THE INFLUENCE OF THE PROJECT TEAM MEMBERS' PERFORMANCES ON THE PROJECT SUCCESS

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Abstract: *There is no specific, valid criteria that could define project success, due to the fact that it varies from project to project and also from organization to organization. Regarding to the available literature it can be concluded that the significant role plays project team. In addition to this, the aim of this paper is to bridge the gap between project team members' performances and project success, based on the literature review. Also, the paper determines which performances are considered as the most important for the success of the project. Future research could include empirical studies which will show the compatibility of theory and practice. The paper contributes to the literature by summarizing all the performances project team members should have while implementing the project in a desired way, leading it to a success.*

Key words: project, project success, project team, team's performances

1. INTRODUCTION

Although project management is a discipline that has been researched and improved for a relatively long period of time, project managers often encounter poor project execution, which often leads to their failure. Due to the aforementioned, it is of primary importance to precisely define the key factors that can influence the success or failure of the project, which directly depends on the type of project, the area in which it is implemented, etc. Different authors define the key performances of success differently. The "iron triangle" model was the first model to describe project management success. It was proven to be only part of general project success (de Wit 1988). Projects can be successful despite poor project management if they reach their higher, long term goals and vice versa. Extending the "iron triangle"model, shows that there are many opportunities to widen our perspective; as project managers and project team members are also responsible for integration, resource, scope, communication, risk management, within time, budget, and performance. The success in projects is something much more complex than just meeting cost, deadlines and specifications. Research has identified that people management drives project success more than technical issues do (Scott-Young and Samson 2008). Despite this finding, there exists only a small body of research that examines the so-called soft project management, i.e. the people side of project management (Kloppenborg and Opfer 2002) which could be defined as either a project manager or a project team member. This paper aims to present the basic characteristics, based on the literature review, related to project team members that can influence the success or failure of the project. In this regard, the subject of research is the examination and evaluation of the importance and performance of success factors, in accordance with the members of the project team.
This paper is organized into four parts. In the first section the concept of project and project success is defined in more detail. Second part deals with the literature review of the main performances that influence project success, based on team members. Conclusions and furure disquisitions are presented in the third part while the fourth section gives a list of literature used while writing the paper.

2. PROJECT AND PROJECT SUCCESS

Today's technologically accelerated development of society leads to the fact that most organizations are increasingly turning and organizing themselves as project-based organizations, that is, organizations are being created that base their processes and activities entirely on projects, which are a means of achieving business goals. The word project comes from the Latin word *proiectum*, which means "thrown in advance". In essence, a project implies something that is originally created or conceived, and then spatially or temporally directed towards it. Unlike everyday, routine processes in an organization, the need for projects arises as a result of an ever faster and more turbulent market, and as an organization's response to all these changes.

In the world, regulations related to product quality, requirements in terms of ecology and health safety are constantly changing. It is always something new and the company is forced to adapt to it, and it usually does so through projects. The development of new production and information technologies and new materials is getting faster and the company, for its own survival and development, has to introduce them, and most often it does this through projects, which are crucial for the future of a company, and it is certainly imperative to determine, select and the most efficient way to implement real projects.

A project is most often understood as an undertaking undertaken to achieve defined goals, within the stipulated time and with the stipulated costs. The intended realization of the project can only be achieved if all activities, resources and participants are rationally coordinated and all possible deviations are avoided, that is, eliminated, which is why it is necessary to manage the project (Jovanović Petar 2012).

In projects, unlike operational processes, which are continuously carried out in the company, the level of changes, unknowns and execution risks is high. A project, as a term, implies the realization of a new undertaking in conditions of risk and uncertainty, competition for the necessary resources, in a certain period of time, with a defined cost price and required quality (Avlijaš Radoslav and Avlijaš Goran 2011, (Dakovic et al. 2020).

Each project is special and unique, primarily because projects have different goals, scopes, deadlines, costs, etc. However, there are certain features that are common to all projects and these are (Jovanović Petar 2012):

- OBJECTIVE – all projects are established to fulfill some needs or requests of the management, and each project must achieve some special goal that has been set for it.
- DEADLINES - all projects have a defined specific goal that must be achieved within a specific time frame.
- COMPLEXITY - which is related to the technology used to achieve the project's goals. If the technology does not exist or is not available, either alternative solutions must be found to achieve the project's goals or deadlines must be extended in order to develop and realize the technology.
- SCOPE AND NATURE OF THE TASK - each project can achieve its goals within the established deadlines and costs, only if an appropriate implementation plan is made, which actually represents the project's strategy.
- RESOURCES - every project uses some resources (people, equipment, material, financial resources, etc.) to perform the assigned tasks. Given that resources are limited, the goal can be to provide the necessary resources in a timely manner and to use them rationally.
- ORGANIZATIONAL STRUCTURE - for the implementation of the project, it is necessary to determine the appropriate organizational structure and the project manager who will have the appropriate powers and be responsible for the project. He must ensure that the goals of the project are achieved, within the set limits. At the same time, it is very important whether it is possible to use the usual channels of information and decision-making in the existing organization for the realization of the project.
- INFORMATION AND CONTROL SYSTEM - the usual information and control systems used in organizations, usually based on functional lines of authority, are not sufficient for effective monitoring of project implementation.

Today, there are numerous ways and criteria for evaluating the development and success of a project. One of the oldest is based on the so-called the iron triangle, which contains the principles of cost, time and quality, that is, the three main aspects that must be achieved and that characterize projects are: scope, cost and time. In this regard, a project that would not deviate too far from the primary budget, fulfill the time frame and requirements set by the interested parties, would be considered as successful (Jovanović Petar 2012).

Success is quite a subjective thing and different people perceive the aforementioned concept differently, but it is generally considered that a successful project is one that meets the requirements of the client/project orderer and other interested parties, especially the quality dimension.

When talking about performances that are crucial for achieving project success, it is important to keep in mind the following (Gido and P. Clements 2012):

- Planning and communication are key to successful project management. They prevent problems from occurring or minimize their impact on project goal achievement when they do occur.
- Taking the time to develop a well-thought-out plan before starting a project is critical to the successful completion of any project.
- The project must have a clear goal of what needs to be achieved and defined in terms of the final product or deliverable, schedule and budget, which must be agreed upon by the customer.

- Involve the sponsor or customer as a partner in the successful outcome of the project through active participation during the project.
- Achieving customer satisfaction requires constant communication with the customer in order to inform the client and determine whether expectations have changed.
- The key to effective project control is the measurement of actual progress and its timely and regular comparison with planned progress and immediate taking of all necessary corrective actions.
- After the completion of the project, the performance of the project should be evaluated to find out what could be improved if a similar project were to be done in the future. Feedback should be obtained from the sponsor or customer and the project team.
- Learning and understanding the culture and customs of other project participants will show respect, help build trust and help develop an effective project team, and is critical to successfully managing global projects.

When we talk about project management, different project managers have different definitions of success, depending on their experience, knowledge, and the context in which they work. Some consider the number of projects completed on time and within the available budget to be the key project performance, which results in customer satisfaction, while others consider effective communication, successful cooperation, and the involvement of interested parties as success criteria. By researching the literature, it was concluded that the list of project performances is large, and some key performances are given below (Alvarenga et al. 2019), (Bryde 2005), (Ciric Lalic et al. 2022), (Girish et al. 2019), (ÖZDEMİR GÜNGÖR and GÖZLÜ 2016), (Anon 2017), (Taherdoost and Keshavarzsaleh 2015b), (Liu and Cross 2016), (Oh and Choi 2020), (Durmic 2020), (Tereso et al. 2019), (Ciric, Lalic, and Gracanin 2016), (Gruden and Stare 2018), (Ciric et al. 2020), (Stefanovic et al. 2020):

- costs,
- time,
- disadvantages,
- customer satisfaction with the product,
- client satisfaction with the service provided,
- profitability,
- productivity,
- human resources,
- sustainability,
- quality,
- involvement and cooperation of interested parties,
- clear goals,
- proper selection of resources for project execution.
- efficient use of material and human resources,
- use of new technologies,
- decision-making efficiency,
- risk management,
- innovation,
- successful communication, etc.

The key performances that influence the success of the project is an interesting and inexhaustible field of research, and the largest research area, that is, the lack of research coverage, is in the area of human resources, i.e. project manager and project team members. In this regard, below is a presentation of the basic key indicators related to the project team, which have a significant impact on the success of the project.

3. PROJECT PERFORMANCES BASED ON PROJECT TEAM MEMBERS

Traditionally, project management is understood to succeed with the right tool and technique, regardless of the project participation's personality or project type. This is contrary to the studies of the mentioned competency theories. Crawford et al. mentioned that not only project management procedures, but also the project manager's competence should be applied to project management (Crawford, Hobbs, and Turner 2004). In other literature, the correlation has been shown between the competence of managers and project success in different projects (Müller and Turner 2007). There are many empirical studies on leadership and project success using LDQ questionnaires, such as the financial

industry, construction industry, agile projects, and general projects (Dvir, Sadeh, and Malach-Pines 2006), (Rodney Turner, Müller, and Dulewicz 2009), (Geoghegan and Dulewicz 2008), (Raut et al. 2018).
Among the whole factors classification Spalek (2005) mentioned that one the most important factor which has substantial influence on project success is personal competence (Spalek 2005). In addition to this, Oh and Choi (2020) stated that the abilities or capabilities of human resources in an organization are described as value, vision, knowledge, career, role responsibility, and task needed to perform (Oh and Choi 2020). According to Taherdoost and Keshavarzsaleh (2015) clustered factors of the project success, defined as 5Ps are; Presiding, People, Pragmatic, Process, and Performance (Taherdoost and Keshavarzsaleh 2015b). Researching key factors through the project life cycle, Durmic (2020) prioritized personal issues, i.e. competences as significant for project success (Durmic 2020). When speaking about success dimensions related to individual stakeholder groups, Kate (2016) also defined personal competences of the project team member as crucial (Davis 2016).
Liu and Cross (2016) in their paper stated that project team members have major impact to project success and pointed out that many performances, related to them, are crucial: leadership, management support, rewards, skills, team diversity, clear defined goals, activities connected to education, efforts and commitments to the team (Liu and Cross 2016).
The fact that team members with high competence and expertise, i.e. skillful people, are significant factor who highly influence project success is conclusion by many authors (Chow and Cao 2008), (Belassi and Tukel 1996), (Taherdoost and Keshavarzsaleh 2015b), (Durmic 2020), (Heinz et al. 2006). In addition to this, previous research has shown that team members involved in the project need personal competencies, such as knowledge and technical skill. However, as more complex and dynamic projects increase, professional and multifunctional requirements are required to build a project team. Team members also need the skills and expertise that managers need, and they must have a high level of communication, management skill, and integration capabilities, as well as the ability to utilize and understand knowledge, tools, and techniques (Nguyen and Hadikusumo 2017), (Rota and Zanasi 2011), (Oh and Choi 2020), (Dakic et al. 2019).
Communication, an overarching theme in the literature, describes the effective and efficient information gathering and sharing; it comprises community involvement, clear communications channels, and frequent progress meeting. It is becoming more and more important today. Collecting and sharing of information are fundamental to communication, and therefore frequent meetings are inevitable. Project participants should share the project information in a sincere way and obtain different perspectives on the project, which lead to successful implementation (Belassi and Tukel 1996), (Oh and Choi 2020), (Montequin et al. 2016), (Rota and Zanasi 2011), (Oh and Choi 2020), (Frank Cervone 2014),(Bahadori Zare, Mirjalili, and Mirabi 2016), (Brill, Bishop, and Walker 2006), (Liu and Cross 2016), (Sudhakar 2016). In contrast to previously mentioned influential factor, Sudhakar (2016) pointed out that factors, regarding the project success in many domains, include team communication, team cooperation, team coordination, team cohesion, team conflicts, team climate, team productivity, and team performance (Sudhakar 2016).
The aforementioned factors can be categorized into two distinct clusters, as depicted in the ensuing table where the first cluster is named *input factors of the project team* (related to the internal, i.e. team environment, i.e. imply the characteristics of the team) and the second *project team process factors* (imply team interactions and interactions with stakeholders).

Table 1: Clusters of the key success factors of the project, based on the team members

CLUSTERS	REPRESENTATIVE SOURCE
INPUT FACTORS: - leadership, - management support, - prizes, - knowledge/skills, - team diversity, - clearly defined goals, - management skills, - ability to use tools and techniques, - personal competences	(Liu and Cross 2016), (Chow and Cao 2008), (Belassi and Tukel 1996), (Taherdoost and Keshavarzsaleh 2015b), (Durmic 2020), (Heinz et al. 2006), (Nguyen and Hadikusumo 2017), (Rota and Zanasi 2011), (Oh and Choi 2020), (Spalek 2005; Taherdoost and Keshavarzsaleh 2015a), (Davis 2016)
PROJECT TEAM PROCESS FACTORS: - cooperation, - communication,	(Sudhakar 2016), (Liu and Cross 2016), (Belassi and Tukel 1996), (Montequin et al. 2016),(Rota and Zanasi 2011), (Oh and Choi 2020),(Frank Cervone 2014),(Bahadori Zare et al.

- activities related to learning, - cohesion, - efforts, - commitment, - conflict resolution, - team climate, - performance	2016), (Brill et al. 2006), (Belassi and Tukel 1996), (Durmic 2020)

4. CONCLUSIONS

Project success and project management is an inexhaustible and challenging field of research. This is exactly what has been the subject of numerous publications in recent years, as the concept of project management is increasingly being applied in organizations of all types. In addition to the above, in practice you can unfortunately often see failed projects or poorly managed projects. The list of factors that influence the success or failure of projects is quite long, where primacy, in addition to costs, time and quality, is certainly given to human resources, that is, to the project manager and members of the project team.

This study aimed to identify key team member's performances, required for project success in various industries. Through the literature review, 18 factors were identified, which were clustered into 2 groups. First one, input factors of the project team which included nine factors and the second one, project team process factors which is consisted of also nine factors. The greatest contribution of this paper is that it gives a broad picture of performances, i.e. it summarizes the factors mentioned by numerous authors. Future research should rely on experiential research, more precisely to check to what extent each of the factors has an impact on the project, because it is clear that all factors do not have an equal impact. Also, it is possible, in vigilance, to specifically deal with one type of organization and implement a model that will be valid and applicable in a specific branch of the industry.

REFERENCES

Alvarenga, Jeferson Carvalho, Robson Rosa Branco, André Luis Azevedo Guedes, Carlos Alberto Pereira Soares, and Wainer da Silveira e Silva. 2019. "The Project Manager Core Competencies to Project Success." *International Journal of Managing Projects in Business* 13(2):277–92. doi: 10.1108/IJMPB-12-2018-0274.

Anon. 2017. *A Guide to the Project Management Body of Knowledge, PMBOK GUIDE, Sixth Edition*. 6th ed. Project Management Institute, Inc.

Avlijaš Radoslav, and Avlijaš Goran. 2011. *Upravljanje Projektom*. Beograd: Univerzitet Singidunum.

Bahadori Zare, M., A. Mirjalili, and M. Mirabi. 2016. "Ranking and Evaluating the Factors Affecting the Success of Management Team in Construction Projects." *Journal of Fundamental and Applied Sciences* 8(3):614. doi: 10.4314/jfas.v8i3s.251.

Belassi, Walid, and Oya Iemeli Tukel. 1996. "A New Framework for Determining Critical Success/Failure Factors in Projects." *International Journal of Project Management* 14(3):141–51. doi: 10.1016/0263-7863(95)00064-X.

Brill, Jennifer M., M. J. Bishop, and Andrew E. Walker. 2006. "The Competencies and Characteristics Required of an Effective Project Manager: A Web-Based Delphi Study." *Educational Technology Research and Development* 54(2):115–40. doi: 10.1007/s11423-006-8251-y.

Bryde, David J. 2005. "Methods for Managing Different Perspectives of Project Success." *British Journal of Management* 16(2):119–31. doi: 10.1111/j.1467-8551.2005.00438.x.

Chow, Tsun, and Dac-Buu Cao. 2008. "A Survey Study of Critical Success Factors in Agile Software Projects." *Journal of Systems and Software* 81(6):961–71. doi: 10.1016/j.jss.2007.08.020.

Ciric, Danijela, Bojan Lalic, and Danijela Gracanin. 2016. "Managing Innovation: Are Project Management Methods Enemies or Allies." *International Journal of Industrial Engineering and Management* 7(1):31–41.

Ciric, Danijela, Teodora Lolic, Danijela Gracanin, Darko Stefanovic, and Bojan Lalic. 2020. "The Application of ICT Solutions in Manufacturing Companies in Serbia." Pp. 122–29 in.

Ciric Lalic, Danijela, Bojan Lalic, Milan Delić, Danijela Gracanin, and Darko Stefanovic. 2022. "How Project Management Approach Impact Project Success? From Traditional to Agile." *International Journal of Managing Projects in Business* 15(3):494–521. doi: 10.1108/IJMPB-04-2021-0108.

Crawford, Lynn, J. Brian Hobbs, and J. Rodney Turner. 2004. "Project Categorization Systems and Their Use in Organizations: An Empirical Study." in *PMI® Research Conference: Innovations*. London: PA: Project Management Institute.

Dakic, Dusanka, Srdjan Sladojevic, Teodora Lolic, and Darko Stefanovic. 2019. "Process Mining Possibilities and Challenges: A Case Study." Pp. 000161–66 in *2019 IEEE 17th International Symposium on Intelligent Systems and Informatics (SISY)*. IEEE.

Dakovic, M., B. Lalic, M. Delic, N. Tasic, and D. Ciric. 2020. "Systematic Mitigation of Model Sensitivity in the Initiation Phase of Energy Projects." *Advances in Production Engineering & Management* 15(2):217–32. doi: 10.14743/apem2020.2.360.

Davis, Kate. 2016. “A Method to Measure Success Dimensions Relating to Individual Stakeholder Groups.” *International Journal of Project Management* 34(3):480–93. doi: 10.1016/j.ijproman.2015.12.009.

Durmic, Nermina. 2020. “Factors Influencing Project Success: A Qualitative Research.” *TEM Journal* 1011–20. doi: 10.18421/TEM93-24.

Dvir, Dov, Arik Sadeh, and Ayala Malach-Pines. 2006. “Projects and Project Managers: The Relationship between Project Managers’ Personality, Project Types, and Project Success.” *Project Management Journal* 37(5):36–48. doi: 10.1177/875697280603700505.

Frank Cervone, H. 2014. “Effective Communication for Project Success.” *OCLC Systems and Services: International Digital Library Perspectives* 30(2):74–77. doi: 10.1108/OCLC-02-2014-0014.

Geoghegan, Linda, and Victor Dulewicz. 2008. “Do Project Managers’ Leadership Competencies Contribute to Project Success?” *Project Management Journal* 39(4):58–67. doi: 10.1002/pmj.20084.

Gido, Jack, and James P. Clements. 2012. *Successful Project Management*. fifth edition. South-Western Cengage Learning.

Girish, P., H. S. Jayatheertha, K. S. Vinay Kumar, and V. A. Hosur. 2019. “Skills and Competencies Perceived of an Effective Construction Project Manager.” *International Research Journal of Engineering and Technology (IRJET)* 6(12).

Gruden, Nika, and Aljaž Stare. 2018. “The Influence of Behavioral Competencies on Project Performance.” *Project Management Journal* 49(3):98–109. doi: 10.1177/8756972818770841.

Heinz, Ulrike, Tünde Baga, Diether Gebert, and Eric Kearney. 2006. “Leadership and Cooperation as Success Factors in Innovative R&D Projects on Electronic Platforms.” *Team Performance Management: An International Journal* 12(3/4):66–76. doi: 10.1108/13527590610674077.

Jovanović Petar. 2012. *Upravljanje Projektima*. Beograd: Visoka škola za projektni menadžment.

Kloppenborg, Timothy J., and Warren A. Opfer. 2002. “The Current State of Project Management Research: Trends, Interpretations, and Predictions.” *Project Management Journal* 33(2):5–18. doi: 10.1177/875697280203300203.

Liu, Wen-Hsing, and Jennifer A. Cross. 2016. “A Comprehensive Model of Project Team Technical Performance.” *International Journal of Project Management* 34(7):1150–66. doi: 10.1016/j.ijproman.2016.05.011.

Montequin, V. R., S. M. Cousillas, V. Alvarez, and J. Villanueva. 2016. “Success Factors and Failure Causes in Projects: Analysis of Cluster Patterns Using Self-Organizing Maps.” *Procedia Computer Science* 100:440–48. doi: 10.1016/j.procs.2016.09.180.

Müller, Ralf, and J. Rodney Turner. 2007. “Matching the Project Manager’s Leadership Style to Project Type.” *International Journal of Project Management* 25(1):21–32. doi: 10.1016/j.ijproman.2006.04.003.

Nguyen, Huong Thanh, and Bonaventura Hadikusumo. 2017. “Impacts of Human Resource Development on Engineering, Procurement, and Construction Project Success.” *Built Environment Project and Asset Management* 7(1):73–85. doi: 10.1108/BEPAM-04-2016-0010.

Oh, Minjeong, and Sungyong Choi. 2020. “The Competence of Project Team Members and Success Factors with Open Innovation.” *Journal of Open Innovation: Technology, Market, and Complexity* 6(3):51. doi: 10.3390/joitmc6030051.

ÖZDEMİR GÜNGÖR, Dilek, and Sıtkı GÖZLÜ. 2016. “AN ANALYSIS OF THE LINKS BETWEEN PROJECT SUCCESS FACTORS AND PROJECT PERFORMANCE.” *Sigma Journal of Engineering and Natural Sciences* 34(2).

Raut, Jelena, Slavica Mitrović, Boban Melović, and Teodora Lolić. 2018. “Social Networks as New Business Concept for Enterprises.” *International Journal of Industrial Engineering and Management* 9(3):147–53. doi: 10.24867/IJIEM-2018-3-147.

Rodney Turner, J., Ralf Müller, and Vic Dulewicz. 2009. “Comparing the Leadership Styles of Functional and Project Managers.” *International Journal of Managing Projects in Business* 2(2):198–216. doi: 10.1108/17538370910949266.

Rota, Cosimo, and Cesare Zanasi. 2011. “Sustainable Relations in International Development Cooperation Projects: The Role of Organizational Climate.” *International Journal on Food System Dynamics* 2(1).

Scott-Young, Christina, and Danny Samson. 2008. “Project Success and Project Team Management: Evidence from Capital Projects in the Process Industries.” *Journal of Operations Management* 26(6):749–66. doi: 10.1016/j.jom.2007.10.006.

Spalek, Seweryn. 2005. “Critical Success Factors in Project Management. To Fail or Not to Fail, That Is the Question!” in *PMI® Global Congress 2005—EMEA*. Edinburgh, Scotland. Newtown Square: Project Management Institute.

Stefanovic, Darko, Ivana Spasojevic, Sara Havzi, Teodora Lolic, and Sonja Ristic. 2020. “Information Systems Success Models in the E-Learning Context : A Systematic Literature Review.” Pp. 0555–64 in.

Sudhakar, Goparaju Purna. 2016. “Understanding the Meaning of ‘Project Success.’” *Binus Business Review* 7(2):163. doi: 10.21512/bbr.v7i2.1586.

Taherdoost, Hamed, and Abolfazl Keshavarzsaleh. 2015a. “How to Lead to Suistainable and Successful IT Project Management? Propose 5Ps Guideline.” *International Journal of Advanced Computer Science and Information Technology* 4(1):14–37.

Taherdoost, Hamed, and Abolfazl Keshavarzsaleh. 2015b. “Managing Successful IT Projects; Marketing Perspective.” in *12th International Conference on E-ACTIVITIES*. Seoul, South Korea.

Tereso, Anabela, Pedro Ribeiro, Gabriela Fernandes, Isabel Loureiro, and Mafalda Ferreira. 2019. “Project Management Practices in Private Organizations.” *Project Management Journal* 50(1):6–22. doi: 10.1177/8756972818810966.

de Wit, Anton. 1988. “Measurement of Project Success.” *International Journal of Project Management* 6(3):164–70. doi: 10.1016/0263-7863(88)90043-9.