MAIN FACTORS INFLUENCING PROJECT SUCCESS

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Abstract

The high frequency of using projects in all fields determined the increasing importance of adequate project management. Considering the direct relationship between reaching projects’ objectives and the long term development of an organization, aspects regarding projects’ success and the success factors of projects are topics of great interest in project management literature. Reaching projects’ objectives in compliance with constraints of cost, time and performance is usually not sufficient to determine whether the project was successful or not. While literature provides different perspectives regarding this topic, in practice things get sometimes even more complicated, project success being often vaguely defined. This article aims to present an overview on the topic of project success and identify main success factors when dealing with projects using a quantitative research.

Keywords: project, management, success, criteria

JEL Classification: M00, O22
1. INTRODUCTION

Projects are used in all economic and non-economic fields as a mean of organizing the activity, aiming the achievement of desired objectives. There is a direct relationship between projects, projects portfolio, programs and the organisational strategy. Projects, as the main way of creating and dealing with change (Cleland, Gareis, 2006), are used to implement strategies. Meskendahl (2010) refers to projects as the central building block used in implementing strategies, therefore business success is determined by the success of the projects. According to PMI (2013), aligning projects with strategic objectives brings value to an organization. Implementing successful projects generates positive effects on the organization, influencing not just short and medium, but also long term development.

The topic of business success is related to aspects of profitability and competitive advantage. Several studies have been made in this field due to the importance of finding what success is and how it is measured. In this paper we focus on projects’ success, a topic of great interest in project management literature. Success approached in relationship with projects is even more important since the number of failing projects is extremely high, more than one third of projects failing to reach their objectives (PMI, 2013).

Initially, project success was referred to as reaching the objectives and the planned results in compliance with predetermined conditions of time, cost and performance. As knowledge in project management field developed, the “golden triangle” was considered not enough to define project success. Project success was recognized to be a complex, multi-dimensional concept encompassing many attributes (Mir, Pinnington, 2014). Projects are unique, reason why project success criteria differ from one project to another (Müller, Turner, 2007). To increase complexity even more, within the last decades the concept of project success is approached in relationship with stakeholders’ perception (Davis, 2014), being accepted that success means different things to different people (Shenhar et al, 2001). What determines project success, referred to as success factors, is also approached and considered to be of great interest.

Base on the importance of the topic and the challenge of reaching project success, in this paper we analyse the main aspects related to project success based on a literature review: success criteria and success factors. Furthermore, we complement the study with an empirical research focused on the main factors of project success.
2. THEORETICAL BACKGROUND

2.1. Projects’ success criteria

A differentiation should be made between the two related concepts: success criteria and success factors. First, relevant success criteria have to be identified and then, success factors should be determined in order to increase the chances of project success (Müller, Turner, 2007). Although, in this article, we focus our attention mostly on success factors, success criteria cannot be neglected.

Success criteria are defined by Muller and Turner (2007) as variables that measure project success. Since project success might be perceived differently by stakeholders, there is a need for comprehensive criteria that reflect their interests and views (Dvir et al., 1998). Westerveld (2003) emphasises the importance of stakeholders’ satisfaction as a main success criteria, complementary to the golden triangle of time, budget and quality, and adds that different time lags should be considered. Establishing a set of criteria applicable to any type of project is unrealistic (Mir, Pinnington, 2014). Although certain criteria might be relevant in measuring the success of most projects, they should be adapted to size, complexity, duration, type and stakeholders’ requirements.

This increased level of complexity when approaching aspects of projects’ success is normal and determined by the dynamic environment where projects are implemented. While in project management literature the list of success criteria is supplemented constantly with measurable or non-measurable items, in practice the situation becomes confusing, project managers having to deal with situations of implementing projects that don’t have clearly defined success criteria. One of the success conditions mentioned by Davis (2004), based on a comprehensive literature study, is that “success criteria should be agreed on with stakeholders before the start of the project, and repeatedly at configuration review points throughout the project”.

2.2. Projects’ success factors

Success factors can be perceived as main variables that contribute to projects’ success (Dvir, 1998), as levers that can be operated by project managers to increase chances of obtaining the desired outcomes (Westerveld, 2003). A combination of factors determine the success or failure of a project and influencing these factors at the right time makes success more probable (Savolainen, 2012). In earlier project management literature the main focus was on identifying ge-
eneric factors that contribute to projects’ success. Within the last years, authors emphasised on the existence of different success factors depending on project type. The struggle to identify the critical success factors is an ongoing topic, approached by many researchers especially due to the pressure of implementing successful projects in a dynamic global market and ever changing business world (Crisan, Borza, 2014), where continuous innovation is a must in order to achieve competitive advantage (Salanta, Popa, 2014).

Davis (2014) studies project management success in literature from 1970s to present, classifying the evolution of success factors into decades. According to this study, approaches of success factors evolved from focusing on the operation level of a project in 1970s to embracing a stakeholder focused approached after 2000s (Davis, 2014). As a result of the numerous studies that approached the topic of project success, several lists of success factors exist. Pinto and Slevin’s paper from 1987 represents a reference point by establishing a list of ten success factors, recognised by other authors as accurate (Turner, Müller, 2005): project mission, top management support, schedule and plans, client consultation, personnel, technical tasks, client acceptance, monitoring and feedback, communication, trouble-shooting (Pinto, Slevin, 1987). Davis (2014) adopted in her paper a set of nine themes in order to describe success factors of projects: cooperation and communication, timing, identifying/agreeing objectives, stakeholder satisfaction, acceptance and use of final products, cost/budget aspects, competencies of the project manager, strategic benefits of the project and top management support. These lists of factors mentioned above, completed by inputs from practitioners, are the basis of the empirical research presented in this paper.

Yu et al. (2005) discussed the timing of project evaluations which aim analysing the success, concluding that the process is useful at any time between the first milestone until the completion of the project. The results of these evaluations might indicate inconsistencies that can have negative influence on the final outcomes. Whenever these situations occur, project managers should act in order to increase success chances by influencing the previously identified success factors.

3. METHODOLOGY

The article complements the literature review with an empirical study on success factors. The objectives of the study are to identify the main factors of
projects’ success. By conducting the research we aim to answer the following research questions:

RQ1: What are the top five factors that have the highest influence on projects’ success?

RQ2: What is the correlation between the factor considered to have the highest influence on projects’ success and the other factors?

The study is based on a quantitative research. Quantitative research involves studies that make use of statistical analyses to obtain their findings (Marczyk et al, 2005). The method of data collection used is a questionnaire addressed to project managers, project team members, owners, sponsors, contractors, clients or other interested parties involved in projects’ implementation. The several roles targeted aimed capturing a comprehensive overview of the approached topics.

The structure of the questionnaire includes a first section where respondents are asked to choose from a list of success factors five factors that have the highest influence on projects’ success. The list of nineteen success factors presented in the questionnaire is based on previous studies of Pinto, Slevin (1987) and Davis (2014) and on inputs received from project managers. Thus, it was elaborated a comprehensive list of success factors that approaches operational and strategic aspects, and also considers both internal and external projects’ environment. The second section of the questionnaire requests respondents to the rank the statements on a Likert scale from 1 to 5 (1- strongly disagree, 2- disagree, 3- uncertain, 4- agree, 5- strongly agree), based on their experience and reflecting the situation within a project that they are currently working on. The last part of the questionnaire includes general identification data as: the role of respondents in the project, their experience in dealing with projects, the country where they are located, and the type of the project they referred to.

The phases of the analysis are in accordance with the structure of the questionnaire. Thus, in the first phase we analyse the factors having the highest impact on projects’ success. The second phase of the analysis refers to specific projects that respondents currently work on. In this phase, for the top five factors that received the highest number of votes previously, an in-depth analysis is made. Since it is generally accepted that success factors relate to each other, statistical tests are applied in order to analyse the correlation between the success factor that received the highest number of votes and all the other factors.
The number of responses received within a month of applying the questionnaire is 47. Although this number might be seen as a limit of the quantitative research, a higher number of responses being needed for accurate generalisation of the results, the study can be perceived as a pilot study that provides useful information and directions for future research.

The respondents answering the questionnaire are mostly project managers (51%) and project team members (38%), with an experience in managing projects of 2 to 5 years (47%) and of 6 to 10 years (28%), working in Romania (80.9%), Austria (8.5%), China (4.3%), France (2.1%), Israel (2.1%) and United Arab Emirates (2.1%). The types of analysed projects are: IT projects (38%), engineering and construction projects (19%), organizational change projects (15%) and others (human resource development projects, research and development project, social projects).

4. DATA ANALYSIS AND RESULTS INTERPRETATION

As mentioned before, respondents were asked to choose from the list of factors presented in the table below (Table 1) five factors that have the highest impact on projects’ success. Since all these factors are relevant to projects’ success, it can be observed that each of them received votes. However, there are certain factors that were chosen by more respondents. Thereby, it can be stated that the factors that were chosen by most of the respondents have higher impact on projects’ success that the others. Based on the results of the questionnaire, the five factors with highest impact on projects’ success are: clearly defined goal and directions (70.2%), competent project team members (53.2%), clearly defined roles and responsibilities (53.2%), communication and consultation with stakeholders (40.4%) and compliance with the planned budget, time frame and performance criteria (40.4%). Owner’s and sponsor’s involvement within the project, and the provision of timely data to key players are considered to have the lowest impact on projects’ success, since they received the smallest number of votes.
Table 1. Ranking of success factors

<table>
<thead>
<tr>
<th>Success factors</th>
<th>Number of choices</th>
<th>Percentage of respondents choosing the factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance with the planned budget, time frame and performance criteria</td>
<td>19</td>
<td>40.4 %</td>
</tr>
<tr>
<td>Clearly defined goals and directions</td>
<td>33</td>
<td>70.2 %</td>
</tr>
<tr>
<td>准确的计划和时间表</td>
<td>17</td>
<td>36.2 %</td>
</tr>
<tr>
<td>Timely and comprehensive control</td>
<td>10</td>
<td>21.3 %</td>
</tr>
<tr>
<td>Adequate use of project management techniques</td>
<td>10</td>
<td>21.3 %</td>
</tr>
<tr>
<td>Adequate use of technical skills</td>
<td>5</td>
<td>10.6 %</td>
</tr>
<tr>
<td>Competent project team members</td>
<td>25</td>
<td>53.2 %</td>
</tr>
<tr>
<td>Clearly defined roles and responsibilities</td>
<td>25</td>
<td>53.2 %</td>
</tr>
<tr>
<td>Synergy of the team</td>
<td>15</td>
<td>31.9 %</td>
</tr>
<tr>
<td>Experience and expertise of the project manager</td>
<td>7</td>
<td>14.9 %</td>
</tr>
<tr>
<td>Adequate risk management</td>
<td>5</td>
<td>10.6 %</td>
</tr>
<tr>
<td>Ability to handle unexpected problems</td>
<td>15</td>
<td>31.9 %</td>
</tr>
<tr>
<td>Communication and consultation with stakeholders</td>
<td>19</td>
<td>40.4 %</td>
</tr>
<tr>
<td>Provision of timely data to key players</td>
<td>2</td>
<td>4.3 %</td>
</tr>
<tr>
<td>Client acceptance of the results</td>
<td>11</td>
<td>23.4 %</td>
</tr>
<tr>
<td>Stakeholders satisfaction</td>
<td>6</td>
<td>12.8 %</td>
</tr>
<tr>
<td>Owner involvement within the project</td>
<td>1</td>
<td>2.1 %</td>
</tr>
<tr>
<td>Sponsor involvement within the project</td>
<td>3</td>
<td>6.4 %</td>
</tr>
<tr>
<td>Top management support</td>
<td>7</td>
<td>14.9 %</td>
</tr>
</tbody>
</table>

Source: Author’s calculations

On the second phase of the analysis we focused on projects where respondents are currently involved. An analysis was made in order to see whether the top five success factors are given adequate importance in practice. Thus, studied aspects were, whether:

- Projects have clearly defined goals and directions;
- Projects’ team members have the necessary competences;
- Roles and responsibilities are clearly defined;
- The communication and consultation with stakeholders take place whenever necessary;
- Projects respect the planned budget, time frame and performance criteria.
Most of the analysed projects have clearly defined goals and directions, more than 44% of respondents agreeing with the first analysed statement and more than 36% strongly agreeing with it (Figure 1). Though, 6.38% of the respondents consider that projects they are involved in, do not have clearly defined goals and directions.

**Figure 1.** Analysis on the clarity of defined goals and directions

Source: Author’s calculations

Concerning the competence level of team members, the majority of respondents consider that it is adequate (40.4% of respondents agree with the statement and 31.8% strongly agree). It can also be observed in the figure below (Figure 2) that several respondents face situations where project team members do not have the necessary competences.
Clearly defined roles and responsibilities are a must when dealing with projects in order to ensure a successful implementation. By knowing what they have to do and when they have to do it, team’s efficiency is increased. A useful tool that clarifies roles and responsibilities is the Responsibility Matrix. Despite the importance of this factor, a percentage of more than 19% respondents consider that roles and responsibilities are not clearly defined in the projects they referred to. On the other hand, a percentage of 34% respondents agree and 34% strongly agree with the statement (Figure 3).
A percentage of 21% respondents strongly agree and 44% agree that the communication and consultation with stakeholders is adequate in the case of the studied projects. However, the percentage of undecided respondents is quite high (27%). Most of the respondents consider that projects respect the planned budget, time frame and performance criteria. Whereas the percentage of those agreeing with the statement is the same as in the case above, only 12% strongly agree and the percentage of those who disagree or are undecided is higher comparing to the situation analysed previously.

In order to verify the correlation between the success factor “clearly defined goals and directions” and the other success factors applied in the context of the analysed projects, the statistical test Pearson was used (Table 2).

The value of Sig. lower than 0.05 confirms that there is a statistically significant correlation between the statements “The project has clearly defined goals and directions” and:

- The project respects the planned budget, time frame and performance criteria;
- The project has accurate schedules and plans;
- During project’s implementation a timely and comprehensive control takes place;
- Project team members have the necessary competences;
- Roles and responsibilities are clearly defined;
- Project team has a high level of effectiveness and efficiency;
- The project manager is empowered with flexibility to deal with unforeseen circumstances;
- The project manager and the team members have the ability to handle unexpected problems;
- The communication and consultation with stakeholders takes place whenever necessary;
- Clients accept the results of the project;
- The level of stakeholders’ satisfaction is adequate;
- The owner takes an interest in the performance of the project and provides guidance whenever necessary.

These results indicate that changes within one variable imply changes within the other variable that is related. Pearson coefficient provides additional information regarding the correlation of the analysed variables. The positive values
of the Pearson coefficient indicate a positive correlation: if values of one variable increase, the values of the other variable also increase and vice versa. In all the cases presented in the table below, where significant correlation was identified, the values of Pearson coefficient are positive.

The results obtained through the application of these statistical tests show that more clear goals and directions have positive influences as:

- project are more likely to respects the planned budget, time frame and performance criteria;
- the level of accuracy of projects’ plans and schedules increases;
- control becomes more adequate and is made on time;
- projects’ team members are more competent, since they can be selected or trained according to the requirements, goals and directions of the projects;
- roles and responsibilities are more likely to be clearly defined;
- projects team’s level of effectiveness and efficiency increases;
- project managers become more empowered to deal with unforeseen circumstances;
- project managers and team members have better abilities to handle unexpected problems;
- communication and consultation with stakeholders improves;
- chances of clients to accept the results of the project increase;
- the level of stakeholders’ satisfaction increases;
- the owner takes more interest in the performance of the project and provides more guidance.

These results highlight the importance of identifying the main success factors. Through a positive influence on the factors that have the highest influence on project’s success, other factors that are related will also be influenced, increasing the chances of fulfilling success criteria.
## Table 2. Correlations between success factors

<table>
<thead>
<tr>
<th>Correlations</th>
<th>The project has clearly defined goals and directions.</th>
<th>Pearson Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The project respects the planned budget, time frame and performance criteria.</td>
<td>Significant correlation</td>
<td>0.576**</td>
<td>0.000</td>
</tr>
<tr>
<td>The project has accurate schedules and plans.</td>
<td>Significant correlation</td>
<td>0.490**</td>
<td>0.000</td>
</tr>
<tr>
<td>During project's implementation a timely and comprehensive control takes place.</td>
<td>Significant correlation</td>
<td>0.321*</td>
<td>0.028</td>
</tr>
<tr>
<td>There is an adequate use of project management techniques.</td>
<td>No correlation</td>
<td>0.271</td>
<td>0.066</td>
</tr>
<tr>
<td>The project team is able to adequately use technical skills.</td>
<td>No correlation</td>
<td>0.227</td>
<td>0.125</td>
</tr>
<tr>
<td>Project team members have the necessary competences.</td>
<td>Significant correlation</td>
<td>0.348*</td>
<td>0.017</td>
</tr>
<tr>
<td>Roles and responsibilities are clearly defined.</td>
<td>Significant correlation</td>
<td>0.381**</td>
<td>0.008</td>
</tr>
<tr>
<td>Project team has a high level of effectiveness and efficiency.</td>
<td>Significant correlation</td>
<td>0.407**</td>
<td>0.005</td>
</tr>
<tr>
<td>The project manager has the necessary level of experience and expertise.</td>
<td>No correlation</td>
<td>0.171</td>
<td>0.251</td>
</tr>
<tr>
<td>The project manager is empowered with flexibility to deal with unforeseen circumstances.</td>
<td>Significant correlation</td>
<td>0.412**</td>
<td>0.004</td>
</tr>
<tr>
<td>The project manager and the team members have the ability to handle unexpected problems.</td>
<td>Significant correlation</td>
<td>0.420**</td>
<td>0.003</td>
</tr>
<tr>
<td>The communication and consultation with stakeholders takes place whenever necessary.</td>
<td>Significant correlation</td>
<td>0.334*</td>
<td>0.022</td>
</tr>
<tr>
<td>Relevant data is provided to key players on time.</td>
<td>No correlation</td>
<td>0.193</td>
<td>0.193</td>
</tr>
<tr>
<td>Clients accept the results of the project.</td>
<td>Significant correlation</td>
<td>0.302*</td>
<td>0.039</td>
</tr>
<tr>
<td>The level of stakeholders' satisfaction is adequate.</td>
<td>Significant correlation</td>
<td>0.425**</td>
<td>0.003</td>
</tr>
<tr>
<td>The owner takes an interest in the performance of the project and provides guidance whenever necessary.</td>
<td>Significant correlation</td>
<td>0.385**</td>
<td>0.007</td>
</tr>
<tr>
<td>The sponsor’s involvement within the project is adequate.</td>
<td>No correlation</td>
<td>0.205</td>
<td>0.167</td>
</tr>
<tr>
<td>The project receives top management support.</td>
<td>No correlation</td>
<td>0.229</td>
<td>0.121</td>
</tr>
</tbody>
</table>

**Source:** Author’s calculations
5. CONCLUSIONS

Success is desired in everyday life, in business activities and in projects. Given the high rate of projects that fail reaching their objectives or creating the wanted effects, researches that approach the topic of success bring positive inputs both to literature and to practice. Relating literature reviews with studies that capture the realities of business environments increase the usefulness of the results.

Success factors determine the positive outcomes of implementing projects. They have to be identified before projects’ implementation, from the conception phase. But projects environments are dynamic, so success factors might change their level of influence in time. Thus, a permanent monitoring of these factors is needed and whenever necessary the project manager should influence certain factors in order to increase chances of accomplishing success criteria.

The research presented in this article is relevant because it aims to identify the main success factors from a very comprehensive list of factors. Since factors are usually related to each other, knowing the factors that have higher influence on projects’ success supports the management process and increases its efficiency. Future research should be done in order to continue the study on a higher sample, by testing the correlation between rankings of success factors and the roles or the experience of respondents.

REFERENCES

PMI (2013). Pulse of the Profession In-Depth Report: The Impact of PMOs on Strategy Implementation

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