COMPETITIVENESS IN ORGANIZATIONAL INTEGRATED COMPUTER SYSTEM PROJECT MANAGEMENT

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Abstract

The organizational integrated computer system project management aims at achieving competitiveness by unitary, connected and personalised treatment of the requirements for this type of projects, along with the adequate application of all the basic management, administration and project planning principles, as well as of the basic concepts of the organisational information management development.

The paper presents some aspects of organizational computer systems project management competitiveness with the specific reference to some Romanian companies' projects.

Key-words: *competitiveness*, *management*, *project management*, *advanced technologies, organizational integrated computer systems*

JEL Classification: O32, L86

Introduction

The strategic management within an economic organisation went though profound changes regarding the business development model, passing from the *top-down* classic model based on strategy (vision, mission, purposes, strategies, tactics and action plans) to the *top-down and bottom-up* combined model based on new opportunities and competences (where the flow *strategic intentions-challenges* of the social-economic environment-*opportunities* is covered, depending on the practical situation emerged at some point, both ways). The project management is one of the most important management categories (as divisions of the management science) putting into practice the strategic management model.

The constant tendencies in the competitive business management clearly highlight the competitiveness requirements by providing a rapid reaction time on the market in relation to the organisational integrated information systems (SIIO), just like in relation with the auto products, electronic or telecommunications products. In order to deal with this requirement referring to the rapid reaction time we must use a coherent and efficient set of methods, techniques and instruments, as well as applicable technologies for this purpose.

The organisational integrated computer system project management aims at obtaining *competitiveness* by unitary, co-related and personalised treatment of the requirements for this type of projects, along with the adequate application of all the basic principles of management and project planning, as well as the basic concepts

of the information and organisational management development, according to the requirements of the organisational strategic management.

Competitiveness in the integrated computer system project management

The competitiveness of the organisational integrated computer system project management involves a technical side and an economic side. The competitiveness of the organisational integrated computer system projects is a complex characteristic that imposes the simultaneous fulfilment of the conditions specific to the technical and economic sides. *The technical competitiveness* of an organisational integrated computer system is defined by that computer system state whose technical level is comparable to that of other computer systems with the same employment for the satisfaction of certain needs of the clients. A *minimal technical level* is defined in relation with the inferior limit measure of client needs satisfaction. The organisational integrated computer system projects that satisfy *the minimal requirements* are part of a competitiveness area. Different methods with a greater or smaller degree of objectivity are used for the evaluation of the technical level of competitiveness of the organisational integrated computer system projects.

For instance, the *DISTECH method* (Scarlat C., 2001) or the *technical distance method* was developed and tested in the laboratories of the *industrial management department* within the *Politehnica* University of Bucharest. The *DISTECH method* is a managerial method for analysis and decision referring to the technical level of the products or services projects, the technological level of fabrication of the products or service delivery and for the competitiveness of the products and services. The *DISTECH method* provides the ranking of the products and services in an ascending sequence of the absolute technical distance of the product or service and the forecast of the future directions of product and services improvement, by highlighting the characteristics that need improvement.

The economic competitiveness of an organisational integrated computer system project is defined if the set of economic delivery requirements as contractual provisions (cost, delivery conditions, payment instruments, commercial and exchange policy components etc.) is *comparable* to the one belonging to other products of the same use for the satisfaction of clients' needs. *The cost* of an organisational integrated computer system project has a superior and an inferior margin, thus being defined the *economic competitiveness area*. The inferior margin of the cost (*the minimum cost*) is determined by the production cost of the organisational integrated computer system. Regardless of the technical level, a computer system project becomes non-competitive if its cost exceeds the *maximum cost*.

The technical-economic competitiveness field of an organisational integrated computer system project can be represented by the function **Cost=function (technical distance)**, as a hyperbole, like shown in Figure 1. The smaller the technical distance is (meaning the technical level is more elevated), the greater the unit cost of the organisational integrated computer system project is.
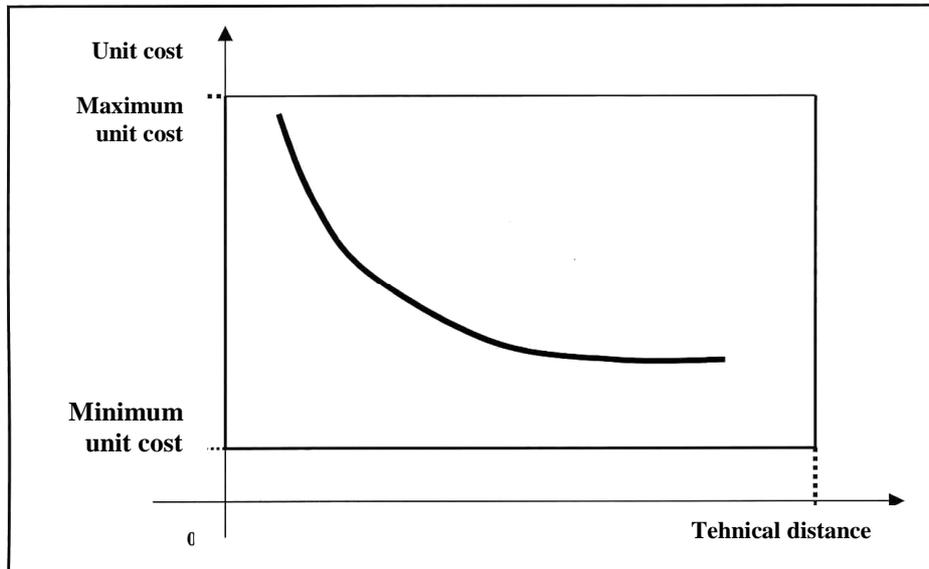
Fig. 1. *The technical-economic competitiveness area
of an organisational integrated computer system project*

The establishment of the technical-economic competitiveness area may be effected on the set of the organisational integrated computer system or on the component modules of these computer systems.

Competitive organisational integrated computer system projects

In compliance with the international standard of evaluation of the software products quality – ISO/IEC 9126, the characteristics of a computer product fall into three *categories*: 1) technical and of use, 2) economic and 3) social and psychological-sensuous. *The metrics* of the SIIO projects are quantitative, qualitative and belonging to the project management. *The production model* for SIIO is *a model of production of projects* where the activities can be specific to a certain phase of the life cycle or can be independent of it.

The performance characteristics of the organisational integrated computer system projects, used in the evaluation by classification of each characteristic are mentioned: functionality, reliability, usability, efficiency, maintainability, portability, inter-operability, complexity, maturity, scalability, cost, "*friendly*" computer applications, a level of understanding of the computer applications by the final users, immediate accessibility of users' training, the availability of different versions of SIIO projects, the compatibility with many hardware platforms and operation systems, the level of security.

For the analysis of the organisational integrated computer system projects competitiveness (SIIO) *of the Enterprise type* (table 1) the technical distance calculation method was applied on basis of the performance technical and economic characteristics of the computer products. This method was presented in the anterior paragraph and was used in a survey made on 42 master candidates, graduates or persons who are currently employed in the field of integrated computer system projects.

217

In a downward order of the importance of the performance characteristics of the studied SIIO, these correspond to the ISO/IEC 9125 hierarchy: functionality, reliability, usability, efficiency, maintainability, portability.

The higher the cost, the better SIIO is from the point of view of the functionality characteristics, security, easy usage, maintainability, scalability, compatibility, level of computer security.

The higher the cost, the better SIIO is from the point of view of the technical and economic competitiveness, this conclusion confirming the variation in the curve represented in fig. 1.

Table 1

Organisational integrated computer system projects evaluated by the DISTEH method

No.	Name of the organisational integrated computer system project	Supplier company	Competitiveness coefficient
1.	*WizPro*	*Wizrom*	8,22
2.	*Charisma Enterprise*	*TotalSoft*	8,42
3.	*Socrate Open Enterprise*	*BitSoftware*	8,36
4.	*Enterprise Project Management*	*eData*	8,20
5.	*Enterprise Resource Planning*	*IQUEST*	8,38

The higher *the competitiveness coefficient* is for the five evaluated SIIO (table 1), the more competitive SIIO is.

Table 2

Organisational integrated computer system projects evaluated on basis of the MAGIQ competitive analysis metrics

No	Name of the organisational integrated computer system project	Technical performances 0,2500					Economic performances 0,7500		Total quality
		Functionality 0,4567	Reliability 0,2567	Usability 0,1567	Maintainability 0,0900	Portability 0,0400	Cost 0,7500	Delivery conditions 0,2500	
1	*Enterprise Resource Planning*	0,4567	0,2567	0,4567	0,4567	0,2567	0,0900	0,4567	**0,2356**
2	*Charisma Enterprise*	0,2567	0,4567	0,1567	0,2567	0,1567	0,4567	0,1567	**0,6963**
3	*Socrate Open Enterprise*	0,1567	0,0900	0,0400	0,0900	0,4567	0,2567	0,2567	**0,2244**
4	*WizPro*	0,0900	0,0400	0,2567	0,1567	0,0900	0,1567	0,0400	**0,1230**
5	*Enterprise Project Management*	0,0400	0,1567	0,0900	0,0400	0,0400	0,0400	0,0900	**0,0588**

By applying *the decision assistance multi-criteria analysis techniques*, similar results referring to the SIIO activity can be obtained. Such a technique is represented by James McCaffrey's Multi-Attribute Global Inference of Quality, MAGIQ. In table 2, the ranks of the opinion/perception survey presented in the case of DISTECH techniques were pointed out.

218

Conclusions

Within the *Economic Competitiveness Growth Local Operational Programme* (with projects financed through European Structural funds), the priority axis 3 referring to IT&C projects includes areas for the IT usage support projects, for the development of the electronic public services and for the development of the *e-economy*. Within these projects specific to the above mentioned areas, the organisational integrated computer system component represents the architectural core whose competitiveness determines the competitiveness of the whole project.

In our country there are preoccupations for the study of self-competitiveness, local, regional, national competitiveness, in universities and research units. Such an example is Politehnica University of Bucharest and the Chamber of Commerce and Industry and Agriculture from Timisoara. At *Spiru Haret* University there are courses entitled *Economic integrated computer systems* and *Comparative financial and accounting computer systems* within the *Accounting of economic entities and public institutions master programme*, which develop themes referring to the SIIO competitiveness.

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