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THE IMPACT OF PROJECT ORGANIZATIONAL STRUCTURES ON THE EFFECTIVENESS OF INNOVATIVE PROJECT IMPLEMENTATION

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ABSTRACT

Successful management can be interpreted as both operational efficiency and effectiveness. In the context of innovative projects, this means nothing less than conducting a project properly (following specific methods of conduct) as well as achieving the assumed objectives (the creation of a unique product or a unique service, the application of pioneering production methods, *etc.*). This effectiveness is the result of many factors which include project organizational structures along with their characteristic attributes that distinguish certain organizational forms from others. Thus, the research objective of this article is to show the impact of individual characteristics of specific organizational structures on the effectiveness of the implementation process of innovative projects in organizations.

The article is based on the results of a survey conducted in 2012. The respondents were representatives of the most innovative large and medium-sized companies operating in Poland, which have been classified in the ranking of *Kamerton Innowacyjności* [Innovation tuning fork] program. The study used interviews as a method of collecting responses. Interviews were conducted with 44 subjects, representing 18.72% of all planned interviews.

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INTRODUCTION

A turbulent environment, increasing competition and development by generating innovations are just some aspects that force organizations to change their business models. The transition from activities aimed at keeping constant processes to the

realization of unique projects becomes commonplace today and is an indicator of proper management. Consequently, we can observe a growing importance of project management activities within which we can analyze the so-called project maturity of individual institutions – *i.e.*, the organization's ability to select a portfolio of projects effectively and in compliance with its strategy and objectives and to professionally apply techniques, tools, and project management methodologies, which aim to complete the project successfully and allow translating that success into further projects (Juchniewicz M., 2009, p. 45).

In most cases, project maturity means the effectiveness of projects implementtation, which is also confirmed by a definition that treats it as a degree of the organization's abilities to effectively select and manage projects wherein the aim is to implement and support the goals of the organization (Project Management Institute, Inc., 2003, p. 5). One of the elements of project maturity is certainly an appropriate organizational structure of the project, used in the course of project execution and showing such features as a formal information flow within the organization. As a result, it is believed that this type of structure can affect the effectiveness of various projects implementations, including innovative.

DEFINITION AND TYPES OF PROJECT ORGANIZATIONAL STRUCTURES

The organizational structure is generally understood as all functional and hierarchical dependencies between and among the elements of a manufacturing system, grouped into organizational cells and units, allowing for efficient management of the functioning of this system (Nalepka A., Kozina A., 2007, p. 13). The organizational structure defines the division of labor and the necessary links between the different functions and activities, shapes the distribution of power and organizes hierarchical components of the organization as well as sets the layout of accountabilities. Moreover, the organizational structure ensures the continuity of tasks, thus enabling the organization to survive and develop, despite the staff turnover process, and coordinates its relations with the environment (Stoner J.A.F., Wankel Ch., 1992 p. 208 & Walas-Trębacz J., Tyrańska M., Stabryła A., 2009 p. 18). Among a wide range of different types of organizational structures, we can distinguish structures grouped around the category of traditional structures and modern (flexible) ones. One of the sub-categories of flexible structures includes project structures, these are, as the name suggests, forms of organization used while implementing projects. They determine the composition and layout of project participants related through cooperation relationships that allow an effective implementation of a project (Trocki M. 2014, p. 103). It is worth mentioning that project organizational structures, due to their diversity, can be grouped according to the place of occurrence – the internal structures (generated within the organization, mainly for the purpose of implementation of a project that is an individual undertaking of the organization) and the external structures (a system of dependencies between different organizations that cooperate in order to implement a project). Therefore, the following structural solutions can be distinguished:

1. The project structures occurring inside the organization are as follows:
   - The linear structure of the project management.
   - The influential structure.
   - The blank project structure.
   - The matrix project structure.
   - The commissioning project structure.
   - The parent company and a subsidiary.
2. The project structures occurring outside the organization are as follows:
   - A joint project office established by the companies involved.
   - The union of organizations and an organization based on individual orders.
   - A syndicated organization of the project.
   - The general contractor's organization and a managing company.
   - A multi-level organization of the project.
   - The external organization of the project.
   - Project network organization.
   - Virtual structures.

Each of the above solutions is characterized by its individual attributes distinguishing one organizational structure from another. The objective of this study is not focused on their characteristics, and, therefore, their description will be reduced to a necessary minimum in the last chapter of the article. Furthermore, the above list is not a closed set of organizational forms that serve to complete a project. In the literature on the topic, other specific proposals (for example, project oriented organization, virtual project organization, a multi-dimensional matrix structure) may be found. It should also be emphasized that uniform project organizational models are often theoretical only. In business practice, one may often come across dynamically changing structural solutions used for the purposes of a particular project. The issue is not only about the use of different project organizational forms or their individual attributes. What more frequently can be observed is the phenomenon of 'blending' traditional models and flexible models, including project structures, which is notably the domain of large businesses. Thus, hybrid organizational structure projects are developed and they alter over time because of changes in project tasks.

THE CONCEPT OF AN INNOVATIVE PROJECT

A project is defined as a complex and unique undertaking, which is formed of organized sequences of actions aiming to achieve a desired result, contained in a finite period with a marked beginning and end, and it is most commonly implemented through teamwork using a finite amount of resources (Trocki M. (ed.) 2012, p. 19). The concept can be approached more broadly by further distinguishing its features, such as:

- Frequent organizational separation of the project from the other activities carried out within the organization.
- Possessing an organizational structure that is specific to a given project, which is often an extensive and complicated undertaking.
- Projects are usually accompanied by the phenomenon of uncertainty or risk.

- The nature of the project changes depending on different stages of its implementation, and demarcation lines between individual stages can be identified.
- Linking projects to substantial investments.
- Project costs can grow exponentially when its completion deadline, which has to be met, is threatened.
- Projects are, in principle, interdisciplinary.
- Rivalry between a project and the organization's core (typical) activity for the obtainment of the organization's limited resources usually leads to conflicts.

However, an additional and essential attribute of a project is certainly the differentiation from the basic processes performed in the organization, which is a derivative of the planned product innovation (result) achieved at the end of the project implementation. From the point of view of terminology, each project needs to have a certain uniqueness and novelty, even at a minimum level. Thus, it appears reasonable to ask the following question: under such circumstances, how should an innovative project stand out against a standard project?

The subject literature does not provide adequate number of definitions of an innovative project, which is often evident against the background of the lack of a precisely defined boundary between typical projects and innovative projects. According to F. Krawiec, innovative projects include the implementation of something that had not previously been done and, therefore, is referred to as 'innovative', 'new', or 'unique', and as he points out in further part of his publication, these are unique undertakings with a significant dose of uncertainty (Krawiec F. 2000, p. 19, 29). This idea has been further elaborated by K. Konkol, who, in addition to a significant degree of uncertainty (or risk), added further attributes of such an undertaking namely, a high level of novelty, more advanced technologies and usefulness of new products and services, instability, speed in making frequent changes, adverse dependence relative to the environment (in the scope of specialized work), non-linearity and simultaneity in the context of planning the various stages of an innovative project (Konkol K. 2001, p. 135, pp. 137-138).

A similar view is found in a publication by A. J. Shenhar and D. Dvir. They point out that an innovative project is a project characterized by wide-reaching and significant risks and potential high benefits (Shenhar A. J., Dvir D. 2007, p. 145). Moreover, they treat an innovative project as a breakthrough project, that is, as a project generating the radical innovation or innovation bringing new products to the world. Projects creating such products convert new concepts or ideas into a product that customers have not seen so far (Shenhar A. J., Dvir D., 2008 pp. 64-65). The need to define this specific type of project is also manifested in the area of the use of EU funds, especially taking into account the fact that within the new financial perspective for 2014-2020 a large amount of the financial means earmarked for projects in our country is to be channelled to Polish entrepreneurs, who want to generate all kinds of innovation (and not only product innovations). One of such attempts is a definition proposed by the National Supporting Institution, according to which, what distinguishes innovative projects from standard projects is the search for new solutions, and not using methods that are known and proven, and, consequently, the aim of an innovative project is the search for new, better, and more effective ways of problem-solving. Also, an innovative project ought to be focused on research and development and/or on dissemination and putting in practice

specific products to address problems of target groups and not directly the solution of these problems (*Od pomysłu do projektu innowacyjnego* ..., 2009, p. 6).

Taking into account the above descriptions, the concept of innovative project should be understood as a set of activities (measures) taken to achieve specific objectives, limited in terms of costs, time, and quality, which, on the one hand, allow generating a radical innovation, which is usually connected with a significant project complexity. On the other hand, they are exposed to a high risk of failure.

PROJECT ORGANIZATIONAL STRUCTURES AND THE EFFECTIVENESS OF IMPLEMENTATION OF INNOVATIVE PROJECTS

The analysis presented below is based on the results of a survey conducted in November and December of 2011 with the participation of a research company - Pentor S.A. The study was planned to be carried out based on all entities making up the population researched, which had been determined using the ranking of *Kamerton Innowacyjności* (Innovation Tuning Fork). A total population were 235 most innovative medium-sized and large Polish economic subjects. The elimination of small and micro enterprises resulted from an assumption that medium and large companies have complex organizational structures within which changes were made while joining and implementing an innovative project. Representatives of 44 companies, *i.e.*, 18.72% of all companies in the population, were eventually surveyed using an interview method.

It is worth to take a more precise look at the understanding of the notion of effectiveness before starting analysis. However, it is a challenging task due to the complexity and multithreading of this concept. According to W. Kowal, when analyzing relationships between efficiency and effectiveness, it can be noted that problems related to the interpretation of these terms can, in particular, be ascribed to the following (Kowal W. 2013, p. 12):

- the lack of conformity in designating the appropriate equivalents for Polish and English terms relating to the category of efficiency, including the search for the appropriate counterparts of, for instance, 'effectiveness' or 'economy'.
- the variety of reference points used in the interpretation of a given term, which results from different research perspectives applied both in Poland and in the world,
- the variety of ways of defining the terms, which are primarily based on both quantitative and non-quantitative approaches.

To the group of the above factors affecting the ambiguity of the concept of effectiveness, we may also add the following: universality in defining and interpreting 'efficiency' or still a common use of the concepts of 'efficiency' and 'effectiveness' as synonyms. In this article, the concept of effectiveness, following E. Skrzypek, is understood as the ability to implement the company's strategy and achieve the goals set (Skrzypek E. 2000, p. 190).

The survey results can be presented according to the distribution shown in the first chapter of this article, that is, by analyzing the characteristics of specific internal

project organizational structures (Figures 1 and 2) and external project organizational structures (Figures 3 and 4).

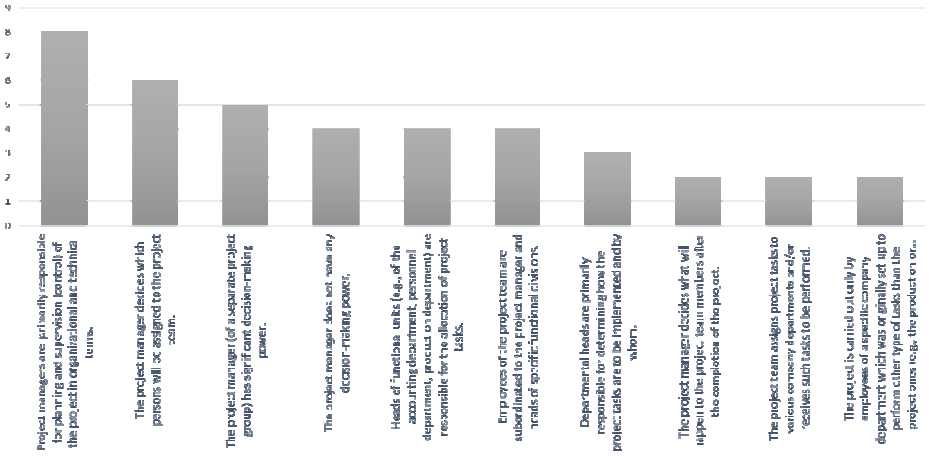

Figure 1. The characteristics of the internal project organizational structures, which have a very large impact on the effectiveness of implementing an innovative project.
Source: own work.

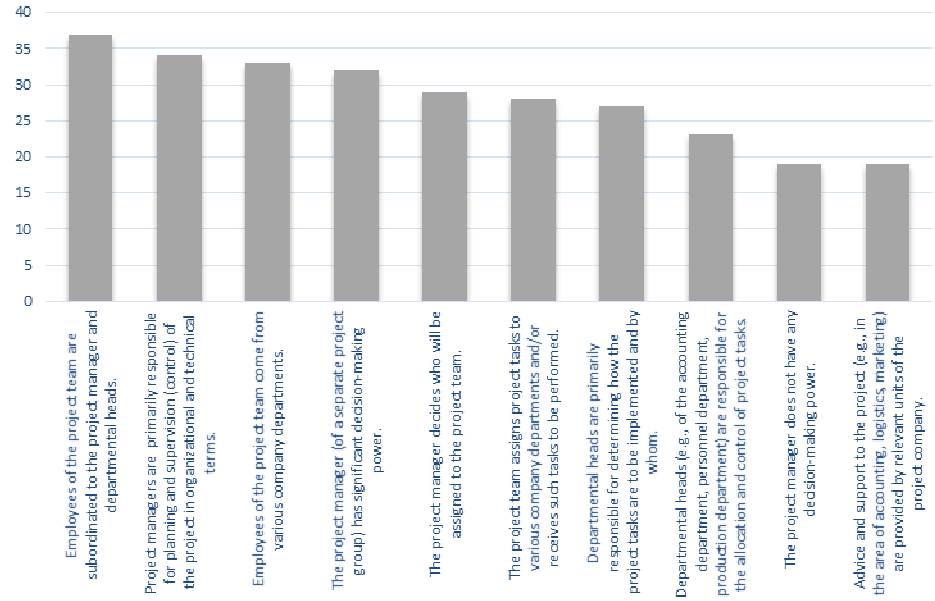

Figure 2. The characteristics of the internal project organizational structures, which have at least an average impact on the effectiveness of implementing an innovative project.
Source: own work.

The figures show that the majority of 44 respondents in the companies surveyed indicated a significant effect of specific characteristics of the internal project structure on the implementation process of an innovative project. Within these combinations, the dominant characteristics were, in particular, the matrix and blank project structures, for instance, employees of a project team are subordinated to the project manager and to the managers of the various functional divisions (the matrix structure); employees of a project group come from various functional divisions (the matrix structure); the project manager (of a separate project group) has a significant decision-making power (the blank structure); the project manager decides who will be assigned to the project team (the blank structure). This prevalence is rather not the result of the use of these individual characteristics to maximize the effectiveness of project activities but also to popularize specific structural solutions (*e.g.*, the organizational structure matrix). This popularization is not only the result of the desire to achieve the optimum levels of efficiency and effectiveness but also of, for example, the desire to achieve an adequate level of project maturity, the need to use a specific project organizational form due to project assumptions made at the planning stage (or due to guidelines provided by the project sponsor), the intention of switching to a process-oriented structure.

A similar situation can be found with regard to the context of the external project structures (in the course of the organizations' cooperation over the implementation of an innovative project) in which the dominant characteristics include the concept of a consortium (*i.e.*, the managing body of the project is the project initiator, or the dominating institution among all institutions engaged in the project is the project initiator), as well as the characteristics of the organization based on individual orders (*i.e.,* the project commissioner is held responsible for the implementation of the project, or the project commissioner hands over tasks to be performed to individual institutions in the form of fragmentary orders), as illustrated in the following figures.

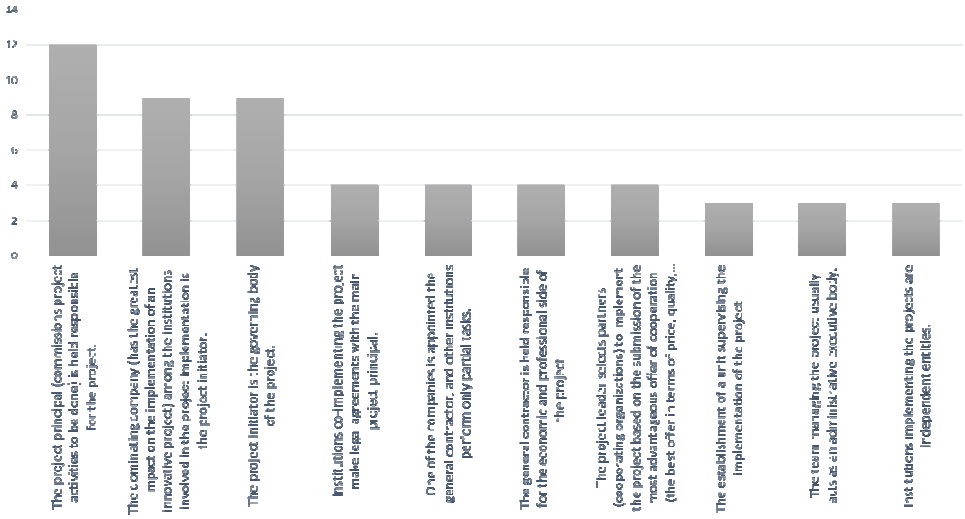

Figure 3. The characteristics of external project organizational structures, which have a large impact on the effectiveness of implementing an innovative project.
Source: own work.

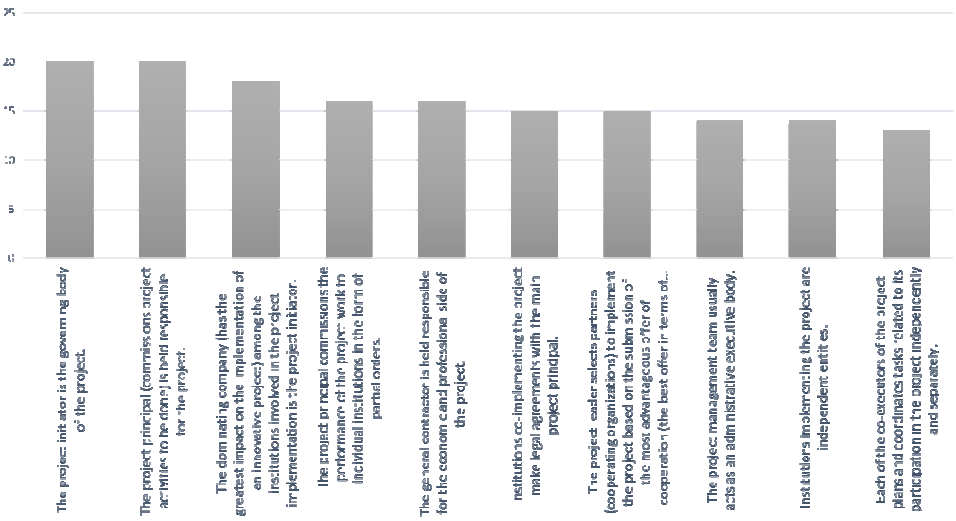

Figure 4. The characteristics of external project organizational structures, which have at least an average impact on the effectiveness of implementing an innovative project.
Source: own work.

The analysis of the figures reveals certain differences, *i.e.*, a larger number of indications of a significant impact of the characteristics of the project internal structures on the effectiveness of a project, if compared with the characteristics of the external structures. This is mainly because innovative projects are less frequently implemented cooperatively - Polish companies more frequently take the risk individually and opt for self-realization of an innovative project. It can, therefore, be concluded that domestic companies are more interested in gaining greater control over innovative projects, which can also indicate a lack of willingness to share the generated innovation. Moreover, another eminent characteristics of Polish enterprises is their reluctance to cooperate with other entities (in particular with competitors) in the name of higher goals (*e.g.*, to establish a common standard in the industry, which could be a new barrier to entry).

The results also show that almost every respondent, especially in the context of the internal organizational forms, pointed to the significant impact of at least one element of the project's organizational structure. It reinforces the conviction about the significant role of structural solutions in achieving company objectives. Without adequate project organization, it is not possible to manage projects effectively, which translates into effective management of the entire organization.

CONCLUSION

The above considerations prove that project organizational structures, according to the respondents' opinion, affect the effectiveness of the implementation of innovative projects. This confirms the belief that organizational forms in both projects and standard

operations performed in organizations play numerous important roles affecting the achievement of objectives, including strategic. The subject literature also stresses the importance of such aspects as the composition of a project team, project risk, the integrity of project processes, etc. There is, therefore, a need for taking further research in this area. This need is also conditioned by the desire to classify all characteristics affecting the effectiveness of project implementation.

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