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Factors determining the course of research projects, in the opinion of different groups of stakeholders

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ASBTRACT

This article is devoted to the issue of project assessment, in particular with regard to identification of factors affecting the success of their execution. The primary purpose of the article is to attempt to determine the factors conditioning the course of the project execution from the perspective of different groups of stakeholders, above all, in the opinion of project managers and executors (members of project teams). For this purpose, the authors used a survey of the literature and analysis of own quantitative research. The research results have revealed that, from the perspective of managers and executors of research projects, the most important factors determining the projects' progress are directly related to the characteristics and structure of the project and the activities of the executor teams. This subject matter is significant both due to cognitive, as well as practical reasons. It provides useful knowledge both with regard to management sciences, as well as information resource important for project managers and executors.

Keywords: research projects, assessment of project progress factors, stakeholders of research projects

1. INTRODUCTION

Difficulties in project management result from their variability and complexity. For this reason, in order to effectively undertake project activities, it is important to select relevant management activities, reducing the risk of the project failure. Effective project implementation requires the project management to focus on satisfying the needs of different types and groups of project stakeholders. Therefore, it is important to identify the degree, to which detailed criteria of the project assessment are relevant from the perspective of its most important stakeholders.

Bearing in mind different types of projects, it seems particularly important to pay attention to the needs of managers and executors, as the key entities conditioning the process of the project

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execution. These issues are significant both due to cognitive, as well as practical reasons. They allow for expanding the information resource substantial for project managers and executors, as well as knowledge in the field of management sciences. The article presents results of research, the purpose of which was to identify the key factors of the progress of research projects, from the perspective of its two key stakeholder groups – project managers and executors, as well as to compare them with the factors identified for projects financed from the funds of the ESF.

2. PROJECT STAKEHOLDERS - LITERATURE OVERVIEW

The subject literature emphasises the need to draw attention to various project stakeholders. At the same time, it emphasises the fact that different stakeholders can assess a project ambiguously, paying attention to the need to satisfy the needs of a broadly understood client of the project (Davis 2014), (Bryde, Robinson 2005), (Atkinson 1999), (Barclay and Osei-Bryson 2009). K. Davis (2014) and R. Ryńca (2013) indicate the need to assess projects from the point of view of the ordering parties, as well as entities financing the project. Judgev and Muller (2015) emphasise that it is equally important to draw attention to entities not directly related to project implementation, such as the top management of the unit, in which the project is implemented, or external entities, including: suppliers (Turner 1999), clients (Bryde and Robinson 2005), (Turner and Muller 2006), political parties (Turner and Muller 2006), or the society (Munns and Bjermi 1997), (Turner, Zolin, Remington 2009).

The subject literature usually defines project stakeholders as entities directly related to the project's execution (implementation). This group may include, among others, the project management (Wang, Huang 2006), (Turner and Muller 2006) and the project team (Shenhar and Divir 2007). Additionally, the literature also indicates the presence of different objectives related to the project implementation and the various way of seeing the success of a given project. K. Judgev and R. Mulle note that in the case of the group of entities financing the project, the most important thing for the course of the project is proper communication, proper reporting of the works progress, as well as commitment of the top management in defining the project objectives. (2005: 21-32). T. On the other hand, Cooke-Davies emphasises the significant role of cooperation between the team members (1900: 119-121), while C. Barclay and K. Osei-Bryson believe that on the biggest impact the course of the project execution can be attributed to cooperation between the project executors (Barclay and Osei-Bryson 2009). W. Belassi and O.T. Tukel argue that the project's success depends to a large extent on access to resources necessary for implementation of project tasks and cooperation with the chief managers (1996: 141-152).

In the opinion of the authors of this article, from among the various types of project stakeholders mentioned above, the key activities for project implementation are the ones performed by two major groups of stakeholders, such as project managers and executors. They are the ones, who largely influence the final results of the project, its timeliness, the method of its implementation, including selection of methods and measures, as well as cooperation with other stakeholders.

The further part of the article presents results of a survey, aimed at identifying the factors affecting the course of research projects, concerning such aspects as: factors directly related to the specific

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character of the project being implemented; factors related to project management; factors related to the characteristics of the team implementing the project. Results of this survey were compared to the results obtained from a similar earlier study conducted by the article's authors for projects financed from the funds of the European Social Fund - ESF.

3. METHODOLOGY OF THE CONDUCTED STUDY

The main purpose of the research was to identify the key factors of the progress of research projects – financed from various sources (including from the funds allocated for statutory research of universities, funds distributed by the National Science Centre and the National R&D Centre in Poland, as well as funds from the European Union), and to compare them with the key factors highlighted during the previous studies of the article's authors, conditioning the course of projects financed from the funds of the ESF. Both surveys were conducted among the same stakeholder groups: project managers and executors.

The purpose of the article is to attempt to answer the following research questions:

- What factors, from the point of view of the stakeholders indicated above, determine effective implementation of projects?
- Does the type of projects and the sources of its financing affect selection and assessment of success factors of the project implementation?

The study was conducted in the form of a survey questionnaire, consisting in a cover letter, main questions and responders' particulars. The survey consisted in closed and open questions. The main part of the questionnaire was composed of questions concerning assessment of the key factors of the project progress, significant from the perspective of the assessing persons, which have been identified on the basis of a pilot study conducted prior on a group of 30 respondents, representing both project managers and executers. These factors were grouped into three areas, such as: the area of factors directly related to the specific character of the project being implemented; the area of factors related to the project management; the area of factors related to the characteristics of the team implementing the project. In the first group of factors, the area of interest included, among others, division of works under the project, project plan and access to resources necessary to execute the project. The group of factors related to the project management concerned assessment of, among others, competences and commitment of the project manager and his authority. In the third group of factors, relating to the project team, the assessment covered, among others, composition of the team, communication process and competencies of the executors. The survey was carried out in the period from January to March 2016.

4. ANALYSIS OF RESEARCH RESULTS

This part of the article presents results of own research, conducted among two of the stakeholder groups mentioned above - managers and executors of research projects. These studies were conducted in the form of a questionnaire survey on the group of 50 people, 30 of whom played the role

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of project executors, and 20 - project managers. These studies were of exploratory nature, and selection of the sample was purposeful.

On the basis of the classification of the key factors of the project progress, presented in the previous chapter, based on three areas, the obtained results showed the significance of each area, along with their detailed characteristics, for specified stakeholder groups.

As part of the survey, the respondents were asked, among others, to verify the list of factors crucial for the project execution, in order to evaluate their criticality level for the course of the recently implemented project, using a scale from 0 to 5, where: 0 meant that the given factor was not significant for the success of the project, 1 meant that the given factor held very small significance, 2 – small significance, 3 – average significance, 4 – high significance, and 5 – very high significance for the project's success. This way, it was possible to identify the factors increasing the effectiveness of management of research projects.

The specific character of research projects, regardless of sources of their financing, already at the stage of submission of a subsidy application requiring possession of a detailed activity schedule and a detailed description of results and effects, is well-reflected in the data collected by the authors. 40 out of 50 respondents declared that the project recently implemented by them had been successful. Most respondents (35 persons) declared that all tasks envisaged in the project had been completed, but only half of the surveyed confirmed that all funds originally allocated on the project implementation had been spent. In this case, this meant failure to execute the scheduled budgets and the need to return the funds remaining after the project implementation to the bank account of the financing institution. The specific character of research projects - guaranteeing that the subsidised projects have detailed activity schedules, along with the project's substantiation, identification of its goals, target groups, impact, description of the method of project management - makes these projects, from the formal point of view, usually end in achievement of the planned goals. However, it should be noted that during the project's execution, it is possible to negotiate with the financing institution, both with regard to the goal values, as well as the duration of the project.

2/3 of the respondents stated that the project's success depends more on the activities of the executors rather than the project manager. It is interesting that this view was more often shared by project managers (70 % of responses) than by the members of project teams themselves (63 % of responses).

Among the factors selected for the analysis, for which the article's authors assumed that they have crucial impact on the course of the project execution, the most important ones[1] according to the respondents were:

- commitment of project team members
- proper composition of the project team
- free access to resources necessary for implementation of the project
- realistic project plan

[1] determined on the basis of summed up responses on a scale - high significance for execution of the project and very high significance for execution of the project

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- sense of responsibility of the project manager
- motivation of the project manager
- communication skills of the team members
- motivation of the team members

The respondents indicated the following factors as the least important[2]:

- the project manager's ability to compromise
- the project manager's experience on a similar position
- the project manager's decision-making speed

Interesting information about the factors affecting the course of the project execution is provided by the analysis of all factors specified by the authors of the article, presented in the following table:

Table 1.
Factors affecting the course of research projects - number of responses

Area name	Factor name	factor was not significant	factor held very small significance	factor held low significance	factor held average significance	factor held high significance	factor held very high significance
factors directly related to the project	clearly identified project goals	no responses	1	3	10	9	27
	regular control of implementation of the project plan	1	2	6	13	13	15
	free access to relevant resources necessary for implementation of the project	no responses	no responses	2	10	24	14
	realistic project plan	no responses	1	1	10	19	19
	detailed and clear division of works within the project	no responses	1	7	8	20	14
factors related to the project manager	commitment of the project manager	no responses	1	2	10	12	25
	sense of responsibility of the project manager	no responses	1	2	9	14	25
	the project manager's ability to respond to changes	no responses	1	5	11	14	19
	the project manager's communication skills	no responses	4	5	11	15	15
	the project manager's leadership skills	no respo	1	5	11	14	19

[2] determined on the basis of summed up responses on a scale - low significance for execution of the project

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		nses					
	formal and informal authority of the project manager	5	2	5	15	11	12
	the project manager's decision-making speed	no respo nses	1	10	11	14	14
	previous experience of the project manager on a similar position	3	2	9	14	10	12
	the project manager's knowledge and skills related to project management	2	1	4	18	12	13
	the project manager's ability to delegate authority	5	2	4	12	20	7
	the project manager's ability to compromise	1	2	10	18	10	9
	motivation of the project manager	no respo nses	1	4	7	26	12
factors related to the project team	commitment of project team members	no respo nses	2	4	4	13	27
	the team members' sense of responsibility for the project results	3	no respo nses	4	8	13	22
	professional competencies of project team members	no respo nses	no respo nses	3	11	17	19
	the team members' communication skills	no respo nses	no respo nses	no respo nses	12	25	13
	proper composition of the project team	no respo nses	no respo nses	1	10	18	21
	atmosphere triggering creativity in project team members	no respo nses	1	3	14	14	18
	acceptance and good relations between the team members	no respo nses	4	2	9	19	16
	clarity as to the assigned scope of liability of the team members	3	1	no respo nses	12	24	10
	motivation of the team members	no respo nses	1	4	7	19	19

Source: own study on the basis of research results

The results presented in the above table indicate that the respondents were willing to assume that the project's success has its source in the very structure and course of the project and in the actions of the team implementing the project rather than in the actions of the project manager. The study results take an interesting course when viewed from the point of view of selected groups of stakeholders. It turns out that the project managers assign much higher significance to clearly identified project goals (difference in responses amounted to less than 25 %), which probably results from the need to adjust project management to achieving the intended results, in a given period of time and using specific

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measures. On the other hand, the executors assign higher significance to the manager's communication skills, the team members' the ability to communicate, and to free access to resources necessary for implementation of the project (difference in responses was at the level of ca. 20 %).

Differences may be observed also in the case of some factors that the respondents described as being of high[3] significance for the project's success (differences in responses amounted to over 20 %). For the project managers, commitment and motivation of the project team members proves to be more important, while for the members of project teams free access to resources necessary for implementation of the project is a more important factor. On the other hand, an interesting trend can be observed in the diversity of answers of the project managers as compared to the project executors, with regard to factors determined as having small significance for the project. Project managers more often (differences in responses amounted to over 15 %) indicated as less important the project manager's ability to delegate authority and the atmosphere triggering creativity in project team members. For the project executers, factors with the lowest significance for the course of the project included: detailed and clear division of works under the project, capacity of the project manager to compromise, involvement and motivation of the project team members (differences in responses ranged between 10-15 %). This may result from the difference in distribution of focus between the managers and the executors in the assessment of the key factors determining the project's success. The managers more often stressed significance of factors related to the project itself and to the project manager, while the executors more often stressed factors related to the project team. No significant differences in identification of factors crucial for the project's progress related to the source of financing were observed, which may suggest that the specific character of the concerned type of projects affects the way the components essential for its success or failure are perceived. This hypothesis seems to be confirmed by the data collected by the authors of this article for another type of project, financed from ESF funds (European Social Fund). The data were collected using the same research tool (adjusted in certain detailed sub-items to the specific nature of EFS projects), on a similar research sample.

Table 2
Juxtaposition of the most and the least significant factors of the project's execution, with breakdown into types of projects

Type of projects	The most significant factors affecting the course of project	The least significant factors affecting the course of the project
Research projects	**1. commitment of project team members** 2. proper composition of the project team 3. free access to resources necessary for implementation of the project 4. realistic project plan 5. sense of responsibility of the project manager	**1. the project manager's ability to compromise** 2. the project manager's experience on a similar position 3. the project manager's decision-making speed

[3] determined on the basis of summed up responses on a scale - high significance for execution of the project and very high significance for execution of the project

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	6. motivation of the project manager 7. communication skills of the team members 8. motivation of the team members	
EFS projects	**1. commitment of project team members** 2. atmosphere triggering creativity in project team members 3. clearly identified project goals 4. detailed and clear division of works within the project 5. the project manager's ability to respond to changes 6. the project manager's ability to delegate authority 7. the team members' sense of responsibility for the project results 8. clarity as to the assigned scope of liability of the team members	**1. the project manager's ability to compromise** 2. free access to relevant resources necessary for implementation of the project 3. motivation of the project manager

Source: own study on the basis of research results

The juxtaposition presented above shows that we can notice substantial diversity in the assessment of factors affecting the course of the project execution depending on the type of the project. It is particularly distinct in the case of such factors as: free access to resources necessary for implementation of the project or motivation of the project manager, which the surveyed stakeholders, in the case of research projects, deemed to be highly significant factors, and in the case of EFS projects, their declared impact on the course of the project execution was small. Thus, it has confirmed the presumption that the type of projects affects the assessment of the key factors of their execution. With regard to the source of financing, it is difficult to clearly verify the presence of a similar dependency, since in the case of general project types (research, ESF), the project type unambiguously determined the source of financing, while within research projects themselves, financed from various sources, no similar dependency was observed.

5. FINAL COMMENTS

The purpose of the article was to identify the factors that, in the opinion of various stakeholders of research projects, have the greatest effect on the projects' progress. It has been done on the basis of a survey of the literature on the subject and an analysis of the author's own research. The identified key factors of the project's progress demonstrated that, in the opinion of the stakeholder groups selected for the study, the most important factors were directly connected with the structure and specific character of the project, as well as with management of the project team. In-depth analysis

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also showed the differences in the significance of particular factors for various groups of stakeholders, however, it should be emphasised that the research presented in the article was only exploratory in nature. It was intended to indicate some regularities, which does not allow for drawing general and universal conclusions. The article's authors are aware of the need to conduct in-depth research in this respect. The obtained results open new research perspectives, the most interesting among which, requiring further studies, seems to be identification of assessment factors of the project progress in the perspective of other groups of stakeholders (e.g. project beneficiaries, entities and institutions assessing the projects, entities supporting implementation of projects, etc.).

REFERENCES

1. Atkinson R. (1999), *Project management: cost, time, quality. Two best guesses and phenomenon. It's time to accept other success criteria.* International Journal of Project Management 17 (6)
2. Davis K. (2014), *Different stakeholders groups and their perceptions of project success*, International Journal of Project Management, 32, 2014, p. 190
3. Cooke-Davies T. (1990), *Return of the Project managers* , Management Today. Business Information Management 47, p. 119-121.
4. Barclay C., Osier-Bryson K. (2009), *Project performance development framework: an approach for developing performance criteria & measures for information systems (IS) project*, International Journal of Production Economics 124
5. Belassi W., Tukei O.T. (1996), *A New framework for determining critical success/ failure factors in projects*, International Journal of Project Management 14(3), 1996, p. 141-152
6. Bryde D.J., Robinson L. (2005), *Client versus contractor perspectives on Project success criteria*, International Journal of Project Management 23.
7. Judgev K., Muller R. (2005), *A retrospective look AT our evolving understanding of project success*, Project Management Journal 36 (4), p. 30-45.
8. Munns A.K., Bjermi B.F. (1997), *The role of Project Management in achieving project success*, International Journal of Project Management 14 (2), p.81-88;
9. Muler R., Turner J.R. (2007), *Matching the project managers leadership style to project type*, International Journal of Project Management 25, p. 21-32.
10. Ryńca R. (2013), *Czynniki mające wpływ na ocenę projektów badawczych realizowanych w uczelni przez instytucje finansujące projekty oraz podmioty współpracujące ze szkołą wyższą*, Research Papers of the Wrocław University of Economics, no. 291, p. 494-502
11. Shenhar A.J., Divir D. (2007), *Project management research: the challenge and opportunity*, Project Management Journal 3(2), p. 93-99
12. Turner J.R., Muller R. (2006), *Choosing Appropriate Project Managers: Matching their Leadership style to the Type of Project*, Project Management Institute, 2006, Newton Square.
13. Turner J.R. (1999), *The Handbook of Project – Based Management: improving the processes for achieving strategic objectives*, second ed. McGraw-Hill Publishing Co. London.
14. Turner J.R., Zolin R., Remington K. (2009), *Modelling success on complex projects: multiple perspectives over multiple time frames*, in: Gemunden H.G.(ed.), The proceedings of IRNOP9, the 9th Conference of the International Research Network of Organizing by Projects, Berlin, June, Technical University of Berlin, Berlin.
15. Wang X, Huang J. (2006), *The relationships between key stakeholders project performance and project success: perceptions of Chinese construction supervising engineers*, International Journal of Project Management 24, p. 253-260.

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