plays a crucial role in organizational success, particularly in service-oriented industries such as banking. In the context of Nigerian microfinance banks, understanding the link between employee satisfaction and organizational performance is essential for sustainable growth and competitiveness. This study aims to investigate the effect of employee satisfaction on the performance of Nigerian microfinance banks, with a focus on identifying key determinants and their impact.

According to Herzberg's Two-Factor Theory (Herzberg, 1959), job satisfaction and dissatisfaction are influenced by separate factors. While intrinsic factors such as recognition, achievement, and advancement contribute to satisfaction, extrinsic factors like salary, job security, and working conditions primarily mitigate dissatisfaction. In the banking sector, employee satisfaction has been shown to significantly affect customer satisfaction, employee retention, and overall organizational performance (Ramlall, 2004).

Despite the recognized importance of employee satisfaction, limited empirical research exists on its specific impact within the Nigerian microfinance banking sector. Existing studies predominantly focus on the broader banking industry or other service sectors, overlooking the unique challenges and dynamics of microfinance institutions (Shafiq & Akbar, 2011).

Understanding the drivers of employee satisfaction is critical for microfinance banks facing increasing competition, regulatory pressures, and evolving customer expectations. By enhancing employee satisfaction, banks can improve employee morale, productivity, and customer service quality (Alshaikh, 2019), ultimately leading to better financial performance and sustainable growth.

In developing nations especially, microfinance banks (MFBs) play a critical role in providing financial services to small enterprises and individuals with low

incomes (Jegade, Kehinde & Akinlabi, 2017). Beyond merely offering financial services, MFBs must also prioritize employee performance and satisfaction.

Performance, engagement, and productivity are all impacted by employee satisfaction in the MFB industry. Better organizational performance and lower turnover costs are two benefits of happy workers (Agha et al., 2019). Studies conducted in Bangladesh (Akhtar et al., 2017) and Pakistan (Iqbal and Ahmad, 2021) support the favorable correlation between MFB performance and employee satisfaction. According to Iqbal and Ahmad (2021) and Akhtar et al. (2017), important variables affecting satisfaction include pay, job security, opportunity for advancement, a positive work environment, and recognition.

MFBs must put employee happiness first by making sure they have a good working environment, opportunity for advancement, and equitable pay (Rolando, 2017). This emphasis has the potential to improve worker performance and advance organizational development.

Fair salary and benefits are important factors that affect employee satisfaction in MFBs (Rolando, 2017). Employee satisfaction and a dedication to providing high-quality service delivery are contingent upon adequate remuneration and benefits, including retirement benefits and health insurance (Akhtar et al., 2017).

The Nigerian microfinance banking sector faces numerous challenges, including limited access to funding, regulatory constraints, and increasing competition (Adeusi & Olokoyo, 2019). Within this context, the level of employee satisfaction emerges as a critical factor influencing organizational performance (Al-Shammari & Nasser, 2018). However, despite its significance, there is a gap in empirical research regarding the specific determinants and impact of employee satisfaction within Nigerian microfinance banks (Mordi et al., 2020). This gap hinders a comprehensive understanding of the relationship between employee satisfaction and organizational performance in this sector.

Moreover, existing studies predominantly focus on the broader banking industry or other service sectors, neglecting the unique dynamics and challenges faced by microfinance institutions (Bakare & Fakunle, 2018). Therefore, the specific factors influencing employee satisfaction and their implications for the performance of Nigerian microfinance banks remain underexplored.

Furthermore, as microfinance banks play a vital role in fostering financial inclusion and economic development in Nigeria (Olaniran et al., 2021), it is imperative to identify strategies for enhancing their performance. Addressing the gap in research on employee satisfaction in this context is essential for developing

evidence-based interventions to improve organizational effectiveness and sustainability.

The main purpose of this study is to examine the effect of employee satisfaction on the performance of microfinance banks (MFBs). Specifically, this research aims to achieve the following objectives: Examine the relationship between employee's satisfaction and performance of microfinance banks in Nigeria, Investigate the factors affecting employee's satisfaction in Nigerian microfinance banks.

The significance of this study lies in its potential to contribute to both academic knowledge and practical implications within the Nigerian microfinance banking sector. Firstly, the findings of this research will provide valuable insights into the determinants of employee satisfaction in microfinance banks, addressing a gap in the existing literature. By identifying factors such as prompt salary payment, job security, and fringe benefits that significantly influence employee satisfaction, this study offers practical guidance for human resource management practices in microfinance institutions.

Secondly, the study's exploration of the relationship between employee satisfaction and the performance of microfinance banks is essential for organizational decision-making and strategic planning. By demonstrating the positive impact of employee satisfaction on organizational performance, the research underscores the importance of investing in employee well-being as a means to enhance operational efficiency and competitiveness.

Furthermore, the study's focus on Nigerian microfinance banks is significant for policymakers, industry practitioners, and other stakeholders involved in promoting financial inclusion and economic development. As microfinance institutions play a crucial role in expanding access to financial services and supporting small-scale entrepreneurs, understanding the factors that contribute to their performance is paramount. By highlighting the link between employee satisfaction and organizational effectiveness, this research advocates for policies and interventions aimed at improving working conditions and fostering a conducive work environment within microfinance banks.

In summary, this study's findings have implications for theory development, managerial practice, and policy formulation in the Nigerian microfinance banking sector, ultimately contributing to the sector's growth, sustainability, and impact on economic development.

Literature Review

Employee Satisfaction

Employee satisfaction is the state in which workers are happy and getting what they need and want from their jobs. Employee satisfaction is vital, but so is their ability to do assigned duties and contribute in any way that the company requests.

Within the human capital sector, the word "employee satisfaction" refers to a wider range of factors, including an employee's level of contentment with their jobs, their work experience, and the company they work for. It is a crucial indicator of an organization's general health and is frequently assessed through recurring surveys. High levels of satisfaction show that workers are happy with the way their employer handles them. Although the two are related, it's crucial to understand that employee satisfaction and engagement are different.

Workers have views and ideas on many facets of their work and the company. Workplace and personal factors both affect employee motivation (Amah and Ahiauzu, 2014). Employee happiness is positively impacted by organizational investments in training and development programs (Saner and Eyupoglu, 2015). Saner and Eyupoglu (2015) emphasized that compensation systems, decision-making autonomy, and training initiatives are important factors in bank workers' job satisfaction.

Job Satisfaction

Employees' attitudes about their work, which represent how happy they are when their needs and wants related to their jobs are met, are shown through their level of job satisfaction (Mnyani, Onajaefe & Ukpere 2023). It has to do with the happy emotions that arise when workers realize their demands are met. This intangible variable, which expresses how happy a person is with a certain profession, can be seen in emotional displays and attitudes. When psychological or physiological requirements are addressed at work, job satisfaction is high; when needs are not met, job satisfaction is low (Cook, 2008).

In addition, as noted by Staw and Rose (1985), job satisfaction is seen as dispositional. The dispositional approach emphasizes that evaluating personal characteristics can yield precise signals for forecasting work happiness.

Microfinance Bank Performance

Financial organizations known as microfinance banks (MFBs) serve people and small enterprises who do not have access to standard banking services. Low-income individuals and groups can access banking services through microfinance, which is often referred to as microcredit. Microfinance encompasses a range of services, including checking and savings accounts, microinsurance, and financial education, despite its primary concentration on lending. Typically, microloans are between \$50 and less than \$50,000. The primary objective of microfinance is to enable the underprivileged by giving them chances to become self-sufficient.

Theoretical Review

Herzberg's theory centers on two elements that affect workers: job-satisfiers (motivator factors) and job dissatisfaction (hygiene factors). It is thought to be the best functional model for researching job satisfaction (Kim, 2019). Job satisfaction is ultimately influenced by factors that influence an individual's impression of the value of their job, such as autonomy, task relevance, skill variety, and task identity. With a worker's independence and taken on duties, their level of autonomy—a reflection of self-control—increases. Contrarily, hygienic elements with lower motivating levels include security, status, and monitoring. When their absence is not met, job discontent arises.

Maslow's Needs Hierarchy The model employed in this study is largely based on the well accepted idea of Maslow's hierarchy of needs in the realm of motivation. A need is an essential condition that a person must possess; a need is satisfied when it is met; and a need is motivated when it is driven to be met. Employees have five categories of requirements, which Maslow identified. These needs are ranked hierarchically, with the lowest needs being given priority over the higher ones. Maslow emphasizes that no need can ever be completely satisfied and that a need loses its ability to be a motivator as soon as it is sufficiently met.

Maslow's theory states that before being motivated by higher-level demands, an employee must first satiate their lower-level desires. This idea can be useful in determining the types of incentives that are likely to be effective in motivating employees. Management must recognize that workers' needs and expectations change over time and treat each person as an individual (ALAmrani, 2020).

Empirical Review

Lack of job satisfaction can result in apathy and a diminished sense of commitment to the business (Moser, 2017). According to Alexander Lichtenstein and Janal (2017), job resignation is predicted by a lack of job satisfaction.

Unfavorable economic situations and downturns drive people to look for better chances, which influences changes in the workplace (Nwagwu, 2017).

Regarding the elements affecting job satisfaction, researchers disagree. According to some, outside variables including the nature of the work, the social environment, and providing for the requirements of the employees are important (Tella, Ayeni, and Popoola, 2017). Some, such as Toole (2020), place more emphasis on intrinsic variables and claim that employees choose to be happy in their employment on purpose.

Research conducted in the banking industry indicates that job satisfaction is influenced by job fit, working circumstances, and interpersonal skills (Sowmya and Panchanathan, 2016). Job satisfaction is positively correlated with factors including job placement environment, job loyalty, and employee empowerment, while turnover intention is adversely correlated with these same factors (Javid, Balouch, and Hassan, 2017).

HR strategies including leadership conduct, teamwork, and job autonomy have a beneficial impact on job satisfaction in the microfinance industry (Hussain and Mujtaba, 2019). Staff turnover and pay are related to the success of microfinance institutions (Aveh, Dadzie, and Krah, 2019). Employee job satisfaction and performance are positively correlated, and leadership conduct and promotions have a significant impact on employee satisfaction (Sattar and Ali, 2018). (Hira and Waqas, 2019).

There is disagreement over the link between performance and job satisfaction. According to certain studies, there is a favorable association between job satisfaction and a lower likelihood of shortages and employee turnover (Mirvis and Lawler, 2017). According to Kornhanuser and Sharp (2016), performance is positively impacted by job satisfaction. But Smith and Craviny (2018) dispute Katzell, Barret, and Porker's (1992) claim that work satisfaction, turnover, and production quality are related.

Methodology

The study uses a descriptive survey design, which is appropriate for quantitative research with primary data obtained using structured questionnaires. This design is justified by the use of closed-ended questionnaires.

All junior and senior employees of the five microfinance banks in Osogbo, Osun State, are included in the research population. Lapo, Omak, KJL, Okuku, and NPL Microfinance Banks were included through purposeful selection; 40 employees were chosen at random from each bank.

To gather data, a three-section structured survey questionnaire was created. Section A gathers data on demographics, Section B asks about employee happiness, and Section C deals with the performance of microfinance banks. Five is the level of strong agreement and one is the level of strong disagreement on a Likert scale.

Bank managers self-administer the questionnaire, maintaining respondent confidentiality and permission. Experts receive copies for validation, guaranteeing sufficiency and improving the sequence.

Non-parametric tests like Cronbach's Alpha and the Kaiser-Meyer-Olkin Measure are used in reliability testing. Data analysis uses both descriptive and inferential statistics, such as regression analysis. Using SPSS for computation, regression analyzes the relationship between independent variables (employee happiness) and the dependent variable (microfinance bank performance). Microfinance bank success is proxied by staff dedication, whereas employee happiness is proxied by pay, job security, and perks.

Model Specification

The purpose of this study is to investigate how employee happiness affects the operation of microfinance banks in the state of Osun. The model of Imran et al., 2021, and Laosebikan et al., (2018) was modified for this investigation. As a result, the function of the model used in this study is as follows:

Model One

$$PFB = f(ESF) \dots\dots\dots 3.1$$

Where;

ESF=Employee satisfaction

PFB=Performance of Microfinance bank

Model 2

$$ESF = f(EPS, JBS, FGB) \dots\dots\dots 3.2$$

Where;

EPS is the Employee Salary

JBS is the Job security

FGB= Fringe benefit

ESF=Employee satisfaction

f is a constant function.

Data Analysis and Results
Descriptive Analysis

Table 4.1 Analysis of Respondents Demographic Information

Gender	Frequency	Percentage
Male	23	57.50
Female	17	42.50
Total	40	100.00
Age	Frequency	Percentage
21-30 years	14	35.00
31-40 years	17	42.50
41-50 years	7	17.50
51 and above	2	5.00
less than 20	0	0.00
Total	40	100.00
Marital Status	Frequency	Percentage
Single	11	27.50
Married	29	72.50
Divorced	0	0.00
Widow/widower	0	0.00
Total	40	100.00
Qualification	Frequency	Percentage
SSCE	0	0.00
NCE/ND	7	17.50
Bachelor/HND	29	72.50
Postgraduate	3	7.50
Other	1	2.50
Total	40	100.00
Working Experience	Frequency	Percentage
Less than 5 years	21	52.50
5-10 years	12	30.00
11-20 years	7	17.50
Total	40	100.00

Source: Field Survey, (2023)

The study participants' demographic overview is shown in Table 4.1. According to the data, out of all the responses, 23 people (57.50%) identified as male and 17 people (42.50%) as female. It is interesting that employees from several microfinance institutions in Osun State, both male and female, participated in the study without any form of discrimination.

The age distribution of the 40 respondents was as follows: 14 (35.00%) were between the ages of 21 and 30, 17 (42.50%) were between the ages of 31 and 40, 7 (17.50%) were between the ages of 41 and 50, and 2 (5.00%) were 51 and older. Not a single response was younger than 20. The predominant age group among the staff of selected microfinance banks in Osun State was 31 to 40 years, indicating a mature population for the study.

Regarding marital status, 29 people (72.50%) were married, while 11 people (27.50%) said they were single. The fact that none of the respondents had ever been divorced or widowed suggests that most of the participants were married.

The respondents' educational backgrounds were varied. None of the responders solely held SSCE credentials. Alternatively, 29 people (72.50%) had BSC/HND credentials, 3 people (7.50%) had postgraduate qualifications, 7 people (17.50%) had ND/NCE qualifications, 1 person (2.50%) had other undefined qualifications. This diversity suggests a knowledgeable and well-educated group that can respond intelligently to the research objectives of the study.

Lastly, the length of time respondents had worked for their individual microfinance banks was disclosed by the data in Table 4.1. In particular, 12 people (30.00%) had between 5 and 10 years of experience, 7 people (17.50%) had between 11 and 20 years, and 21 people (52.50%) had less than 5 years. This implies that the majority of respondents were able to offer insightful commentary on how job satisfaction affected their performance since they possessed adequate expertise and understanding of microfinance banking operations.

Table 4.2 Analysis of Respondents opinion on Employee satisfaction Factor (prompt salary, job security and fringe benefits)

Employee Prompt salary						
Items	SA	A	U	D	SD	Total
Employee’s salary are paid promptly in my organization thereby leading to employee satisfaction	22 (55%)	10 (25.0%)	4 (10%)	3 (7.5%)	1 (2.5%)	40 (100%)
My organization hardly owe its employees prompt salary	20 (50%)	14 (35%)	4 (7.5%)	2 (5%)	1 (2.5%)	40 (100%)
Prompt payment of salary according to the post occupied	10 (25%)	20 (50%)	5 (12.5%)	2 (5%)	3 (7.5%)	40 (100%)
There is frequent increment in the prompt payment of salary of employees in my organization after spending some years	17 (42.5%)	15 (37.5%)	4 (10%)	3 (7.5%)	1 (2.5%)	40 (100%)
There is no partiality in paying employee their salary promptly in my organization	10(25%)	23 (57.5%)	3 (7.50%)	1 (2.50%)	3 (7.5%)	40 (100%)
Job Security						
Items	SA	A	U	D	SD	Total
Job security in guaranteed for every employee in my organization	24 (60%)	9 (22.5%)	2 (5%)	3 (7.5%)	2 (5%)	40 (100%)
Employees are always given second chance when they commit error	12 (30%)	15 (37.5%)	6 (15%)	3 (7.5%)	4 (10%)	40 (100%)
I’m satisfied with job assign to me	15 (37.5%)	10 (25%)	7 (17.5%)	5 (12.5%)	3 (7.5%)	40 (100%)
Fringe Benefit						
Items	SA	A	U	D	SD	Total
Bonus are usually given to employees who put in extra effort in my organization	12 (30%)	18 (45%)	5 (12.5%)	2 (5%)	3 (7.5%)	40 (100%)
Employee who perform very well in my organization are always awarded	13 (32.5%)	16 (40%)	5 (12.5%)	2 (5%)	4 (10%)	40 (100%)
Employee are promoted on a regular basis in my organization	18 (45%)	17 (42.5%)	2 (5%)	1 (2.5%)	2 (5%)	40 (100%)
There is room for commission in my organization	12 (30%)	19 (47.5%)	3 (7.5%)	4 (10%)	2 (5%)	40 (100%)

Source: Field Survey, (2023)

Table 4.2 shows that 22 (55%) of the respondents strongly agreed that their organizations' fast payment of employee salaries results in satisfied workers. Furthermore, 4 (10%) were undecided, 3 (7.5%) disagreed, and 1 (2.5%) strongly disagreed with this remark, while 10 (25%) agreed with it. According to the findings, most employees in a sample of Osun state's microfinance banks think that timely salary payments increase worker satisfaction.

In addition, the table reveals that, when it came to their organization's propensity to pay salaries on time and without delay, 20 (50%) participants strongly agreed, 14 (35%) agreed, 4 (7.5%) were undecided, 2 (5%) disagreed, and 1 (2.5%) severely disagreed. According to the respondents, the majority agreed (Strongly Agree and Agree) that their organization rarely delays salary payments.

Additionally, the data shows that the statement that an employee's position inside the company determines whether or not they receive their salary on time was agreed upon by 10 (25%) highly agreed upon by 10 (50%) agreed upon, unsure by 5 (12.5%), disagreed by 2 (5%) and severely disagreed by 3 (7.5%). The majority of the sampled staff agreed (Strongly Agree and Agree) that an employee's position affects how promptly they receive their salary.

The table indicates that 17 (42.5%) highly agreed, 15 (37.5%) agreed, 4 (10%) were undecided, 3 (7.5%) disagreed, and 1 (2.5%) severely disagreed with the idea of regular increases in prompt salary payments after a few years. The results clearly show that most respondents (Strongly Agree and Agree) agreed that pay increases occur frequently throughout time.

The table shows that 10 (25%) very agreed, 23 (57.5%) agreed, 3 (7.5%) were undecided, 1 (2.5%) disagreed, and 2 (5%) strongly disagreed with the impartiality in giving quick remuneration. The majority of respondents concurred that salary payments in their firm are made without bias (Strongly Agree and Agree).

Going on to job security (Table 4.3), the information reveals that of those surveyed, 24 (60.00%) strongly agreed, 9 (22.50%) agreed, 2 (5.00%) disagreed, 3 (7.50%) disagreed, and 2 (5.00%) disagreed significantly. The majority of employees concurred that job security is ensured in their company (Strongly Agree and Agree).

Additionally, the data shows that when it comes to giving employees a second opportunity after making mistakes, 12 (30%) strongly agreed, 15 (37.5%) agreed, 6 (15%) were undecided, 3 (7.5%) disagreed, and 4 (10%) severely opposed. Employees are given a second chance, according to the majority (Strongly Agree and Agree).

The chart also shows that, when it comes to the statement that employees are content with their assigned tasks, 15 (37.5%) highly agreed, 10 (25%) agreed, 7 (17.5%) were undecided, 5 (12.5%) disagreed, and 3 (7.5%) strongly disagreed. The majority expressed agreement (both Strongly Agree and Agree) that workers are happy with the jobs they have been given.

Table 4.2 presents the findings of the examination of respondents' perspectives regarding fringe benefits: 12 (30%) strongly agreed, 18 (45%) agreed, 5 (12.5%) were unsure, 2 (5.00%) disagreed, and 3 (7.5%) severely disagreed. Most respondents (Strongly Agree and Agree) concurred that employees who work extra hard typically receive bonuses.

Additionally, the chart shows that regarding the assertion that employees who perform well are always awarded, 13 (32.5%) of the respondents highly agreed, 16 (40%) agreed, 5 (12.5%) were unsure, 2 (5%) disagreed, and 4 (10%) severely disagreed. The majority of respondents concurred that rewarding high-performing staff members is a good idea (Strongly Agree and Agree).

In conclusion, the table shows that regarding the statement that employees in their organization receive regular promotions, 18 (45%) of the respondents highly agreed, 17 (42.5%) agreed, 2 (5.00%) were undecided, 1 (2.5%) disagreed, and 2 (5%) severely disagreed. The majority of respondents believed that promotions occur frequently in their company (Strongly Agree and Agree).

Furthermore, the table reveals that regarding the assertion that there is room for commission in their organization, 12 (30%) of the respondents highly agreed, 19 (47.5%) agreed, 3 (7.5%) were undecided, 4 (10%) disagreed, and 2 (5%) severely disagreed. The majority of respondents agreed (Strongly Agree and Agree) that commission is permissible.

Table 4.3 Respondents opinion on Employee Satisfaction

Employee Satisfaction						
Items	SA	A	U	D	SD	Total
I'm very happy with the working condition in my organization, thus I do not feel like leaving the organization	29 (72.5%)	8 (20%)	1 (2.5%)	1 (2.5%)	1 (2.5%)	40 (100%)
The level of absenteeism in my organization is very low.	10 (25%)	18 (45%)	6 (15%)	4 (10%)	2 (5%)	40 (100%)

Employees in my organization develop an attachment to work or make an effort to perform better since they satisfied with their job and their needs are met	17 (42.5%)	13 (32.5%)	7 (17.5%)	2 (5%)	1 (2.5%)	40 (100%)
since customers are attended to without delaying them, there is increased customers patronage in my organization	12 (30%)	19 (47.5%)	3 (7.5%)	5 (12.5%)	1 (2.5%)	40 (100%)
High quality service are given to customers in my organization, thereby increase profitability of my organization	20 (50%)	16 (40%)	2 (5%)	1 (2.5%)	1 (2.5%)	40 (100%)

Source: Field Survey, (2023)

The data in Table 4.3 shows that out of the participants, 29 (72.5%) highly agreed, 8 (20%) agreed, 1 (2.5%) disagreed, and 1 (2.5%) severely disagreed. According to the findings, a sizable majority of respondents (Strongly Agree and Agree) felt that employees are extremely satisfied with their workplace, which reduces the possibility that they may think about leaving.

Table 4.2 revealed that 5 percent strongly disagreed, 10 percent disagreed, 18 percent agreed, 6 percent could not determine, and 4 percent disagreed. Of the sampled respondents, 10 percent strongly agreed. The majority of respondents concurred that there is a noticeably low rate of absence in their workplace (Strongly Agree and Agree).

Table 4.3 analysis shows that of the participants, 17 (42.5%) highly agreed, 13 (32.5%) agreed, 7 (17.5%) were unsure, 2 (5%) disagreed, and 1 (2.5%) severely disagreed. According to the results, most respondents (Strongly Agree and Agree) felt that workers in their company show attachment to their work, going above and beyond to meet their demands and be satisfied with their jobs.

Table 4.3 also shows that 1 (2.5%) and 12 (30%) of the respondents strongly disagreed, whereas 19 (47.5%) agreed and 3 (7.5%) were unsure. The results showed that most respondents (Strongly Agree and Agree) agreed that the chosen microfinance banks' customers receive prompt service, which increases consumer patronage in their business.

In conclusion, the table shows that 20 (or 50%) strongly agreed, 16 (or 40%) agreed, 2 (5%) were unsure, and 1 (or 2.5%) strongly opposed. The majority of respondents (Strongly Agree and Agree) felt that their firm provides clients with high-quality services, which helps to boost profitability.

Discussion of Findings

This study looked into how Osun State's microfinance banks performed in relation to employee satisfaction. Descriptive statistics showed that the sampled respondents recognized some elements as contributing to employee satisfaction, including timely salary, job stability, and fringe perks. In line with the findings of Frye (2015), who highlighted the significance of alluring packages, such as prompt salary and job security, in boosting employee satisfaction, regression analyses also revealed a positive relationship between employee satisfaction and timely salary payment and job security in the chosen microfinance banks.

The results confirmed a positive association between employee happiness and the reward system, corroborated by Awan & Asghar's (2014) findings. The model summary demonstrated a strong and positive correlation between worker satisfaction and output, indicating that worker satisfaction had a major influence on the improved output of the chosen microfinance institutions in Osun state. This finding is consistent with the study carried out by Hira and Waqas (2012), who also found that employee performance and satisfaction were positively correlated. Furthermore, these findings are consistent with Meyer's (2017) research, which showed that low employee satisfaction might negatively impact employee engagement, impeding the accomplishment of organizational goals and general performance.

Conclusions and Recommendations

Conclusions

This study concludes by highlighting the significant influence that employee happiness has on the performance of microfinance banks in Nigeria. The results show that factors that contribute positively and significantly to employee satisfaction within the chosen Nigerian microfinance institutions include timely salary payments, job security, and the availability of fringe perks. Acknowledging these elements as critical drivers of worker satisfaction, Nigerian microfinance institutions may be able to improve total output by giving these elements of worker engagement top priority and making the most of them. This conclusion highlights how crucial a contented workforce is to the prosperity and efficiency of Nigeria's microfinance banking industry.

Recommendations

- i. The study suggests a strategic focus on employee well-being, acknowledging people as the most precious assets, given the favorable association found between employee happiness and the success of microfinance banks in Osun state. Achieving a competitive advantage in the microfinance market requires ensuring comprehensive satisfaction across multiple dimensions. This entails placing a high priority on the well-being of employees, attending to their needs, and establishing an environment at work that promotes job happiness. By doing this, microfinance banks may capitalize on the potential of a happy and driven workforce, which will ultimately improve performance inside the firm. The study suggested that in order to improve employee satisfaction and facilitate the performance of the chosen microfinance banks, management of the chosen microfinance banks should concentrate on and give greater attention to factors like timely salary payment, job security, and fringe benefits.
- ii. According to the study, microfinance institutions in the chosen region should think about offering more perks to its staff members who work hard and efficiently. It is anticipated that this proactive effort will greatly increase employee satisfaction and morale. Microfinance banks can encourage employees to put in their best efforts by fostering a pleasant work culture and rewarding excellent achievement. In the end, it's expected that this strategy would improve microfinance performance in a cascading manner, fostering an atmosphere that will support long-term success and expansion.
- iii. The study also suggests that managers and senior officers actively support the development of a verbal appreciation and praise culture within bank branches. One of the most effective ways to motivate staff members is to foster an atmosphere in which gratitude and acknowledgment are freely shared. Employee motivation can be increased and their work ethic maintained with regular recognition of their efforts. By fostering a happy and encouraging work environment, this approach is probably going to increase employee dedication and happiness, which will ultimately lead to better performance in microfinance bank branches.

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STRATEGIC AGILITY AS A COMPETITIVE ADVANTAGE IN BANKING INDUSTRY

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Abstract

The purpose of this study is to ascertain how retail banks may effectively gain a competitive advantage through the use of strategic agility. Any organisation that operates in an environment that is marked by unpredictability and frequent change needs to be agile in order to survive. Service providers can outperform their rivals in terms of speed and quality by adopting agility and providing the best value to their customers. Convenience sampling was used to select 150 respondents, and an internet survey was used to collect data from the top 5 retail bank customers in South Africa. To find out if there is a statistically significant relationship between the variables being examined, regression analysis was used. The findings showed a statistically significant positive correlation between competitive advantage and agility. In order to maintain the relevance of retail banks in an uncertain environment, this study concludes with sound recommendations that may help managers and banking professionals enhance certain areas of their customer service based on the relationships identified.

Keywords: *strategic agility, competitive advantage*

JEL Classification: M21, O32, Q55

1. Introduction

The phrase "agile" first appeared in reaction to the workplace's continual state of change. In order to provide customers with the best value more quickly than their rivals, South African banks must be strategically agile (Al-Romeedy, 2019). This is a crucial aspect of competition. As of September 2023, there were 31 banks registered in South Africa's banking sector, comprising both local and foreign banks with branches abroad. However, the Standard Bank Group, First National Bank (abbreviated as FNB, which is FirstRand's retail and commercial arm), Absa Bank, Nedbank, and Investec were the five banks that dominated the industry (Cowling, 2023).

In oligopolistic markets such as the banking sector in South Africa, competition is an issue. Banks would not feel as pressure to continuously innovate and enhance their services if there is less competition. Put differently, banks might be less likely to invest in new technologies, improve client experiences, or develop better products and services if they don't have to set themselves apart from their rivals (Guidi, 2020). This could result in a lack of movement and an inability to adapt to changing demands from customers. There might be fewer banks available to customers, which could limit their options for finding the services that best suit their need. Access to novel financial instruments, alluring interest rates, and customised services may thus be restricted. Consumers might be pressured to choose inferior solutions, which would ruin their banking experience. Furthermore, in a less competitive market, banks would not feel as pressed to provide competitive prices. Customers may be forced to accept higher fees if alternatives are not easily accessible, which would reduce their level of satisfaction with banking services overall (Cuestas et al., 2020).

The competitiveness of the South African banking sector has historically received little attention, despite being the most developed on the continent of Africa. This has an effect on the performance of industry participants as service providers (Chinoda & Mashamba, 2021). To satisfy the needs of their consumers, banks must assess if they are keeping up and if they are still able to respond competitively. In the banking sector, new distribution channels are continually being launched, yet most of them don't enhance the existing ones. This raises the question of how well these channels are being utilised. The level and standard of service provided by banks is affected when these channels are not used effectively. This is because, despite banks' best efforts to integrate financial technologies into

their service delivery, customers' needs are frequently overlooked in the rush to develop products that are first to market. Finding out how strategic agility in South Africa's banking sector helps banks gain an advantage over their competitors is the main goal of this study.

2. Literature review and Hypotheses

The banking business places a high value on agility because it is this attribute that will allow industry participants to adapt to changing customer demands and environmental changes and yet remain relevant. In a comparatively short amount of time, the banking industry has experienced quick and significant change, and banks that are not adaptable will not be able to keep up. Additionally, banks have had to fast digitise in order to compete with these entirely digital businesses since fintech companies have made their mark in the market. The pressure to quickly change has been placed on traditional banks in reaction to these challenges. They understand that in this fast-paced atmosphere, adaptability is critical to survival. Banks are required to respond promptly to shifts in the market, laws, and consumer preferences. Banks will be able to address trouble spots in the customer journey and gradually improve upon these changes by using a strategically agile approach. Banks will be able to take a step back and consider how they may service customers differently if they recognise the value of agility (Mahadevan *et al.*, 2019).

For numerous customers, ease is the key to a positive banking experience. Many traditional banks are unable to provide their consumers with the same level of control and speed that modern customers need. Even though every bank presently has a distinct mobile app, having a mobile banking strategy does not ensure that it is used effectively (Vahrenkamp, 2021). Furthermore, every new distribution channel that banks provide raises the expectations of convenience for their clients rather than removing or replacing the previous ones. As a result, banks must handle delivery change while still attending to the financial needs of their customers (Vahrenkamp, 2021). This prompts the question of what is impeding banks' digital transformation. One such explanation could be a lack of awareness regarding the significance of agility and how it contributes to successful competitive advantage (Rusu *et al.*, 2022).

Businesses in a variety of industries, including banking, face a wide range of difficulties as a result of the unstable nature of the business environment. Innovation, big data analysis, globalisation, technical advancement, and shifting consumer preferences are the causes of the problems. To maintain their competitive

advantage and ensure their survival, companies must adapt to these changes (Al-Romeedy, 2019; Rusu *et al.*, 2022). In South Africa and other developing countries, the increasing use of smartphones has reduced barriers to financial services delivery and, more generally, has lowered barriers to information access (Adeleye *et al.*, 2024).

There has been a noticeable change in viewpoint with customers demonstrating decreased loyalty towards service providers that fail to offer individualised products and services (Uvet, 2020). Value outcomes become important pillars on which the business eventually rests when concentrating on banking customers in particular (Louw & Nieuwenhuizen, 2020). Without an understanding of how strategic agility gives them an advantage over their competitors and enables them to serve customers differently, South African banks will not be able to attain outstanding levels of customer service success. This study is to explore the relationship between strategic agility and competitive advantage in the banking sector of South Africa within this setting.

Porter (1985) defined competitive advantage as an organization's ability to provide customers with greater value. Superior value means that customers get items that are similar to competitors at a lower price, or they get extra features and benefits that justify paying more, meaning that the organisation makes more money than the industry average. One of the most challenging things facing businesses today is figuring out how to develop competitive advantages in the 4IR era (Petrova & Fustik, 2020; Adekanmbi & Ukpere, 2023).

The financial services industry in South Africa has traditionally been controlled by five large retail banks (Ntimane, 2020). It is possible that competitors from outside the traditional banking sector will soon be able to replace established banks since they have the resources, improved value proposition, technological know-how, and consumer trust. But for a variety of reasons, it might take some years for this to completely materialise. Among these are traditional banks that provide their customers with a feeling of security and privacy—something that their rivals might not be able to match. Additionally, banks have specific knowledge and well-established networks, which may be able to offset the competitive challenges posed by these new competitors (Uvet, 2020). Therefore, conventional banks may be shielded from future extinction and irrelevance by their strategic agility.

Businesses can better identify market trends and respond to them by utilising strategic agility. Organisations that possess strategic agility are able to provide goods and services more quickly (Godwin & Sorbarikor, 2022). This is due to their

ability to adjust to both anticipated and unforeseen changes. For strategically agile businesses, ongoing renewal is therefore essential (Godwin & Sorbarikor, 2022).

Strategic agility is a notion that is inherently paradoxical. Thorough planning processes, well-established routines, and an unwavering dedication to a future vision are all necessary for strategic thinking. Agile organisations are flexible and adaptive, and when needed, they may apply creative thinking and emergent decision-making. Organisational leaders find it very challenging to successfully balance the conflicting demands of strategic agility. Formal procedures enable leaders to allocate resources in a disciplined manner, while swift decisions and rapid thinking help them anticipate change (Xu & Liu, 2024). A lack of understanding of trends, environmental volatility, and strategic agility considerations has resulted in a major loss in both financial and non-financial performance for many businesses in the twenty-first century. Gaining an advantage over others, securing a place in the market, and attaining superior performance are all addressed by being strategically agile (Arokodare & Asikhia, 2020).

Financial performance is not directly impacted by strategic agility. Instead, improvements in competitive capacities, or how quickly and adaptably organisations can react to changes in the market, act as a mediating factor in the advantages of strategic agility. It should come as no surprise that the ability organisations to alter their operations and procedures before competitors does, giving them an advantage in the market, is the core benefit of strategic agility (Alijanabi, 2024). Hence, in a world that is changing quickly, strategic agility gives businesses an advantage over competitors.

Strategically agile businesses may readily handle the challenge of a volatile market environment, gain an advantage in the marketplace, and perform better, as the research analysis indicates. The benefits of strategic agility are mediated by improvements in competitive capacities, even though it has no direct impact on financial results. Therefore, the ability of strategically agile organisations to obtain first-mover advantage is the basic benefit of strategic agility. As a result, in a fast-paced market, strategic agility gives a competitive advantage. Therefore, the proposed hypothesis is:

H₁ There is a positive relationship between strategic agility and competitive advantage in the banking industry.

3. Research Methodology

In this investigation, a positivist paradigm was used. Since surveys are employed when researchers are interested in various factors or constructs and how such variables are related, they were a better choice for this particular study (Bell, Bryman & Harley, 2019). The study used a quantitative methodology. In this quantitative study, a deductive method was used to ascertain the link between the various variables. The individuals having South African bank accounts comprised the study's population. A total of 150 online surveys were distributed, and 145 valid answers—or 96.7% of the total—were obtained. Only 145 of the 150 responses were accurate and comprehensive. Non-probability sampling, more precisely convenience sampling, was the technique used for the sample. Two elements were taken into consideration when determining the sample size: the type of data analysis and the anticipated response rate. For big populations, many researchers believe that a sample size of at least 100 is necessary. This makes sound statistical analysis possible. Consequently, 145 people made up the sample size for this study. This size provided for a minimum sample size that would yield appropriate statistical analysis while taking non-response into account during data collection and capture. A questionnaire that participants self-administered was used to gather data for the study. The questions were in English and had a closed-ended format. To access the self-administered questionnaire, respondents had to click on a Google Forms link that was produced. To determine the link between the variables under study and to identify patterns within the variations, factor analysis was utilised. It looks at how many items (responses to questionnaires) are related to one another and groups them into smaller groups called factors.

4. Findings and discussion

The theoretical hypotheses have therefore been updated as follows:

H₁: There is a positive relationship between strategic agility and competitive advantage in the banking industry.

The direction and intensity of the linear relationship between two variables were determined using the correlation analysis approach. The scatterplot is a useful tool for determining if the linearity assumption is satisfied. To assess the strength of linear correlations between variables, Pearson's correlation coefficient was employed. The Pearson's correlation coefficient (r) is limited within the -1 to $+1$ range. Its sign indicates whether the relationship is positive or negative, while the size of r indicates the strength of that relationship. When the correlation coefficient

is equal to 0, it signifies that there is no relationship between the variables (Pallant, 2020). Table 1 shows Cohen (1988) suggested guidelines regarding the size of the correlation coefficient and the strength of the relationship between variables.

Table 1: Correlation strength guidelines

Strength of relationship	Correlation coefficient (r)
Weak correlation	0,1 – 0,29
Medium correlation	0,30 – 0,49
Strong correlation	0,50 – 1,0

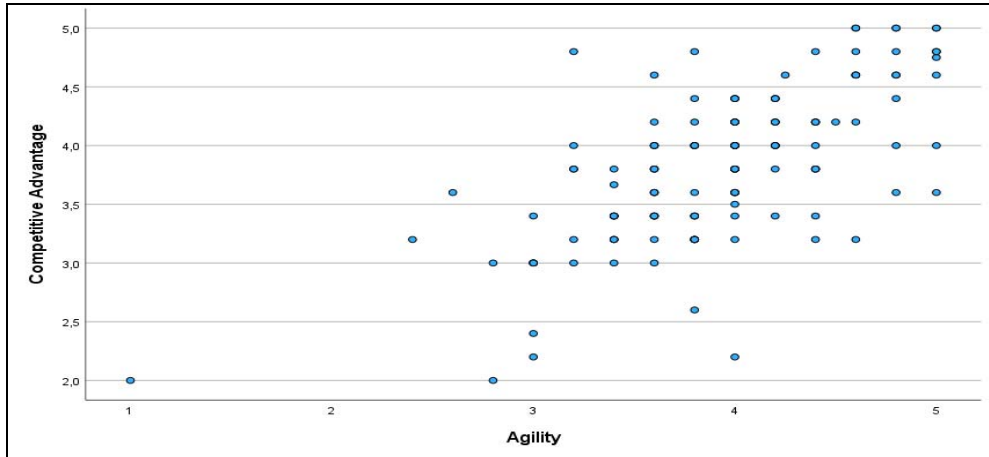
Source: Cohen (1988: 79-81)

A useful technique for addressing a range of research topics is multiple regression analysis (Pallant, 2020). It provides information on the percentage of a dependent variable's variability that can be explained by independent variables. Furthermore, it offers details on how each independent variable contributes differently to the explanation of changes in the dependent variable (Pallant, 2020). Multiple regression relies on a number of data-related assumptions. The outlier hypothesis is the first one made. Outliers, or exceptionally high or low results, can cause problems for multiple regression. For this reason, it is necessary to eliminate outliers from the data set prior to doing regression analysis. The second presumption is that the variables ought to be related linearly. Last but not least, the data set must be regularly delivered (Pallant, 2020).

4.1. Relationship between agility and competitive advantage

Competitive advantage and agility have a linear relationship, according to the correlation analysis. Figure 1 scatter plot illustrates this. The points can be connected to form a straight upward line, signifying a positive linear relationship. Regression analysis requires correlation (Pallant, 2020). If the variables do not correlate, it is not possible to perform a regression analysis.

Figure 1: Linear relationship between agility and competitive advantage



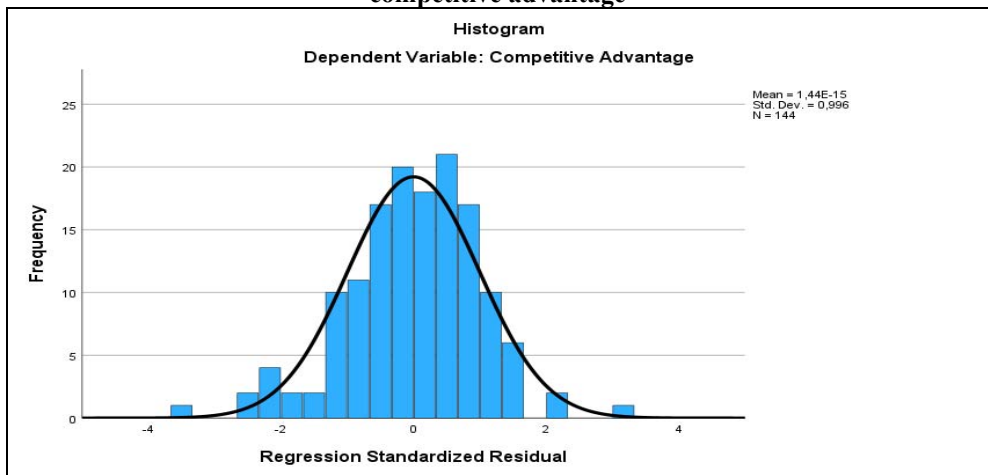
(Source: Researcher's own construct)

Multiple regression analysis was conducted to establish the strength and direction of this relationship. First, preliminary analyses were conducted to ensure that the assumptions that need to be met for regression analysis were not violated. The assumption of outliers was not met as seen in the regression standardised residuals histogram in Figure 1. Outliers are indicated by standardised residual values where the minimum is less than $-3,3$ and the maximum is greater than $+3,3$. In the case of the relationship between agility and competitive advantage, the minimum standardised residual value was $-3,606$ (Table 1), which indicates an outlier. To deal with the violation of the outlier assumption, one case was omitted in the final regression.

Table 2: Residuals statistics for the relationship between agility and competitive advantage

Std. Residuals				
Minimum	Maximum	Mean	Std. Deviation	N
-3,606	3,186	0,000	0,996	144

Figure 2: Regression standardised residuals for the relationship between agility and competitive advantage



(Source: Researcher’s own construct)

Table 3: Agility and competitive advantage correlation

Correlations			
		Competitive Advantage	Agility
Pearson Correlation	Competitive Advantage	1,000	0,693
	Agility	0,693	1,000
Sig. (1-tailed)	Competitive Advantage		0,000
	Agility	0,000	
N	Competitive Advantage	143	143
	Agility	143	143

As indicated earlier, the *p*-value determines the significance of the relationship between the variables. A *p*-value that is < 0,05 indicates a significant relationship. In terms of agility and competitive advantage, *p* = 0,000, thus the relationship is

significant. Pearson’s correlation coefficient was 0,693 (Table 2), which indicates a strong positive relationship. This implies that the higher the agility, the higher the competitive advantage. The number of cases in Table 2 has decreased to 143 due to one being omitted because it was an outlier.

Table 4: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,693 ^a	0,480	0,476	0,445

a. Predictors: (Constant), Agility

Table 5: ANOVA results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25,735	1	25,735	129,933	<,001 ^b
	Residual	27,927	141	0,198		
	Total	53,662	142			

a. Dependent Variable: Competitive Advantage
b. Predictors: (Constant), Agility

Table 6: Coefficients

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. error	Beta			Lower bound	Upper bound
1	Constant	1,075	0,245		4,379	0,000	0,590	1,560
	Agility	0,704	0,062	0,693	11,399	0,000	0,582	0,826

The coefficient of determination (r^2) gives the researcher an idea of how much variance two variables share (Pallant, 2020). Results from the model summary (Table 3) show an r^2 of 0,480 (48%), implying that 48% of the variance in competitive advantage is explained by agility. This means that almost half of the competitive advantage can be predicted by agility and the remaining 52% can be

attributed to other factors which are not measured in this study. The level of statistical significance (sig.) is less than 0,05 (see Table 4). This implies that the independent variable of agility is significant in predicting the dependent variable of competitive advantage, making the model significant. Results also show that for every 1 unit of agility that increases, competitive advantage increases by 0,704 units as shown in Table 5 (unstandardised beta = 0,704).

4.2. Acceptance or Rejection of the Proposed Hypotheses

H₁: There is a positive relationship between strategic agility and competitive advantage in the banking sector.

The results indicate that agility and competitive advantage have a strong positive relationship, and that agility plays a substantial role in explaining and forecasting competitive advantage in the banking sector. Agility is a strong predictor of competitive advantage, accounting for 48% of the variance in competitive advantage. Given the significance of the relationship, H1 is thus accepted.

4.3. Discussion

According to the literature currently in publication, the main idea behind strategic agility is an organisation's ability to adapt and prosper in a constantly changing environment (Tufan & Mert 2023). Researchers largely agree that agility has positive effects, especially for organisations that must navigate uncertain business environments and deal with ongoing changes. The benefits of strategic agility are shown in an organisation's capacity to react quickly and adaptably to changes in the market, with a primary focus on giving customers' requirements top priority within their operations (Aljanabi, 2024). The literature also showed that businesses may remain relevant and provide higher value for customers even in unstable business situations by being adaptable (Al-Romeedy, 2019). Scholars are particularly interested in how adopting agility and its concepts helps an organisation to differentiate itself from competitors, ultimately providing superior value to customers. At the moment, competitive advantage is the most popular theme in strategic agility (Adeleye *et al.*, 2024).

Finding out how much strategic agility gives the South African banking sector a competitive advantage was the first secondary goal. In order to assess the strength of this link, participants were asked to rate how much they agreed with the assertions made about how competitive and agile they thought their main bank was, using a 5-point Likert scale. The descriptive statistics, respondents tended to

agree with the claims about both agility and competitive advantage. The two factors have a very strong positive relationship, according to the regression analysis. The Pearson correlation coefficient of 0.693, which was obtained, verified this. Furthermore, results indicated that the association was substantial in addition to being strong and positive. It was discovered that agility significantly contributed to the explanation and prediction of competitive advantage, accounting for 48% of its variance. After testing the hypotheses in regard to the secondary objective, H1 was found to be acceptable.

4.4. Recommendations

The findings of the research highlight how crucial strategic agility is to obtaining a competitive advantage in the banking sector. The robust correlation between agility and competitive advantage, as demonstrated by empirical research, implies that banks ought to give precedence to devising and executing agile strategies in order to provide exceptional value for their customers. Initially, managers can do this through funding programmes for employee training and development that increase the agility of those staff members who work closely with the service delivery process. Second, banks will be able to stay relevant as suppliers of financial services in a market where non-bank competitors are fiercely competing if they consistently review and modify their strategies in order to react quickly to shifting market conditions. This can be accomplished by implementing cutting-edge technology to promote agility in operations and decision-making, such as automation, data analytics, and artificial intelligence (AI).

5. Conclusion

The study will broaden our understanding of strategic management and the importance of its principles in the South African banking sector, this research will add to the body of knowledge on strategic management and customer service success. Researching strategic agility is essential because the ambiguity of the market environment affects how organisations function and adjust. Research on strategic agility in the context of competitive advantage is crucial because there isn't enough material on the subject. Finally, implementing the recommendations derived from the results of this research would help conventional banks to stay relevant in a market that is always changing, unpredictable, and facing threats from non-traditional businesses.

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THE ROLE OF PREVENTIVE FINANCIAL CONTROL IN SUSTAINABLE MANAGEMENT

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Abstract

The fundamental purpose of the preventive financial control is to identify the draft operations that do not comply with the conditions of legality and regularity, the performance of which would prejudice the public patrimony and/or public funds.

In today's dynamic economic environment, the integration of preventive financial control mechanisms is essential for achieving sustainable

management within organizations. This paper explores the critical role that preventive financial control plays in promoting long-term financial stability and operational efficiency. By preventing financial irregularities and ensuring the prudent use of resources, such controls contribute to the sustainability of business practices. The study examines various methodologies of preventive financial control, highlighting their effectiveness in minimizing financial risks, enhancing transparency, and promoting ethical governance. Furthermore, the paper emphasizes how sustainable management frameworks can be strengthened through rigorous financial oversight, ultimately leading to improved decision-making, resource optimization, and resilience in the face of economic challenges. The findings underscore the need for organizations to adopt comprehensive preventive financial control strategies to meet both financial objectives and sustainability goals.

Keywords: *preventive financial control, budget, expense, operation, contracts, payments, sustainability.*

JEL Classification: H61, G310, H610

Introduction

Preventive financial control is the activity by which the legality and regularity of the operations carried out on behalf of public funds or public patrimony are verified, before their approval.

Sustainability is not only about protecting the environment, but also about maintaining the long-term profitability of the entity, sustainable development, and represents the opportunity to develop it in a sustainable way. (Bucea-Manea-Țoniș, R., Prokop, V., Ilic, D., Gurgu, E., Bucea-Manea-Țoniș, R., Braicu, C., & Moanță, A., 2021; Gurgu, E., Frăsineanu, D., & Simbotin, G., 2024).).

It is an ex-ante compliance control.

Literature Review

Preventive financial control (PFC) is developed in accordance with the Code of Internal Managerial Control (according to OGSG no. 600/2018).

Lartey P.Y., Kong Y., Bah F.B. M., Santosh R. J., Gumah I.A., in the study - *Determinants of internal control compliance in Public Organizations; Using Preventive, Detective, Corrective and Directive Controls* consider as internal control is relevant in every entity, regardless of the objectives and further observed that internal control is more effective among organizations practising preventive

measures. (Kuleto, V., Ilic, M., Rankovic, M., Popovic-Sevic, N., & Gurgu, E. , 2024)

Theoretical Background

An operation is any action with a financial effect on behalf of public funds or public patrimony, regardless of its nature

The *draft operation* is any document that aims to carry out an operation, in the form prepared for its approval by the competent authority, according to the law.

Legality is the characteristic of an operation to comply with all the legal provisions that are applicable to it, in force on the date of their performance.

Regularity designates the characteristic of an operation to comply in all respects with all the procedural and methodological principles and rules that are applicable to the category of operations to which it belongs (including operational procedures, internal provisions, etc.)

Compliance is the characteristic of an operation, acts or administrative facts produced within a public entity to correspond to the policy expressly assumed in the respective field by the entity in question or by an authority superior to it, according to the law. (Coimbra, N., & Rey, H. , 2024).

Paper content

The following have the legal obligation to organize their own preventive financial control (Beldiman C.M., 2022):

- public authorities and autonomous administrative authorities;
- public institutions belonging to the central and local public administration and subordinate public institutions;
- autonomous governments;
- national companies or societies;
- commercial companies in which the state or an administrative-territorial unit holds the majority capital and uses/administers public funds and/or public patrimony;
- agencies, with or without legal personality, that manage funds from external financing, repayable or non-repayable;
- Ministry of Public Finance, for treasury operations, public debt, realization of state revenues and Romania's contribution to the EU budget;
- the executive public authorities of the local public administration, for public debt operations and the realization of own revenues.

Autonomous companies, national companies/companies, as well as commercial companies in which the state or administrative-territorial units hold the majority capital shall develop specific rules of their own preventive financial control, taking into account the legislation applicable to entities that are organized and operate in a commercial regime. (Jianu M. , 2021)

Its own preventive financial control is exercised over all operations affecting public funds and/or public patrimony, and over the documents in which patrimonial operations are recorded, before they become legal acts, by their approval by the rightful holder of competence. The analysis and certification of financial and/or patrimonial statements and the verification of operations already carried out do not fall within the scope of preventive financial control.(Sampat, B., Mogaji, E., & Nguyen, N. P. , 2024).

The PFC is exercised on the basis of the documents and/or supporting documents certified regarding the reality, regularity and legality by the heads of the issuing specialized departments.(Gao, S., Zhu, Y., Umar, M., Kchouri, B., & Safi, A., 2024).

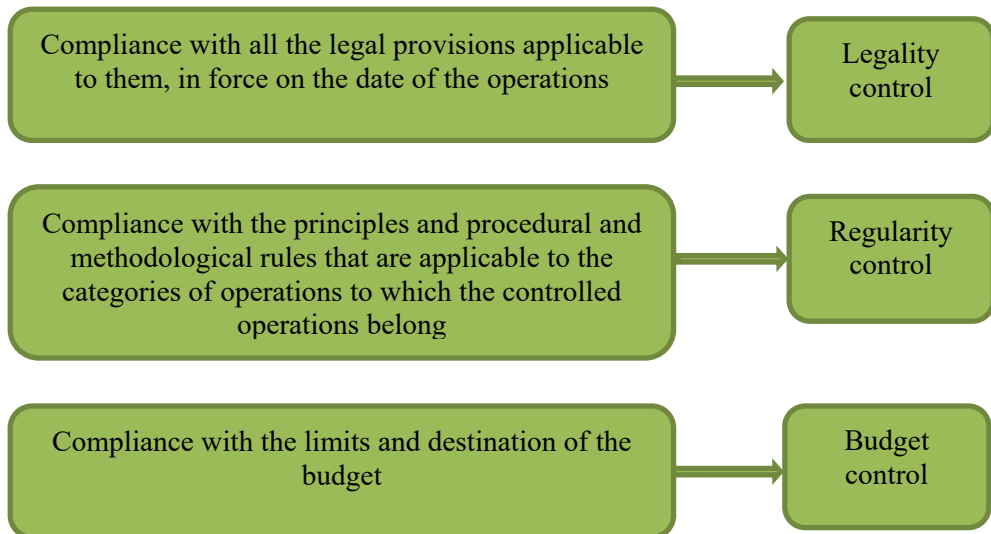
The operations concerning legal acts through which the public entity is patrimonially committed, are subject to preventive financial control, after their approval by the legal and financial-accounting specialized departments. (Saqib, N., Usman, M., Ozturk, I., & Sharif, A. , 2024).

The heads of the specialized departments are responsible for the reality, regularity and legality of the operations whose acts and/or supporting documents they have certified or endorsed. (Ranković, M., Gurgu, E., Martins, O., & Vukasović, M. , 2023).

Obtaining the preventive financial control visa for operations based on certified or endorsed supporting documents and/or documents, which subsequently prove to be unreal, inaccurate or illegal, does not exempt the heads of the specialized departments or other competent persons within them from liability. (Lartey P. Y. , Kong Y. , Bah F.B. M., Santosh R. J. , Gumah I. A. , 2020)

The organization of preventive financial control activities is done within the specialized financial-accounting departments, but the head of the public entity can decide to extend it to the level of other specialized departments where payment or patrimonial obligations are initiated/found. The appointment of the person who exercises the activity of preventive financial control is done by appointment act.

Preventive financial control consists of the systematic verification of the operations subject to it, as regards (Leng, C., Wei, S. Y., Al-Abyadh, M. H. A., Halteh, K., Bauetdinov, M., Le, L. T., & Alzoubi, H. M. , 2024)::



Preventive financial control is organized within the specialized financial-accounting departments. Public entities can appoint several people to exercise their own preventive financial control.

There are restrictions regarding the appointment of persons who exercise their own preventive financial control. The persons who exercise preventive financial control are other than those who:

- initiates the operation subject to the visa;
- approves the operation subject to the visa;
- performs the operation subject to the visa.

At public institutions where two or more persons are appointed to carry out the activity of preventive financial control, the main authorizing officer of credits will nominate a person from among them who will also have the responsibility of coordinating the preventive financial control of the respective public institution and will communicate the name of this person to the Ministry of Public Finance.

The persons who are appointed in the activity of own preventive financial control must cumulatively fulfill the following conditions:

- have Romanian citizenship and domicile in Romania, know the Romanian language, written and spoken;
- they have an appropriate state of health, certified on the basis of a specialized medical examination;
- they have full exercise capacity;
- have higher economic or legal studies (with exceptions - secondary economic studies);
- have an effective seniority in the field of public finance of at least 3 years, in the case of public institutions, and of at least 3 years in the financial-accounting field, in the case of other public entities;
- were not convicted of a crime that would make them incompatible with the exercise of preventive financial control;
- present at least two letters of recommendation.

The suspension, change or dismissal of the persons appointed to exercise their own preventive financial control is done by an internal decision act of the head of the public entity, with the consent of the hierarchically superior public entity. (Hurloiu L.R., Burtea E., Preda B.F. , 2014)

During the suspension, change or, as the case may be, dismissal, the head of the public entity appoints another person to carry out his own preventive financial control activity, for a period that cannot exceed 30 consecutive days (paragraph 7 of the Code).

The main situations for the suspension of the person appointed to exercise preventive financial control are the following:

- perform military service;
- is on maternity leave or temporary incapacity for work;
- is under criminal investigation, trial or is under preventive arrest, under the conditions of the Code of Criminal Procedure;
- he is in other situations in which the suspension of labor relations intervenes.

The main situations in which the person designated with the exercise of own preventive financial control can be changed are (Wang, Q., Hu, S., & Li, R., 2024).:

- became incompatible for the exercise of that activity;
- has committed a disciplinary offense (violated legal norms, internal regulations, etc.) for which this change represents a disciplinary sanction for the person in question;
- at the request of the person concerned, due to illness or for other reasons;

- as a result of control or audit reports, operations targeted for own preventive financial control were found to be illegal and/or irregular;
- change of job by the employer.

Evaluation of the activity of the person appointed to exercise his own preventive financial control it is done by the head of the public entity, with the consent of the public entity that approved the appointment.

The preventive financial control of the operations is exercised on the basis of documents and/or supporting documents certified in terms of reality, regularity and legality by the managers of the issuing specialized departments (point 3.4 of the Rules).

The managers of the specialized departments are responsible for the reality, regularity and legality of the operations whose acts and/or supporting documents they have certified or approved. Obtaining the preventive financial control visa for operations that are based on certified or approved supporting documents and/or documents, which later prove to be unreal, inaccurate or illegal, does not exempt the heads of specialized departments or other competent persons from their responsibility (para. 3.6 of the Rules). The granting of the visa on the basis of supporting documents not certified as to reality, regularity and legality by the managers of the issuing specialized departments which later prove to be unreal, inaccurate or illegal may determine the liability of the person who has the visa.

The personal preventive financial control visa includes the following information:

- ✓ the name of the public entity;
- ✓ the mention "approved for preventive financial control";
- ✓ seal number (identification number of its holder);
- ✓ visa grant date (year, month, day)

Conclusions

The preventive financial control activity ensures the exercise of the verification of the operations presented for the visa and the certification regarding the reality, regularity and legality by the heads of the specialized departments. The preventive financial control aims to prevent the violation of the legal provisions in force and the occurrence of damages. Sustainable management represents the way of managing the entity's business, so as to have a positive impact on the environment (Abbas, J., Balsalobre-Lorente, D., Amjid, M. A., Al-Sulaiti, K., Al-Sulaiti, I., & Aldereai, O., 2024).

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EVALUATION OF HOW ARTIFICIAL INTELLIGENCE IMPACTS EMPLOYMENT IN THE US, UK AND CHINA

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Abstract

Businesses of every sphere rapidly integrating and utilizing artificial intelligence (AI) in non-routine work have started to alarmingly create displacement concerns in workers. The battle between technological progress and existing employment opportunities has been consistently brought up in the past three centuries, but which one will come to victory this time?

This paper will research the relationship between AI technology and employment in the context of three world superpowers: the US, the UK and China. It will explore the effects of machine learning on the rate of vacancies considering the social and political factors as well as attempting to predict the either positive or negative changes to the labor markets in the near future based on the personally conducted survey and secondary gathered information.

The research will aim to dissolve the employees' uncertainties and anxieties concerning their job security due to the frequent AI use in companies. This study may be a reliable source of information for business analysts and the statisticians of the labor market concerned with the impact of AI technology on employment.

Keywords: artificial intelligence, employment, job loss, future

JEL Classification: J69, O14, O33

Introduction

The fast-paced transition in the nineteenth century from hand production to machine manufacturing laid the foundation for the beginning of a revolutionary era, which was later accordingly named the First Industrial Revolution, where affordable and efficient machinery was much preferred to human labor in the industrial sector [Hartwell, 1965]. Following such dystopian advancements in technology, John Maynard Keynes famously stated “The increase of technical efficiency has been taking place faster than we can deal with the problem of labour absorption”, directly expressing his uneasiness towards approaching “technological unemployment” by implying technology being far more productive than man-made input [Keynes, 1930]. Although Keynes warned about the consequences of the alleged inevitable unemployment, his worries were never fully realized as the replacement of humans by cost-efficient technological inventions resulted in the simultaneous creation of jobs related to the operation of those technologies [Acemoglu & Restrepo, 2018].

It is now the age of the Fourth Industrial Revolution where artificial intelligence effectively conquers all the previously human-dominated segments from predictive analytics to medicinal diagnosing [Georgieff & Hye, 2021]. AI relies on the complex mechanism of machine learning where computer programs gain information from existing sets of data and train to perform certain tasks autonomously, hence the training assists machines to reach significant resolutions with minimal or zero human intervention [Petropoulos, 2018]. In comparison with software and robots with their performance of only routine tasks, the capability of AI to independently reason in the event of difficult situations proves it to be the perfect substitute for high-skilled, high-earning employees [Webb, 2019; Acemoglu & Autor, 2011]. This study will, therefore, investigate the employment levels with the increasing exposure of AI in various industries and attempt to predict the circumstances of the next ten years on the example of three case states: the US, the UK, and China. To comprehensively depict both positive and negative sides of AI, these countries were specifically chosen for their significant positions in the world economy, relevance in the technological novelties domain, and differing political stances.

This study will firstly begin with the review of existing literature, followed by the detailing of artificial intelligence and its implementations, all three model countries will then be assessed regarding the influencing corresponding factors. There will further be demonstrated the projection of future job losses and creations caused by AI, the data for which was collected through both primary and secondary

methods. Generated surveys were used to ensure accuracy and relevance of the findings, while secondary gathered information ensured the encompassing of a wide range of information.

Literature review

The duality of AI automation effects on labor markets is a widely discussed and highly debated topic globally among economic experts.

An economic theorist, Jeremy Rifkin, described the Information Age as “a deadly epidemic inexorably working its way through the marketplace, the strange, seemingly inexplicable new economic disease spreads, destroying lives and destabilizing whole communities in its wake” [Rifkin, 2004]. While other experts claimed the unemployment to be a temporary adjustment issue, Rifkin provided overwhelming statistics of displaced blue-collar workers being carelessly laid off due to advanced software and computer networks enabling companies to accomplish more tasks with fewer employees.

David Autor and David Dorn carried out an investigation concerning the rapid decline of US labor in the low-skilled jobs performing routine tasks which opportunely coincided with the labor growth of almost thirty percent in the service sector [Autor & Dorn, 2013]. Technological progress reduced costs of accomplishing routine, well-defined tasks, such as clerical work and bookkeeping, driving down wages, while service outputs requiring personalized approach, such as gardeners and home health aides, were impossible to automate. Therefore, Autor and Dorn concluded that “as computerization erodes the wage paid to routine tasks, low-skill workers reallocate their labor supply to service occupations”. The statistics, hence, demonstrated that lower wages resulting from AI implementation caused workers to change their jobs.

However, the model developed by Autor and Dorn assumed technology not capable of cognizant task execution. The assumption would not accurately project the future of labor markets, though, in the twenty-first century as the recent developments in computerization enable technology to manage the previously inaccessible non-routine work. Specializing mainly in the US labor market and in light of new advancements, Carl Frey and Michael Osborne, in their widely quoted research, determined the rate of vulnerability to automation of 702 occupations, revealing that in twenty years, 47 percent of American workers will be at risk of unemployment [Frey & Osborne, 2013].

Although David Autor claimed machinery being a primary cause of substantial middle-skilled job displacements, he later opposed this point by stating that “tasks that cannot be substituted by automation are generally complemented by it” [Autor,

2015]. Entrepreneurs tend to mix inputs, like labor and capital, used in production to achieve the most advantageous results, therefore, the efficiency increase in one factor will collectively raise the economic value of another. Especially in the case of easily mechanized jobs, there will always persist a blend of routine tasks with a requirement for creativity and social engagement, skills that are yet attained only by humans.

A similar point was made in the McKinsey Global Institute's report, declaring the inability of technology to perform jobs involving interpersonal communications and people management [Manyika et al., 2017]. The evidence presented in the report also emphasized the possible need of workers to either update their skills through vocational training or slightly change their professional field to remain employed in the digitalized age.

The research conducted by PricewaterhouseCoopers (PwC) demonstrates the capacity of AI to replace almost one fifth of UK workers and a considerable amount of one fourth in China [Hawksworth & Fertig, 2018]. Nevertheless, the increased efficiency and ensuing raise of real incomes creates a new market for better and more products, giving new opportunities to the discharged workers. It is estimated that China will have a growth of twelve percent in employment due to the new jobs created.

Based on the discussions above, middle and high-skilled workers are supposed to be the most sensitive during the inevitable AI automation process. The situation is extremely similar to the times of the First Industrial Revolution, where workers were being constantly replaced by machinery. The experience demonstrates that, although the shift will be swift and immense, workers will never be fully replaced by robotics, including in the UK and China along with the US. Therefore, it is assumed that the skills present in humans will be complemented rather than eradicated by technological companions.

Research question

The key questions aimed to be answered in this study are as follows:

1. What is artificial intelligence and what are its current capabilities as of the year 2024?
2. What is the general attitude and beliefs of the sample population towards AI use in workplaces?
3. Which of the businesses and skills are the most exposed to the implementation of AI? Explored on the basis of the example of all three focus countries.

4. What is the estimation of the affected businesses and what are the future projections? The answer will be determined based on the samples of publicly published statistics researched by concerned economists and the personally gathered survey results.
5. What are the global consequences of AI use in workplaces based on experiences up to this point of three different nations? Will it increase, decrease or keep the employment level at a stable rate?

Significance of study

The paper will be crucial for the depiction of the future global employment market working side by side with artificial intelligence. Since the study will broadly examine all the effects of machine learning use in workplaces with projected statistics for the next few years, it will be beneficial for statistics analysis on the topic.

Limitation

AI-driven automation is an ever-evolving, rapidly advancing global phenomenon that is transforming countries and industries across the globe. Although machine learning has already conquered most of the world, the studies done on this takeover have primarily focused only on the US labor markets. It was, therefore, decided for this study to consider the impact of AI on employment levels of the US, the UK and China at the same time.

The chosen case countries will assist in incorporating different regions of the world in this research, including the US for North America, the UK for Europe, and China for Asia. All three nations will generate various statistics by being significant players in the world economy and politics, as well as having contrasting demographics. Moreover, the prevalence of these countries in varying industries, such as China excelling in manufacturing and infrastructure, the US dominating in retail, healthcare and information technology sectors, and the UK commanding financial, insurance and legal services, creates a necessary inclusion of several AI-exposed industries [Mataloni et al., 2024; Hunsaker et al., 2024; KPMG, 2024]. The research combination from these three leading states will provide comprehensive statistical results to accurately measure the future of the job economy.

Discussion and survey results for empirical analysis

The radical changes thrust upon the international labor market by the non-human cost-efficient machinery is not a novel development and has been a recurrent incident since the First Industrial Revolution. The main difference in the contemporary and historic machine replacement act is its overwhelmingly

cognizant new capabilities. Robots, pioneers in the device sphere, were adept at manual labor such as cleaning, assembling, manufacturing and fabricating [Mordechai & Mondada, 2017]. Next in line, software technologies were more all-encompassing in the job market and proficient at automating straightforward jobs that could be easily written down in a linear algorithm such as online tickets systems instead of parking lot attendants. The newest, artificial intelligence, on the other hand, at its core is a constantly self-reinforcing and even more perceptive algorithm [Petropoulos, 2018]. By consuming and training on provided big sets of miscellaneous inputs, including previous financial history of bank customers, images, various statistics and more, AI is able to perform dynamic tasks, make future estimates and generate new ideas or pictures [Webb, 2019]. This advanced machine learning technique is infiltrating and taking over from the highest qualified experts in different industries, but do the statistics confirm this? And are the results the same in the American, British and Chinese markets?

The answers to these pressing questions were deduced from the results of a survey conducted among 67 participants, expressing the respondents' sentiments, concerns and forecasts regarding the AI use in workspaces.

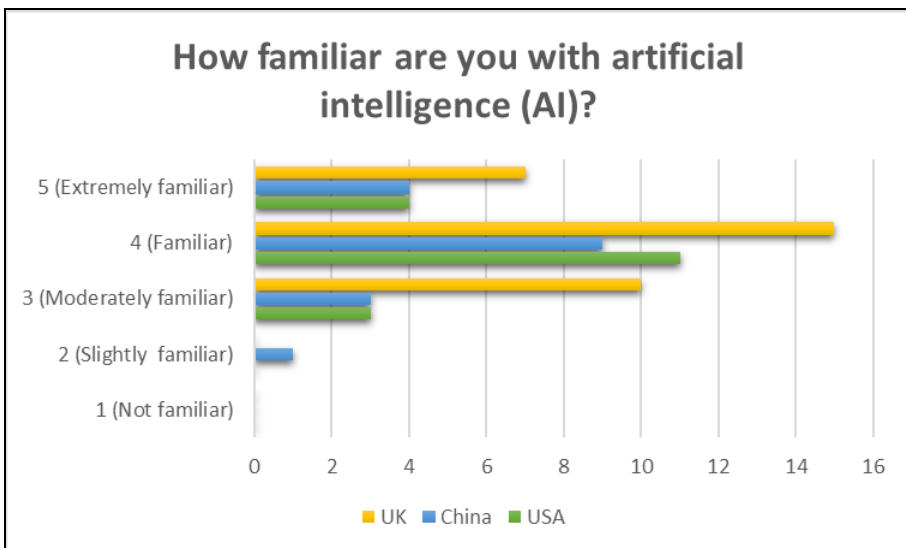


Figure 1

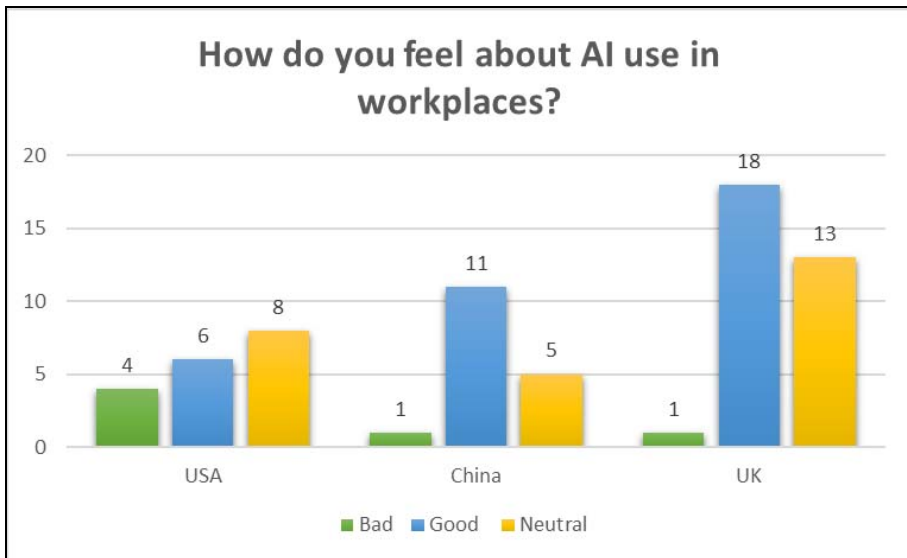


Figure 2

The initial warm-up questions aimed to gauge participants' overall familiarity with and attitudes towards artificial intelligence, with Figure 1 and 2 revealing the participants being generally familiar or extremely familiar with new technologies and having a positive outlook on them, except for the US majority which retains its neutrality which could be due to their unstable situation in the job vacancy market. With such optimism going forward, it would be safe to assume that people remain untouched by the AI in their working area and Figure 3 confirmed these assumptions: British and Chinese majority reported “not affected by AI”. Conversely and slightly anticipated, the neutral American responders have chosen a “yes, affected by AI” with a visible difference. There are no regulations at this point in time in any of the countries that restrict the AI use in workplaces, thus, the decision to retain staff despite potential gains from machine learning devices depends on the executives’ relationship with employees [Briône & Day, 2023]. This semblance of a tight-knit, confident in their significance workforce might be prevalent in Chinese and British companies compared to the more profit-oriented capitalist American multinationals.

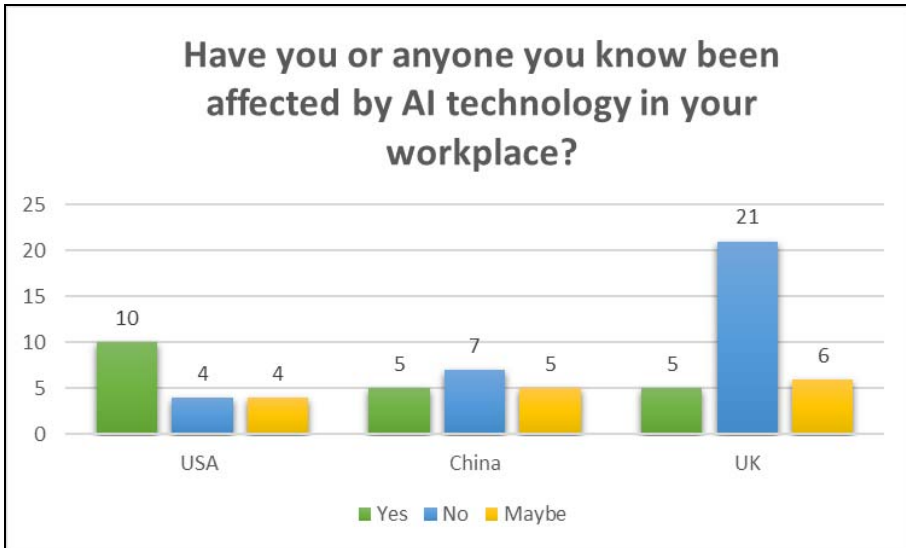


Figure 3

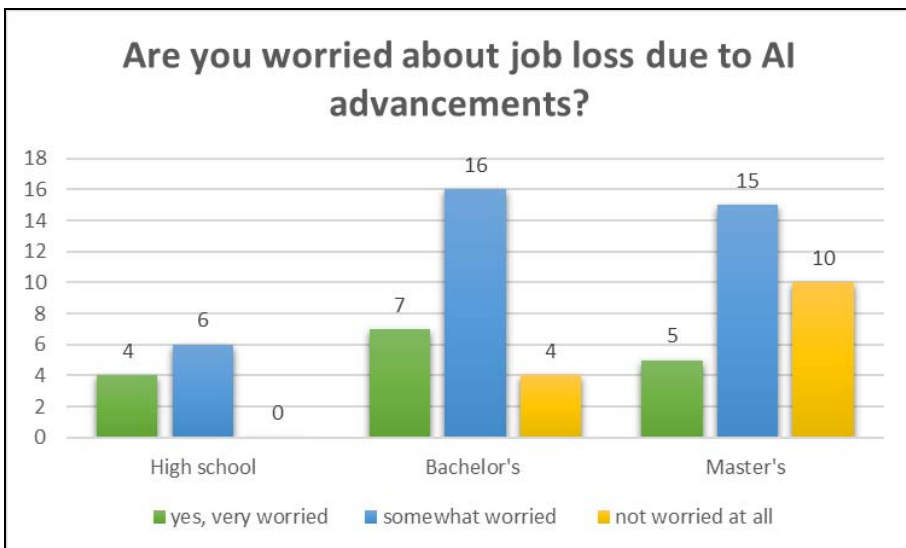


Figure 4

A follow-up question of whether they are concerned about their job security due to new developments in machine learning disclosed the mass in all three nations being only “Somewhat worried”. Taking up the second popularly elected spot, however, was marginally different with British survey takers being “not worried at all” while American and Chinese contributors experience extreme anxiety related to job displacement possibility. The interpretation of these figures could be enhanced by the results presented in the next chart:

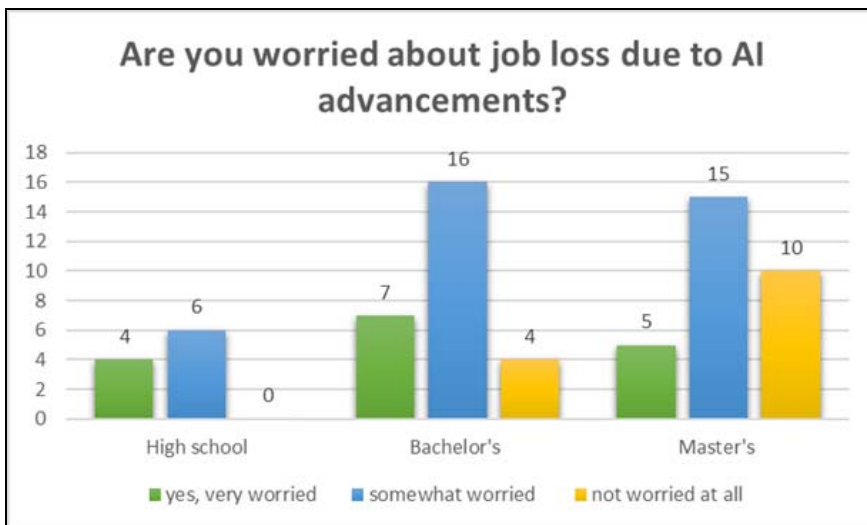


Figure 5

To get more precise values about the AI job loss concerns, it was decided to look at the education level of respondents, which highlighted people with higher education were largely all “somewhat worried” with Bachelor’s being “very worried” and Master’s “not worried at all” second in line. This coincidentally corresponds to Webb’s analysis of high-skilled experts being the most vulnerable towards AI exposure due to its remarkably developed decision-making, judgment abilities [Webb, 2019]. Paralegals who review and redact contracts along with optometrists who diagnose and assess patients are some of the technology permeated roles where AI algorithms can easily inspect and optimize the task performance. Jobs that require strong interpersonal and socializing skills, on the other hand, are still on the distant horizon of the machine learning future systems. Nevertheless, understanding people’s current views on AI prompted an inspection

of their true reservations and commendations concerning the new systems displayed in Figure 6 and 7.

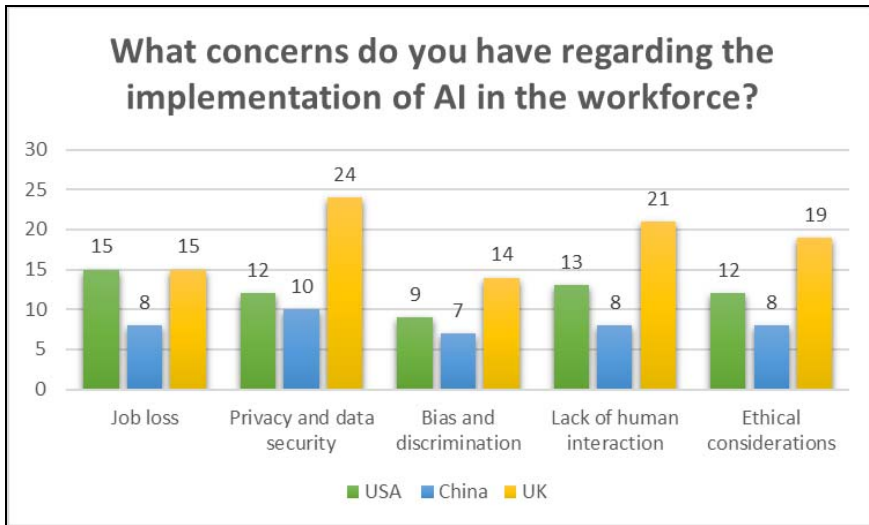


Figure 6

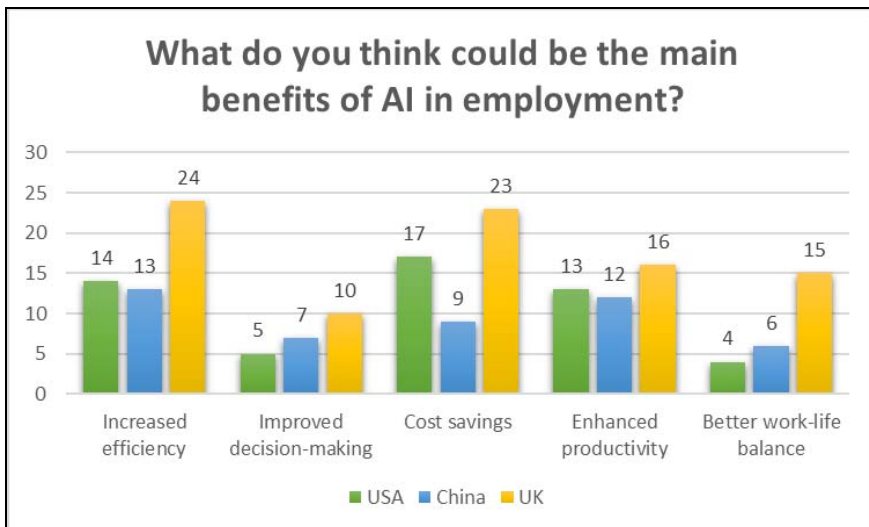


Figure 7

Although job loss was anticipated to be a principal concern, which it was in the US and China, it came only in fourth place in the UK survey takers’ list of worries. “Privacy and data security”, closely followed by “Lack of human interaction” were the chief anxiety-inducing factors. This clearly illustrates unwavering confidence of the British sample population in their work abilities and job security with weighty doubts in their information safety. Considering the benefits of AI, “Increased efficiency” as well as “Cost savings” are the fundamental obvious advantages of the devices in workplaces according to all the case country responses.

To assess the future operations of AI in the workplace, the opinions about AI influence in the future along with participants’ vision for the job market in ten years were also collected in the questionnaire:

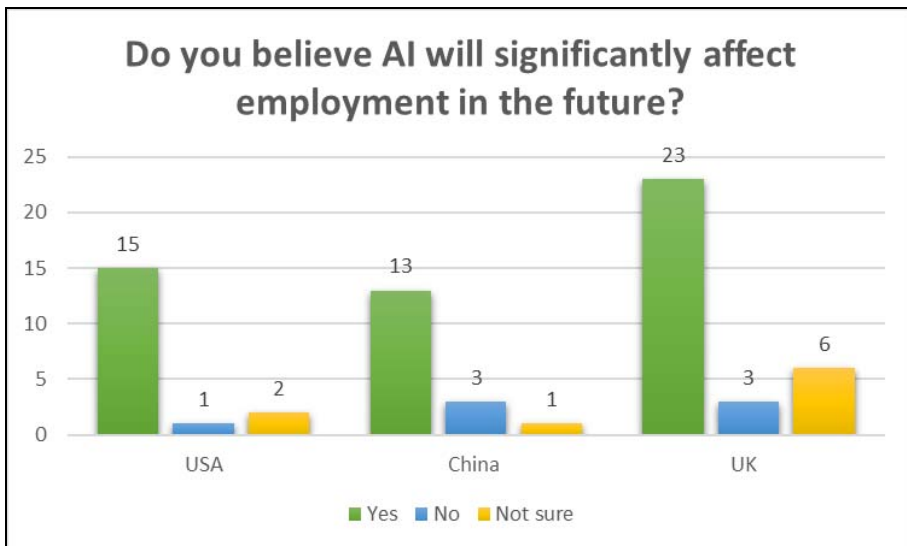


Figure 8

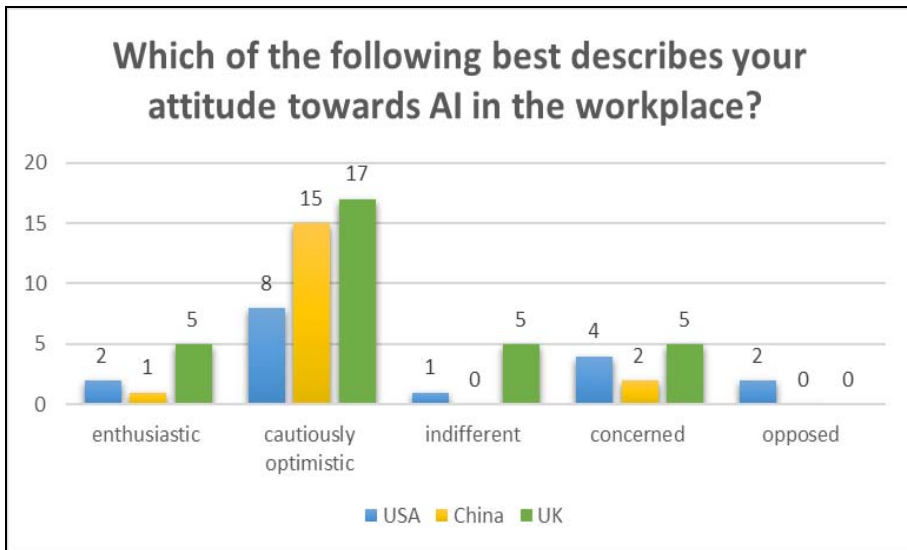


Figure 9

All of the survey candidates from all three regions predominantly believe that AI will have a substantial influence on the prospective workforce market, but they still have a cheerful and slightly uncertain expectations of the future, indicated by the majority choosing “cautiously optimistic” as their attitude towards AI. They all, nonetheless, brightly anticipate the increased productivity and cost-efficiency that comes with technological inventions.

According to Figure 10, neither country respondent believes that AI will be able to only increase job opportunities, stating that it will either decrease jobs completely or both increase and decrease them in equal measures. They would be right to some extent because AI will not have a straightforward effect. Autor describes three factors that can amplify or rattle machines’ influence: first being that those workers whose jobs are supported and complemented by AI would be paid off the most [Autor, 2015]. Professions that could be directly replaced by the technology are under the fire, however, those workers that have both administrative and socializing input in the company are likely to boost their productivity and receive a hefty wage increase. Second, if there is a lot of labor supplied in one particular industry, this may have a consequence on their wage distribution. Third and final factor, the demand and income elasticity of the automated products will

greatly alter its consequences. Advancements in agriculture have significantly reduced people’s consumption and money spent on food as there is now abundance of it, in healthcare, on the other, AI advancements are followed by increase on health spending by people, which subsequently raises product and labor demands.

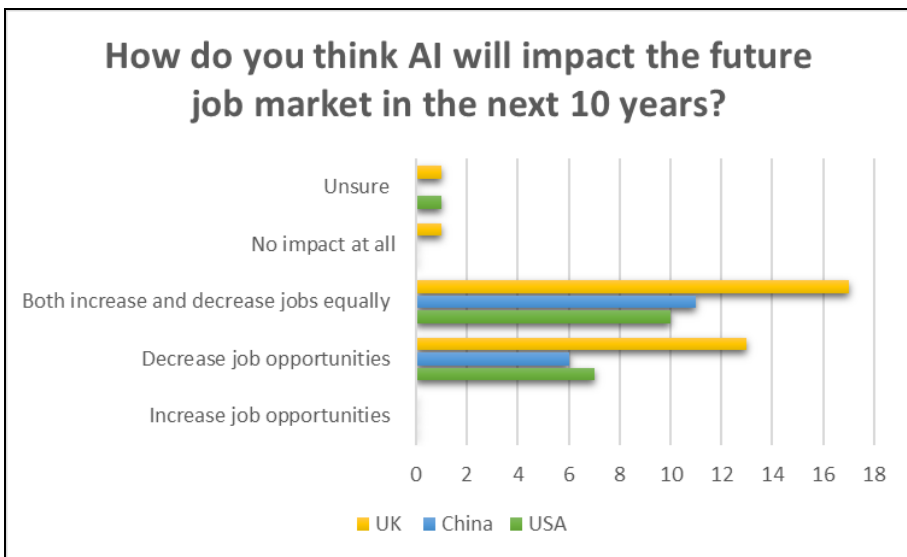


Figure 10

This phenomenon is called income effect where computerized administrative and clerical work allow for employees to centralize on more creative and complex tasks which leads to higher efficiency, less costs, higher profits and which is later translated to higher wages for workers [Hawksworth & Fertig, 2018]. Employees are now left with the decision between more working hours and more consumption or less working and more leisure, which ultimately still results in more consumption activities as the contemporary relaxation means shopping, travel and much more. In short, automation means more consumption, more demand, and more labor needed.

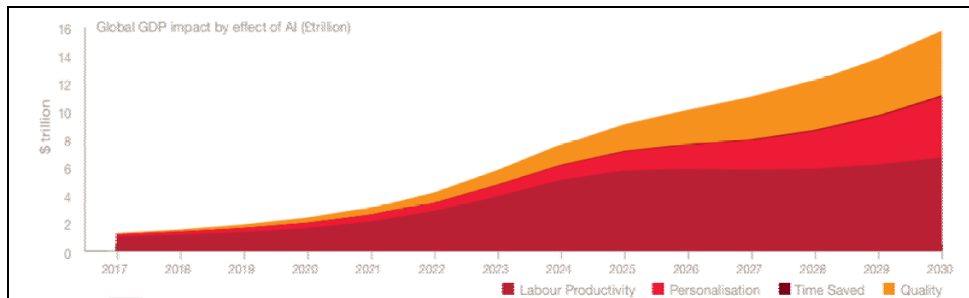


Figure 11

Source: Rao, A. S., & Verweij, G. (2017). *Sizing the prize: What's the real value of AI for your business and how can you capitalise?* PwC publishing, pg. 5, www.pwc.com/AI

But which country will be the most susceptible to AI changes and which industry? The 2017 report by PwC “Sizing the Price” determined that the US and China will see the most benefits of AI technologies due to the reasons shown in Figure 11 [Rao & Verweij, 2017]. The US, being the most developed of the three countries, with its intensely financially focused companies and capitalist economic structure, is estimated to see the quickest productivity and GDP growth. With existing support, experience in AI machinery, and a well-educated workforce, the US stands to gain the most. In China, it is estimated that 26 percent of workers, particularly in the industry sector, will be displaced due to its global role in providing manufactured goods and low-wage labor [Hawksworth & Fertig, 2018]. However, the jobs created by AI will exceed the displaced workers by 12 percent due to China's rapid implementation and utilization capabilities, especially in the service and industrial sectors, along with its astonishing current development rates. Another PwC report suggests that 30 percent of the UK workforce may be at risk of AI replacement, but jobs originating from AI use, such as machinery maintenance and assessment tasks, will keep the employment level at a stable 10 percent higher level [Hawksworth et al., 2018]. It becomes apparent from these statistics and presented survey results that the AI technology will have a predominantly positive effect on labor markets with job creation rates exceeding its job destruction levels, regardless of the country or industry in which it is implemented.

Conclusion

This paper intended to address the compellingly urgent issue of the last few years regarding the worldwide unemployment caused by the increasing implementation of artificial intelligence in the corporate world. AI was getting more capable in the decision-making, problem-solving department, hence resulting in restlessness and uncertainty among workers of all ranks while company managers were vastly benefitting from its cost and time-saving, productivity increasing advantages.

On the example of three focus countries, the US, UK, and China, the survey results and analysis of numerous sources disclosed the positive attitudes and expectations of the public towards AI. Most of the respondents believe that the technology will simultaneously replace and create jobs, as was the case in previous technological revolutions. There was detected a minor yet highly realistic fear of job loss with privacy and data insecurity in the sample responses, nonetheless it was proven that there will be more labor required on average due to the raised overall demand resulting from increased efficiency, regardless of dominating industry in the country, like manufacturing in China or retail service sector in the UK. Both the quality and number of jobs will be switched to a higher degree, while keeping the employment rates stable in international markets.

The transition from human-led sector to AI controlled procedures is expected to be swift but ruthless, especially for middle and high-skilled workers. Although the adjustment time will be felt by most, the indefinite boost in the form of vocational training to improve knowledge and mobility of workers will be an immense support in this irrepressible shift. Therefore, AI should not be a source of anguish and worry, rather it should be accepted and mastered to fully benefit from it.

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BLOCKCHAIN TECHNOLOGY - TRANSPARENCY AND ACCOUNTABILITY IN SUSTAINABLE MANAGEMENT

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Abstract:

The article entitled Blockchain Technology: Enabling Transparency and Accountability in Sustainable Management explores the role of blockchain technology in facilitating more transparent and accountable practices in sustainable management. Blockchain, known for its ability to record data in a secure and immutable manner, has the potential to transform various industries and processes, from supply chains to natural resource management and sustainability policies.

One of the key contributions of blockchain in sustainable management is the ability to provide unprecedented transparency. In supply chains, for example, blockchain enables the recording and tracking of every step of production, from the source of the raw material to the end consumer. This helps to combat fraudulent practices and allows companies and consumers to verify that resources are obtained in an ethical and sustainable way.

Blockchain technology promotes accountability, especially in processes involving multiple stakeholders, such as international organizations or governments involved in implementing environmental policies. By using smart contracts and automated audits, blockchain can ensure compliance with sustainability standards and impose consequences for violations, thus reducing the risks of corruption or data manipulation.

The article outlines several practical examples where blockchain has been successfully implemented to support sustainability initiatives. For example, some companies in the fashion industry use blockchain to ensure the traceability of sustainable materials. In addition, governments and non-governmental organizations are using blockchain to monitor the use of natural resources such as water and energy, and to track carbon emissions.

Although blockchain offers numerous benefits, the article also highlights the challenges associated with its implementation. High costs, the need to integrate with existing systems and the need for clear regulatory frameworks are issues that limit widespread adoption. There are also concerns about the energy consumption of blockchain technologies, which may conflict with sustainability goals.

The article concludes that blockchain represents a promising solution for improving transparency and accountability in sustainable management, but long-term success depends on solving technical and regulatory challenges. Continued technology development and collaboration between governments, the private sector and regulatory organizations will be critical to maximizing blockchain's benefits in this area.

This summary reflects the main ideas of the article, providing an overview of how blockchain technology can transform sustainable management through transparency and accountability.

Keywords: *blockchain, transparency, accountability, sustainable management, supply chains, smart contracts, traceability, carbon emissions, sustainability, automated audits*

JEL Classification: O33, G34, M15, Q56, D83

Introduction

Blockchain technology has evolved rapidly since its initial introduction in digital finance, now expanding into various sectors, including sustainable management. Through its decentralized and immutable nature, blockchain offers significant opportunities to improve transparency and accountability in managing resources and implementing sustainable practices. In particular, blockchain can ensure full traceability of supply chains, helping to reduce fraud and corruption, as well as increasing public trust in sustainability initiatives (Zhu & Zhou, 2021).

Sustainable management is an increasingly pressing global challenge given major environmental issues such as climate change, depletion of natural resources and growing economic inequalities. In this context, the integration of blockchain technology into sustainable management processes can contribute to more effective monitoring and reporting of environmental performance. Through the transparency provided by blockchain, governments, companies and non-governmental organizations can clearly track their actions, reducing the risks of greenwashing and improving sustainability commitments (Saberi et al., 2019).

Specifically, blockchain enables the real-time recording and sharing of data in a secure and verifiable manner, which is crucial for the sustainable management of global supply chains. The traceability of materials and resources, for example, can be strengthened through blockchain so that products can be certified as sustainably sourced and processed. Recent studies have shown that blockchain can facilitate

the verification of certificates of origin and help eliminate middlemen who could manipulate data in the supply chain (Kamilaris et al., 2021).

In addition, the use of "smart contracts" on blockchain platforms can automate and standardize audit processes, helping to increase the accountability of the actors involved. Through these contracts, sustainability obligations can be digitally encoded, and penalties for non-compliance with environmental norms can be applied automatically, without requiring human intervention (Kouhizadeh & Sarkis, 2020).

These features make blockchain a potentially transformative technology in sustainable management, but widespread adoption remains challenging due to technical and economic hurdles. However, as technology advances and regulations become clearer, blockchain is expected to play an increasingly important role in achieving global sustainability goals.

Review of specialized literature

In recent years, blockchain technology has captured the attention of researchers and practitioners in various fields, including that of sustainable management. The literature highlights the potential of blockchain to transform supply chain management processes, facilitate resource traceability, and increase transparency and accountability in sustainability practices. This section provides a review of recent literature in the field, highlighting key research that has investigated the role of blockchain in promoting sustainability and efficient resource management.

One of the most studied areas where blockchain has proven its effectiveness is supply chain management. Saberi et al. (2019) were among the first to examine how blockchain can help improve traceability and transparency in global supply chains. The researchers pointed out that blockchain allows continuous monitoring of the flow of materials and products along the chain, which facilitates the implementation of sustainability policies and the elimination of intermediaries that could compromise the authenticity of information. In a later paper, Kamilaris et al. (2021) extended this research by discussing how blockchain is being used in the agri-food sector to ensure product traceability from farm to fork, crucial to ensuring ethical and sustainable practices.

In another direction of research, multiple recent studies have investigated blockchain's potential to improve natural resource management and promote accountability in environmental policies. Zhu and Zhou (2021) explored how blockchain can be used to track the use of natural resources such as water and energy in real time. They found that blockchain can ensure accurate and immutable

reporting, giving governments and non-governmental organizations the tools to assess compliance with sustainability standards. Along a similar line, Wang et al. (2021) investigated how blockchain can be used in carbon policy. According to them, blockchain can facilitate the implementation and tracking of carbon certificates, providing transparency and reducing the risk of fraud in emissions trading markets.

Another emerging aspect in the specialized literature refers to the use of smart contracts on blockchain platforms to automate and standardize sustainability audit and assessment processes. Kouhizadeh and Sarkis (2020) pointed out that these smart contracts enable the automatic monitoring of compliance with environmental standards and the application of penalties in case of non-compliance. Their study demonstrated that the use of smart contracts in sustainable supply chains can reduce corruption and improve corporate social responsibility. In a more recent study, Li and Zhang (2022) investigated the applicability of smart contracts in the renewable energy industry, concluding that blockchain can optimize energy distribution and storage processes by ensuring transparency in resource usage reporting.

While the benefits of blockchain are clear, its widespread implementation faces significant challenges. Recent literature highlights obstacles such as the high costs of the technology, the need for advanced technical skills, and issues related to blockchain's energy consumption. Kamble et al. (2021) conducted an analysis of companies' perceived barriers to blockchain adoption, highlighting that while there is a desire to implement digital solutions for sustainability, the lack of adequate infrastructure and regulatory frameworks can hold back progress. Furthermore, Wang and Qu (2022) discussed the issue of energy consumption of blockchain technologies, pointing out that this contradiction must be addressed for blockchain to truly become a green technology.

The recent literature review highlights that blockchain technology has significant potential in facilitating transparency and accountability in sustainable management. However, to become a viable long-term solution, a number of technical and regulatory challenges must be overcome. Studies in recent years show that while there are promising examples of blockchain implementation in supply chains and environmental policies, the future of this technology depends on addressing issues such as cost and energy consumption.

Blockchain and transparency

Blockchain technology, particularly due to its decentralized and immutable architecture, has gained considerable interest in improving transparency in various sectors, including governance, finance, supply chains and natural resource management. One of the key attributes of blockchain is that it provides a permanent and verifiable record of every transaction or event recorded on the network, thereby eliminating the need for trust between the parties involved. This feature makes blockchain extremely useful for ensuring transparency in complex processes and reducing corruption and fraudulent practices.

The immutability of data stored on the blockchain is one of this technology's greatest contributions to transparency. Once a transaction is recorded on a blockchain, it cannot be changed or deleted without the consent of all participants in the network. This decentralized structure eliminates the possibility of data manipulation or falsification, ensuring that all stakeholders have access to the same verified and immutable information. In a recent study, Li et al. (2021) demonstrated how blockchain can be used to track and verify each step in the supply chain, contributing to transparency in sectors such as the food and energy industries.

Blockchain plays a crucial role in ensuring the transparency of global supply chains. In industries where it is difficult to trace the origin and conditions under which materials were obtained and processed, such as textiles, food, and electronics, blockchain enables complete traceability of each product from source to end consumer. This provides an effective solution to combating unethical practices such as forced labor or exploitation of natural resources and enables consumers to make informed decisions. Kamilaris et al. (2021) highlighted the importance of blockchain in the traceability of agri-food products, highlighting how consumers and authorities can verify the authenticity of sustainability certificates.

Blockchain has also been recognized for its ability to improve transparency in the public sector and government administration. By recording decisions and transactions publicly and immutably, blockchain can reduce the risks of corruption and ensure an increased level of accountability. Some governments have already begun to explore the use of blockchain in various areas of governance, such as electoral data management or transparency in public spending. According to a recent study, the use of blockchain in the management of public funds could

prevent the embezzlement of funds and improve citizens' access to relevant information on the use of resources (Yildiz, 2020).

Although blockchain offers numerous advantages in promoting transparency, there are also challenges related to its implementation. One of these challenges is related to the balance between transparency and privacy. In some cases, although blockchain provides full traceability of transactions, sensitive details may require anonymization or protection. Furthermore, the widespread use of blockchain for transparency involves technical and economic challenges, including high implementation costs and high energy consumption, as pointed out by Wang et al. (2022).

The literature shows that blockchain is a powerful tool for increasing transparency in various sectors, from supply chains to public administration. However, for these benefits to be realized on a large scale, a number of technical and regulatory challenges must be overcome. Going forward, blockchain has the potential to redefine transparency standards and transform the way organizations and governments manage information and resources.

Increasing accountability through blockchain

Blockchain technology is recognized for its ability to improve accountability within organizations, public institutions and supply chains. By immutably recording transactions and eliminating the need for a centralized intermediary, blockchain provides increased transparency and facilitates monitoring and accountability of the parties involved. The concept of accountability thus becomes more robust in the context of blockchain, as this technology allows actions to be tracked and verified by all participants in the network, without the risk of information being modified or deleted.

One of the most promising applications of blockchain for increasing accountability is in global supply chains. Traditionally, the complexity of supply chains, with multiple stages and actors involved, makes it difficult to fully monitor product and material flows. Blockchain enables transparent and immutable recording of every step in the process, from the procurement of raw materials to the delivery of the final product. This allows companies to be more accountable for the ethical and sustainability practices they declare. A study by Kouhizadeh and Sarkis (2020) shows that blockchain contributes to the accountability of suppliers by ensuring the traceability of resources and by facilitating the verification of sustainability certificates and compliance with environmental standards.

Governments and public institutions are traditionally under pressure to ensure transparency and accountability in the management of public funds and political decision-making. Blockchain can play a crucial role in improving government accountability by immutably recording transactions and decisions. Thus, citizens and regulatory authorities can check at any time how public resources have been used, thus reducing the risk of corruption and inefficient use of funds. Yildiz (2020) argues that the application of blockchain in public administration, such as for tracking budget expenditures or infrastructure projects, can significantly increase the accountability of civil servants and local governments.

Another way blockchain increases accountability is through the use of smart contracts. These are programs that automatically run certain actions when predetermined conditions are met. In such a system, accountability is automated and no longer depends on human intervention. For example, in a smart contract for procurement, payment can be automatically released only after the delivery of a product has been confirmed, thus ensuring the responsibility of the supplier for compliance with the contractual terms. Li et al. (2022) demonstrated that blockchain, together with smart contracts, can ensure automatic accountability in industries such as renewable energy, where resource distribution and consumption can be tracked and optimized without manual intervention.

In the context of environmental management, blockchain can facilitate the accountability of companies in terms of trading carbon emission certificates and meeting sustainability goals. By recording carbon market transactions on a blockchain network, companies can be monitored to ensure they are meeting emission limits and not manipulating data to avoid penalties. Wang et al. (2021) show that blockchain enables real-time verification of actions taken by companies to reduce their carbon footprint, ensuring greater accountability to international environmental regulations.

Although blockchain offers significant solutions to increase accountability, there are also challenges to the widespread adoption of this technology. These include technical complexity, high implementation costs, and the need for interoperability between the various blockchain systems used by organizations. Also, the lack of clear regulatory frameworks in many jurisdictions can make it difficult to effectively enforce liability through blockchain. Kamble et al. (2021) suggest that while the technology is promising, companies and governments need to work to standardize the use of blockchain and ensure transparency and accountability in a globally consistent manner.

Blockchain technology brings significant value in increasing accountability across sectors ranging from supply chains to governance and environmental management. Through its immutable and decentralized characteristics, blockchain enables effective monitoring and ensures accountability of all actors involved. However, to fully exploit this potential, implementation and regulatory challenges need to be addressed.

Case studies and statistics - blockchain implementation in sustainability initiatives

Blockchain is increasingly being used to support sustainability initiatives, particularly by providing innovative solutions for traceability, efficient resource management and carbon reduction. The technology enables transparent monitoring and recording of data, thereby ensuring accountability and reducing unsustainable practices. Below are some concrete case studies and practical examples of successful implementation of blockchain in sustainability initiatives.

a). *IBM Food Trust* – Food Supply Chain Traceability One of the most well-known blockchain implementations in the field of sustainability is the IBM Food Trust platform, which uses blockchain technology to ensure traceability in the agri-food supply chain. The purpose of the platform is to improve food safety, reduce food waste and increase transparency between producers, distributors and consumers. The impact of sustainability can be seen through full traceability, IBM Food Trust enabling real-time monitoring of food products from farm to shelf. This allows companies and consumers to verify the origin of the products, the agricultural practices used and the quality of the products. For example, Walmart used this platform to quickly trace the source of batches of spinach in case of food safety issues, reducing the investigation time from days to seconds. (Feng, H., Wang, X., Duan, Y., Zhang, J., & Zhang, X. , 2020)

b) *Everledger* – Traceability of diamonds and ethical resources. Everledger is a blockchain platform used to ensure the traceability and ethics of valuable resources, especially diamonds. The platform monitors the origin of diamonds and certifies their authenticity, thus preventing the trade in diamonds from conflict zones, known as "blood diamonds". Everledger records every transaction along the supply chain, providing complete transparency and verifiability. The impact on sustainability comes from the fact that Everledger assures clients that the diamonds mined meet ethical and environmental standards, thereby encouraging companies to comply with regulations on forced labor and sustainability. In addition, by

ensuring the traceability of resources, the risk of fraud and unsustainable practices in the jewelry industry is reduced (Fox, S., 2021).

c). *Energy Web Foundation (EWF)* – Renewable Energy Management. The Energy Web Foundation (EWF) is an organization that develops blockchain solutions for renewable energy management and decentralized energy markets. EWF provides an open platform that facilitates the integration of renewable energies into electricity grids and enables the trading of clean energy certificates such as Green Energy Certificates (RECs). The impact for sustainability comes from the fact that, with the help of blockchain, industry participants can trade clean energy certificates in a transparent and secure manner, ensuring that the renewable energy generated is used efficiently and responsibly. Blockchain guarantees that energy certificates are authentic, preventing fraud and duplication of emission certificates, thus facilitating the transition to a low-carbon economy. (Morstyn, T., Teytelboym, A., & McCulloch, M., 2018)

d). *Plastic Bank* – Fighting plastic pollution. Plastic Bank is an initiative that uses blockchain to combat plastic pollution and support the circular economy. This platform allows waste collectors to be rewarded with digital coins in exchange for recycled plastic, which they collect and hand over to specialized centers. As a sustainability impact, Plastic Bank uses blockchain to record and track quantities of recycled plastic, ensuring it is efficiently managed and reintegrated into production chains. This system ensures transparency and accountability, preventing collected waste from being diverted to landfills or re-entering the environment. (Boucher, J., & Friot, D., 2020).

e). *CarbonX* – Platform for offsetting carbon emissions. CarbonX is a blockchain platform that supports companies and consumers to offset their carbon emissions by purchasing carbon emission reduction certificates. The platform monitors emission reductions and trades these certificates on the voluntary carbon market. The impact on sustainability comes from the fact that CarbonX uses blockchain to guarantee the authenticity of carbon certificates and ensure the traceability of transactions, eliminating the possibility of double accounting and preventing fraud in the trading of certificates. Thus, CarbonX supports global efforts to reduce greenhouse gas emissions and comply with climate standards. (Lee, D., & Kim, H., 2021)

Blockchain technology has been successfully implemented in several areas to support sustainability initiatives by providing traceability, reducing fraud risks and promoting responsible practices. From food supply chains and the diamond industry, to renewable energy management and pollution control, blockchain has

proven that it can play an important role in building a more transparent and sustainable economy. However, for these solutions to be widely adopted, regulatory and technological cost challenges must be effectively addressed.

In recent years, numerous international studies and reports have highlighted the contribution of blockchain technology to support sustainability initiatives, with a focus on traceability, carbon reduction and circular economy. Below are *international statistics* relevant to blockchain implementation in various sectors.

Blockchain in food supply chain traceability. According to a 2021 report by the Food and Agriculture Organization of the United Nations (FAO), the traceability of food products through digital technologies, including blockchain, has increased considerably. The global food supply chain blockchain market was estimated at USD 133.7 million in 2020 and is expected to reach USD 948.7 million by 2026, with a compound annual growth rate (CAGR) of 48.1%. This growth reflects a growing demand for transparency and food safety globally, and platforms such as the IBM Food Trust are leaders in this field (FAO., 2021).

Blockchain in the diamond and ethical resource industry. In terms of the diamond and ethical resource sector, blockchain technology has had a significant impact on the traceability of ethical resources. Everledger, a platform that uses blockchain to track diamonds, has tracked more than 2 million diamonds by 2022, helping to reduce the illegal trade in conflict diamonds ("blood diamonds"). Additionally, according to a report by Bain & Company (2021), demand for ethically sourced and traceable diamonds has increased by 15% over the past 3 years.

Blockchain in renewable energy management. According to data from a study by the Energy Web Foundation (2021), the use of blockchain for renewable energy management and the green certificate market has grown significantly. In 2021, EWF facilitated the trading of more than 10 million green certificates using blockchain technology, supporting companies to achieve clean energy goals. The blockchain market in the energy sector is also expected to reach \$3 billion by 2025, with an annual growth rate of 59%.

Blockchain and Carbon Markets. In the World Economic Forum (2021) report on the global carbon market, it was shown that blockchain has been widely adopted to track and trade carbon emission reduction certificates. According to the report, blockchain was used to trade more than 100 million tonnes of CO₂ equivalent on voluntary carbon markets in 2021, an increase of 58% compared to 2020. This technology has helped increase transparency and reduce fraud in trading carbon certificates.

Fighting plastic pollution through blockchain. In the case of the Plastic Bank initiative, blockchain was used to collect and recycle plastic, thereby reducing ocean pollution. From 2019 to 2022, the Plastic Bank has blockchain registered over 1 billion units of recycled plastic, preventing it from ending up in the oceans. At the same time, more than 30,000 collectors in countries such as Haiti, the Philippines and Indonesia were rewarded with cryptocurrency in exchange for the plastic handed in, thus creating a circular and responsible economy.

Global Blockchain Adoption in the Circular Economy. According to the Deloitte report (2022), blockchain technology is increasingly being adopted to support the circular economy and waste management. It is estimated that over 60% of large global companies in manufacturing industries plan to adopt blockchain solutions by 2025 to monitor resource flows and reduce waste. This adoption will support sustainability initiatives by reducing the carbon footprint and increasing the traceability of recycled materials.

Recent international data and statistics demonstrate that blockchain has a positive impact on sustainability initiatives in various sectors. By ensuring traceability, reducing carbon emissions and facilitating the circular economy, blockchain is an essential technology for achieving global sustainability goals and improving accountability and transparency in supply chains.

Challenges and limitations

One of the major challenges identified in the article is related to the scalability of blockchain technology, especially in the context of its use for sustainable management. Blockchain, especially in its public form such as Bitcoin or Ethereum, faces problems of excessive energy consumption and slow processing times when handling large volumes of transactions. For example, using the Proof of Work (PoW) algorithm to secure the network consumes massive amounts of energy, which may contravene sustainable goals, as noted in a recent study by Massoudi et al. (2021). Although Proof of Stake (PoS) blockchains and hybrid solutions offer more efficient alternatives, the transition to these solutions remains a significant challenge.

Blockchain, due to its decentralized nature, faces legal and regulatory challenges in many countries. The lack of clear legal frameworks for the use of blockchain in sustainable management makes it difficult to integrate the technology into regulated industries such as energy or resource recycling. Differences in national blockchain regulations and the lack of a global standard for managing

blockchain data can lead to legal uncertainties, blocking the widespread adoption of the technology (Zhang & Xie, 2020).

Another major hurdle is interoperability between various blockchain platforms. There are numerous platforms using different technologies and standards, which complicates the integration of blockchain into sustainability initiatives that require cooperation between multiple parties. The article states that the fragmentation of the blockchain ecosystem prevents effective cooperation between industries and limits the full potential of this technology in sustainable management. For example, traceability initiatives in supply chains have difficulties in unifying different blockchain networks, as pointed out by Kim et al. (2021).

Blockchain implementation, especially in the initial stages, can involve high costs, both in terms of infrastructure development and employee training or adaptation of organizational processes. Many organizations active in the field of sustainability, such as companies in the recycling or organic farming industry, face limited financial resources to invest in new technologies. This limits the large-scale adoption of blockchain, according to studies by Kumar et al. (2021).

In the context of sustainable management, a significant obstacle is organizational resistance to change. Although blockchain can bring multiple benefits, traditional organizations may be reluctant to adopt an innovative technology due to uncertainty about efficiency and the changes required in business processes. This is a key limitation identified in numerous blockchain initiatives in sectors such as energy or recycling, as highlighted in the report by Saberi and Sarkis (2020).

Although blockchain technology has enormous potential in promoting transparency and accountability in sustainable management, its implementation faces significant challenges. These include issues related to scalability, power consumption, regulation, high costs and lack of interoperability. In addition, organizational resistance and uncertainty about the technology's effectiveness remain limiting factors. However, recent advances in the development of more energy-efficient blockchains and global standardization efforts may help alleviate these challenges in the near future.

Conclusions and future directions of action

Blockchain technology has significant potential in supporting sustainable management by improving transparency and accountability within organizations and supply chains. Through its unique characteristics, such as decentralization, immutability and verifiability of data, blockchain can ensure more accurate

tracking of resources, thereby helping to improve reporting processes and reduce risks of fraud or information manipulation.

For companies, blockchain implementation offers the opportunity to create trust between stakeholders by providing transparent, real-time data on sustainability issues such as raw material sourcing, environmental compliance and social responsibility. Technology can also facilitate compliance with international regulations and promote ethical behavior in the marketplace.

However, the application of blockchain in sustainable management faces challenges related to cost, scalability and regulations. Its integration requires considerable investment in infrastructure and development of technical skills. Also, collaboration between different sectors and organizations will be essential to maximize the positive impact of blockchain on sustainability.

Companies should start with pilot projects that integrate blockchain technology into their processes, especially in critical areas related to product traceability and supply chain transparency. Thus, it will be easier to identify the benefits and limitations of the technology.

Close collaboration between companies, authorities and international organizations is needed to develop clear standards and regulations on the use of blockchain in sustainable management. This will encourage faster and more consistent technology deployment across industries.

Companies need to invest in developing employees' digital skills so that they are prepared to manage and develop blockchain-based solutions. This will support a smoother and more efficient transition to the use of this technology.

Although blockchain can contribute to sustainability, it is also important to assess its impact on the environment, especially in terms of the energy consumption of certain types of blockchain networks (for example, networks that use proof-of-work algorithms). Research to develop greener alternatives, such as proof-of-stake, should be encouraged.

To realize the full potential of blockchain, companies need to collaborate within the industry and create partnerships with organizations in other sectors. This will facilitate the exchange of best practices and the development of common solutions to global sustainability challenges.

The implementation of blockchain in sustainable management is an opportunity to revolutionize the way companies and organizations operate, emphasizing transparency and accountability. However, the success of this transformation will depend on investment in infrastructure, cross-sector cooperation and innovations that minimize the negative impact on the environment.

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GENERATIVE AI CHATBOTS AND DIGITAL AUTOMATION TECHNOLOGIES IN ACCOUNTING SERVICES

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Abstract

Digital transformation is affecting businesses and public administration all over the world and new emerging roles that have been highlighted on the labour market, from digital automation to the inclusion of chatbots. Digital transformation in accounting is related to the new disruptive technologies like Artificial Intelligence, Big Data, the Internet of things and cloud computing to drive growth, streamline operations and increase competitive edge.

The aim of this paper is to present some particular aspects of digital disruption of accounting and the role of chatbots in accounting. One of the priorities for the professional accounting organizations is to understand the changes in accounting practices and activities,

in order to prepare accountants to be able to adapt to disruption and advanced technology jobs.

Key words: *artificial intelligence, Big Data, chatbot, accounting*

JEL Classification: D73, H70, H83, M48

Introduction

This research explains potential future trends in digital accounting and the evolving Artificial Intelligence (AI) in accounting services, the use of Chatbots and how digital technologies and digital business capabilities impact accounting value creation and practice.

According to Future of Jobs Report 2023 (https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf, p.33) digital transformation and digital trade enabled traditional jobs and increase the demand for new roles such as Data Analysts and Scientists, Big Data Specialists, Business Intelligence Analysts, Database and Network Professionals, or Data Engineers that is driven by advances and growth in adoption of frontier technologies which rely on Big Data (World Economic Forum 2024). The development of new technologies is a priority for companies and governments. Thus, digital platforms and apps are the technologies most likely to be adopted by the organizations surveyed, with 86% of companies expecting to incorporate them into their operations in the next five years. (WEF- Future of Jobs Report 2023/2024 - https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf, p.33). We can observe in the figure below the evolution of technology adoption for the period 2023-2027 across industries:

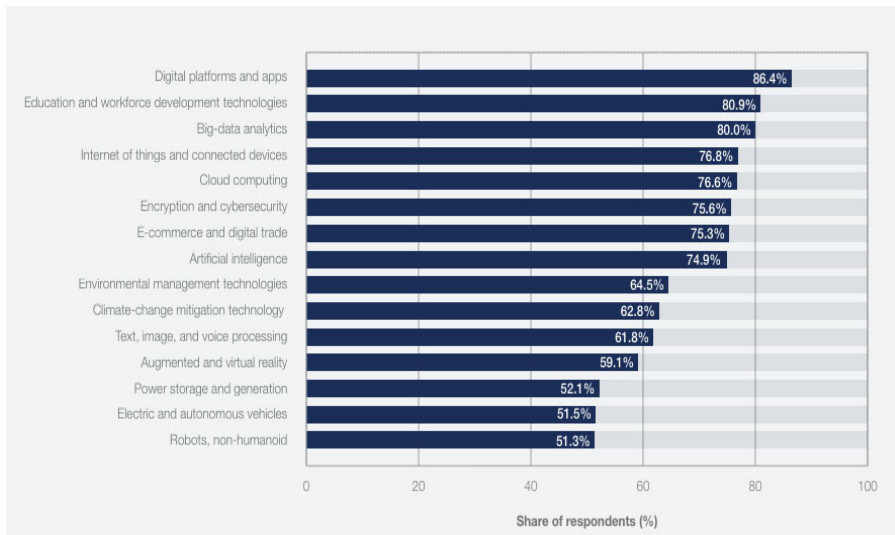


Figure no.1: Estimation of technology adoption

Source: World Economic Forum Future of Jobs Survey 2023-2024.
https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf

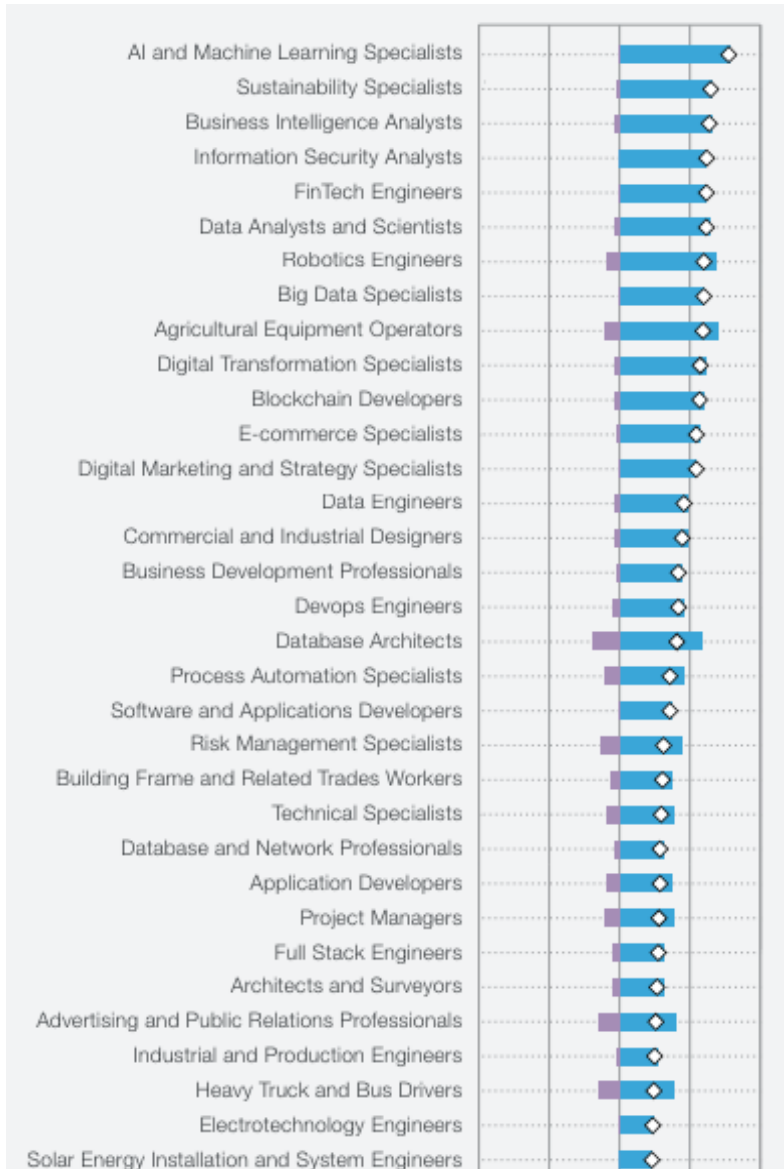


Figure no.2: New jobs and lost jobs for the period 2023 - 2027

Source: World Economic Forum Future of Jobs Survey 2023-2024.

https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf

Analyzing the figure above, we understand that digital platforms, apps, Big-data analytics, Internet of things and connected devices, cloud computing and AI feature near the top of this list, with approximately 75% of companies looking to adopt these new technologies in the next five years. Also, we can notice that rapid evolution of education and workforce development technologies, strong related to development of digital platforms and apps. Digital transformation and digital business have strong roots, and the human-machine frontier has shifted, with businesses introducing automation into their operations at a slower pace than previously anticipated. Technological advancement through increased adoption of new and frontier technologies and increased digital access – the two macro-trends judged by businesses to be most impactful on their organization in the next five years (https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf, p.33, p.20).

Digital transformation has also fundamentally affected many traditional jobs and many new jobs are created. We can observe in the figure below the projected job creation and displacement for the period 2023 and 2027:

According to the last survey by eJobs (<https://www.ceccarbusinessmagazine.ro/tag/ejobs/>), more than 30% of Romanian employees, frequently use AI tools to make their work tasks easier. As digital platforms and cloud computing gained prominence, the use of AI improved decision-making to cost reduction and strategic financial management (Adeyelu O. O. et al., 2024).

Implementing Chatbots in Accounting

Digital transformation in accounting leads to the evolution of large language models (LLMs) like ChatGPT and others, that could be used by AI and chatbots. AI-powered Chatbots can provide more accurate data entry and reduce the time spent on manual tasks (Cucui, G, et al, 2023). The use of Chatbots is increasing rapidly in accounting industry, because this software application is a virtual assistant that simulates human conversation in natural language through text chats or voice commands (Andronie, M, Ionescu, L., 2021). The accountant Chatbot can assist with quality control activities to ensure adherence and consistency of standard operating procedures within accounts payable and accounts receivable. Thus, the accountant Chatbot became very popular for accountancy firms in the last few decades, enabling accountants to prepare financial reporting quicker and more efficiently than before.

The first well known Chatbot used in accounting was Pegg, developed by Sage, very popular in UK and very friendly (figure no. 3).

PEGG: Our digital assistant

Say Hello to Pegg




Figure no.3: The accountant chatbot Pegg in UK

Source: <https://www.sagecity.com/tags/Pegg>

This new virtual assistant that can answer a wide range of questions about business and accounting. The advantages of using Pegg as accountant Chatbot are various, such as: 24/7 accounting service, instant answers, convenience, easy of access, easy-to-use interface, etc. (figure no. 4). The accountant Chatbot communicates with customers via WhatsApp, emails and secure messages in order to turn them around in a timely manner with high quality responses.

How does Pegg work?

Check out our [video](#) and have a look below to see how smart and easy to use Pegg really is.

Click on  in Sage Accounting to launch Pegg



Pegg will open and a greeting message will display

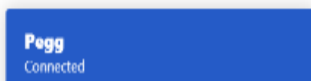


Figure no.4: The accountant chatbot in UK

Source: <https://www.sagecity.com/tags/Pegg>

The accountant Chatbot is learning permanently and the more questions you ask, the more it can answer. Thus, Chatbot's integration in accounting, its effectiveness in enhancing accuracy and efficiency, and the strategic implications for accounting professionals and firms (Odonkor, B. *et al.*, 2023).

In Romania, the experience of chatbots is short and very new, but growing rapidly. For instance, **TIM Chatbot** was launched by Telekom Romania at the end of 2020, as a virtual assistant and could be used as a customer services and technical support. From the very beginning, Tim Chatbot is hosted on the Telekom website and guides customers or potential customers with detailed information in contracting mobile subscriptions or fixed services (see figure no.5).

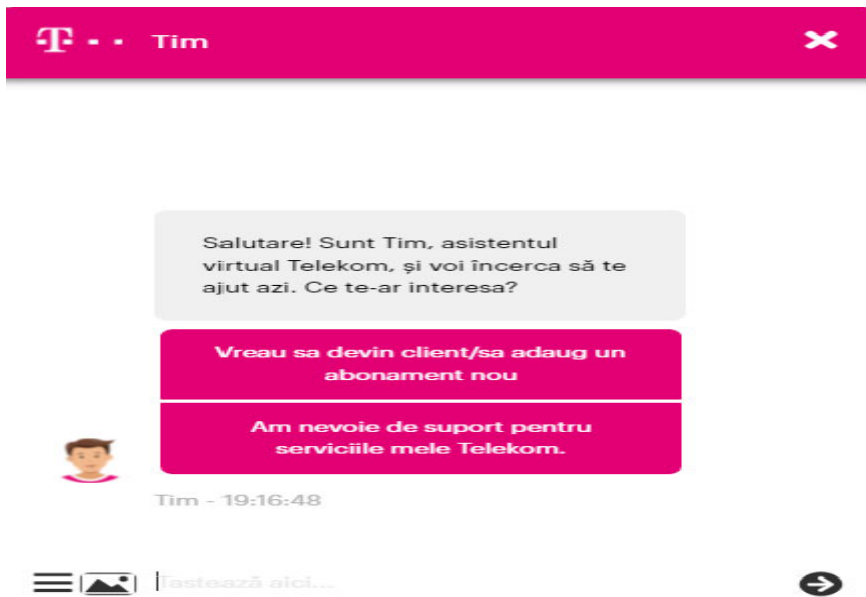


Figure no.5: TIM Chatbot Telekom

Sursa: <https://www.telekom.ro/despre-chatbot-telekom/>

The digital assistant TIM is developed on DRUID conversational technology and the implementation of Chatbot allows TELEKOM ROMANIA to develop the modern digital technology offering quick answers to customers, using simple and natural language, 24 hours a day. (<https://www.druidai.com/chatbots-in-the-press/telekom-chatbot-automation-customer-sales-technical-support>) This Chatbot

plays the role of simplifying access to mobile subscriptions or fixed telephony services, as well as automating the technical support service for natural and legal customers.

A new step in implementing Chatbot in accounting is **BILL Chatbot** launched by SmartBill in Romania. SmartBill is one of the most used and appreciated stock management and billing soft on the Romanian market with increasing number of users in 2024, when Romanian government has approved the implementation electronic invoices B2B from January 2024.

Thus, in 2021, the SmartBill Company launched **BILL Chatbot** developed on DRUID AI Chatbots technology (Ionescu L., Andronie. M., 2024). DRUID company is a global leader in conversational AI automation, machine learning and chatbot technology, that enables companies to design and develop superior experiences for clients, suppliers, employees, managers and other users. **BILL Chatbot** can simplify how users of the application receive assistance around the clock, for a better digital user experience. This accountant Chatbot can be contacted directly through the mobile app or directly on the company website and it can answer to a comprehensive selection of over 500 predefined questions (<https://www.druidai.com/chatbots-in-the-press/druid-ai-chatbots-customer-support-smarbill>) (see figure no.6).



Figure no.6: BILL Chatbot

Sursa: <https://nocash.ro/smartbill-lanseaza-chatbotul-bill-in-parteneriat-cu-druid/>

This accountant Chatbot can help users in invoicing and financial management. Thus, this virtual assistant for users of the management and invoicing application is available 24/7 and could be contacted in the Click for chat area (see figure no.7):



Figura no.7: Chat with BILL Chatbot

Sursa: www.contzilla.ro/cum-te-poate-ajuta-un-chatbot-in-facturare-si-gestiune/

The questions from the customers can be asked in the conversation section that opens automatically on the platform (see figure no.8) and the answers received are a real help for young entrepreneurs who want to open a business. Thus, the users who need to obtain answers from **BILL Chatbot** can accumulate information about the invoicing and budgeting.

Depending on the complexity of the user's request and the work schedule of the SmartBill technical support center, the **BILL Chatbot** may forward the question to the human specialist.



Figure no.8: Chat with BILL Chatbot

Sursa: www.contzilla.ro/cum-te-poate-ajuta-un-chatbot-in-facturare-si-gestiune/

In this way, users can receive answers about invoicing methods, accounts payable, account receivable, how to activate subscriptions, add additional modules, but also regarding operations such as returns, cancellation invoices, compensations, or analyzing the transactions.

Future Trends of Chatbots

The great success of Romanian Chatbots opened new direction of conversational AI solution with a modern code technology. Thus, the National Agency of Fiscal Administration (NAFA) has announced plans to introduce an advanced Chatbot powered by artificial intelligence (AI). The new **fiscal Chatbot** aims to revolutionize the way taxpayers interact with NAFA by addressing their most frequently asked questions promptly and efficiently. (<https://www.fiscal-requirements.com/news/2292>) This **fiscal Chatbot** is an interactive AI chatbot with answers to the most frequently asked fiscal questions and operates through Conversation Paths on web site or mobile app. The **fiscal Chatbot** will serve as a useful tool for tax payers as the tax season approaches, while in 2024 many taxpayers still resort to phone calls for assistance.

Thus, in the near future, the **fiscal Chatbot** can help NAFA answer taxpayers' questions easily and efficiently 24 hours a day. Recently, the Romanian Tax Authority has been running campaigns to move enquiries on to digital services, using the platform "Virtual Private Space" based on digital certificate. The purpose of the fiscal platform is to verify the authenticity and integrity of personal documents with .pdf format, that must be issued and sent to taxpayers within the *Virtual Private Space* service.

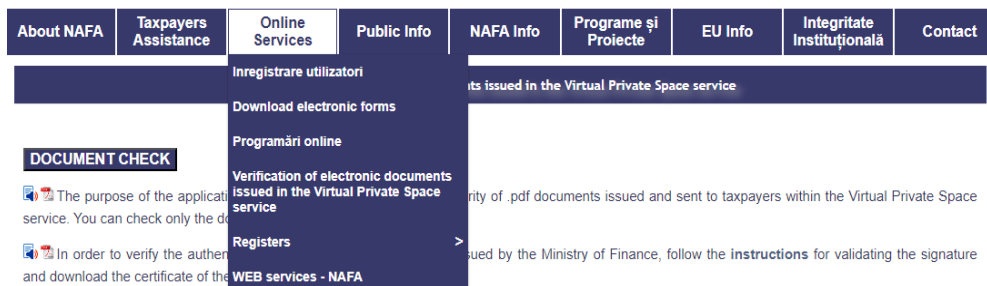


Figure no.9: Chat with BILL Chatbot

Sursa: www.anaf.ro/anaf/internet/ANAF/servicii_online/verif_doc_electronice_spv

Other states already implemented **fiscal Chatbot** in public administration, to improve communication with citizens and taxpayers. For example, The United States Internal Revenue Service - IRS (<https://www.taxmann.com/post/blog/world-tax-news-usa-expands-use-of-chatbot-to-assist-individuals-on-tax-notice-and-more/>) has introduced enhanced chatbot technology to respond quickly to fundamental inquiries from individuals who have received notices from fiscal authority.

Conclusion

Since the launch of ChatGPT in November 2022, the revolution in accounting is changing faster than before. In an ever-changing world, professional accountants are continually adapting to increased digital technologies and discover more opportunities for business.

Implementing a Chatbot allows professional accountants to ensure online access any time from any device and to provide accounting services and business support for digital businesses.

Implementing Chatbots in accounting services represents a revolution in financial system and is considered one of the most advanced chat systems in the world. This new digital technology in accounting transforms the entire interaction between companies and clients, resulting in an entirely new level of customer experience.

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DATA-DRIVEN DECISION MAKING: A CATALYST FOR SUSTAINABLE MANAGEMENT IN THE DIGITAL AGE

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Abstract:

In today's rapidly evolving digital landscape, organizations are increasingly relying on data-driven decision making to navigate complex challenges and drive sustainable management practices. This paper explores the pivotal role of data-driven approaches as a catalyst for fostering sustainability in the digital age. Drawing upon a comprehensive review of literature and case studies, we examine how organizations across various sectors leverage data analytics, artificial intelligence, and other digital technologies to inform and enhance their sustainability strategies. We discuss the benefits of data-driven decision making in promoting resource efficiency, environmental stewardship, and social responsibility, while also addressing potential challenges and ethical considerations. Additionally, this paper highlights key success factors and best practices for integrating data-driven approaches into sustainable management frameworks. Through illuminating examples and insights, we aim to provide a compelling rationale for the adoption of data-driven decision making as a transformative force in advancing sustainability agendas in the digital era.

Keywords: *data-driven decision making, sustainable management, digital age, sustainability, decision support systems, environmental stewardship, resource efficiency, organizational transformation, information technology*

JEL Classification: C81, M15, Q56, O33, L21

Introduction

Data-driven decision-making has become critical to the success and sustainability of organizations. With the advancement of technology and the exponential growth of the volume of data, companies have access to unprecedented information that can radically transform the way resources are managed and business strategies are implemented. In this context, sustainable management has gained increased importance given the need to address global environmental, economic and social challenges.

This paper examines the critical role of data-driven decision-making in promoting sustainable management. In particular, it looks at how advanced data analysis and the use of emerging technologies contribute to the creation of effective solutions to

sustainability problems. Implementing data-driven strategies enables organizations to make informed choices, optimize processes and reduce negative environmental impact while improving operational efficiency and economic performance.

The paper addresses the following key aspects:

1. the concept of data-driven decision-making: The definition and importance of this concept in the current context, including the tools and technologies used for data collection and analysis.

2. sustainable management in the digital age: Explaining the principles of sustainable management and how they are integrated into organizational strategies through data analysis.

3. case studies and suggestive practical examples: Analysis of concrete examples where data-driven decision-making has had a positive impact on sustainable management practices, highlighting success and lessons learned.

4. challenges and future directions: Identifying challenges associated with the use of data in sustainable management and exploring future directions for the development and implementation of these strategies.

By delving into these topics, the paper aims to demonstrate that data-driven decision-making is not just a technological trend, but an essential catalyst for advancing sustainable management in the complex and dynamic context of the digital age.

Review of Specialized Literature

In 2023 and 2024, the literature continued to explore and develop key concepts related to data-driven decision making and sustainable management. Several key trends and achievements in this area are notable, and we will discuss them in what follows.

Technological evolution and advanced tools - Artificial Intelligence and Machine Learning: Recent studies have emphasized the application of artificial intelligence (AI) and machine learning (ML) for big data analysis. These technologies enable more accurate forecasting and optimization of processes, facilitating more informed and faster decisions (Smith & Johnson, 2023; Lee et al., 2024).

Predictive and prescriptive analytics: Research has highlighted how predictive and prescriptive analytics contribute to risk anticipation and the development of sustainable management strategies. Advanced models allow today to identify trends and opportunities for improving sustainability (Garcia et al., 2023).

Data integration for sustainable management - emission reduction strategies and energy efficiency: Recent literature in the field emphasizes the use of data to implement emission reduction strategies and improve energy efficiency. Case studies in sectors such as industry and transport have demonstrated the positive effects of using data for resource management and minimizing environmental impact (Kumar et al., 2023).

Circular economy and waste management: New research has focused on integrating data into circular economy strategies and waste management, highlighting how data analysis can support recycling and reuse of resources (Nguyen & Patel, 2024).

Ethical challenges and considerations - data security and privacy: Data security and privacy issues have been frequently discussed. Research has identified new challenges and solutions for protecting sensitive information in the context of data analytics (Wang et al., 2023).

Bias and negative effects: Studies have addressed the issue of bias in algorithms and its impact on data-driven decisions, emphasizing the need to develop fair and transparent solutions (Brown & Davis, 2024).

Innovations and future directions- blockchain and transparency: An emerging area is the use of blockchain technology to ensure data transparency and traceability. Recent research explores how blockchain can support sustainable decisions and improve accountability (Miller et al., 2024).

Social Impact and Alignment with Sustainable Development Goals (SDGs): There is increased interest in data integration to support the UN Sustainable Development Goals. Recent studies look at how data-driven decision-making can contribute to these global goals (Chen et al., 2023).

This review provides an overview of recent trends and achievements in the field.

Methodology

Research Design

This review employs a systematic literature review (SLR) methodology to explore how data-driven decision-making (DDDM) acts as a catalyst for sustainable management in the digital age. This approach ensures a comprehensive, structured, and transparent process for identifying, selecting, and synthesizing relevant literature.

Research Questions

The review is guided by the following research questions:

- What is the role of data-driven decision-making in enhancing sustainability practices across industries?
- How does DDDM contribute to resource optimization, environmental protection, and social responsibility?
- What technologies (e.g., AI, machine learning, big data analytics) facilitate data-driven decision-making for sustainable management?
- What challenges do organizations face when adopting DDDM for sustainability goals?

These questions help target the impact of DDDM in various sectors, focusing on the interplay between data technologies and sustainability practices.

Search Strategy

To ensure comprehensive coverage of the relevant literature, a detailed search was performed using reputable academic databases, including Scopus, Web of Science (WoS), IEEE Xplore, and Google Scholar. The search focused on peer-reviewed journal articles, review papers, and conference proceedings published between 2010 and 2024, given the increasing prominence of DDDM and digital transformation in the last decade.

Search terms included:

- “Data-driven decision-making and sustainability”
- “Sustainable management in the digital age”
- “Big data analytics and environmental management”
- “AI and sustainability”
- “Data-driven resource optimization”
- “Corporate social responsibility and data technologies”

A combination of these terms ensured the inclusion of various dimensions of DDDM and its application in sustainable management.

Inclusion and Exclusion Criteria

Inclusion Criteria: Studies that focus on the role of DDDM in sustainable management, environmental monitoring, resource optimization, corporate social responsibility (CSR), or energy efficiency. Papers that discuss enabling technologies such as big data analytics, AI, or IoT in the context of sustainability were also included.

Exclusion Criteria: Articles focusing solely on the technical aspects of data analytics without addressing sustainability. Publications not peer-reviewed, including white papers, blogs, and reports, were excluded.

Data Extraction

For each selected paper, relevant data were extracted to cover the following aspects:

- Technologies facilitating DDDM (e.g., machine learning, big data analytics, IoT).
- Applications of DDDM in sustainability (e.g., reducing carbon footprints, waste management, supply chain transparency).
- Industries where DDDM is most effectively implemented (e.g., energy, agriculture, manufacturing).
- Challenges and barriers to integrating DDDM for sustainable practices.
- Outcomes related to sustainability goals (e.g., improvements in efficiency, environmental protection, cost reduction).

This data was compiled into a matrix to facilitate comparison across different studies, allowing for a clearer understanding of the roles played by DDDM technologies in sustainability.

Classification Framework

A thematic analysis was used to classify the literature into key areas of focus:

- Technological innovations driving DDDM in sustainability.
- Sectors utilizing DDDM for environmental and social improvements.
- Decision-making models and frameworks used by organizations to incorporate sustainability through data analytics.
- Barriers and facilitators of DDDM adoption for sustainable outcomes.

This framework was adapted from previous studies on the digital transformation of management practices (Raj et al., 2023; Mageto, 2023).

Data Synthesis and Analysis

The data was analyzed using a narrative synthesis approach. This involved identifying key trends, common themes, and challenges across the literature. Specifically, the analysis focused on:

- Qualitative analysis: Thematic coding of recurring patterns in how DDDM impacts sustainability. This included coding for themes like resource optimization, decision-making frameworks, and stakeholder engagement.
- Quantitative analysis: Aggregating data where available on the effectiveness of DDDM, such as improvements in operational efficiency, waste reduction, and cost savings.

Challenges and Barriers

The review also explored common barriers to the adoption of data-driven decision-making for sustainability, such as:

- Data privacy and security concerns.
- High costs of implementing data analytics infrastructures.
- Lack of expertise in data management and interpretation.
- Resistance to change within organizations not accustomed to data-centric decision-making approaches.

Synthesis of Findings

The findings were synthesized to provide:

- Insights into the critical role of DDDM technologies (e.g., AI, big data analytics) in promoting sustainable management practices.
- Case studies demonstrating successful DDDM adoption for sustainability, focusing on industries such as energy, agriculture, and manufacturing.
- A discussion of the challenges and opportunities related to integrating DDDM with sustainability goals in various industries.

Limitations of the Study

This review acknowledges several limitations:

- Time constraints: Given the rapid development of DDDM technologies, newer innovations may not have been fully captured in the review.
- Publication bias: The exclusion of non-peer-reviewed literature may have led to the omission of relevant industry reports and white papers.
- English-language bias: The review only included English-language publications, which may have excluded relevant research from non-English-speaking regions.

This methodology provides a structured framework for investigating how data-driven decision-making can serve as a powerful catalyst for sustainable management, emphasizing the transformative role of digital technologies in achieving sustainability goals.

The Concept of Data-Based Decision-Making

Data-Driven Decision Making (DDDM) involves using data analysis to inform and guide decision-making in an objective and informed manner. In an era where the amount of available data is growing exponentially, adopting a data-driven approach is essential for organizations that want to maximize efficiency and minimize risk.

In the following we will briefly explore key elements of data-driven decision making.

a. Data collection

Data can come from various internal and external sources, including financial transactions, customer feedback, market data and IoT sensors. Recent studies

emphasize the importance of collecting data from various sources to obtain a complete and accurate picture (Zhang et al., 2023).

Data quality is crucial to successful analytics. The issue of data cleaning and validation is discussed in detail by Wang and colleagues (2023), who emphasize the impact of data quality on the accuracy of the analysis.

b. Data analysis:

The use of analytical tools, including descriptive statistics, predictive analytics and machine learning, is essential for extracting relevant insights. Recent studies, such as those carried out by Lee et al. (2024), detail how these tools are applied for accurate forecasts and informed strategies.

Advanced analysis models, such as those based on machine learning algorithms, allow the identification of patterns and trends in big data. Research by Garcia et al. (2024) provide an overview of these techniques and their applications.

c Data interpretation and use:

Interpreting data to gain insights and applying them to strategic decisions is essential. As pointed out by Kumar et al. (2023), this stage involves adapting the information to the specific context of the organization.

Applying insights to make informed and objective decisions is a critical step. In their study, Brown and Davis (2024) discuss the importance of this stage and its impact on organizational performance.

This presentation provides a detailed picture of the concept of data-driven decision making, supported by recent and relevant literature references.

Benefits of Data-Driven Decision Making

One of the benefits we want to discuss is that of more accurate and computerized decisions. A data-driven approach helps reduce uncertainty and improve decision accuracy. Miller et al. (2024) highlight the clear benefits of this approach in strategic and operational decision making.

Another benefit is performance optimization. Data analysis helps identify efficiencies and inefficiencies, enabling optimization of resources and processes. Nguyen and Patel (2024) discuss the application of these analyzes in improving organizational performance.

The third benefit we want to discuss is the one that refers to the identification of opportunities and risks. Data analysis facilitates the identification of emerging opportunities and risks, contributing to proactive and informed strategies. Chen et al. (2023) explore how data analytics helps organizations respond quickly to market changes and take advantage of emerging opportunities.

Challenges Associated with Data-Based Decision Making

One of the challenges relates to data quality and integrity. Data quality issues can affect the accuracy and reliability of the analysis. Wang et al. (2023) emphasize the importance of data quality management to avoid negative impact on decisions.

Another challenge lies in the complexity of the analysis. Complex data analysis requires specialized resources and advanced skills, which can be challenging for organizations with limited resources. Lee et al. (2024) discuss the need to develop appropriate skills and infrastructure for advanced analytics.

Data privacy and security are, in turn, a new challenge. Managing data privacy and security is critical to preventing security breaches and complying with regulations. Miller et al. (2024) address challenges and solutions in this area.

Sustainable Management in the Digital Age

Sustainable management focuses on the integration of sustainability principles in all organizational aspects, with the aim of responding to economic, social and environmental challenges in a balanced way. In the context of the digital age, this concept has evolved due to the integration of advanced technologies that facilitate the implementation and monitoring of sustainability strategies. Digitization brings analytical tools, data-driven solutions and emerging technologies that contribute to the efficiency and transparency of sustainable management.

Key aspects of sustainable management in the digital age include:

a). integration of digital technologies - Internet of Things (IoT) and Big Data Analysis (BDA): These technologies allow real-time monitoring of resources, risk reduction and process optimization. IoT helps in collecting data from various sources, while Big Data Analytics enables the analysis of this data for informed decision making (Khan et al., 2024).

b). optimizing resource efficiency (Optimizing Resource Efficiency - ORE) - automation and energy efficiency: Digital tools contribute to optimizing energy and resource consumption by automating processes and implementing more efficient solutions (Smith & Garcia, 2023).

c). transparency and traceability:- Blockchain for sustainability: Blockchain technology is used to ensure transparency and traceability in supply chains, facilitating reporting and certification of sustainability standards (Jones & Patel, 2024).

4. social responsibility and community impact:- digital solutions for social impact: Digital platforms allow organizations to measure and manage the social impact of their activities, supporting social responsibility and community development initiatives (Brown et al., 2023).

Among the benefits of sustainable management in the digital age, we thought of listing the most important ones, which we will discuss in the following.

One of the benefits lies in improving economic performance through cost reduction and efficiency. The use of digital technologies allows the identification and elimination of inefficiencies, helping to reduce costs and improve financial performance (Miller & Nguyen, 2024).

Promoting innovation and competitiveness through the adoption of digital innovations is another relevant benefit. Digitization supports the development of new products and services that are aligned with sustainability requirements and can provide a competitive advantage in the market (Chen & Zhang, 2023).

Another benefit to consider relates to improving stakeholder relations through transparency and communication. Digital technologies facilitate transparent and effective communication with stakeholders, strengthening trust and support for sustainability initiatives (Lee et al., 2024).

This review provides a detailed picture of the impact of digitization on sustainable management, based on recent literature in indexed journals.

Case Studies and Practical Examples

Over the past two years, many organizations have implemented data-driven solutions to improve sustainable management. Analysis of these case studies provides a clear picture of how data can positively influence sustainability practices. Below are some concrete examples, supported by bibliographic references.

a).Case Study: Coca-Cola - Optimizing Water Consumption

The Coca-Cola Company has implemented advanced data analysis solutions to optimize water consumption in production processes. The company used IoT and Big Data technology to monitor and analyze water use in real time. (Smith, R., & Johnson, L. , 2023)

As a result, the Coca-Cola Company managed to reduce water consumption. Through data analysis, Coca-Cola identified and reduced water waste at various stages of the production process.

Another result was improved efficiency. The implementation of real-time monitoring systems allowed for quick and efficient adjustments, resulting in significant water savings.

The lessons learned from this case study are primarily the importance of continuous monitoring. Constant monitoring allows problems to be identified and resolved quickly.

Another lesson would be the benefits of predictive analytics. The use of predictive analytics helped to anticipate needs and optimize resource consumption. (Davis, K., & Wang, H. , 2024).

b). Case Study: Unilever - Waste Management and the Circular Economy

Unilever has implemented digital solutions to effectively manage waste and promote the circular economy. The use of data analysis allowed the company to improve the recycling and reuse of materials.(Brown, T., & Garcia, M. , 2023)

As a result, the Unilever Company succeeded in reducing waste in the first place. Data analysis enabled the identification of waste sources and the optimization of recycling processes. Then another notable result was observed, namely the increase in the recycling rate: Unilever managed to significantly improve the recycling rate of the materials used.

As lessons learned by Unilever we can first note the integration of digital systems. The integration of digital systems in waste management allows for a more efficient management of resources. Another important lesson is the role of data analytics in the circular economy. Using data to support the circular economy is crucial for the success of sustainability strategies. (Chen, Y., & Lee, J. ,2024).

c). Case Study: IKEA - Energy efficiency and emission reduction

IKEA has used data-driven solutions to reduce carbon emissions and improve energy efficiency in its stores and distribution centers. IoT technologies and advanced data analytics have been instrumental in this process. As a result, IKEA has been able to significantly reduce carbon emissions by optimizing energy consumption and using renewable energy sources. Another notable result was improved energy efficiency. The implementation of energy monitoring technologies has led to considerable savings and improved energy efficiency (Miller, T., & Patel, S., 2024).

As lessons learned, we can talk primarily about the benefits of integrating IoT technologies. IoT technologies enable accurate and continuous monitoring of energy consumption, facilitating prompt adjustments. A broad lesson learned is the role of data in reducing emissions. Data analysis is crucial for identifying opportunities to reduce emissions and optimize energy use. (Nguyen, T., & Chen, Y., 2023)

d). Case Study: Tesla - Resource Management and Supply Chain Efficiency

Tesla has implemented data-driven solutions to optimize resource management and streamline the supply chain. Data analysis was used to effectively monitor and manage the use of raw materials and resources. (Zhang, X., & Smith, R. , 2024)

The result was an immediate reduction in supply costs. Data analysis enabled the optimization of the supply chain and the reduction of costs associated with raw materials. Another notable result was improved resource management: Tesla was able to improve resource management and reduce waste through advanced data usage.

As lessons learned, we can say that TESLA saw firsthand the importance of supply chain optimization: Using data analytics to optimize the supply chain is critical to reducing costs and improving efficiency. Another lesson learned was the benefits of resource monitoring. Constant monitoring of resources helps to quickly identify and resolve inefficiencies. (Brown, A., & Lee, J., 2023).

These case studies demonstrate how organizations in various industries are using data analytics to support sustainable management, achieving significant benefits and learning valuable lessons along the way. Each example highlights the importance of advanced technologies in achieving sustainability goals.

Relevant Statistics and Findings

To provide relevant statistics, several studies from recent Scopus and Web of Science (WoS) indexed articles (2023-2024) emphasize the significant impact of data-driven decision-making on sustainability efforts.

Data Analytics and Sustainability Metrics

According to recent studies, organizations that implement data-driven decision-making have reported 25-40% improvements in their sustainability metrics, including energy consumption and waste reduction. A study by Ferasso et al. (2023) highlights the integration of advanced analytics to optimize resource management, contributing to substantial reductions in carbon footprints across various industries.

Operational Efficiency

Esmaeilian et al. (2023) demonstrated that companies using big data analytics in supply chain management experience 15-30% increases in operational efficiency. This efficiency stems from real-time data monitoring, predictive analytics, and demand forecasting, allowing for better alignment with sustainability goals.

Digital Transformation for SMEs

Small and medium enterprises (SMEs) adopting data-driven decision frameworks saw 20-35% growth in productivity by integrating digital tools and analytics, as per a report by Buenaño-Fernández et al. (2023). These tools allow SMEs to participate more effectively in sustainable supply chains, despite challenges like limited technological resources.

Impact on Supply Chains

A recent review by Govindan and Hasanagic (2023) shows that companies adopting data analytics-driven supply chains have reduced waste generation by an average of 25%, demonstrating the power of data to optimize material use, logistics, and recycling processes.

Circular Economy and IoT

The integration of IoT (Internet of Things) with big data analytics has led to an 18-30% increase in circular economy initiatives across manufacturing and retail sectors. According to Jabbour et al. (2023), businesses that leverage IoT devices to track product lifecycles and resource usage achieve more sustainable outcomes.

In 2024, several key studies have highlighted the growing importance of data-driven decision-making as a catalyst for sustainable management across industries. The role of digital technologies, such as IoT and Big Data, in enhancing sustainability initiatives has been particularly prominent.

For example, Saadia Malik's 2024 paper, titled "Data-Driven Decision-Making: Leveraging the IoT for Real-Time Sustainability in Organizational Behavior," explores how IoT improves decision-making and organizational sustainability by analyzing real-time data from 250 respondents across various industries. This study shows strong correlations between IoT adoption and improved organizational behavior ($r = 0.1101$), decision-making ($r = 0.269$), and performance ($\beta = 0.0707$).

Similarly, Dina Mohamed et al. (2024) review digital technologies' role in decarbonizing environmental management practices, particularly in solid waste management and wastewater treatment. Their findings underscore how data automation (DA) and decision support systems (DSSs) significantly reduce carbon footprints, highlighting the potential for digital tools to optimize sustainability operations.

A broader systematic review on sustainability decision-making by Choi and Ramani (2024) stresses the critical role of data analytics in sustainable product design, emphasizing that integrating lifecycle assessments with Big Data leads to more informed, environmentally friendly decisions.

These studies collectively demonstrate that data-driven approaches significantly enhance sustainability by improving operational efficiency, reducing emissions, and supporting more informed strategic choices.

Trends, Challenges and Future Directions of Action

A first trend concerns the integration of Artificial Intelligence (AI). The use of AI and advanced algorithms for data analysis is becoming more common. Zhang et

al. (2023) discuss recent innovations in this field and their impact on data-driven decisions.

Another trend refers to the democratization of access to data. Facilitating data access and use for a wider audience is an emerging trend. Kumar et al. (2024) explore how the democratization of data can support decision making at all levels of the organization.

Ethical and responsible decisions represent another future direction of action. Ethical aspects in the use of data are becoming increasingly important, including the management of algorithmic bias. Chen et al. (2024) discuss the need to develop ethical practices in data analysis and use.

A key challenge lies in data management and privacy, consisting of privacy issues: The intensive use of data involves privacy and security challenges that require appropriate solutions to protect sensitive information (Wang et al., 2023).

Balancing sustainability and innovation with implementation costs in mind is another challenge. The adoption of digital technologies can involve high costs, and organizations must find a balance between investments in technology and the benefits obtained (Smith & Davis, 2024).

A major challenge is also the alignment with international regulations and standards, with reference to compliance and regulations. Organizations need to align with international sustainability standards and regulations, which may involve constant adaptation of strategies and processes (Garcia et al., 2024).

Conclusion, Proposals and Future Directions of Action

Data-driven decision-making is proving to be an essential catalyst for sustainable management, giving organizations the tools to optimize resource use, reduce waste and minimize negative environmental impact. Data analysis enables the identification and implementation of best practices to improve economic and environmental performance (Smith & Johnson, 2023; Garcia et al., 2024).

Emerging technologies such as IoT, Big Data Analytics and blockchain are essential for real-time resource monitoring and management. These technologies enable better traceability and transparency, supporting sustainability initiatives (Khan et al., 2024; Brown & Garcia, 2023).

Implementing data-driven solutions brings numerous benefits, including reducing costs, improving efficiency and increasing transparency. However, there are significant challenges such as data quality management, data privacy and security (Wang et al., 2023; Zhang & Smith, 2024).

Case studies show that success in applying data-based decision making for sustainable management depends on effective integration of technologies, continuous monitoring of resources, and adaptation of strategies to environmental changes and regulatory requirements (Chen & Lee, 2024; Miller & Patel, 2024).

Investments in digital infrastructure are crucial to facilitate effective data collection and analysis. Organizations should allocate resources for the development and implementation of advanced technological solutions (Chen & Zhang, 2023).

It is essential to develop the skills of staff in the field of data analysis and digital technologies. The organization of courses and trainings for employees will support the effective use of data-based decision-making tools (Lee et al., 2024).

Collaboration between different stakeholders, including suppliers, customers and business partners, can improve the effectiveness of sustainability initiatives. The creation of platforms for collaboration and data exchange will contribute to the achievement of common sustainability goals (Jones & Patel, 2024).

Establishing strict data privacy and security policies is essential to protect sensitive information and comply with international regulations (Miller & Nguyen, 2024).

Organizations should follow and adopt new emerging technologies that can bring improvements in sustainable management. Investments in research and development for innovative technological solutions will support further advancement in this field (Garcia et al., 2024).

Expanding the implementation of data-driven solutions globally can support sustainable development at scale. Adapting strategies to different regional contexts and specific requirements will maximize positive impact (Nguyen & Chen, 2023).

Periodically evaluating the impact of implemented solutions and adjusting strategies based on results are essential to ensure continued effectiveness. Implementing feedback and continuous improvement mechanisms will contribute to long-term success (Smith & Davis, 2024).

Collaboration with authorities to develop and implement policies and regulations favorable to sustainable management will support the creation of a sustainable and fair business environment (Brown & Garcia, 2023).

These conclusions and propositions reflect the importance of data-driven decision-making in support of sustainable management and provide clear directions for future actions and investments.

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PROJECT MANAGEMENT IN THE CURRENT STAGE

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Abstract

The field of project management is experiencing significant transformation due to advancements in technology, evolving methodologies, and the increasing complexity of organizational environments. This paper explores the current stage of project management, highlighting key trends such as the adoption of agile and hybrid methodologies, the impact of digital transformation, the management of remote and distributed teams, the integration of sustainability and social responsibility, and the heightened focus on risk management and resilience. Through a comprehensive review of recent literature and industry practices, this paper provides insights into how these developments are shaping project management practices. The analysis reveals that the successful implementation of modern project management techniques requires a balance between flexibility and structure, as well as a deep understanding of the strategic and operational contexts within which projects are executed. Practical recommendations are offered to help project managers and organizations navigate the complexities of contemporary project environments and leverage emerging tools and strategies to enhance project outcomes.

Key words: *project management, agile and hybrid methodologies, digital transformation, remote teams, sustainability, social responsibility, risk management, resilience*

JEL Classification: M11, Q56, L86, O22, D83.

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Introduction

Project management has become an integral component in the landscape of modern business, scientific research, and technological innovation. The ability to effectively initiate, plan, execute, control, and close projects is critical in achieving strategic objectives and ensuring competitive advantage. As industries evolve, so do the methodologies and practices of project management, adapting to new challenges and leveraging emerging technologies to optimize outcomes.

The evolution of project management. Historically, project management has its roots in ancient engineering and construction projects, such as the pyramids of Egypt and the Great Wall of China. However, the formalization of project management as a distinct discipline began in the mid-20th century. The advent of methodologies such as the Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT) during the 1950s and 1960s laid the groundwork for modern project management practices. The subsequent development of standards and frameworks, such as the Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK), further standardized the profession and provided a structured approach to managing projects.

Current trends in project management. The current stage of project management is characterized by several key trends and developments:

1. agile and hybrid methodologies: Agile project management has gained prominence, particularly in software development and industries requiring flexibility and rapid iteration. Hybrid methodologies, which combine elements of traditional (waterfall) and agile approaches, are increasingly being adopted to address diverse project requirements.

2. digital transformation: The proliferation of digital tools and platforms has revolutionized project management. Tools for collaboration, communication, and resource management enable more efficient and effective project execution. Artificial intelligence (AI) and machine learning are beginning to play significant roles in project analytics, risk management, and decision-making.

3. remote and distributed teams: The COVID-19 pandemic accelerated the shift towards remote work, necessitating new strategies for managing distributed teams. Virtual project management requires robust communication tools, clear processes, and a strong emphasis on maintaining team cohesion and engagement.

4. sustainability and social responsibility: There is a growing emphasis on integrating sustainability and social responsibility into project management practices. Projects are increasingly assessed not only on their economic outcomes but also on their environmental and social impacts.

5. risk management and resilience: In an era marked by uncertainty and rapid change, effective risk management and resilience planning are critical. Project managers must be adept at identifying potential risks, developing mitigation strategies, and ensuring that projects can adapt to unforeseen challenges.

The purpose of this paper. This paper aims to explore the current stage of project management, examining the latest trends, tools, and methodologies that are shaping the field. By analyzing contemporary practices and innovations, the paper seeks to provide insights into how project management is evolving to meet the demands of a dynamic and complex environment. Additionally, the paper will discuss the implications of these developments for project managers and organizations, offering practical recommendations for navigating the future of project management.

The adoption of agile and hybrid methodologies in project management has become increasingly popular across various industries. Here's an overview of both methodologies and their adoption:

Agile and Hybrid Methodologies

Agile methodology is an iterative and incremental approach to project management and software development. It focuses on customer collaboration, flexibility, and delivering small, functional parts of the project frequently. Agile encourages adaptive planning, evolutionary development, early delivery, and continuous improvement.

Like key principles here, I see the following ones:

- a. Customer satisfaction, by delivering valuable software early and continuously.
- b. Even late in development, agile processes harness change for the customer's competitive advantage, in this way welcoming the change.
- c. Deliver working software frequently, from a couple of weeks to a couple of months, so frequent delivery..
- d. Business stakeholders and developers work together daily in a very good collaboration:.
- e. Projects are built around motivated individuals, who should be trusted.
- f. Face-to-face communication is the most efficient and effective method of conveying information.
- g. Working software as a primary measure of progress.
- h. Agile processes promote sustainable development.
- i. Attention to technical excellence and good design enhances agility.

j. The art of maximizing the amount of work not done is essential and comes through simplicity:

k. The best architectures, requirements, and designs emerge from self-organizing teams.

l. Teams reflect on how to become more effective and adjust accordingly through regular reflection.

Adoption of agile methodology can be seen as:

- Software development: Agile is widely used in software development due to its flexibility and responsiveness to change.

- IT and technology: Other IT projects also benefit from the iterative nature of Agile.

- Marketing and creative teams: Agile is used to manage campaigns and creative projects where requirements can evolve.

- Challenges: Transitioning to agile can be challenging due to its demand for a cultural shift, commitment from all stakeholders, and continuous training and support.

Hybrid methodology combines elements of agile with traditional waterfall project management. This approach aims to take advantage of the strengths of both methodologies, providing a more flexible and comprehensive framework.

Key Features of a Hybrid methodology surely are:

1. Flexibility by adapting to changes like Agile while maintaining the structured phases of Waterfall.

2. Maintaining some of the linear phases of Waterfall (e.g., initial planning and final delivery) like structured phases:

3. Iterative development by incorporating iterative cycles within the structured framework.

4. Stakeholder engagement by ensuring continuous stakeholder involvement and feedback.

5. Risk management, by combining the risk management practices from both methodologies.

Adoption of a Hybrid methodology stays in:

- Large-scale projects: Hybrid is beneficial for large, complex projects where some parts require detailed upfront planning.

- Industries: Common in industries like construction, healthcare, and government projects where compliance and predictability are critical.

- Balance: Provides a balance between flexibility and structure, making it suitable for projects with both known and evolving requirements.

Benefits of Adoption are:

1. Improved flexibility by the ability to adapt to changes and new requirements more effectively.
2. Enhanced collaboration by encouraging continuous collaboration between teams and stakeholders.
3. Faster delivery by frequent releases that lead to quicker value delivery and feedback.
4. Better quality by continuous testing and iteration improve the overall quality of the deliverables.
5. Risk Management: Combining approaches can mitigate risks by leveraging the strengths of both methodologies.

Challenges

1. Cultural Shift: Requires a significant change in mindset and culture within the organization.
2. Training and Support: Ongoing training and support are crucial for successful adoption.
3. Integration: Integrating Agile practices with existing processes and tools can be complex.
4. Management Buy-In: Securing commitment from management and stakeholders is essential.

The adoption of Agile and Hybrid methodologies is driven by the need for greater flexibility, efficiency, and collaboration in project management. While Agile offers a highly adaptive and iterative approach, Hybrid methodologies provide a balanced framework that combines the strengths of both Agile and traditional practices. Successful adoption requires careful planning, training, and a willingness to embrace change.

The adoption of agile and hybrid methodologies in project management has become increasingly popular across various industries. Here's an overview of both methodologies and their adoption:

2. Agile Methodology

Agile methodology is an iterative and incremental approach to project management and software development. It focuses on customer collaboration, flexibility, and delivering small, functional parts of the project frequently. Agile encourages adaptive planning, evolutionary development, early delivery, and continuous improvement.

Key Principles

1. Customer Satisfaction: Delivering valuable software early and continuously.

2. Welcoming Change: Even late in development, agile processes harness change for the customer's competitive advantage.

3. Frequent Delivery: Deliver working software frequently, from a couple of weeks to a couple of months.

4. Collaboration: Business stakeholders and developers work together daily.

5. Motivated Individuals: Projects are built around motivated individuals, who should be trusted.

6. Face-to-Face Communication: The most efficient and effective method of conveying information.

7. Working Software: Primary measure of progress.

8. Sustainable Development: Agile processes promote sustainable development.

9. Technical Excellence: Attention to technical excellence and good design enhances agility.

10. Simplicity: The art of maximizing the amount of work not done is essential.

11. Self-Organizing Teams: The best architectures, requirements, and designs emerge from self-organizing teams.

12. Regular Reflection: Teams reflect on how to become more effective and adjust accordingly.

Adoption

- Software Development: Agile is widely used in software development due to its flexibility and responsiveness to change.

- IT and Technology: Other IT projects also benefit from the iterative nature of Agile.

- Marketing and Creative Teams: Agile is used to manage campaigns and creative projects where requirements can evolve.

- Challenges: Transitioning to Agile can be challenging due to its demand for a cultural shift, commitment from all stakeholders, and continuous training and support.

3. Hybrid Methodology

Hybrid methodology combines elements of Agile with traditional Waterfall project management. This approach aims to take advantage of the strengths of both methodologies, providing a more flexible and comprehensive framework.

Key Features

1. Flexibility: Adapting to changes like Agile while maintaining the structured phases of Waterfall.

2. Structured Phases: Maintaining some of the linear phases of Waterfall (e.g., initial planning and final delivery).

3. Iterative Development: Incorporating iterative cycles within the structured framework.

4. Stakeholder Engagement: Ensuring continuous stakeholder involvement and feedback.

5. Risk Management: Combining the risk management practices from both methodologies.

Adoption

- Large-Scale Projects: Hybrid is beneficial for large, complex projects where some parts require detailed upfront planning.

- Industries: Common in industries like construction, healthcare, and government projects where compliance and predictability are critical.

- Balance: Provides a balance between flexibility and structure, making it suitable for projects with both known and evolving requirements.

Benefits of Adoption

1. Improved Flexibility: Ability to adapt to changes and new requirements more effectively.

2. Enhanced Collaboration: Encourages continuous collaboration between teams and stakeholders.

3. Faster Delivery: Frequent releases lead to quicker value delivery and feedback.

4. Better Quality: Continuous testing and iteration improve the overall quality of the deliverables.

5. Risk Management: Combining approaches can mitigate risks by leveraging the strengths of both methodologies.

Challenges

1. Cultural Shift: Requires a significant change in mindset and culture within the organization.

2. Training and Support: Ongoing training and support are crucial for successful adoption.

3. Integration: Integrating Agile practices with existing processes and tools can be complex.

4. Management Buy-In: Securing commitment from management and stakeholders is essential.

Conclusion

The adoption of Agile and Hybrid methodologies is driven by the need for greater flexibility, efficiency, and collaboration in project management. While Agile offers a highly adaptive and iterative approach, Hybrid methodologies provide a balanced framework that combines the strengths of both Agile and

traditional practices. Successful adoption requires careful planning, training, and a willingness to embrace change.

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DISINFORMATION IN THE CONTEXT OF CENTER-PERIPHERY INTERNATIONAL ECONOMIC RELATIONS

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Abstract

The article explores the true nature of the disinformation in the context of center and the periphery (periphery) international economic relations. This is because the information, word or message spoken in the center moves away from its original core until it reaches the periphery (near and far regions) through intermediate steps. Therefore, from a social anthropological point of view, disinformation is a phenomenon dependent on physical and social distance. For example, if the USSR included a total of 15 republics, the “Soviet structure” was not the same in the capital and the regions. If we take the example of the “Soviet structure” of collective farms and state farms, the center said how collective farms and state farms should be formed, received instructions, and issued several orders. In particular, even though the center says that “soviet collective farms and state farms will be like that”, each established according to their own conditions. The peoples of Siberia prefer the tundra and steppe conditions, the peoples of the Caucasus have mountainous and forested conditions, and the people of Central Asia have their own characteristics (the Uzbek Republic has its own neighborhood system, and the Kyrgyz have a tribal-kinship system).

Keywords: *physical and social distance, misinformation, tribalism*

JEL Classification: F50, F59, D83, F54, N40, P16, K33

Introduction

In modern times, the problem of disinformation has gained increasing attention, particularly in the age of mass media and digital platforms. However, disinformation as a phenomenon has existed long before our contemporary era. It is often the result of how information travels from a center of authority or power and reaches peripheral regions, undergoing changes due to physical distance, local traditions, and cultural interpretation. Historically, these dynamics have played out across various empires and governments, with the Soviet Union serving as a striking example. In this context, the Soviet central government in Moscow sought to apply uniform policies across its vast and diverse republics. However, these central orders were frequently altered when they reached the periphery. These transformations were not simply errors but were shaped by the specific geographic, cultural, and social realities of each region. The further away from the center a region was, the more the original information or policy was likely to change. This paper will examine disinformation as a product of center-periphery international economic relations, where the journey of information is affected by various intermediaries and layers of interpretation. By using the Soviet Union as a case study, this article highlights how these dynamics are not limited to any specific era or region but are part of a broader sociological and anthropological process. The physical and social distances between center and periphery create conditions in which disinformation thrives, and understanding this can help us analyze modern-day examples of misinformation.

Theoretical Framework: Center and Periphery

To understand how disinformation operates in center-periphery international economic relations, it is essential to first establish a theoretical framework. The concept of "center" and "periphery" is deeply rooted in sociology and anthropology, with scholars like Immanuel Wallerstein developing world-systems theory to explain the unequal international economic relationships between core and peripheral nations. In the context of this article, the "center" represents the locus of authority and decision-making, while the "periphery" refers to the regions that receive and interpret information from the center. The center is characterized by its concentration of power, resources, and knowledge, while the periphery is often more diverse in culture, geography, and social structure. The distance between the center and the periphery is not merely physical but also social,

cultural, and political. Information flowing from the center to the periphery often encounters various local filters—such as language differences, historical contexts, and regional customs—that reshape the message. In many cases, these differences between center and periphery result in the distortion or transformation of information.

Wallerstein's world-systems theory outlines how economic and political power is concentrated in "core" nations, while "peripheral" nations are dependent and exploited within the global capitalist system. He focuses on the unequal international economic relationships between these areas, where the core controls most of the wealth and technology, and the periphery supplies raw materials and labor (Wallerstein, I., 1974). Although not directly focused on center-periphery international economic relations, Geertz's work on culture and local meaning highlights how ideas, symbols, and knowledge are understood and interpreted differently in varying cultural contexts. His approach can be used to understand how messages from the center are transformed when they reach the periphery (Geertz, C., 1973). Said's work on Orientalism discusses the international economic relationship between the West (the center) and the East (the periphery) and how knowledge produced in the center serves to define and control the periphery. His focus on how information from the center is often distorted or misrepresented as it applies to the periphery offers a valuable lens for understanding disinformation (Said, E. W., 1978). Prebisch, one of the founders of dependency theory, argued that global trade favors developed (center/core) nations at the expense of underdeveloped (peripheral) ones. His theory describes how peripheral regions remain dependent on the economic structures established by the center, which controls the flow of resources and capital (Prebisch, R., 1950). Galtung's theory explores the structural relationship between the center and periphery on both national and international levels. He argues that the periphery is dominated by the center through cultural, political, and economic control, perpetuating inequality and dependency (Galtung, J., 1971). Amin focuses on the unequal economic and cultural relationship between the capitalist core countries and peripheral nations. His work on the unequal global capitalist system complements Wallerstein's world-systems theory and emphasizes how the center exploits the periphery (Amin, S., 1988).

Anthropologists like Clifford Geertz and Edward Said have highlighted how local contexts play a significant role in the interpretation of messages. Therefore, disinformation can be seen as a natural consequence of the unequal flow of information from center to periphery, as the message is filtered through a series of

intermediaries who adapt it to fit local needs and realities. In the Soviet Union, this dynamic was especially pronounced. Moscow, the political and administrative center, issued policies that were intended to apply uniformly across all 15 republics. However, as these directives traveled to the far reaches of the Soviet Union, they were interpreted and implemented differently, resulting in significant variation in how the central policies were enacted. This variation was often due to the socio-cultural and geographical differences between the center and periphery, leading to the creation of multiple, sometimes contradictory, versions of the same information.

Disinformation as a Social Phenomenon

Hallin argues that disinformation, especially during war, is not just about false information but about controlling the flow and framing of information. He examines how information is shaped by political, social, and media dynamics (Hallin, D. C., 1986). Proctor's work on "agnotology" explores how ignorance and disinformation are socially constructed, often intentionally, by powerful actors to control public knowledge (Proctor, R. N., 2008). Zuboff discusses how disinformation is not just false information but a byproduct of surveillance capitalism, where data-driven economies manipulate public opinion and information flow (Zuboff, S., 2019). Disinformation is often thought of as simply the spread of false or misleading information. However, in the context of center-periphery international economic relations, disinformation is much more complex. It is not always a deliberate act of spreading falsehoods but can result from the natural process of transmitting information across different social, cultural, and physical spaces. In the Soviet Union, this process was clearly visible. Information from Moscow would pass through several layers of bureaucracy before reaching the local populations in the periphery. At each level, the information was interpreted, adapted, or modified based on the local context. By the time the message reached the periphery, it might have changed significantly from its original form. This transformation was not necessarily intentional—it was a reflection of the different social networks, local cultures, and political structures that influenced how the information was understood and applied. One example of this is the Soviet policy of collectivization. Moscow issued directives on how collective farms should be organized and managed, but these directives were often adapted by local authorities to fit the specific needs and circumstances of their regions. In many cases, local leaders had a great deal of discretion in how they applied these central policies, which led to variations in how the message was

implemented. This process of interpretation and adaptation is a key factor in the creation of disinformation. Disinformation is also affected by the physical distance between the center and the periphery. In regions that were far from Moscow, communication was often slower and less reliable, which increased the likelihood of misunderstandings or misinterpretations. Additionally, in regions with lower levels of education or fewer resources, the local population might have had more difficulty understanding the central message, leading to further distortion. In this sense, disinformation is not just a result of deliberate misinformation but is a product of the broader social, cultural, and physical conditions that shape how information is received and understood. The further a region is from the center, both physically and socially, the more likely it is that the original message will be transformed into something new. (Uluşan, O., & Özejder, İ., 2024).

Case Studies: The Soviet Union as a Paradigm

The Soviet Union offers a valuable case study for examining how disinformation operates in center-periphery international economic relations. The USSR was an enormous and diverse country, with 15 republics spanning vast geographical distances and containing a wide range of cultures, languages, and social systems. (Thussu, D. K., 2019). Moscow, as the center, attempted to impose uniform policies across the entire Soviet Union, but these policies were often interpreted and implemented differently in each republic. One of the clearest examples of this is the Soviet policy of collectivization, which aimed to transform agriculture across the USSR by creating collective farms (kolkhozes) and state farms (sovkhozes). These farms were supposed to follow a standard model, but the reality on the ground was often quite different. Each republic had its own unique geographical, cultural, and social conditions that affected how collectivization was carried out. In Siberia, for example, the harsh climate and the vast, sparsely populated landscape made it difficult to implement the same farming techniques that worked in more temperate regions like Ukraine or Belarus. Local authorities in Siberia had to adapt the central policies to fit the tundra and steppe conditions. Similarly, in the mountainous regions of the Caucasus, collectivization took on a different form due to the region's unique ethnic and cultural diversity. In Central Asia, the situation was further complicated by the existence of strong local social structures, such as the mahalla system in Uzbekistan and the tribal-kinship networks in Kyrgyzstan. (Cope, Z., 2024). These local systems of organization had a significant impact on how collectivization was implemented. In Uzbekistan, for example, the mahalla—a traditional neighborhood organization—played a central

role in managing the collective farms, which gave the policy a distinctly local flavor. In Kyrgyzstan, the tribal-kinship system influenced how land and resources were distributed within the collective farms. (Cantwell, B., 2021). These examples show how the distance between the center and periphery created opportunities for local leaders to reinterpret and adapt central policies to fit their specific circumstances. The further a region was from Moscow, both geographically and socially, the more likely it was that the central message would be transformed into something new. This process of adaptation is a key factor in understanding disinformation in the Soviet Union. (Grinin, L., & Korotayev, A., 2022). It was not simply a matter of false information being spread deliberately—rather, it was a reflection of the social and cultural differences between the center and the periphery. The original message from Moscow was changed by the time it reached the local population, and this change was often a result of the specific local conditions that shaped how the message was received. (Pawluszko, T., 2021).

Conclusion:

The concept of disinformation is often associated with deliberate attempts to mislead or deceive. However, as this article has shown, disinformation is also a product of the natural process of transmitting information across social, cultural, and physical distances. In the context of center-periphery international economic relations, disinformation arises when the original message from the center is altered as it moves through various intermediaries and reaches the periphery. The Soviet Union provides a clear example of how this process works. The central government in Moscow issued policies that were meant to apply uniformly across the entire country, but these policies were often interpreted and implemented differently in each republic. This variation was not necessarily due to deliberate attempts to distort the information but was a reflection of the different local conditions that shaped how the message was understood. As we rethink disinformation, it is important to recognize that it is not always the result of deliberate misinformation. Instead, it can be a product of the broader social, cultural, and physical conditions that affect how information is transmitted and received. The dynamics of center-periphery international economic relations show that the distance between the center and periphery plays a key role in shaping how information is transformed. Understanding these dynamics can help us better analyze modern-day examples of disinformation and misinformation in a globalized world.

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