MYKOLAS ROMERIS UNIVERSITY

FACULTY OF PUBLIC GOVERNANCE

INSTITUTE OF LEADERSHIP AND STRATEGIC MANAGEMENT

VITALIJUS ALEKSEJEVEC

DETERMINING THE CRITICAL FACTORS OF THE PROJECT SUCCESS

Master thesis

Supervisor: prof. dr. Agota Giedrė Raišienė

VILNIUS, 2019

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Written by:
Reviewer   **Vitalijus Aleksejevec**
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INTRODUCTION

Factors of the project success is widely discussed topic among scholars and specialists of this field, there are many different opinions on what factors can lead a project to success. Project managers need to take many decisions in the lifecycle of a project – from its initiation to its closure, it is especially important in the early phases when project planning needs to be carried out. In order to make right decisions project managers must know what critical factors can help them to attain success in their projects. However, since every project is unique by its nature, subject field, complexity, applied methodology and other characteristics it is difficult to determine the critical success factors which have the paramount meaning for a project. Even, while reviewing the scientific literature it can be seen that scholars have different opinions on this matter. When knowing the critical success factors of the project management, organizations and project managers will be able to be more competitive in the challenging business environment and make more effective decisions.

The **object** of this thesis paper is the identification of the project success factors and determination of how they are applied in practice (projects). **Problem statement**: scholars and subject field experts do not agree on which factors are the most important for the project success.

The **aim** of this thesis paper is to identify the most important factors of the project success.

The **objectives** of this paper are:

1. The first objective is to review the scientific literature in order to present the project management and project success criteria and identify the main factors which have the highest influence on the project success according to different scholars and subject field experts in the project management field.
2. The second objective is to create a list of the project success factors according to the reviewed literature and identify the most dominant factors of the project success and present them in more detail.
3. The third objective is to conduct the research (expert's interview) regarding the importance of the project success factors according to views of the project management practitioners.
4. The fourth objective is to compare the opinions related to the project success factors in literature and practice as well as provide review regarding the importance of the project success factors according to project management practitioners.

Research methods:

Firstly, the comparative theoretical literature review was carried out in order to identify factors of the project success. Later, the qualitative study was chosen for the research. The research was conducted by performing the expert's interview.

Information for this thesis paper was found using the following keywords: Project management success, measuring project management performance, effective project management, successful project management, competencies of successful project managers, critical project success factors, project success, project management.

The factors of success were collected from different trustful sources such as Google Scholar, ScienceDirect, Elsevier, EBSCO information services and other.

In general, 83 sources were used for the research.

Firstly, different factors of success were collected in the first stage of the literature review.

In the beginning it was noticed that some of the factors are more often mentioned by scholars and subject field experts than other, therefore there was a need to differentiate the most dominant factors of success for further analysis. The most dominant factors were selected according to their repetitiveness in different sources. More precisely, factors which were mentioned in 4 or more sources were selected for the further analysis and were separately discussed in more detail.

Later, according to these factors of success, the survey was prepared. The survey was conducted using expert's interview. The aim was to compare views in the literature with opinions of respondents of the survey working with projects in order to find out whether there are differences between information in the literature and reality (replies of respondents).

1 PROJECT SUCCESS MEASUREMENT

Since the aim of this paper is to analyze critical factors of success which enhance the probability to successfully achieve project goals and objectives it is highly important to describe how success of a project can be measured. To begin with, it is relevant to note that according to different authors success related to projects can be described from the perspective of two concepts: "*project success*" and "*project management success*". Therefore, the main aim of this section is to define what is a project and the project management as well as present views from the scientific literature regarding differences between the project success and the project management success and also identify the project success factors.

1.1. Project and project management definition

In the first place, it is essential to present a definition of a project and project management in order to discuss differences between project success and project management success. A project can be described as "a temporary endeavor undertaken to create a unique product, service, or result" (PMBOK 2017, 40). A comprehensive definition of a project is presented in BS 6079-2:2000 Project Management Vocabulary (10) which describes a project as "a unique process, consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve objectives conforming to specific requirements, including constraints of time, cost and resources".

On the other hand, the project management is aimed at the thorough planning, organizing as well as fully controlling activities related to a project in order to ensure that it is completed in the most effective way despite of occurring challenges and risks (Lock Dennis 2017, 1). According to Mikkelsen and Jens Riis (2017, 253) the project management process can be divided into five segments which are presented below in the *1 table,* below.

1 table. Project management phases

Segment	Descritption
Management of tasks related to project	Thinking of possible solutions to the existing problems, coming up with ideas and implementing them.
Management of external participants	Communication and engagement with stakeholders, suppliers, customers and other participants related to a project.
Management of internal participants	Leading, guiding and supporting the members of the project team.

Management of available resources	Assigning team members to particular tasks according to their competencies as well as experience, finding facilities, ensuring necessary equipment and other relevant tasks.
Management of the project activities	Planning and overseeing as well as controlling the process, time schedules, quality and documentation.

Composed by the author according to Mikkelsen and Jens Riis (2017, 253)

1.2. Project success and project management success

To begin with, Radujković and Mariela Sjekavica (2017, 607) explain that the both concepts have similarities and differences by stating that the "*project success*" is more related to the evaluation of attaining predetermined project goals, whereas, the "*project management success*" is concerned with "*traditional measurements of time, cost and quality performance*". Costantino et al. (2015, 1746) also state that the project success is related to a measurement of "*achievement of the overall objectives*" while project management success is related to measurement of "*the performance of the management process*". Serrador and Rodney Turner (2015, 30) also provide similar explanation of the concept "*project success*" by stating that a project can be considered to be successful when a project outcome corresponds to the strategic objectives pre-determined by an organization or customer.

Secondly, according to Pinar and Onur Demirors (2019, 1) the main aim of the project management is to "*deliver projects on time, with agreed scope and quality according to specified requirements and within the planned budget*". The relationship between these four constraints is often represented by the iron triangle which can be seen below, *1 figure*: Iron triangle.
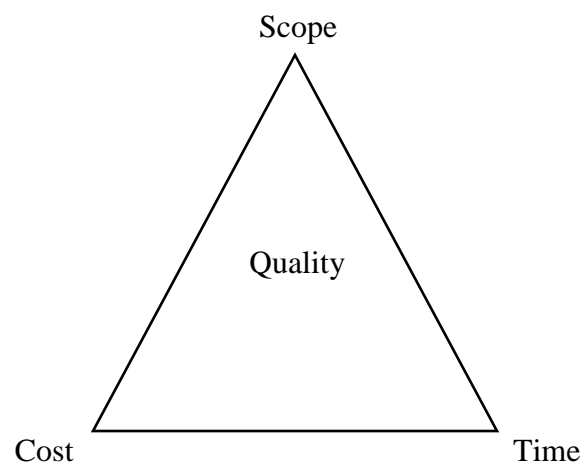
1 figure. Iron triangle. Composed by the author according to Pinar and Onur Demirors (2019, 1)

Aga et al. (2016, 807) also state the same fact that the success of the project management, from the traditional perspective, tends to be measured by "*conventional criteria of time, budget, and compliance with the client's terms of reference, or quality*". The description of the project management presented by Adzmi and Zainuddin Hassan (2018, 653) includes management of the "*budget, project timeline and personnel assignment*".

On the other hand, Yong et al. (2017, 102) notices that in the majority of the developed countries, publications regarding the project management success, have a tendency to move from the traditional "*time, cost and quality*" perspective to putting more attention to such criteria as user satisfaction as well as lasting business impact. It can be noticed that different authors writing about the project success, nowadays, not only concentrate on the "*Magic triangle - cost, time, quality*", which was considered for a long time to be the basic measurement of success, but also emphasize the importance of such factors as "*soft goals*" and "*customer satisfaction*" (Schopp et al. 2019, 5).

However, Costantino et al. (2015, 1746) also emphasize that meeting such criteria as "*time, cost and quality of the final product*" is not at all times seen as sufficient to call a project successful because managers started to put high attention on quality "*in terms of the quantity of work that does not require rework*". It means that work needs to be done well from the first time in order to avoid fixing mistakes and re-making the product. Taherdoost (2018, 23) also mentions that the most proficient project managers use well-established and specifically adjusted project management methodologies concerned with zero defect processes.

Backlund et al. (2014, 843) state that in order to measure the progress and efficiency of the "*project management success*" it is important to analyze the present situation regarding how an organization performs in different areas of project management. Then, according to the collected information possible ameliorations could be identified by comparing current situation with pre-determined standards, which were agreed with a client, this in turn, it will allow the project manager to see the client's level of satisfaction.

The evaluation of "*project management success*" often "*depends on who is measuring*", it can be a customer, the project manager, a team, a sponsor and other participants related to a project (Young 2016, 8-9). Serrador and Rodney Turner (2015, 30) notes that the success of a project can be evaluated by the satisfaction of key stakeholders, this satisfaction can be measured by the fact how well a particular project attains its strategic objectives which were set by stakeholders.

Rahman et al. (2018, 4) state that the "*project management success*" can be divided into three components listed below:

1) "delivery on time;

2) complete work in specified budget;

3) fulfillment of the requirements of a project".

Finally, since the concepts "*project success*" and "*project management success*" have mutual relationships and can be both analyzed using different models, therefore it is difficult to firmly differentiate between them (Radujković and Mariela Sjekavica 2017, 607). For this reason, it is important to mention that this thesis paper will include both critical factors of "*project management success*" and "*project success*" in general.

2 CRITICAL FACTORS OF PROJECT SUCCESS AND PROJECT MANAGEMENT SUCCESS

This section presents the critical success factors of the *project management* as well as the *project success* in general according to the scientific literature written by both scholars and subject field experts. It is relevant to note that the critical success factors were collected from the scientific literature related to different fields e.g. informational technologies, construction, science, innovations, education and other.

2.1. Definition of critical success factors

To begin with, it is important to define what we can call the success factors of the project management and the project success in general. The Success factors can be described as "*main factors that increase the ability of organization to carry a project through its full implementation*" (Constantino et. al 2015, 1747). In this regard, project manager must continuously evaluate decisions which were taken during the whole lifecycle of a project, concentrating on risks and possible factors of success, because this will allow the project manager to identify the best possible actions and solutions which could lead a project to success. According to Ihuah et al. (2014, 1) the success factors in the project management can be related to performance of the project manager, project team members and their capacities, organization as well as the external project environment.

2.2. Critical success factors

This section of the thesis paper presents different project success and the project management success factors. To begin with, Thomas et Anu Thomas (2017, 2) states that according to their research the most important factors of success in the project management field are "*1) selecting the right project, 2) end user's satisfaction, 3) strong and capable project team, 4) the necessity for the project 5) value for money 6) quality of workmanship*". Meanwhile, Nugroho (2018, 84) names the following five project success factors: "*project's innovation, team performance, risk management, resources controlling and schedule monitoring*".

Risk management is also considered as an important factor of project success by Kendrick (2015, 4-5) who mentions that projects are often highly complex therefore there are a lot of possible risks and manager is the person who has to oversee and prevent them. Moreover, other authors also agree that the risk management can be considered as the critical factor of project success, these authors are Serpella et al. (2014, 654), Taherdoost (2018, 18), Masár et al (2019, 1125) and Shojaei et al. (2019, 847).

On the other hand, Turner et al. (2018, 238) mention that the most important factor of a project success is team satisfaction, the second important factor of success is user satisfaction and the third is the customer satisfaction. DuBois et al. (2015, 40) strongly state that the most important critical factors of success are communication and an ability to inspire participants of a project, including team members, stakeholders and etc. Besteiro et al. (2015, 31) also emphasize that their research has revealed that the most important success factor in the project management is communication and add that this *"ability of the manager makes the difference for the success of the project"*.

Besteiro et al. (2015, 31) after conducting the research, indicate the following factors influencing the success of a project: "*1) defining the scope of the project, 2) meeting the deadline of the project, 3) the commitment, 4) planning, 5) ability to communicate and 6) meeting the budget*".

According to Sosiawani et al. (2015, 205) project planning is considered to have huge impact on the project success, because projects can include many changes and unplanned occurrences therefore project managers should carefully plan their projects trying to identify risks in advance. The following authors: Adzmi and Zainuddin Hassan (2018, 654), Yong et. al (2017, 104), Schwalbe (2015, 141-142) also underline the importance of the planning and process management for the project success.

Costantino et al. (2015, 1746) emphasize that a project can be successful only when objectives are clearly defined, the aim of a project is well-communicated to the project team members, the approval is received from stakeholders before important actions related to a project are taken. Oliveira et al. (2019, 139, 141) state that stakeholder management and creation of trust-based relationships have a huge impact on project success.

According to Bhoola (2015, 122) the combination of the following factors can lead a project to success:

1) an effective project planning;
2) delivery on time based on customer expectations;
3) "well-followed project processes";
4) inspiring leadership and team coordination;
5) "flexible HR policies"
6) advanced technologies;
7) positive work environment and appealing rewards.

Project coordination is also mentioned as the factor of project success by Bond-Barnard et al. (2018, 449), McLaughlin (146, 2017) and Garbajosa (227, 2018). These authors mainly speak about the importance of team coordination for the effective collaboration between team members, having shared values and mutually attaining the positive outcome of the project.

Taherdoost and Abolfazl Keshavarzsaleh (2015, 22) according to their study present five success factors related to "*people*" (i.e. project manager, project team, customer and other) which are "*competent team members, great motivation, managers know-how, manager's light-touch and adaptive style, superior customer relationship*". Besteiro et al. (2015, 31) also describe the managerial abilities essential for achieving project success which are listed by order of their importance:

1) "ability to communicate;
2) defining the schedule;
3) accepting the proposal of the project;
4) indicating roles and responsibilities;
5) defining realistic goals and objectives;
6) team qualifications".

Schopp et al. (2019, 5) name three factors which mostly influence the success of a project which are "*a qualified team, technical and management competence of project managers and clearly defined goals*". Clearly defined goals can be related to an effective exploitation of currently existing resources. In case, goals are understood incorrectly and interpreted in a different way, resources can be used ineffectively and have a negative impact on the project management. The importance of clear objectives is also underlined by the following authors: Li et al. (2019, 188), Besteiro et al. (2015, 4, 34), Aga et al. (2016, 814) and Costantino et al. (2015, 1748).

The studies conducted by Aga et al. (2016, 814) shown that the "*combined set of team-building interventions such as project goal-setting, role-clarification, interpersonal relations, and problem-solving creates a highly empowered and committed project team*" and lead to project success.

Taherdoost and Abolfazl Keshavarzsaleh (2015, 21) also introduce "*organizational*" factors which have the highest influence on the project success: "*rigorous executive support, committed sponsor and manager, cooperative organizational culture, oral culture in terms of valuable face-to-face communication*".

According to Radujković and Mariela Sjekavica (2017, 609) a project can be successfully managed and project success can be attainted when the following factors of success, presented in the *2 table:* Key critical project success factors, exist in a project.

2 table. Key critical project success factors

Key critical project success factors
Competent project manager
Competent team
Coordinated manager and team
Adequate organizational structure
Culture
Atmosphere
High usage of project management methodologies, methods, tools and techniques

Composed by the author according to Radujković and Mariela Sjekavica (2017, 609)

Bhoola et. al (2015, 111) mentions important that factors which have an impact on a project success can change because of possible risks which are "*project specific, or human resources related, or environmental, or associated with organizational culture*". For example, such environmental factors as technological advances, economic situation of a country, policies and legislation, can influence the project success in both positive and negative way, provided how favourable these environmental factors for a particular project.

In general, while reviewing the scientific literature it was noticed that very often success of the project management highly depends on the project manager. Since the project manager is responsible for the management of a particular project throughout its whole lifecycle, the outcome of a project heavily depends on his/her abilities, competencies and even character traits.

Mir and Ashly Pinnington (2014, 214) also emphasize that according to their research the performance of the project manager has evident influence on the project success. It can be often seen in the scientific literature as well as in articles published by the experts in project management field that success of any project is often associated with the performance of the project manager.

For example, according to Adzmi and Zainuddin Hassan (2018, 653) a successful manager must be good at *strategic thinking*, *leadership*, as well as possess knowledge and technical competencies in the project management field. In addition, a project manager must have good communication skills in order to effectively communicate with top management, his/her project team members and other stakeholders involved in the project. The aforementioned qualities will help the project manager to successfully handle a project from its initiation until its closure.

When concluding the results after their research, Alvarenga et al. (2019, 8, 11) name the following competencies of the successful project manager: "*communication*, *commitment and leadership*". These competencies were ranked according to their order of importance based on opinions of project managers having at least 10 years of experience. Pinar and Onur Demirors (2019, 1) add that a project manager must have excellent planning skills in order to successfully complete a project because it must be carefully planned in the beginning and later on implemented according to the prepared plan.

The project manager's skills can be split up into the three following sets which are technical, cognitive and communication skills. Technical skills embrace practical knowledge and techniques used in the particular subject field. While, cognitive skills relate to the basic knowledge of a profession. Finally, communication skills allow an individual to effectively interact with colleagues, partners, stakeholders and other participants in a project (Benita Zulch 2014, 176).

Alvarenga et al. (2019, 8-9, 11) state that "Self-management", "Communication", "Technical skills" and "Managerial skills" are essential competencies related to the project management success. These competencies are listed and explained below in the *3 table:* Competencies of the project managemnt successs.

3 table. Competencies of the project management successs

Self-management	This category is particularly related to self-awareness as well as cultural and political awareness, emotional intelligence and vision. It is considered that project managers should be aware of their current skills and be able to continuously improve them. Moreover, they need to be strong emotionally to confront the pressure and to be empathetic towards team members and other participants of the project.
Communication	One of the most important soft skills allowing project manager to effectively interact with his/her project team and other project participants.
Technical skills	Can be characterized as experience in a certain field and the ability to use different types of technologies.
Managerial skills	These skills are related to communication between team members, in other words it is related to teamwork, also interaction with different stakeholders related to the project implementation.

Composed by the author according to Alvarenga et al. (2019, 8-9, 11)

Radujković and Mariela Sjekavica (2017, 613) state that education and training also have the huge impact on the project success and give and advice for organizations to invest in trainings of the project team.

Similar opinion regarding the importance of education and training was also expressed by Ika et al. (2017, 60), Lückmann et al. (2017, 444), Mir and Ashly H. Pinnington (2014, 214).

Ramazani and George Jergeas (2015, 46) emphasize that in order to properly prepare future project managers for their work the educational institutions should take into account three following areas:

1) *"developing critical thinking for dealing with complexity;*
2) *developing softer parameters of managing projects, especially interpersonal skills and leadership as opposed to just technical skills;*
3) *preparing project managers to be engaged within the context of real-life projects."*

In the literature, factors of project success are often expressed through project manager's competencies (e.g. education) – which are technical, hard skills; and abilities (e.g. ability to communicate, ability to inspire) as well as personal traits (e.g. communication) – which can be considered as soft skills.

From the recent scientific literature, it also can be seen that the soft skills of a project manager become more and more vital in the project management field. For example, Esa and Z. Samad (2014, 106) mention that one of the most supreme soft skills chosen by the majority of project management practitioners is cognitive style which can be described as attempt to understand *"individual differences in how people perceive stimuli and how they use this information to guide their behaviour (i.e., thinking, feeling, actions)"*. Alvarenga et al. (2019, 8, 11) name the following ten most valuated project manager's soft competencies which are ranked by an order from the most important which can be seen in the *4 table*: Most valued project manger's competencies, below.

4 table. Most valued project manger's competencies

Most valued project manager's competencies
1) "Communication;
2) Commitment;
3) Leadership;
4) Teamwork;
5) Negotiation;
6) Conflict management;
7) Customer relationship;
8) Interpersonal relationship".

Composed by the author according to Alvarenga et al. (2019, 8, 11)

De Carvalho et al. (2015, 1511) also notes that their research has revealed that soft skills play an important role in the project management success, particularly stakeholder management and

communication. Moreover, Zuo et al. (2018, 434, 436) names the *conflict management* as the most important soft skill needed to achieve the project success. In general, these authors present seven soft skills which can be considered as factors of project success, these skills are named by the order of their importance (from highest to lowest):

1) "*conflict management;*

2) *team work;*

3) *achievement motivation skills;*

4) *cognitive skills;*

5) *leadership;*

6) *and communication*".

According to Zuo et al. (2018 436) the fact of conflict management being in the first place can be explained by stating the fact that stakeholders can have different opinions on the same matter, therefore the project manager has to be the person who is capable of finding the solution or compromise acceptable by both parties. In the second place was teamwork. It can be explained by considering the fact that team members must work together to attain the shared goal. Since the team is often composed of specialists of different fields it is vital for them to find a way to work together by sharing their knowledge and helping each other. Achievement motivation is important to encourage team members to make more efforts in order to achieve goals.

Wu et al. (1479) mention that success of projects can be highly affected by two factors which are communication and conflict management. These authors explain that communication is important for coordination of the team, effective distribution of information and creation of stronger relationhips between team members. Whereas, conflict management is needed for stabilization of demands and disagreemnts between team members and other participants of the project. Lee et al (2017, 1694) agree that the conflict management is very important factor of project success and emphasize the fact that conflict should be managed from the beginning of the project in order to avoid further problems in other stages of the project.

Smith et al. (2018, 265) states that according to their research such non-cognitive (soft) skills as *leadership* as well as *communication* can highly influence the success of the project management. The authors emphasize that it is not enough to have outstanding technical skills (also known as hard skills) to manage the project effectively because great soft skills are necessary for the project success. Their findings have shown that leadership can make an influence on individuals, teams and also on project performance in general. However, their research has revealed that communication is limited to the individual performance

only. On the other hand, better individual performance can positively influence team as well as project performance.

   Alvarenga et al. (2019, 8, 11) mentions that such hard skills as "*time management, management, troubleshooting, organization and delegation*" have the medium importance for the project success compared to the soft skills, but this does not mean that hard skills are not important. In general, until nowadays the question of whether managers should make their decisions in order to achieve success based on analytical or intuitive skills, still remains unsolved (Esa and Z. Samad 2014, 106).

   Aga et al. (2016, 808, 809) emphasize that collaboration and trust-based relationships between project manger and tem members is the cirtical factor of project success, because interaction among the project team members and the project manager must be based on mutual trust in order to increase the chances of the successful project management. The following authors also agree that project success depends on the collaboration and trust-based relationhips: Zou et al. (2014, 266), Barnard et al. (2018, 449), Yong and Nur Emma Mustaffa (2017, 97), Rezvani et al. (2016, 1116), Aga et al. (2016, 808, 809), Oliveira et al. (2019, 136).

   From the literature review it can be seen that there are many different views on what factors have the highest impact on a "project" and "the project management" success. Scholars and subject field experts present various factors of success in their articles and books. However, in the analyzed literature, some of the success factors are presented only a few times by different scholars, for example: "Advanced technologies", "Flexible HR policies", "Customer satisfaction" and etc., while other success factors are quite frequently repeated in publications written by different authors, for example: "Communication", "Trust based relationships between team members and the project manager", "Leadership" and etc. In general, during an extensive literature review, it was managed to collect 60 factors of project success. These factors can be seen below, in the 6 table: Critical factors of project success.

6 table. Critical factors of project success

CRITICAL FACTORS OF PROJECT SUCCESS	
1) Accepting the proposal of the project	2) Manager's light-touch
3) Advanced technologies	4) Managers know-how
5) Appealing rewards	6) Meeting the budget
7) Clear roles and responsibilities	8) Meeting the deadline of the project
9) Cognitive skills	10) Motivation
11) Commited sponsor and manager	12) Negotiation

13) Commitment	14) Oral culture in terms of valuable face-to-face communication
15) Communication	16) Positive work environment
17) Competent project team members	18) Problem solving
19) Conflict management	20) Project manager's adaptive style
21) Controlling resources	22) Project planning
23) Cooperative organizational culture	24) Project team qualifications
25) Customer relationship	26) Project's innovation
27) Customer satisfaction	28) Quality of workmanship
29) Defining realistic and clear goals and objectives	30) Risk management
31) Defining the schedule	32) Schedule monitoring
33) Defining the scope of the project	34) Selecting the right project
35) Delegation	36) Self-management
37) Delivery on time based on customer expectations	38) Stakeholder management
39) Documentation	40) Team coordination
41) Education and training	42) Team satisfaction
43) Emotional intelligence	44) Technical competence
45) End user's satisfaction	46) The necessity for the project
47) Executive support	48) Time management
49) External project environment	50) Troubleshooting
51) Flexible HR policies	52) Trust-based relationships between team members and project manager
53) Inspiration (ability to inspire)	54) User satisfaction
55) Interpersonal relationship	56) Value for money
57) Leadership	58) Well-followed project processes
59) Management competence	60) Manager's light-touch

Source: the author.

The comprehensive list of success factors with the sources from which they were collected can be seen in APPENDIX A.

To summarize, it can be seen that distinct authors mention different factors of the project success, factors which were mentioned in 4 or more than 4 different sources were selected for the further analysis, whereas factors mentioned by less than 4 authors (1, 2 or 3 authors) were rejected from the analysis. Based on this, I state that factors of success, which are repeatedly mentioned in at least 4 or more sources can be considered as critical factors of the project success. These factors of project success were collected from

different fields such as Informational Technologies, Construction, Science and other. It is important to note that it was decided to present the most discussed factors of the project success in different sections in order to retain clarity.

2.2.1. Communication

Since projects can be highly complex and include high number of participants such as a project manager, project team members, suppliers, process consultants and other, it is very important to share an information effectively in order to understand each other and in such a way efficiently achieve project goals. For this reason, communication can be considered as the paramount factor of project success.

In the first place, participants of particular project can be called stakeholders, this term can be defined as *"any person, group, or organization that can place a claim on an organization's (or other entity's) attention, resources, or output" (*Bryson 2018, 42*).* According to Pacagnella et al. (2015, 42) in order to successfully manage any project, it is important to determine the parties who are interested in the outcome of that project and who can influence it in the positive way. Later, it is necessary to understand what motivates those parties, try to interact with them and finally to cooperate with them in order to attain the mutual benefits.

In general, the project manager must precisely define and communicate roles and responsibilities of the project team, because clear communication will allow to avoid ambiguities, misunderstandings, confusion and additional work for fixing the mistakes and in turn it will also increase the productivity of the project team (Adzmi and Zainuddin Hassan 2018, 653). A project manager should communicate not only with language "*but also character, which includes attitude, behaviour and personality*" (Benita Zulch 2014, 180). Alvarenga et al. (2019, 8, 11) after the research states that communication skills can be considered to be the most important competence of the successful project manager.

Moreover, DuBois et al. (2015, 40**)** emphasize that a project manager can apply different techniques in order to encourage individuals as well as project teams to not only attain project objectives but even to be able to exceed them. The authors present two main factors influencing the successful project management which are effective communication and the ability to inspire individuals as well as the whole project team.

It is noted that a project manager needs to have an effective communication skill, especially good listening skills in order to be able to distribute information among team members efficiently and in such way avoid misunderstandings which can cause problems and conflicts within the team (Langović et al. 2014, 367-368). The act of communication most concisely can be divided into four actions: "*informing, motivating, controlling and rewarding*" (Stanciu et al. 2016, 394). Assuring an effective communication in

the project management allows not only to properly distribute the information and share responsibilities among team members and other participants in the project but it also helps to ensure positive work environment as well as to build reliable communication among team members (Muszynska et al. 2015, 1360).

Frank Cervone (2014, 77) emphasize the importance of communication in project management and presents a bit unusual, but very creative way of indulging different parties into the project implementation. This author emphasize that storytelling can be considered as an effective communication tool and is highly efficient way of compelling people to engage. In other words, project managers should design an interesting story and embed important information and strong arguments. It will make people actively listen and at the same time get familiar with important information related to a particular project.

Li and other (2019, 186) underline that according to their research the paramount factor of a project success is "*Communication and cooperation between project participants*" because it allows to reduce obstacles and helps to distribute an information between project participants so everyone is aware of their responsibilities and what is expected from them. It again can be explained by stating the fact that projects can involve a large number of different participants including project team members, suppliers and project managers therefore it is important to create an environment of collaboration which will enhance the possibility to coordinate a project and all its participants more efficiently and successfully which in turn will highly increase the probability of successful completion of a project when every party is satisfied with the results.

It is important to not only have an effective internal communication in order to successfully manage a project, but also established good external communication with other participants of a particular project (Schopp et al. 2019, 5). Oliveira et al. (2019, 139, 141) also state that according to their research, these authors emphasize that showing empathy and genuinely caring about interests of stakeholders can create positive and reliable relationships between different parties in the project. It will help to understand the expectations of stakeholders more effectively and in such way successfully meet the predefined goals. It is also important to respect the deadlines and deliver on what was agreed to maintain the respect and trustfulness.

Bayiley et al. (2016, 568) emphasize that communication with stakeholders is an important factor for project success and note that the effective communication with stakeholders is especially important in the planning phase in order to clarify details related to project implementation because only knowing stakeholder's expectations it is possible to organize the project in such a way that all stakeholders would be satisfied in the end.

Since distinct groups of stakeholders in projects can have different interests and expectations, therefore the project team must consider the most appropriate and effective ways of interaction in order to build the effective communication strategies allowing to engage with stakeholders for identifying their needs (Frank Cervone, 2014, 75) This idea is very important because the absence of stakeholders needs identification can lead a project to failure. Moreover, as works related to project are continuously progressing, stakeholders should be also continuously involved and informed about the details related to project implementation (Frank Cervone, 2014, 76). Communication helps to establish trustworthy relationships between the project manager, team members and other participants related to the project, especially stakeholders (Besteiro et al. 2015, 21).

In the organizations, communication with stakeholders is considered to be an essential element towards successful project management. The main task of the management is to obtain knowledge of the process and its quality standards from stakeholders via an effective communication. This information will help the organization to understand the procedures more clearly and will also motivate employees to engage (Stanciu et al. 2016, 394).

It can be noticed that the communication with stakeholders as well as stakeholder management in general in projects often does not include logical strategy, planning or appropriate methods. Stakeholder management can be often seen as spontaneous and characterized by causal actions, which are not always controlled and communicated to the project team which can lead to an unpredictable outcome (Yitmen 2014, 182).

Saadé et al. (2015, 68) after the analysis of project management success factors reached a conclusion that the strong communication skills are essential to project success. A project manager who is capable of communicating and engage with different stakeholders, both internally and externally, is prone to manage the projects effectively. The project managers should always actively engage stakeholders into decision making and inform them regarding the developments in a project. It will allow both sides to see the project from different perspectives and in such a way present different idea which is especially important in the initial phases of the project management. It also important to continuously involve the stakeholders in the process which will increase the opportunity to achieve the success (Adzmi and Zainuddin Hassan 2018, 653).

2.2.2. Leadership

Generally, leadership is considered by many authors to be an essential factor of project success. Leadership can be described "*as a style of behaviour to integrate both the organizational requirements and personal interests in the pursuit of some objectives*" (Zulch, Benita 2014, 173). According to Schopp et al. 2019, 5) the leadership is considered to be an important factor of success because a good leader is able to solve conflicts between team members and motivate them and other participants of a project in such way creating a positive environment and allowing the team to attain better results. Therefore, it is important for the project success that a project manager is able to be an effective leader. According to DuBois et al. (2015, 44) being a good leader "*requires vision, ethics and morality and the ability to lead change*".

Analyzing the most important qualities of leadership as well as identifying their impact can help project managers to successfully finish their projects. Some factors influencing the leadership and in the same turn the project success are "*establishing clear relations and roles between project members, openness, self-confidence, organization, clearly defining project successes, reevaluating when necessary*" (DuBois et al. 2015, 30)   It can be noticed that the leadership, especially project manager's ability to lead a team and stakeholders is believed to be the quality necessary to attain the success in the project management. Yong and Nur Emma Mustaffa (2017, 102) state that since all projects are limited in time by their nature it can be difficult to create and develop trust and positive relationships between different stakeholders and the project team members. For this reason, a project manager by using his/her leadership skills must be able to create positive initial environment for all participants of the project which is considered to be the paramount quality of the project manager.

Tabassi et al. (2016, 728) studied the main leadership attributes and after the research identified eight leadership attributes (4 related to *Intellectual competence* and 4 related to *Managerial competence*) which can influence the success of a project, these attributes are listed below (*7 table.* Main leadership attributes) by the order of their importance, from the highest to the lowest:

7 table. Main leadership attributes

Main leadership attributes
1) Strategic perspective (Intellectual competence)
2) Critical analysis (Intellectual competence)
3) Engaging communication (Managerial competence)
4) Achieving (Managerial competence)
5) Developing (Managerial competence)

6) Resource management (Managerial competence)	
7) Vision and imagination (Intellectual competence)	
8) Empowering (Managerial competence)	

Composed by the author according to Tabassi et al. (2016, 728)

It is interesting to note that from the scientific literature it can be also often seen that the leadership is closely related to communication. For example, Benita Zulch (2014, 177) confidently states that the strong communication skills will definitely encourage people to follow a leader, because communication skills help to create understanding and mutual trust between the participants of a project. Such characteristics as personal traits of a leader, surrounding environment and the maturity level of the followers has a huge influence on the leadership style needed to effectively manage a project. An efficient leader should have the capability to adapt a particular leadership style or even a combination of styles which are the most appropriate in the given circumstances. Leaders can choose different styles of communication which will depend on situation or a type of project. However, the communication with other still stay an essential part of leadership.

According to Podgórska and Pichlak (2019, 14) project manager's actions have significant impact on the promotion of cooperation between project team members. Moreover, they state that project manager's leadership style is associated with project success in each type of a project. It is paramount for the project manager to be flexible in order to make use of the most fitting leadership styles in the given types of projects and situations. Henkel et. al (2019, 3) also note that deep self-awareness can lead to becoming a successful project manager, because management or leadership style heavily depends on managers personality and only by choosing appropriate style the manager can become successful in his role.

In the scientific literature, it can be seen that authors often emphasize not only the qualities of a good leader needed for project success but the authors also speak about different leadership styles which also depending on the situation can have higher or lower impact on the project success. Raziq et al (2018, 6) emphasize the importance of the transformational leadership style because a leader should be a person who inspires as well as motivates team members to reach their full potential. A good leader must care about needs and expectations of the followers and only in such way the mutual trust can be build and creativity as well as opportunity for the develpoment to be created. Hence, an effective leader is a person who leads his/her team to changes which positively affect the well-being of team members at work as well as the performance and successful attainability of the project goals. Giudici, Michela and Viachaslau Filimonau (2019, 7) adds that the project managers should more often engage with the project team members by

proactively encouraging and motivating them as well as giving feedback, so that, an employee would be able to know his/her strengths and areas for improvement.

Liphadzi et al (2015, 286, 288) mention that according to their research the transactional leadership style can also influence the success of a project. The transactional leadership style is based on rewards given to team members or employees in general for their achievements, it could be promotions, additional pay, time off and other. Raziq et al (2018, 12) also mentions state that the goal clarity applied in the transformational leadership style can increase the success of a project to a certain extent. Therefore, these authors emphasized that an effective project manager as a leader of the project team must be able to clearly define requirements as well as objectives and efficiently communicate them to the project team members from the beginning of a project.

Miyamoto, Michiko (2015, 38) also underlines the value of the transformational leadership for the project success by stating that a leader must be sensitive and care about expectations and needs of his/her team members in order to understand them better and give support for attaining the mutual project goals. Aga et al. (2016, 814) also agree that the leadership style used by a project manager can highly influence the success of a project and suggest that especially, the transformational project managers can inspire as well as motivate team members and, in such way, build a strong team.

In general, Henkel et al. (2019, 3-4) emphasize the fact that the most typical leadership style used by managers in the project management field is the situational leadership style. This leadership style is based on adoption which means that a project manager must carefully analyze how well the project team is prepared to implement a project with regard to their weaknesses as well as strengths and select the most appropriate leadership style depending on their experience, needs, expectations, the level of maturity and other aspects related to the project such as complexity.

Bhoola et. al (2015, 112) emphasize that the leadership style, the ability of an organization to react as well as adapt to changes in the market can highly increase the possibility within an organization to successfully manage different projects. The successful project manager also must be empathetic to team members, he/she must respect their opinions and show interest in their expectations as well as to able to unite the team in different situations in order to attain the common goals (Yong and Nur Emma Mustaffa 2017, 102). According to Benita Zulch (2014, 180) the best applicable leadership style that the leader can use is considered to be the situational leadership style. As its name suggests this style can be characterized as a style adopted according to current circumstances. According to this style, the project manager should encourage project team members to feel responsible for their work and engage them in the decision-making. It will show team members that the project manager puts trust in them. On the other hand, in case the project

manager lacks leaderships abilities he will lead a project "*to move away from its objectives and therefore will create impediment to success*" (Bhoola 2015, 122).

Mikkelsen and Jens Riis (2017, 262) differentiate between the project administration and the project leadership. And present the major differences (*8 table*: Leading vs managing). According to these authors, it can be noticed that some project managers dedicate the major part of their time on overseeing the project activities and utilizing various control systems which makes them more of a project coordinators or managers. Whereas, the role of leadership is concerned with project participants such as the project team. The project leader is responsible for engaging, caring and motivating participants of a project. Please see *8 table:* Leading vs managing*, below.*

8 table. Leading vs managing

LEAD	MANAGE
1) Do the right things	1) Do things correctly
2) Effectiveness	2) Efficiency
3) Know why	3) Know how
4) Lead other people	4) Control activities
5) Create vision	5) Define goals
6) Find options	6) Solve problems
7) Empower people	7) Have power
8) Keep in step	8) Adjust at interfaces
9) Contacts	9) Organization structure
10) Collaboration	10) Role definitions

Composed by the author according to Mikkelsen and Jens Riis (2017, 262)

Muller and Rodney Turner (2017, 3-4) also distinguish between a manager and a leader and strongly affirm that a person demonstrating capabilities only in one of these two areas will probably have difficult times in upholding a high performing project team in the long-time perspective therefore success of a project will not be attainted.

Sunindijo (2015, 13) mentions that transformational leadership is interrelated with interpersonal skills and emphasize that it can help to effectively communicate, manage conflicts and inspire team work. On the other hand, Pryke et al. (2015, 2) emphasize that emotional intelligence is also connected to leadership because it helps to build *"good relationships between leaders and their followers"*. This author also mentions that according to studies two main abilities of emotionally intelligent leader can be distinguished: 1) "*emotional sensitivity*" – when a person is able to understand emotions clearly and 2) "*emotional expressiveness*" – when a person is able to express emotions clearly (Pryke et al. 2015, 2).

2.2.3. Planning and process management

The strategic planning is also mentioned in the scientific literature as a very important factor of the project success. It can be defined as *"the process of preparing for the commitment of resources in the most economical manner"* (Tesfaye et al. 2017, 160). Strategic planning can be more precisely described as a process of setting long-term objectives which are usually determined by examining weaknesses and strengths specific to an organization, it is also done by identifying external opportunities and threats, foreseeing future business trends and understanding user needs for a new product or service (Schwalbe 2015, 141-142). Strategic planning in the project management can be also defined as *"development of necessary tools for project management"* (Kerzner 2019, 7). One of the most known examples of the strategic planning tools is SWOT analysis (Schwalbe, 2015, 141-142). Strategic planning is considered to be vital in order to cope with changes in life and business environment (Sosiawani, 2015, 201-207). Since, world is very unpredictable place, an organization must not only carefully plan its strategies, but also be able to adapt its strategies and objectives to changing circumstances in order to be successful (Hill, 2014, 20). Tesfaye et al. (2017, 159, 168) state that the project success mostly depends on the following three planning activities: *"time, cost and risk".*

In general, the main aim of the project planning is related to minimizing the unclarity regarding the budget, time scheduling, deadlines, objectives, staffing and various measurements. The accurate planning including the identification of the main project success factors can highly reduce the possibility of failure. On the other hand, an ineffective planning can lead to the deficiency of strategic alignment, poor time management, communication gaps, displeased customers and adequate understanding from the stakeholder's side (Adzmi and Zainuddin Hassan (2018, 654).

 According to Yong et. al (2017, 104) every project must be carefully planned before starting actual implementation related work. It is necessary to clearly define the scope and expectations, restraints and possible challenges in the earliest phases of a project in order to designate a clear direction for the project team. It is paramount to involve the stakeholders who are related to a project in the earliest phases when the project planning takes place. It will help to avoid any ambiguities and ameliorate the interaction as well as communication among participants of a project

The project documentation is also considered to be an important part of the project management success which must be done through the whole lifecycle of a project – the formal documentation must be recorded from the initiation until the closure of a project. According to Adzmi and Zainuddin Hassan (2018, 654) it will help to deal with estimates as well as time restraints and in turn will improve customer

satisfaction. It can be emphasized that the absence of documentation especially including milestone deliverables can contribute to the failure of the project management, it is especially common in IT sphere.

The project planning phase should include the following documents: "*project planning document, cost management plan, quality assurance; risk management, change management, communication plan, contract*" Adzmi and Zainuddin Hassan (2018, 654). In the final phase of the project management, when the finished project is accepted by the client and it is formally closed, in order successfully complete the project it is very important for the project manager and his team to document the lessons learnt, which could be used in the future projects as a motivating factor (Bhoola 2015, 122).

2.2.4. Defining realistic/clear goals and objectives

From the beginning of every project it is essential to determine and clearly define goals and objectives in order to have a clear vision of what should be done during the lifecycle of particular project. Different authors agree that defining clear project goals and objectives will definitely contribute to the project success.

For example, Li et al. (2019, 188) wrote about the importance of defining clear and realistic project objective**s** in their article and emphasized the fact that only having clearly described project goals and objectives in the initial phase of a project, it can be possible to develop precise and detailed plans needed to execute a project effectively in all future phases. It is also evident that precisely described and realistic objectives and goals can minimize the possibility of changes during lifecycle of a project which can cause cost overrun, delays and the probability of a project failure. Besteiro et al. (2015, 4, 34) also wrote about the importance of clearly defining project goals and objectives so that they would be attainable as well as realistic and in such a way the project team would know what is expected from them.

Aga et al. (2016, 814) emphasize that the project goals must be clearly defined as well as explained in detail to the project team and suggest to indulge the project team members in the planning phase of a project when goals are set so that the project team members could express their opinion on clarity and attainability of the project goals. Costantino et al. (2015, 1748) also agree with aforementioned authors and state that clearly defined goals and objectives as well as directions for the project team which are planned in the initial phases of a project can highly contribute to the project success.

Schopp et al. (2019, 5) mention that clearly defined goals can be useful in order to effectively exploit resources given for the project. Because, in case, goals and objetives are not clear, there is a risk that resources can be used innefectively, and therefore cause problems within a project. Therefore, clearly defined goals and objectives can be considered to be the cirtical factor of project success.

2.2.5. Competent project team

According to different authors, competent project team members also play an important role in the successful implementation of projects. Since, project team members directly contribute to the implementation of project objectives and perform different project tasks it is important to choose the most suitable team members for a particular project.

Rogers (2019, 6) underline that it is important to take into consideration individuals who will compose the project team, it is necessary to evaluate their capabilities as well as skills and how they can contribute to the project success. Therefore, in case it is possible to choose the project team members, the project manager must carefully select the most appropriate and competent individuals according to project type and existing needs which will increase the possibility of completing objectives successfully and attaining project goals. Zou et al. (2014, 266) confidently state that the successful implementation of any project highly depends on the project team members, therefore it is essential to carefully select the most appropriate team members for a certain project taking into account how their competencies and capabilities in the given area of a project can be beneficial in order to successfully attain project aim and objectives.

According to Yong and Nur Emma Mustaffa (2017, 97) the project team evidently contributes to the project success and emphasize that competencies, knowledge as well as experience and proficiency of the project team members positively affect communication, effective project planning and also time planning within the team. These authors encourage companies and organizations to invest in training of team members in order increase their competencies.

Ihuah et al. (2014, 69) also note that before choosing members of the project team it is highly significant to consider their competencies, experience and ability to develop because such characteristics are considered to be vital when implementing project objectives. Nugroho (2018, 82) after conducting the survey related to the project success factors, states that all internal stakeholders related to the specific project underlined the importance of the project team performance on the project success. Taherdoost and Abolfazl Keshavarzsaleh (2015, 23) note that people play a significant role in projects which means that project success can significantly depend on chosen team members and their abilities. Thomas et Anu Thomas (2017, 2) after conducting the survey on critical success factors in "Public-Private Partnership Projects" conclude that according to collected results the project success heavily depends on the competencies and knowledge as well experience of the project team members.

To conclude, it can be seen that seven different authors agree that "Competent team members" can have a huge impact on success of a project, because their knowledge, skills and experience will definitely

help to effectively perform tasks and attain project objectives. Moreover, as was mentioned by Yong and Nur Emma Mustaffa (2017, 97) competencies of project team members can contribute to distribution of information as well as knowledge within a team.

2.2.6. Risk management

The main aim of the risk management "*is to increase the probability and reach of the potential positive events*" (Buganová, 2019, 986). The process of managing the risk can be divided into *planning, foreseeing, identifying* and *managing* in order to prepare the preventive actions. Nowadays, the risk management is considered to be one of the most significant internal processes which reinforces the resilience against the failures and errors in the prevention phase and helps to ensure safety of a process.

Since all projects are different and complex there is always a particular level of uncertainty which can lead to particular risks (Kendrick 2015, 4-5). In case, a project lacks an effective risk management strategy or tools there are always a possibility of negative consequences because of the absence of preventive actions needed to effectively avoid uncertainties and risks. For instance, risk of misunderstood communication, environmental changes, unclearly defined scope can lead to huge increases in costs, delays, contractual disputes (Serpella et al. 2014, 654).

Taherdoost (2018, 18) in the article points out that the risk management has an enormous impact on the project management quality. This author divides the risk management into five parts by using 5P's concept. Please see *9 table:* 5P's concept.

9 table. 5P's concept

Presiding	*Presiding* risk management is concerned with foreseeing how the risks can be avoided in the strategic planning level in order to avoid such occurrences as ineffective change as well as poor project management, lack of support from the top-management level and other.
People	*People* in the project management are often considered to be valuable assets, but in some cases, they can be seen as assets having the weak spots which can include poor communication, engaging in conflicts, lack of commitment and other. Therefore, it is suggested to carry out risk analysis related to people and integrate people skills into sustainable project.

Process	*Process* concept is concerned with identifying possible risks in the project management and preparing the preventive actions. It can help to identify the most relevant and critical risks requiring the highest level of concern.
Pragmatic	*Pragmatic* concept is related to *"technical perspectives in risk management through recognizing conditions and consequences"* and requires carrying out the *"quantitative risk analysis"* (Taherdoost 2018, 27).
Performance	*Performance* is about measuring and evaluating the progress of the project management. The author emphasize that visible and continuously updated register of risks is highly important to an organization because it allows to avoid possible risks in the future.

Composed by the author according to Taherdoost (2018, 18, 27)

After conducting a survey regarding risk management in projects related to transport sector Masár et al (2019, 1125) state that the results of this survey confirms the fact that success of different projects in transport sector can be influenced by project manager's ability to indentify and foresee possible negative risks and by using different approaches, risk management methodologies, software and techniques, eliminate them and ensure that project will beimplemented as planned.

Shojaei et al. (2019, 847) emphasize that there are a lot of possible risks in projects, especially in construction industry and if these risks are not managed in time and properly they can lead a project to failure. According to these authors, project managers most often manage risks based on their own experiences and suggest that they should also make use of the analytical tools which can be found in the literature. Combining knowledge of project management practinioners and scholars can highly increase possibility of preparing preventive actions against riks.

Muriana and Giovanni Vizzini (2017, 337) mention that project managers should not only prepare preventive actions but also continuously consider corrective actions, because mistakes or errors in the previous phases of the project management can cause poor performance in following phases of the same project. These authors, also state that it necessary to try as hard as possible to foresee possible risks in the planning phase of a project and if some risks seem inevitable or difficult to predict in advance it is better to balance or distribute them among different phases of a project.

2.2.7. Trust-based relationships

Zou et al. (2014, 266) emphasize that the success of a project highly depends on the project team, therefore it is vital to select the appropriate team members for a particular project taking into account their competencies and capabilities in the given area of a project. Secondly, it is essential to build the trust-based relationships and work together collaboratively towards the shared goals.

Since a project requires not only a project manager but also a project team it is of high importance to emphasize how a project team influence the success of a project. To begin with, a project team can function effectively only when all its members and the project manager are able to collaborate and create environment based on trust. Since, a project manager is the person leading the team, he must emphasize and promote the importance of collaboration as well as trust within the team in order to successfully implement a project. Bond-Barnard et al. (2018, 449) state that the degree of trust within a project team is mostly influenced the following factors:

1) the expectations that the project team have of each other;
2) the knowledge exchange that takes place between them;
3) the degree of trust that is imported from other familiar settings (imported trust)".

The project team also highly contributes to the success of a project. Competencies, knowledge, experience, proficiency and commitment of the project team members are considered to be the critical factors of success which positively affects communication, project planning as well as work scheduling (Yong and Nur Emma Mustaffa 2017, 97). On the other side, in order to have experienced and innovative project team, organizations must invest in their strengthening (knowledge, skills, competence).

According to Rezvani et al. (2016, 1116) the trust creates the liaison between the project team and the project manager and in such a way the efficient working relationships are built. The collaboration is highly important in the complex projects, because it promotes effective communication which in turn helps to avoid ambiguities and uncertainties within a project. Aga et al. (2016, 808, 809) also agree that the interaction between the team members and project manager must be based on mutual trust, because it will increase the chances of the successful project management.

Oliveira et al. (2019, 136) mentions that the trust can be divided into three following types: "Integrity", "Competencies" and "Intuition" which are described in the more detail below:

1) "*Integrity*" - can be described as authentic relation between team members, project manager or stakeholders;
2) "*Competencies*" - are based on knowing the skills and abilities of another person;

3) "*Intuition*" - is related to the impression made by another person.

The intuitive trust appears to be the most significant in the project management, because it is based on empathy, interest in expectations and needs of other participants of the project.

Since projects can be highly complex it is important to be able to adapt to changes and according to Kalkman et al. (2016, 890) "t*rust is needed for contributing parties to accept unplanned changes and to have enough freedom to act*". Chen et al. (2018, 723) also add that the trust empowers engagement and increases the project management success by stating that "*trust positively mediates the relationship between team-mastery, goal orientation and overall project performance*". According to Olaisen (2017, 587) the existence of trust in the work environment enables effective and positive sharing of knowledge.

Returning back to collaboration Bond-Barnard et al. (2018, 449) emphasize that this factor of success heavily depends on the following criteria:

1) "*the physical proximity between its team members;*
2) *the commitment the team members have towards the project;*
3) *less conflict improves the collaboration;*
4) *the degree of coordination in the project team;*
5) *the strength of the relationships between team members and other stakeholders;*
6) *a balance of intrinsic and extrinsic incentives.*"

The important thing is in relation between a project manager and his/her team is that when the project manager acquires the trust of a team and effectively encourages the team to interact and work together for the mutual goal and probability of the project success can be highly increased. Because, in order to effectively attain project objectives, project team must interact with each other, share information and knowledge (Benita Zulch (2014, 180).

Schopp et al. (2019, 5) emphasize that the team qualifications as well as the need to develop and expand skills, being able to adopt to different situations are considered to be the factors of a project success. Consequently, it is highly suggested, particularly in fast-paced and constantly changing environment, to train the project team regarding the changes by taking their current capabilities into account.

Turner et al. (2018, 238) note that the team satisfaction has the highest influence on the project success and emphasize the fact that the project managers often make a mistake by not paying enough attention to this factor of the project success. According to Dwyer, Barry (2016, 359) it is also important to keep in mind that projects can be entirely different in size and the extent of uncertainty therefore the same method cannot be applied in all projects. Moreover, different projects can require distinct skills and expectations from the project team members.

2.2.8. Education and training

Education also plays an important role in the successful project management and project success in genereal. Therefore, organizations should invest on education of the project teams and especially on the competencies of the project manager. This education should be mostly related to internal organizational capacity, organizational learning and improving management competencies (Radujković and Mariela Sjekavica 2017, 613). Ramazani and George Jergeas (2015, 45) emphasize that in order to properly prepare future project managers for their work the educational institutions should take into account three following areas:

4) *"developing critical thinking for dealing with complexity;*
5) *developing softer parameters of managing projects, especially interpersonal skills and leadership as opposed to just technical skills;*
6) *preparing project managers to be engaged within the context of real-life projects."*

Ika et al. (2017, 60) also highlight the importance of trainings for the project manager, and emphasize that these trainings should enhance the ability of the project manager to interact with other participants of a project, teach how to manage hardly predicatable situations, use different approaches and methods of managing a project and finally to be able to apply them on the go. Lückmann et al. (2017, 444) suggest to organize trainings for the project team which would provide knowledge and improve strengths as well as make weaknesses seem irrelevant. According to these authors, these trainings could be provided in the form of team building activities, because then team members would be able to know each other better (stenghts and weaknesses) and think of ways how to combine their knowledge and experience which will help to build strong team and together attain common project goals.

Mir and Ashly H. Pinnington (2014, 214) also underline that their research has shown that organizations should provide trainings to all project team members in order increase the chances of completing projects successfully. Moreover, these authors mention that after trainings when project team members feel well prepared and confident to work on project they will also feel more motivated and will engage more actively in the project implementation.

2.2.9. Conflict management

According to Wu et al. (1479) projects can include many challenges such as poor communication, disgreements and contradictions therefore the conflict management is often needed to solve these problems and in many cases this factor has a huge impact on the project success. These authos suggest that in the process of implementation of projects, relationhips between project team members and other particpants of the project should be coordinated and if conflicts occur the correct measures should be taken to deal with these conflicts and other problems. Lee et al. (2017, 1694) state that their studies have shown that the majority of conflicts occur in the initial phases of project, therefore it is suggested that conflicts must be solved as immediately as possible because borehand mitigation of conflicts has the greatest outcomes. Moreover, these authors emphasize the fact hat their research has shown that conflicts among external stakeholders are more often occurring than conflicts between intenal stakeholders. It is also noted that conflicts between internal stakeholders can be managed according to guidilines of the project management, whereas disagreements as well as conflicts among external stakeholders can be highly varied.

Accordign to Wang et al. (2016, 146) state that the conflict management is an important factor of the project success in the international projects, especially in the projects which include use of new and advanced technologies, because processes and tools change very frequently. These authors, also mention that the cultural differences can affect the way how a person will solve the conflicts, therefore contradictions between team members can appear. Some ways of solving conflicts identified during their research are organizing team buildings during which managers use their authority to find consensus between arguing parties, another way is creating trustful environment and showing that there should be the common interest in avoiding conflicts.

2.2.10. Team coordination

Team coordination is also one the factos of project success mentioned in the scientific literature by scholars and subject field experts. For example, Bond-Barnard et al. (2018, 449) mention that coordination is important in the projects because it enables collaboration between team members, the more effective coordination within the team, the more effective is the sharing of workload, responsibilities and even knowledge. Bhoola (2015, 122) underlines that team coordination has high influence on project success and if project lacks good team coordination/handling a project can fail.

According to Garbajosa (227, 2018) team coordination enables effective teamwork, shared values, trust and efficient communication within the team. This author also mentions that promoting feedbacks are highly important in the team coordination, because team members have to work effectively together. McLaughlin (146, 2017) emphasize the fact that coordination is important for the project success because team members as well as other participants of the project should be aware of the outcome which is needed to be attained during the life-cycle of a project. These authors elaborate that since project outcome depends on people who work with a project it is important to align their expectations, knowledge and skills to the outcome of a project.

To sum up, it can be seen that team coordination is needed in projects in order to have effectively collaboration within the project team members, to have the shared values and working for the same project outcome. Hence, proper coordination enforces team members to work effectively together towards the common goals.

3 RESEARCH METHODOLOGY

The main aim of this master thesis was to find out which factors have the highest impact on the project success. In the first place, in order to find out this information a comprehensive analysis of the scientific literature was completed and different factors of the project success were collected. Later, the most prevailing factors of the project success i.e. factors which were mentioned by different authors in multiple sources were selected as a sample for the further research. More precisely, the factors of the project success which were mentioned in 4 different sources were selected as proper for more detailed research, whereas factors which were mentioned in less than 4 sources were excluded from the further research. Consequently, 10 main factors of the project success were identified during a comprehensive literature review. The importance of these 10 factors of the project success was described in more detail in the theoretical part of this paper.

In the second place, one of the objectives was to compare the opinions regarding the factors of the project success in the scientific literature with the views of practinioners in the project management field. It was decided to conduct the qualitative research by performing the expert interview. It was believed that the expert interview will help to collect relevant information from the subject field practitioners regarding the importance of the factors of the porject success.

The reserach was conducted in the form of the electronic survey which ws filled by the chosen respondents. The respondents were selected according to their accesibility for the thesis author. Some respondents of the survey are familiar with the author. Some of the respondents were chosen from the work environemnt, some from other organizations and finally some respondents were selected according to Snowball sampling technique – when already chosen respondents for the research invite more participants which conform with the requirements to be eligble for the survey. The main objective was to invite such respondents who have 2 years or more of experience of work with projects. Respondents who have more than 2 years of experience of work with projects were considered to be eligible for this survey, whereas those who have less than 2 years of experience were excluded. 10 respondents were selected for the survey, 4 respondents have more than 2 years of experience in working with projects, 3 respondents have 3-4 years of work experience in working with projects, 2 respondent have 5-6 years of experience and 1 respondent has more than 6 years of experiencce in working with projects.

The survey was anonymous and the respondents were informed that the gathered results will be used only for this particular master thesis paper. The list of the respondents (identity hidden) and their years of experience of work with projects presented below in the *10 table*: Respondents of the survey.

10 table. Respondents of the survey

Respondents	Years of experience working with projects
1 respomdent	more than 2 years
2 respomdent	3-4 years
3 respodent	more than 2 years
4 respodnent	3-4 years
5 respodnent	5-6 years
6 respondent	more than 2 years
7 respondent	3-4 years
8 respodent	5-6 years
9 respodnent	more than 2 years
10 respondent	more than 6 years

Source: thesis author

The survey was divided into three parts:

1) In the first part respondents were asked to rank 10 factors collected from the scientific literature according to their importance for the project success. The respondents needed to choose factors according to their views, i.e. what factors should be the most important according to them (futher described as expectations). Later, the order of importance of factors collected from the scientific literature was compared to opinions and views of the respondents who are practitioners in the project management field. Please see example of this part of the survey below, *11 table*: Ranking of the porject success factors.

11 table: Ranking of the project success factors

1	In your opinion, what factors should have the highest influence on a project success? *Numbering in order of importance from 1 to 10, the most important is 1, second 2 and etc.*		Communication		Risk management
			Leadership		Education and training
			Trust-based relationships (*between team members and project manager*)		Clear/realistic goals and objectives
			Planning and process management		Competent project team
			Conflict management		Team coordination

Source: the author.

2) In the second part of the survey respondents needed to choose how relevant are each of the aforementioned factors in their current or recent projects, this part of the survey was presented in the form of Likert Scale, there were five options to choose from: Always relevant, Often relevant, Sometimes relevant, Rarely relevant, Never relevant. The aim of this part of the survey was to compare whether expectations (how it should be – reflected in the first part of the survey) correspond to reality (relevance in current/recent projects of the respondents). Please see the example of this part of the survey below, *10 table*: Relevance of the project success factors.

12 table: Relevance of the project success factors

Factor of success	Always relevant	Often relevant	Sometimes relevant	Rarely relevant	Never relevant
Communication					
Leadership					
Trust-based relationships					
Planning and process management					
Conflict management					
Risk management					
Education and training					
Clear/realistic goals and objectives					
Competent project team					
Customer satisfaction					

Source: the author

3) The third part of the survey consisted of 10 open questions where respondents were asked to write why each of these factors from their experience is important for the project succcess. The example of this part of the survey can be seen below, *13 table*: Importance of the proejct success factors from the experience of the respondents.

13 table: Importance of the proejct success factors from the experience of the respondents

| 3 From your experience why each of these factors can be important for the project success? For example: *Communication is important for distribution of information among all participants of a project, motivation of team members, dealing with stakeholders ...*	
Communication	
Leadership	
Trust-based relationships	
Planning and process management	
Conflict management	
Risk management	
Education and training	
Realistic goals and objectives	
Competent project team	
Team coordination	

Source: thesis author

Collected research results were processed using online survey platform, which calculates and presents the summarized review of answers. Later on, content analysis was used in the part which includes the information from open questions were respondents needed to describe why from their experience each factor is important for the project success. Moreover, in order to express the general view of results the method of synthesis was applied – respondent answers were compared, similar opinions and thoughts were joined to present the whole view of all respondents.

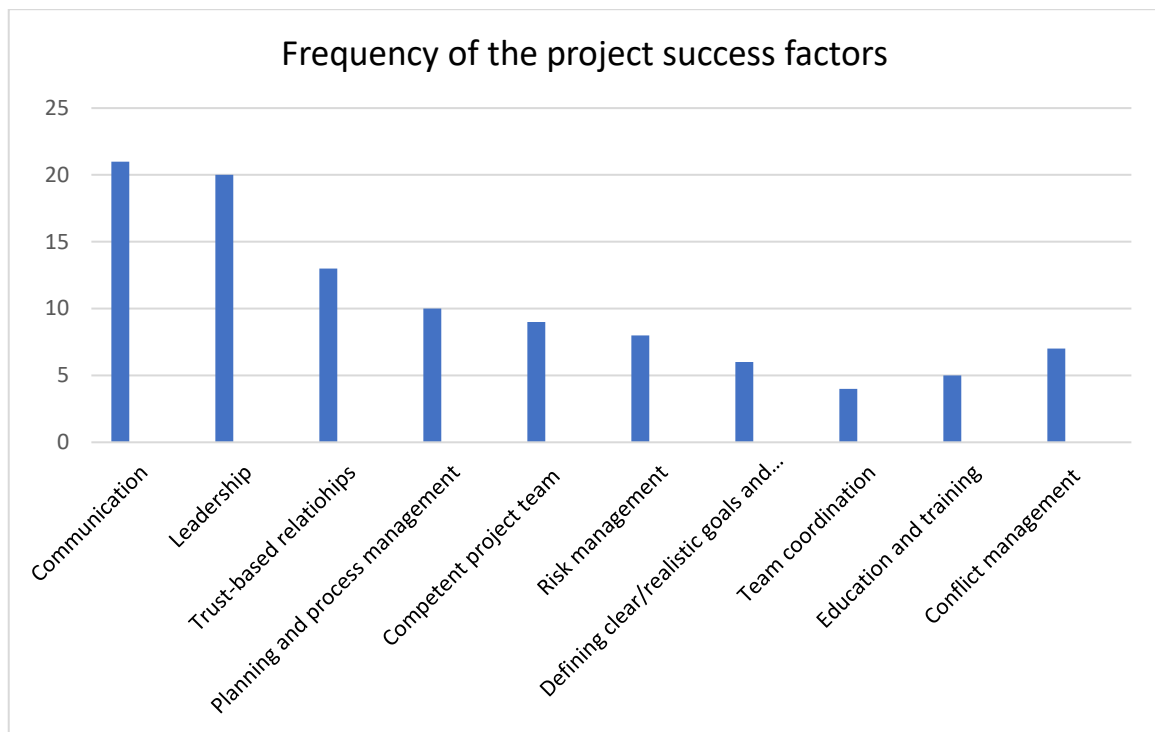# 4 RESEARCH OF THE PROJECT SUCCESS FACTORS

4.1. Project success factors: ranking of importance

In the first place, as was mentioned previously during the scientific literature review 10 factors which have the highest impact on the project success were identified. These factors of the project success are presented in the *2 figure*: Top ten factors of the project success, below.
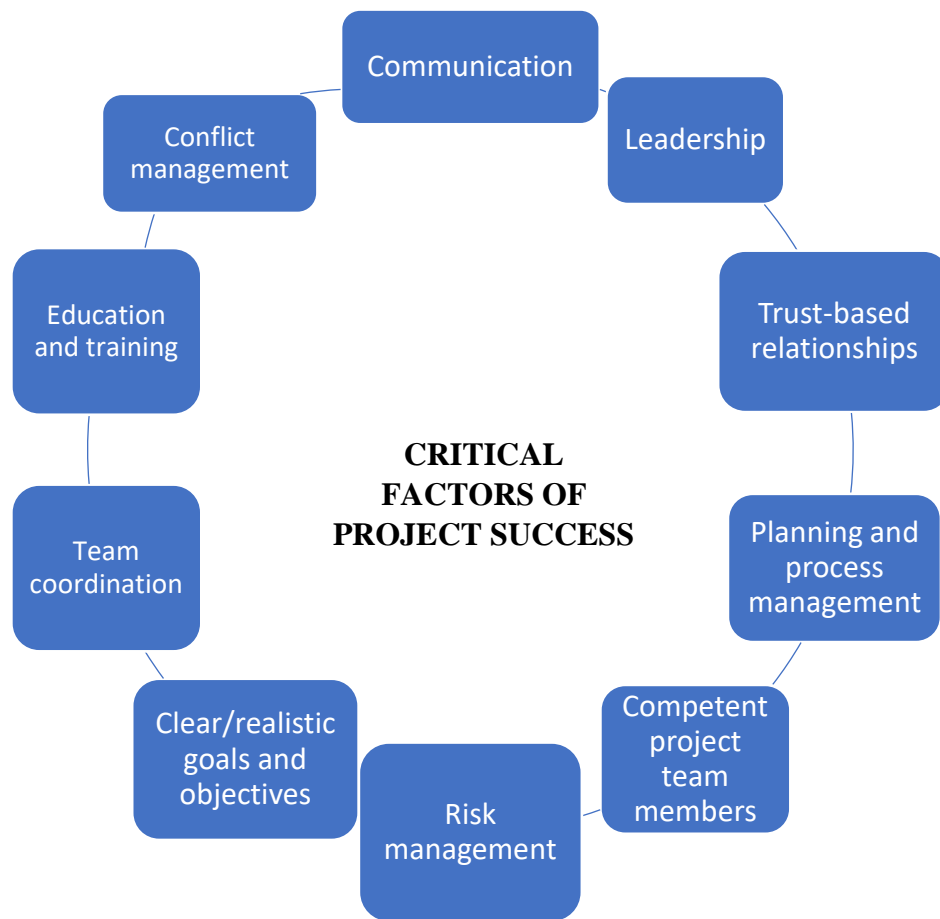
2 figure. Top ten factors of the project success. Source: the author.

In order to present the frequency of these factors of the project success in the scientific literature they will be shown below in the *3 figure*: Frequency of the top ten project success factors, were the number of sources in which they were used can be clearly seen.

3 figure. Frequency of the top ten project success factors. Source: the author.

As it can be seen *Communication* takes the 1st place according to the analyzed scientific literature. This factor of success was mentioned by 21 authors in their publications. In other words, scholars and subject field experts believe that *Communication* is the most important factor of the project success. However, it is also important to underline that the *Leadership* has almost the same value, it was mentioned as the critical factor of the project success by 20 authors and takes the 2nd place according to its importance. This occurrence can be explained by stating the fact that these two factors are indeed closely related. From the literature review, it can be seen that *Communication* is a tool of a leader to motivate and inspire the project team and leadership skills are needed to do it as effective as possible. In the 3rd place is Trust-based relationships (13 sources), 4th Planning and process management (10 sources), 5th Competent project team (9 sources), 6th Risk management (8 sources), 7th Conflict management (7 sources), 8th Defining clear/realistic goals and objectives (6 sources), 9th Education and training (5 sources) and finally 10th team coordination (4 sources).

Returning back to the first part of the survey it was noticed that the results in the scientific literature (ranking of ten most important factors of the project success) and results collected from the survey (views of respondents regarding these factors of success) are quite different. Two tables below represent these differences, the *14 table:* Ranking of factors of success in literature – reflects results collected from the

scientific literature and the *15 table*: Ranking of factors of success according to respondents – reflects the results collected from the survey.

14 table. Ranking of factors of success in literature

Rank	Factor of success
1	Communication
2	Leadership
3	Trust-based relationhips
4	Planning and process management
5	Competent project team
6	Risk management
7	Defining clear/realistic goals and objectives
8	Conflict management
9	Education and training
10	Team coordination

Source: the author

*15 table*. Ranking of factors of success according to respondents

Rank	Factor of success
1	Planning and process management
2	Communication
3	Defining clear/realistic goals and objectives
4	Risk management
5	Leadership
6	Team coordination
7	Competent project team
8	Education and training
9	Conflict management
10	Trust-based relationhips

Source: the author

It can be seen that the respondents of the survey think that the most important factor of the project success is *Planning and process management*, whereas in the scientific literature it is *Communication*. Also the second surprising fact is that *Leadership* in the scientifc literature is considered to be the 2nd most important factor of the project success, while according to the survey Leadership was assigned to the 5th place. Trust-based relationhips which where indentified in the scientific literature as the 3rd most important factor of the project success, according to the respondents was assigned even to the 10th place. It can be concluded that differencies between ranking of factors of success in the literature and the survey completed by practitioners working with projects are tremendous.

4.2. Project succes factors: survey respondent expectations vs reality

The aim of this section is to compare the views of respondents on which factors according to them should be the most important for the project success (*further in the text described as expectations*) and the relevance of these factors of success in their current/recent projects (*further in the text described as reality*). Therefore, the aim of this section is to compare expectations of respondents (*how should it be*) and reality (*how it is*) regarding success factors collected from the scientific litearture. The relevance of these factors of success in the projects of respondents is reflected below, in the *4 figure*: Relevance of the factors of success in projects of the respondents.
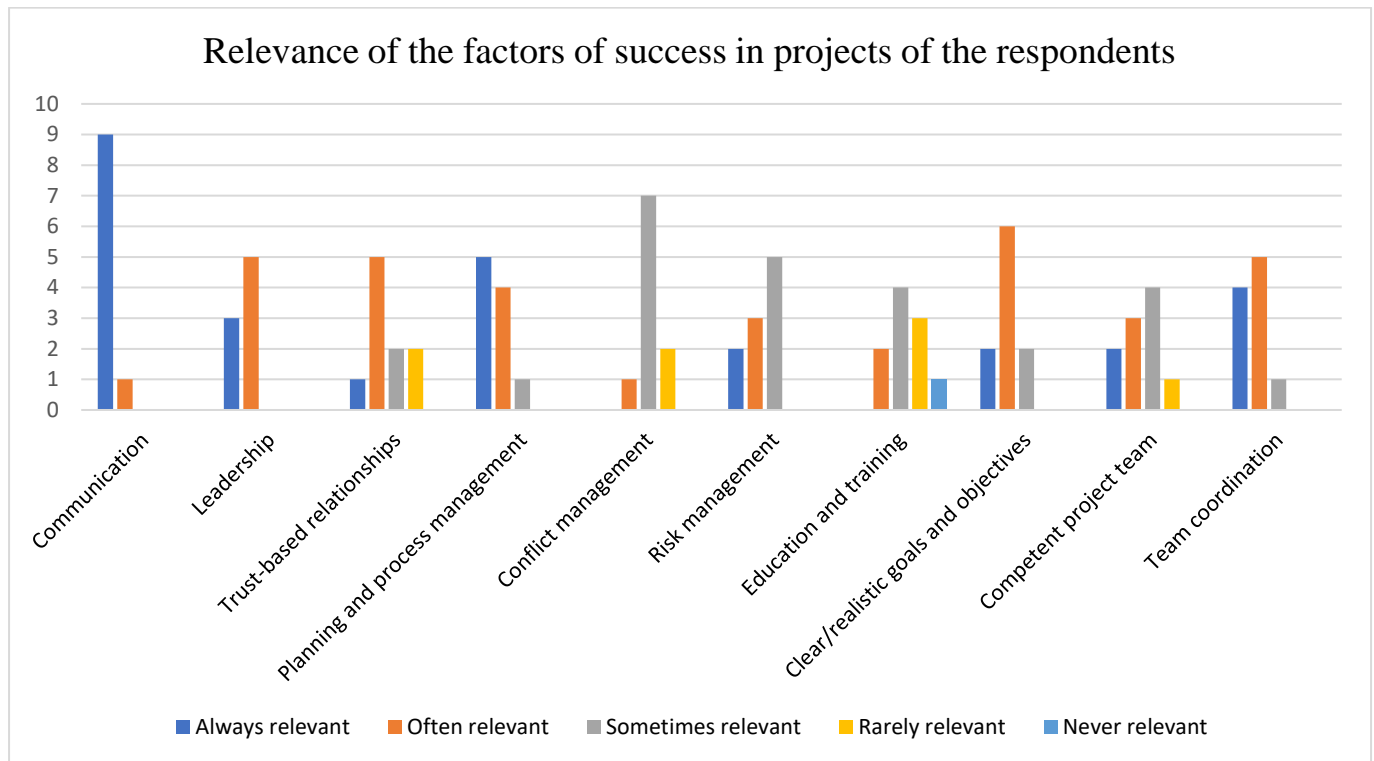
4 figure: Relevance of the factors of success in projects of the respondents. Source: the author.

It can be seen that some of the project success factors are more relevant than other. Each factor of success will be presented separately below in order to discuss all of them in more detail.

Planning and process management

In the first place, from the list of the project success factors collected from the scientific literature the factor *Planning and process management* was chosen by the respondents as the most important factor of the project success, whereas according to its relevance it takes the 2nd place.

Factor of success	Rank
Planning and process management	
Relevance (reality)	2nd
Ranking (expectations)	1st

According to the results of the survey this factor of success is *Always relevant* in the projects of 5 respondents (out of 10) and *Often relevant* in projects of 4 respondents (out of 10) and *Sometimes relevant* in projects of 1 respondent (out of 10). Distribution of the results can be seen in the *5 figure*: *Planning and process management*, below.
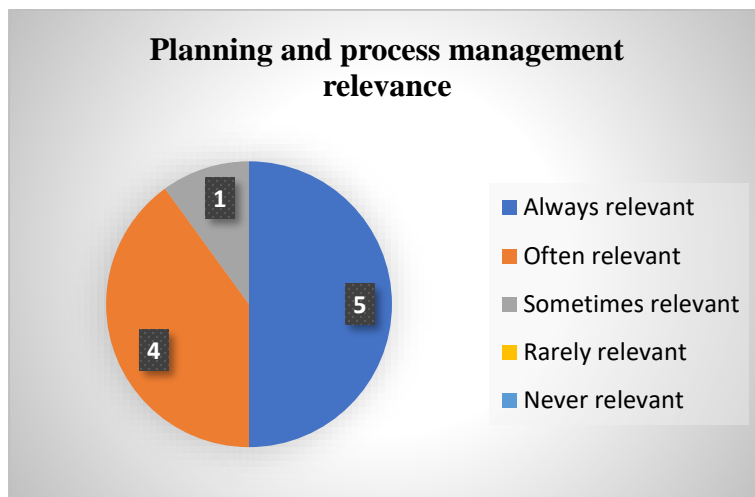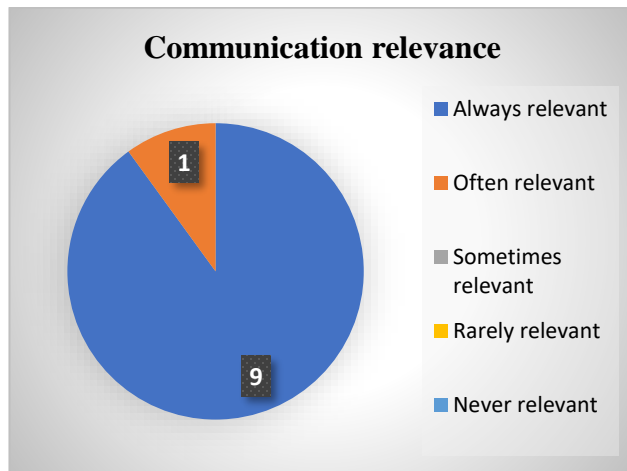

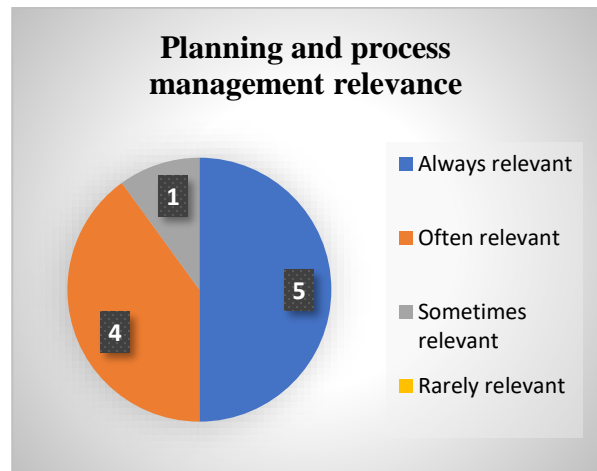*5 figure*. Planning and proceess management relevance. Source: the author

Communication

According to views of the respondents *Communication* should be the second most important factor of the project success, whereas in the reality according to its relevance this factor of success takes the 2nd place.

Factor of success	Rank
Communication	
Relevance (reality)	1nd
Ranking (expectations)	2st

When respondents were asked to name the relevance of this factor in their current/recent projects 9 respondents (out of 10) replied that this factor is *Always relevant* in their projects, 1 respondent (out of 10) replied that this factor is *Often relevant* for the project success. The results can be seen in the *6 figure*: *Communication*, below. However, it can be noticed that although *Communication* is in the 2nd place according to ranking (expectations), it is in the first place according to the relevance (reality) in the projects of the respondents. The *5 figure*: *Planning and process managemnt* is added below next to the *6 figure*: *Communication* in order to compare the relevance between *Communication* and *Planning and process managemment*. Therefore, it can be seen that expectations are different from the reality (relevance) of these two factos of success.

*6 figure*. Communication relevance. Source: the author.

5 figure. Planning and proceess management relevance. Source: the author

Defining clear/realistic goals and objectives

Respondents of the survey think that *Defining clear/realistic goals and objectives* should be the 3rd most important factor of project success (expectations), while according to its relevance this factor of success takes the 6th place.

Factor of success	Rank
Defining clear/realistic goals and objectives	
Relevance (reality)	6th
Ranking (expectations)	3rd

In reality, in current/recent projects of the respondents this factor is *Always relevant* in projects of 2 respondents (out of 10), *Often relevant* in projects of 6 respondents (out of 10), and *Sometimes relevant* in projects of 2 respondents (out of 10). The distribution of results can be seen below, in the *7 figure*: Defining clear/realistic goals and objectives.
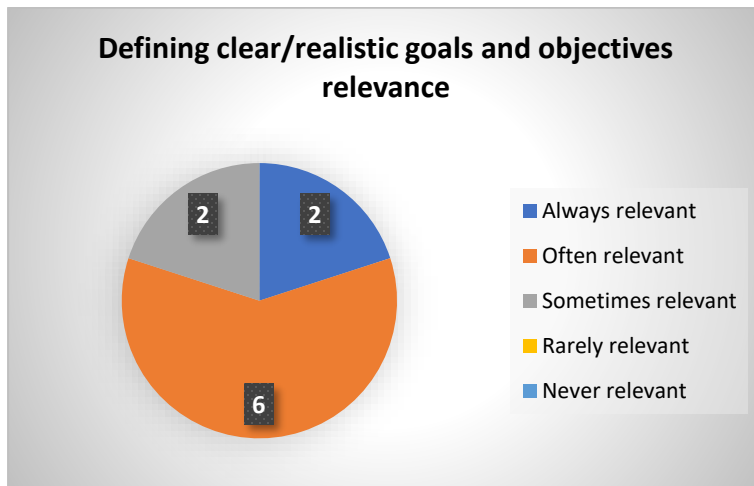
7 figure. Defining clear/realistic goals and objectives relevance. Source: thesis author.
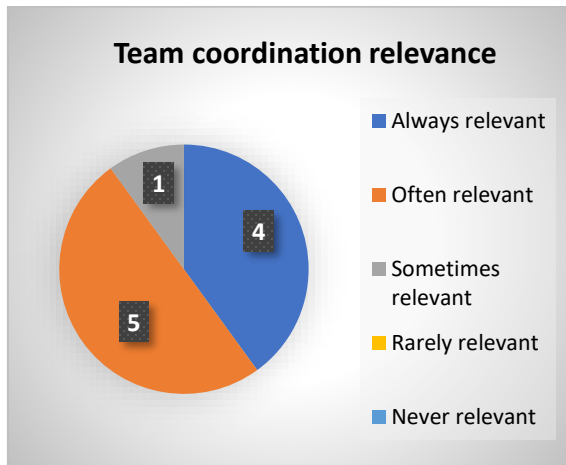
Team coordination

According to the respondents of this survey, team coordination should be in the 6th place according to its importance for the project success, whereas according to its relevance this factor of success is assigned to the 3rd place.

Factor of success	Rank
Team coordination	
Relevance (reality)	3rd
Ranking (expectations)	6th

From the relevance perspective, this factor of success is *Always relevant* in projects of 4 respondents (out of 10) *Often relevant* in projects of 5 respondents (out of 10) and *Sometimes relevant* in projects of 1 respondent (out of 10). The results can be seen below in the *8 figure*: Team coordination.

It can be noticed that according to its relevance (reality) *Team coordination* has higher position than factor *Defining clear goals and objectives*, but lower importance according to its ranking (expectations). In order to compare the *7 figure*: Defining clear/realistic goals and objectives was added next to the *8 figure*: Team coordination, below.

8 figure. Team coordination relevance. Source: the author.

*7 figure*. Defining clear/realistic goals and objectives relevance. Source: the author.

Risk management

The respondents of the survey taken in general, think that *Risk management* should be the 4th most important factor of the project success (expectations), while according to its relevance (reality) it takes the 6th place.

Factor of success	Rank
Risk management	
Relevance (reality)	6th
Ranking (expectations)	4th

According, to its relevance in current/recent projects of the respondents, this factor is *Always relevant* in projects of 2 respondents (out of 10), *Often relevant* in projects of 3 respondents (out of 10) and finally *Sometimes relevant* in projects of 5 respondents (out of 10). The results can be seen below in the *9 figure*: Risk management
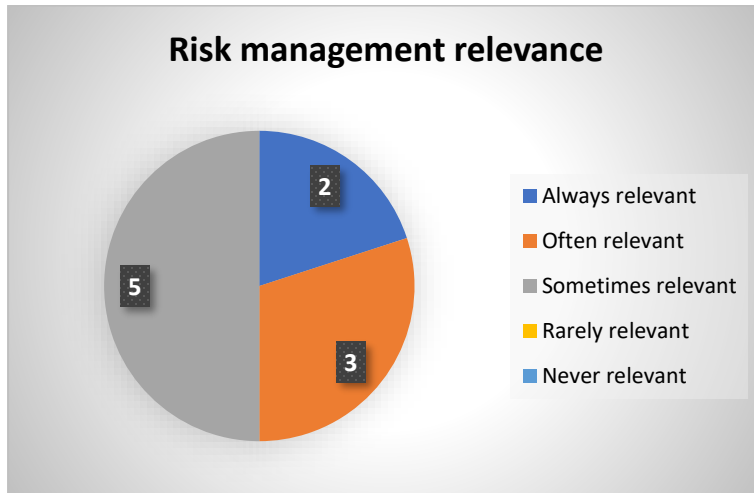
*9 figure*. Risk management relevance. Source: the author.

It can be noticed that this factor of success, has lower relevance in projects of the respondents than aforementioned factors of success such as *Planning and process management, Communication, Defining clear/realistic goals and objectives* and *Team coordination.*

Competent project team

Competent project team was ranked as the 7th most important factor of the project success (expectation whereas according to its relevance it also takes the same 7th place.

Factor of success	Ranking
Competent project team	
Relevance (reality)	7th
Ranking (expectations)	7th

Speaking about the relevance of this factors – in projects of 2 respondents (out of 10) this factor is *Always relevant*, in projects of 3 respondents (out of 10) *Often relevant*, in projects of 4 respondents (out of 10) *Sometim relevant* and finally in projects of 1 respondent (out of 10) *Rarely relevant.* The results can be seen below in the *figure*: Competent project team.
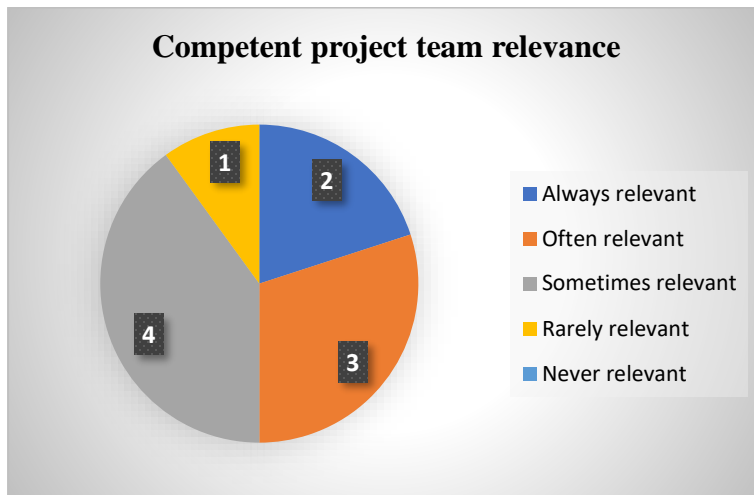

10 figure. Competent project team relevance. Source: the author.

Leadership

Leadership was ranked as the 5th according to its importance for the project succcess by the respondents of the survey, whereas according to its relevance it takes the 4th place.

Factor of success	Ranking
Leadership	
Relevance (reality)	4th
Ranking (expectations)	5th

According to its relevance, Leadership was selected as *Always relevant* by 3 respondents (out of 10), *Often relevant* by 5 respondents (out of 10), *Sometimes relevant* by 2 respondents (out of 10). The results can be seen in the *11 figure*: Leadership, below.
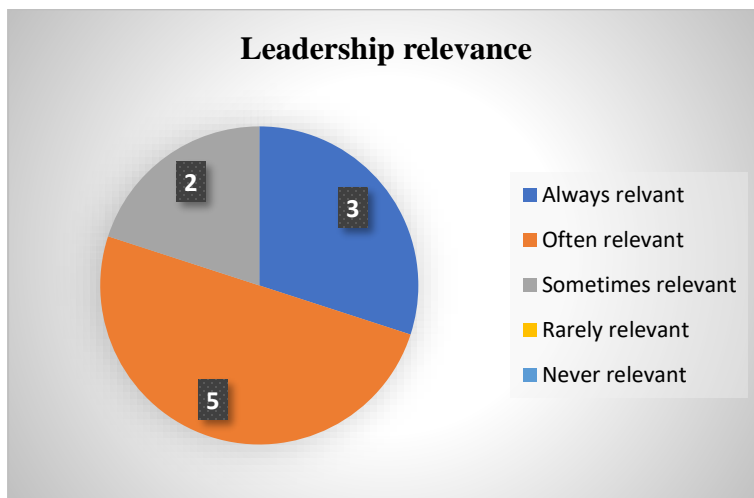

11 figure. Leadership relevance. Source: the author.

However, according to its relevance it has the higher position than *Trust-based relationships, Conflict management, Risk management, Education and training, Clear/realistic goals and objectives, Competent project team* but lower position than *Communciation, Planning and process management* as well as *Team coordination.*

Education and training

According to the respondents *Education and training* should be the 8th according to its ranking (expectations), whereas according to its relevance it is in the 10th position, in other words the last.

Factor of success	Ranking
Education and training	
Relevance (reality)	10th
Ranking (expectations)	8th

When asked about the relevance of this factor respondents replied as follows: in projects of 2 respondents (out of 10) this factor is *Often relevant*, 4 respondents (out of 10) think that *Sometimes relevant*, 3 respondents (out of 10) believe that *Rarely relevant*, 1 respondent (out of 10) thinks that *Never relevant*. The distribution of results is presented in the *12 figure*: Education and training, below.
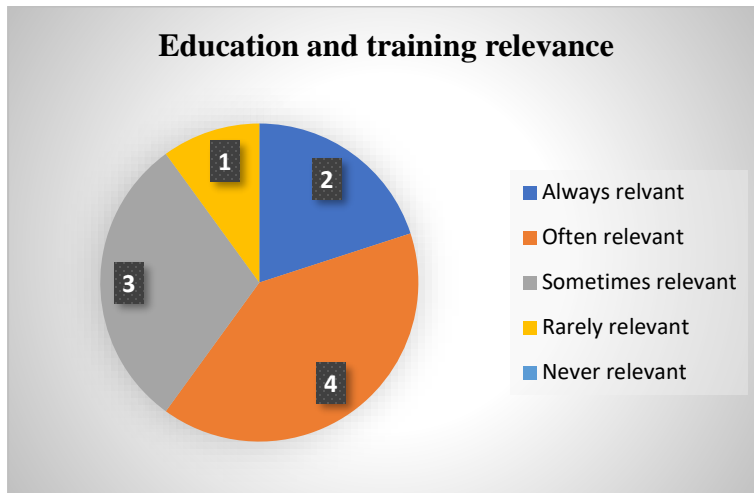

12 figure. Education and training relevance. Source: thesis author.

Trust-based relationships

Trust-based relationships are considered by the respondents to be in the 10th place according to importance of this factor (expectations), whereas according to its relevance (reality) this factor of success takes the 8th place.

Factor of success	Ranking
Trust-based relationships	
Relevance (reality)	8th
Ranking (expectations)	10ht

Speaking about the relevance of this factor, 1 respondent (out of 10) replied that this factor is *Often relevant* in their projects, 5 respondents (out of 10) replied that *Often relevant*, 2 respondents (out of 10) replied that *Sometimes relevant* and 2 respondents (out of 10) replied that *Rarely relevant*. The results can be seen in the *13 figure*: Trust-based relationships, below.
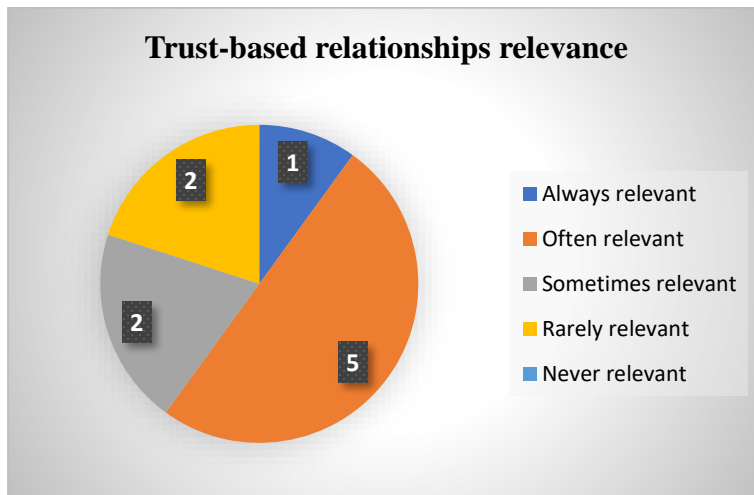
13 figure. Trust-based relationships. Source: the author.

Conflict management

Respondents think that Conflict management should be in the 9th place according to importance (expectations), whereas according to its relevance in recent/current projects of the survey respondents, this factor also takes the same 9th place. Therefore, it can be seen that in this case expectations and reality correspond.

Factor of success	Ranking
Conflict management	
Relevance (reality)	9th
Ranking (expectations)	9th

Regarding the relevance of Conflict management in projects of the respondents, 1 respondent (out of 10) replied that this factor is *Often relevant*, 3 respondents (out of 10) replied that it is *Sometimes relevant*, 2 respondents (out of 10) replied that *Rarely relevant*. The visual distribution of these results can be seen in the *14 figure*: Conflict management, below.

14 figure. Conflict management relevance. Source: the author.

To sum up, it can be seen that the expectations (views of the respondents how should it be) rarely correspond to the reality (relevance of these factors of success in current/recent project of the respondents). The most visible difference is between *Planning and process management* and *Communication* i.e. *Planning and process management* according to its ranking (expectations) is in the 1st place, whereas according to its relevance in the 2nd place. On the other hand, *Communication* takes the 2nd place according to its ranking (expectations), while according to its relevance it was assigned by the respondents of the survey to the 1st place. Moreover, there was only two cases when expectations corresponded to reality, it was *Conflict*

management which took the 9th place in both previously mentioned categories and *Competent project team* which took 7th place.

5.3. Project success factors: comparison of respondent views

This section is dedicated to discuss the opinions of the practitioners in the project management field regarding factors of the project success which are considered to be the most important according to the scientific literature. The information regarding views of the project management practitioners was collected from the open questions in the survey, where respondents were asked to describe why each factor from their experience is important for the project success. Each factor of the project success will be discussed separately below.

Communication

All participants of the survey highlighted the importance of communication as a factor of the project success. Many of respondents agree that communication is needed for *effective distribution of information* between all participants of the project and having *the same knowledge regarding goals, objectives and responsibilities*. For example, the respondent 1 notices that "*in medium and large projects, it is often a challenge to keep all the members informed about everything that is necessary and relevant for them to know. It is always important to send out meeting minutes after each meeting and properly inform each team member about changes, which are often made suddenly and may often surprise team members*". Respondent 4 adds that "*if communication is not working in the right way, then all the other processes and plans are falling apart*".

Communication is also considered to be relevant for the project success because *"clear communication defines same objectives and goals of the project. It is important to pick up most common inner communication channels to succeed in projects"*. Respondent 8 adds that "*without clear and effective communication, no goals can be achieved*". Similarly, respondent 5 underlines that communication is important because all participants of the project must have similar understanding regarding project goals which can be done only through communication. According to this respondent communication is also essential for involvement of the interested parties in a project.

Respondent 3 also mentions that the effective communication can help to attain pre-defined project goals without delays. Respondent 9 underlines that all participants of the project must understand the goals and objectives in the same way and only the effective communication ensures the possibility to successfully implement a project and finally mentions that ineffective communication from his/her experience is the

most common reason of occurring problems and issues within a project. The respondent 6 adds that the effective communication helps to "*avoid misunderstandings and define goals of a project*" and also emphasize that "*all issues and problems should be shared*" between team members in order to solve them.

Respondent 7 highlights that communication ensures that the workload is properly distributed which ensures the effective workflow. This respondent elaborates that all team members must know their responsibilities which helps to avoid misunderstandings. Finally, respondent 10 strongly affirms that "*Communication, in some form, is required through all steps of a project*" and elaborates that "*project area's with a strong focus on communication are 1) stakeholder management, 2) project team co-ordination and 3) change management is all about communication and the majority of projects will have some element of change management*".

To sum up, it can be seen that communication is considered as highly important factor of project success because it allows to distribute information between all participants of a project, to ensure that all participants of a project understand goals and objectives clearly and in the same way. Also, communication helps to ensure that all the team members know their responsibilities. This factor of the project success is also highly important for management of stakeholders and interested parties, coordination of the project team as well as sharing and solving issues. .

Leadership

Leadership is important for the project success because as the respondent 3 mentions only a leader can gather a team to work together, inspire team members and lead them towards achievement of the project goals. Similarly, according to respondent 8 a project manager should encourage the team members to follow the right direction towards attainment of the project goals. Respondent 9 believes that if the project manager has leadership abilities a project is implemented more smoothly, because a real leader is able to encourage a team to work using such tools as motivation. Respondent 2 also underlines that leadership is needed for motivation, keeping the project team together and for solving issues. Respondent 4 states that" leadership *is important in cases when project team is not fully experienced and needs to have an example of how projects have to be executed and to have somebody to lean on*".

Respondent 6 mentions that leadership is highly important while leading meetings and managing the project team. Respondent 5 thinks that leadership is needed to properly manage the project team so that a project would be finished on time and without the increased budget. Similar opinion was expressed by the respondent 7 who underlines that leadership ensures the effective project management process and that human resources are managed. As the respondent 10 noticed "*a project is never a simple, straight road,*

leadership is needed to steer, influence and manage". Finally, respondent 1 stated that *"Leadership is important for maintaining focus on the goals and keeping the team motivated"*.

To sum up, it can be said that leadership contributes to the project success because it helps to motivate and inspire a team, keep it together and encourage to mutually work towards common project goals and in the same way to show the direction (aim) of a project. The leadership is also important for the successful management of a project team.

Trust-based relationships

To begin with, trust allows to attain the project goals more easily (respondent 7) and also helps to save time (respondent 2). It can be explained by stating the fact that when there is a lack of trust and team members are constantly kept under supervision or control the workflow of a project becomes slower and more ineffective (respondent 9). The similar opinion was expressed by the respondent 10 who states that *"trust means having more autonomy to make quick decisions and to keep the project moving forward"*.

Respondent 1 underlines that *"nowadays, when the focus is being placed on teams and team members to work independently it is natural that you need to trust those to whom you give the freedom to do as they think is the best, therefore to get best out of your team members you need to trust them"*. Respondent 8 underlines that trust-based relationships are important "*for working as a team*", while respondent 5 thinks that trust-based relationships also helps to more effectively achieve the project goals. Respondent 6 believes that "*team must trust the project manager, and his/her knowledge and experience in the project management"*. However, respondent 3 expressed a bit different opinion stating that in his/her opinion trust-based relationships are not highly important for the project success, according to this respondent the most important thing is the competencies of the project team members and the project manager's ability to join their knowledge. Respondent 4 did not have opinion regarding this factor.

To sum up, according to the respondents of the survey trust-based relationships are important because trust enables project team members to mutually seek for attainment of the project goals. Trust is also related to autonomy and helps to save time because trainings and supervision are less needed. Moreover, trust is in general important for teamwork and attainment of the project goals. However, according to one respondent project team competencies and the project manager's ability to use these competencies properly are more important for the project success than the trust.

Planning and process management

Planning and process management is considered to be important part of any project, as respondent 3 mentions improperly planned actions can cause delays and effective planning can bring such benefits as risk identification and other. Respondent 2 highlights that planning *"is the first stage of the project management"* and elaborates that for this reason planning is essential for the project success. Respondent 5 also believes that planning and process management is the ground for the project success. This respondent elaborates that project results depends on how well project will be planned and managed. Respondent 1 affirms that" the *most important thing in project management is to meet your deadlines and deliver what you promised. To fulfill this, you need to have good planning skills and define your processes well*".

Respondent 4 adds that *"without planning none of the projects would be executed in the right way and timing, only when having clear project plan and knowing the processes it is possible to move further"*. Respondent 6 underlines that *"planning and related meetings are very important, because scrum team (development team) and also other members of a project have to know the main aim of the project, all steps, vision of project"*. This respondent also continues the idea by stating that *"while planning all developers try to understand each user's stories, and estimate them, according to their previous knowledge"*.

Respondent 7 thinks that planning and process management helps to attain results until the predefined deadline, it also creates order according to which the work is organized. Respondent 8 thinks that planning is needed to prepare well-defined project goals. Respondent 9 states that in order to effectively make use of time dedicated for the project it is needed to have good planning skills. Finally, respondent 10 underlines that a project must be "*built on good planning and follow-up*".

To sum up, according to the respondents of the survey planning is the ground for the project success and process management is needed to follow whether steps are successfully implemented. Good planning can help to avoid delays and bring many benefits such as risk identification. Planning is also needed to define the vision and aim of a project as well as steps needed for its implementation so that all project team members would be aware of what the outcome of a project should be.

Competent project team

Competent project team members are relevant for the project success because experienced team members can apply already tested techniques from previous projects in the current project (Respondent 3). According to the respondent 5 in order to successfully implement the project it is needed to have knowledge and skills. Respondent 6 emphasize that "*all members of team should have skills and experience, should be*

motivated, be team players, be able to communicate well, be self-organized and have ability to solve problem".

Moreover, respondent 10 highlights that "*a project is normally a team endeavor, therefore other people will be needed and they should have the appropriate skills for their role*". Similarly, Respondent 9 believes that each project team member should be assigned to particular responsibilities according to their skills. Respondent 4 simply affirms that only having the competent project team it is possible to be successful. Respondent 8 states that the project team members should know what they are doing therefore competence is needed. Respondent 7 mentions that competent project team members are better at generating ideas and performing in daily project tasks. Moreover, respondent 2 emphasizes that the competent project team saves the time for training. Respondent 1 elaborates that one "*should always start a project with a competent team, because only if your team is competent you can give them independence and trust them, what is very important, if you do not start project with competent team and focus on training, you can easily fall behind your deadlines".*

To sum up, the competent project team contributes to the project success because the experienced team members brings their knowledge from the earlier projects to the current project. It is also important that project team members would be assigned to particular roles according to their skills and knowledge

Risk management

Risk management is important because, as respondent 3 mentioned when risks are identified they can be managed therefore the results can be attained in time, without the increased budget. Respondent 4 adds that "*it is important to foresee possible project risks and describe the ways how these risks could be mitigated".* This respondent also adds that "*risk register is needed depending on the size. If the scale of project is quite small, then maybe it is not necessary*". Respondent 5 mentions that if risk would not be mitigated a project can fail, therefore all cases of possible risks which can have negative impact on the project must be foreseen and preventive actions should be prepared. Respondent 6 underline that all types of risk must be identified such "*financial, reputational ... etc.*" and "*all risks need to be known before project will start*". Some of respondents also emphasized that the risk managemnt helps to save time. For example, respondent 2 underlines that the risk management saves time if risks are identified before they happened. This respondent also adds that it is necessary to have back up plan prepared. Moreover, respondent 1 also believes that "*proper risk management can save a lot of time and stress*" if they are mitigated "*it allows you to focus on more important tasks and let you deliver your product sooner. You should never underestimate any risk tough*". It can be noticed that the risk management can help avoid mistakes

(respondent 7), prevent re-doing of work, increased budget and delays (respondent 10), risks can be faced in every project (respondent 8) and not evaluated risks can fail the whole project (respondent 9).

To sum up, the risk management is considered to be important for the project success because identifying risks before the project starts saves time for re-doing of work, solving issues, it also helps to avoid delays and increased budget. The preparation of back-up plan or preventive actions is suggested by the respondents of the survey.

Defining realistic/clear goals and objectives

The respondents of the survey believe that defining realistic/clear goals and objectives are essential for the project success. According to respondent 1 the main goal of the project manager is to deliver a product or service on time and as it was defined. This respondent elaborates that "*having a clear and realistic goals help you step by step achieve this, with clear and realistic goals you can easily spot when you start to fall behind, there is a smaller possibility of miscommunication and it builds trust between you and your stakeholders, between you and your team. It allows you to plan your steps much more easily*". Respondent 5 and respondent 9 think that it is highly important to define clear/realistic project goals and objectives because all project participants must understand project goals and objectives in the same way which will ensure effective workflow. Respondent 6 underline that goals and objectives should be "*simple, well-defined and easy to understand to all team members*". Respondent 7 also agrees that well defined project goals and objectives add clarity what should be attained during the project lifecycle, because "*otherwise you don't know what are you reaching for*" (respondent 8). According to respondent 10 goals and objectives are needed to understand the direction of a project – it's aim. Similarly, Respondent 4 emphasize that it is important "*to have goals while putting all the team on the same page, having clear milestones and what we are trying to achieve*". Moreover, respondent 2 believes that well-defined goals and objectives are ground for a project and its success. However, respondent 3 thinks that goals and objectives are important, but not should be considered as the factor of success because they must be attained one way or another.

To sum up, it can be underlined that defining clear/realistic goals and objectives is important because it helps to define timelines and conditions, it also helps to easier plan the steps and follow the progress throughout the whole project, the same understanding of goals and objectives by all project participants help to ensure effective workflow, also goals and objectives are needed to know the direction of a project and its purpose.

Team coordination

Team coordination can be considered to be closely related to communication because "*any miscommunication or bad coordination may cause you problems like delays*" (Respondent 1). Respondent 6 also agree that team coordination is needed for distribution of information. Respondent 3 believes that well-coordinated work minimizes the risk of delays and misunderstandings. Similarly, respondent 4 underlines that "*successful projects require delegation of the tasks, ownership, etc., this happens through coordination procedures*". Respondent 5 and respondent 8 adds that team coordination ensures that the whole team would work together towards the common project goals. Respondent 9 highlight that every person is different and only properly chosen team management method can ensure successful project management. Respondent 6 and respondent 7 team state that coordination helps to manage the project team and avoid chaos. Team coordination is also important for better workload distribution, ensuring milestones are reached on time (respondent 10) and for having the same goals (respondent 2).

To sum up, it can be seen that team coordination is needed for management of the project team members, effective distribution of information, delegation of tasks, avoiding chaos, defining and reaching milestones, ensuring that all team members work towards the same shared goals.

Education and training

Education and training could be useful for motivation of the team, according to the Respondent 1 "*it is important to focus on education and training. It motivates your team, it gives them feeling that you care about them and it helps you as a project manager because the more experienced team you are working with, the better the project is going*". Respondent 2 also agrees that trainings keep the project team motivated, because they can grow as specialists. Respondent 3 adds that Education and training are important but emphasize that one can learn things through practice.

Respondent 4 mentions that" it *is important for some of the project members to have education and knowledge about project management principles to manage it in the right manner*". According to the Respondent 5, trainings are needed in the projects which require some specific knowledge in order to understand its outcome. Respondent 6 underlines that the project manager should "*educate himself all the time, because a lot of new methodologies and strategies*" evolve. Moreover, according to this respondent, the project manager "*can have some trainings, he should know what he is doing and why he is doing it*". Respondent 8 also agrees that Education and training are important because the project team members have to know what they are doing. Respondent 7 emphasize that through trainings the project team members are increasing their competencies which will contribute to the project success. Respondent 9 adds that during

trainings team members can learn to use new tools, generate more ideas which will also help to attain the project success. Finally, the respondent 10 believes that the education and trainings are not highly important as factor of the project success.

To sum up, it can be noticed that Education and trainings according to the majority of the respondents are needed as a tool of motivation, further development, gaining more knowledge which can be applied during the implementation of a project. However, some respondents think that trainings and education are not the most important factor of the project success, because knowledge can be gained through practice.

Conflict management

Since projects can involve many participants and interested parties which can have different attitudes and expectations towards a project it is highly important to align different views in order to have the successful project (Respondent 5). The respondent 6 believes that "*the project manager should be responsible for limiting the negative aspects of conflicts during meetings and the whole project*". According to this respondent the project manager "*must clarify the problem, discuss and define it, agree with both sides on the following steps, communication and active listening are very important*".

The respondent 7 also mentions that conflict management helps to identify disagreements within a team and solve them. The respondent 8 emphasize that one "*may face conflict situation at every step and one might not be able to move forward without resolving it*". According to respondent 9 the conflict management ensures that team members work and try to attain the project goals unitedly. Respondent 2 also expressed similar opinion and state that the conflict management ensures that team works mutually to attain the project goals. Respondent 10 also adds that conflict management helps to maintain psotive environment within the project team.

Respondent 3 mentions that it is rare occurrence, but agrees that conflicts can negatively affect the project success. Respondent 4, did not have the opition on this topic. Finally, according to respondent 1 the conflict management is not highly important as the factor of the project success, this respondent states that "*if you put your team in a good way, I think that conflicts can resolve with little effort from the project manager's side*". However, this respondent also adds that it is better to not "*underestimate any conflict, because if conflicts are not resolved correctly, team members may feel a lot of unresolved tension that may explode at a very unfortunate moment*".

To sum up, it can be seen that the conflict management according to the majority of the respondents is important for the better atmosphere, less tension, ensuring that the project team effectively works together towards the shared project goals. Some respondents noticed that the conflicts rarely occur, therefore it is not

a very important factor of the project success and one of the respondents believes that the most important thing is to put the project team in the right way.

CONCLUSIONS AND RECOMMENDATIONS

The aim of this master paper was to determine the most important factors of the project success. Firstly, the scientific literature review was conducted in order to collect the list of factors which are considered by scholars as the factors of the project success. It was noticed that some of the factors were mentioned more often than other therefore there was a need to identify the most dominant factors of the project success which were selected according to their frequency – factors mentioned in more than 4 sources were analysed further in more detail and factors mentioned in less than 4 source were excluded. Finally, ten most important factors of the project success were identified from the literature review, and ordered according to their importance (repetitiveness in different sources) from the highest to the lowest as follows: *Communication, Leadership, Trust-based relationships, Planning and process management, Competent project team, Risk management, Defining clear/realistic goals and objectives, Conflict management, Education and training and Team coordination.*

Secondly, it was important to conduct the research regarding the importance of these factors of the project success in practice. In order to gather this information, it was decided to perform the expert's interview. In the first part of this research respondents i.e. practitioners in the project management field were asked to rank ten aforementioned factors of the project success according to their importance i.e. expectations of the respondent how it should be. This part of the research revealed that the order of importance of these factors is quite different in the scientific literature and views of the respondents. The ranking order according to the respondents (general results) should be as follows (from highest to lowest importance): *Planning and process management, Communication, Defining clear/realistic goals and objectives, Risk management, Leadership, Team coordination, Competent project team, Education and training, Conflict management and Trust-based relationships.*

Thirdly, respondents were asked to indicate how relevant each of these factors their current/recent projects. The results have shown that expectations of what factors are most important for the success rarely correspond to reality. One of the most noticeable differences is that according to expectations of the respondents *Planning and process management* should be the most important factor of the project success, *Communication* should be in the second place. However, according to the part of the survey where respondents needed mention relevance of these factors in their projects, *Communication* was chosen as more relevant than *Planning and process management*. In general, it was noticed that expectations and reality (relevance in current/recent) projects must often do not correspond.

Finally, the respondents of the survey were asked to describe why each aforementioned factor is important for the project success from their experience. In general, respondents believe that *Communication*

helps to distribute information between all participants of a project, ensures understanding of the responsibilities and project goals, helps to manage stakeholders and interested parties, coordinate the project team and solve problems. *Leadership* is useful for motivation, inspiration, encouragement and guidance of the project team members towards the project goals. *Trust* is needed so that the project team and the project manager should be able to work together towards the project goals and to have more autonomy which helps to save time. However, it also was noticed by one of the respondents that the proper management of team members is more important than *trust*. *Planning and process management* was named as the most important factor of the project success by the majority of the respondents, because projects usually start from planning so that aim, goals, steps, timelines and etc. would be clearly defined from the beginning. Later, the process management is needed for follow-up i.e. to see whether project is implemented according to the predefined plan. *Competent project team* members can bring experience from previous projects, knowledge allows them to generate new innovative ideas and perform tasks much faster. *Risk management* is important because when risks are foreseen and mitigated the possibility of delays, re-doing of work or even failure of a project can be avoided or at least minimized. *Clear goals and objectives* are generally needed for knowing the direction of a project, its aim and also in order to track the progress and success i.e. to see whether pre-determined objectives were attained. *Team coordination* ensures effective delegation of tasks and distribution of work which allows to avoid chaos. *Education and trainings* are needed in order to know how to manage projects in general, to use tools and methodologies as well as to increase competencies. However, some respondents mention that knowledge can be gained through practise. Finally, *conflict management* ensures that project team members effectively work together, that there is less tension and better atmosphere. Some respondents mention that conflicts rarely occur if team is managed properly.

The results of this paper can help the project managers to decide on which factors they should put more emphasis in order to be successful when they will plan and manage their projects. Moreover, this research revealed what aspects make these factors important for the project success according to project management practitioners.

Recommendations:

Since the aim of this master thesis was to identify which factors are important for the project success during whole lifecycle of a project, it is recommended to analyse which factors of success are the most relevant and important in different phases of a project (Initiation, Planning and Execution, Monitoring and control) this will provide more detailed understanding how success factors can be applied.

DETERMINING THE CRITICAL FACTORS OF THE PROJECT SUCCESS

VITALIJUS ALEKSJEVEC

Paper for the Master's degree

Project management Programme

Mykolas Romeris University, Institute of Leadership and Strategic mangement

Vilnius, 2019

SUMMARY

The main aim of this master thesis is to determine the most important factors of the project success. Nowadays this topic is very relevant because projects are most often complex and include a lot of aspects which should be taken into consideration, therefore it is necessary to know which factors can help to attain success. Problem statement: scholars in the scientific literature do not agree which factors are the most important for the project success. The objectives of this master paper:

1. The first objective is to review the scientific literature in order to present the project management and project success criteria and identify the main factors which have the highest influence on the project success according to different scholars and subject field experts in the project management field.

2. The second objective is to create a list of the project success factors according to the reviewed literature and identify the most dominant factors of the project success and present them in more detail.

3. The third objective is to conduct the research (expert's interview) regarding the importance of the project success factors according to views of the project management practitioners.

4. The fourth objective is to compare the opinions related to the project success factors in literature and practice as well as provide review regarding the importance of the project success factors according to project management practitioners

The qualitative method was chosen for the research. The expert helped to reveal the importance of the project success factors and their application in practice. This study has shown that views in the literature and opinions of the practitioners of the project management field are quite different. Communication (1st) and Leadership (2nd) are the most dominant factors of success in literature, whereas Planning and process management (1st) and Communication (2nd) are the most important in practice. It was also noticed that expectations (which factors should be the most important) not always correspond how it is in reality

according to project management practitioners. Finally, this study revealed what aspects of each factor of the project success make them important. Ten following factors were analysed: *Communication*: sharing information, describing responsibilities and goals, manage and coordinate parties of a project and solve problems; *Leadership*: motivation, inspiration, keeping team members together; *Trust*: autonomy and ensuring team work; *Planning and process mangement*: to define aim, goals, objectives and steps needed to achieve them and follow-up; *Competent project team*: experience from previous projects, new ideas, better performance; *Clear/realistic goals and objectives*: defines direction of a project, ensures clarity; *Team coordination*: effective delegation and distribution of work according to competencies; *Education and training*: to have knowledge how projects should be managed; *Conflict management*: ensure positive environment.

The research revealed what factors have influence on the project success and what aspects according to scholars as well as the project management practitioners make these factors important. The results can help project mangers to make better decisions regarding what factors should be prioritized in order to achieve success in projects.

PROJEKTO SĖKMĖS FAKTORIŲ TYRIMAS

VITALIJUS ALEKSJEVEC

Magistro baigiamasis darbas

Projektų valdymo programa

Mykolo Romerio universitetas, Lyderystės ir projektų valdymo instituas

Vilnius, 2019

SANTRAUKA

Pagrindinis šio baigiamojo darbo tikslas yra nustatyti pagrindinius projekto sėkmės faktorius. Šiais laikais, ši tema yra labai aktuali nes projektai dažnai būna sudėtingi bei apima daug aspektų, kuriuos projektų vadovai turėtų žinoti norėdami sėkmingai įgyvendinti projektus. Tiriant literatūrą buvo pastebėta, kad mokslininkai nesutaria, kurie faktoriai yra svarbiausi projekto sėkmei.

Šio darbo uždaviniai:

Atlikti detalią literatūros analizę, apibrėžti projekto valdymo bei projekto sėkmės sąvokas bei nustatyti projekto sėkmės faktorius;

Išskirti pačius svarbiausius projekto sėkmės faktorius ir atlikti išsamesnę jų analizę.

Atlikti tyrimą (ekspertinis interviu) apie projekto sėkmės veiksnių svarbą bei pritaikymą praktikoje.

Palyginti nuomones apie projekto sėkmės veiksnių svarbą literatūroje ir praktikoje.

Tyrimui atlikti buvo pasirinktas kokybinis tyrimas. Ekspertinis interviu padėjo atskleisti kaip pagrindiniai sėkmės faktoriai (pateikti literatūroje) yra pritaikomi praktikoje ir dėl kokių aspektų jie yra svarbūs projekto sėkmei. Tyrimas parodė, kad nuomonės literatūroje bei tyrime (apklausoje), kurioje dalyvavo projektų valdymo srities atstovai, išsiskyrė. Vienas ryškiausių skirtumų - literatūroje manoma, kad *Komunikacija* turėtų užimti pirmą vietą pagal svarbą, o lyderystė antrą. Tuo tarpu, apklausos rezultatai parodė, kad respondentai mano, kad pirmoje vietoje turėtų būti *Planavimas ir procesų valdymas*, antroje *Komunikacija*. Respondentai buvo paprašyti įvertinti kokie faktoriai turi daugiausia įtakos projekto sėkmei (respondentų nuomonė) ir kaip yra iš tikrųjų, jų dabartiniuose projektuose (realybė), atsakymai parodė, kad nuomonės ir realybė dažniausiai išsiskiria. Galiausiai pagrindinė šio tyrimo dalis, kurioje respondentai buvo paprašyti apibūdinti kodėl pateikti faktoriai yra svarbūs projekto sėkmei, atskleidė kokie aspektai jų nuomonę yra svarbiausi. *Komunikacija*: dalinimais informacija, atsakomybių bei uždavinių apibrėžimas, projekto dalyvių koordinavimas bei problemų sprendimas; *Lyderystė*: motyvacija, įkvėpimas, komandos vieningumo išlaikymas; *Pasitikėjimas*: autonomija bei komandiškumo užtikrinimas; *Planavimas ir proceso valdymas:*

tikslų, uždavinių, ir žingsnių, reikalingų projekto įgyvendinimui apibrėžimas ir bei pasiekimų stebėjimas; *Kompetentinga projekto komanda:* patirtis iš ankstesnių projektų, naujos idėjos, greitesnis darbų atlikimas; *Aiškūs ir realistiški projekto uždaviniai ir tikslai:* apibrėžta projekto kryptis, tikslas, suteikiamas aiškumas ko yra siekiama; *Komandos koordinavimas:* efektyvus darbų pasiskirstymas, atsakomybių delegavimas; *Išsilavinimas ir mokymai*: bendros žinios apie tai kaip turėtų būti valdomas projektas; *Konfliktų valdymas:* užtikrina pozityvią aplinką.

Tyrimo metu, surinkti rezultatai gali padėti projektų vadovams priimti efektyvesnis sprendimus, skiriant daugiau laiko veiksniams, kurie turi didžiausią įtaką projekto sėkmei. Be to, šis tyrimas parodė, dėl kokių aspektų, remiantis projektų valdymo srities atstovų nuomone, tirti faktoriai prisideda prie projekto sėkmės.

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APPENDICES:

APPENDIX A. LIST OF THE PROJECT SUCCESS FACTORS

Competent project team	
6 sources	- Ihuah et al. (2014, 1) - Nugroho (2018, 84) - Taherdoost and Abolfazl Keshavarzsaleh (2015, 22) - Thomas et Anu Thomas (2017, 2) - Yong and Nur Emma Mustaffa (2017, 97) - Zou et al. (2014, 266) - Radujković and Mariela Sjekavica (2017, 609)
Team coordination	
4 sources	- Bhoola (2015, 122) - Costantino et al. (2015, 1746) - Garbajosa (227, 2018) - McLaughlin (146, 2017)
Trust-based relationships (between project teams members and the project manager)	
13 sources	- Aga et al. (2016, 808, 809) - Alvarenga et al. (2019, 8) - Benita Zulch (2014, 180) - Bond-Barnard et al. (2018, 449) - Chen et al. (2018, 723) - Dwyer, Barry (2016, 359) - Kalkman et al. (2016, 890) - Olaisen (2017, 587) - Oliveira et al. (2019, 136) - Rezvani et al. (2016, 1116) - Turner et al. (2018, 238) - Yong and Nur Emma Mustaffa 2017, 97). - Zuo et al. (2018, 436)
Project planning and process management	
10 sources	- Adzmi and Zainuddin Hassan (2018, 654) - Besteiro et al. (2015, 31) - Bhoola (2015, 122) - Hill (2014, 20) - Kerzner (2019, 7) - Pinar and Onur Demirors (2019, 1) - Schwalbe (2015, 141-142) - Sosiawani (2015, 205) - Tesfaye et al. (2017, 160)

	• Yong et. al 2017, 104).

Leadership

20 sources	• Adzmi and Zainuddin Hassan (2018, 653) • Alvarenga et al. (2019, 8) • Benita Zulch (2014, 177) • Bhoola (2015, 122) • DuBois et al. (2015, 44) • Giudici, Michela and Viachaslau Filimonau (2019, 7) • Henkel et al. (2019, 3-4) Muller and Rodney Turner (2017, 3-4) • Liphadzi et al (2015, 286, 288) • Mikkelsen and Jens Riis (2017, 262) • Miyamoto, Michiko (2015, 38) • Pichlak (2019, 14) • Podgórska and Pichlak (2019, 14) • Raziq et al (2018, 6) • Schopp et al. 2019, 5 • Smith et al. (2018, 265) • Tabassi et al. (2016, 728) • Yong and Nur Emma Mustaffa 2017, 102). • Zulch, Benita (2014, 173). • Zuo et al. 2018, 436 • Sunindijo (2015, 13)

Communication

21 sources	• Adzmi and Zainuddin Hassan (2018, 653) • Alvarenga et al. (2019, 8) • Bayiley et al. (2016, 568) • Benita Zulch 2014, 180) • Besteiro et al. (2015, 21) • Bryson (2018, 42) • Costantino et al. (2015, 1746) • DuBois et al. (2015, 34, 40) • Frank Cervone (2014, 77) • Langović et al. (2014, 367-368) • Li and other (2019, 186) • Muszynska et al. (2015, 1360). • Oliveira et al. (2019, 139, 141) • Pacagnella et al. (2015, 42) • Saadé et al. (2015, 68) • Schopp et al. (2019, 5) • Smith et al. (2018, 265) • Stanciu et al. (2016, 394) • Yitmen (2014, 182)

	• Zuo et al. (2018, 436) • Pollack et al. (473, 2019)
Risk management	
8 sources	• Buganová (2019, 986) • Serpella et al. (2014, 654) • Taherdoost (2018, 18) • Nugroho (2018, 84) • Kendrick (2015, 4-5) • Muriana and Giovanni Vizzini (2017, 337) • Shojaei et al. (2019, 847) • Masár et al (2019, 1125)
Conflict management	
7 sources .	• Alvarenga et al. (2019, 8) • Zuo et al. (2018, 436) • Wu et al. (2017, 1479) • Lee et al (2017, 1694) • Wang et al. (2016, 146) • Bond-Barnard et al. (2018, 449) • Harrison, Frederick, and Dennis Lock (7, 2017)
Commitment	
3 sources	• Alvarenga et al. (2019, 8) • Besteiro et al. (2015, 31) • Taherdoost and Abolfazl Keshavarzsaleh (2015, 21)
Clear roles and responsibilities	
3 sources	● Besteiro et al. (2015, 31) ● Yong et. al (2017, 104) ● Aga et al. (2016, 814)
Defining clear/realistic goals and objectives	
6 sources	● Besteiro et al. (2015, 31) ● Costantino et al. (2015, 1746) ● Costantino et al. (2015, 1746) ● Aga et al. (2016, 814) ● Li and other (2019, 188) ● Serrador et al. (31, 2015)
Education and training	
6 sources	• Radujković and Mariela Sjekavica (2017, 613) • Ashly H. Pinnington (2014, 2014) • Ramazani and George Jergeas (2015, 45) • Ika et al. (2017, 60)

	• Lückmann et al. (2017, 444) • Mir and Ashly H. Pinnington (2014, 214)
Technical competence	
3 sources	• Schopp et al. (2019, 5) • Adzmi and Zainuddin Hassan (2018, 653) • Alvarenga et al. (2019, 8-9, 11)

OTHER FACTORS OF SUCCESS

2 sources

Cooperative organizational culture	• Taherdoost and Abolfazl Keshavarzsaleh (2015, 21) • Radujković and Mariela Sjekavica (2017, 609)
Customer relationship	• Taherdoost and Abolfazl Keshavarzsaleh (2015, 22) • Alvarenga et al. (2019, 8)
Defining the scope of the project	• Besteiro et al. (2015, 31) • Yong et. al (2017, 104).
Documentation	• Adzmi and Zainuddin Hassan (2018, 654) • Bhoola (2015, 122)
End user's satisfaction	• Thomas et Anu Thomas (2017, 2) • Turner et al. (2018, 238)
Interpersonal relationship	• Alvarenga et al. (2019, 8) • Aga et al. (2016, 814)
Management competence	• Schopp et al. (2019, 5) • Alvarenga et al. (2019, 8-9, 11)
Motivation	• Taherdoost and Abolfazl Keshavarzsaleh (2015, 22) • Zuo et al. (2018, 436)
Project team qualifications	• Besteiro et al. (2015, 31) • Schopp et al. (2019, 5)
Stakeholder management	• Oliveira et al. (2019, 139, 141) • Costantino et al. (2015, 1746)

OTHER FACTORS OF SUCCESS

1 source

Accepting the proposal of the project	• Besteiro et al. (2015, 31)
Adequate organizational structure	• Radujković and Mariela Sjekavica (2017, 609)
Advanced technologies	• Bhoola (2015, 122)
Appealing rewards	• Bhoola (2015, 122)
Atmosphere	• Radujković and Mariela Sjekavica (2017, 609)
Cognitive skills	• Zuo et al. (2018, 436)
Commited sponsor and manager	• Taherdoost and Abolfazl Keshavarzsaleh (2015, 21)
Controlling resources	• Nugroho (2018, 84)
Customer satisfaction	• Turner et al. (2018, 238)
Defining the schedule	• Besteiro et al. (2015, 31)
Delegation	• Alvarenga et al. (2019, 8)
Delivery on time based on customer expectations	• Bhoola (2015, 122)
Executive support	• Taherdoost and Abolfazl Keshavarzsaleh (2015, 21)
External project environment	• Ihuah et al. (2014, 1)
Flexible HR policies	• Bhoola (2015, 122)
High usage of project management methodologies, methods, tools and techniques	• Radujković and Mariela Sjekavica (2017, 609)
Inspiration (ability to inspire)	• (DuBois et al. 2015, 34, 40)
Manager's light-touch	• Taherdoost and Abolfazl Keshavarzsaleh (2015, 22)
Managers know-how	• Taherdoost and Abolfazl Keshavarzsaleh (2015, 22)
Meeting the budget	• Besteiro et al. (2015, 31)
Meeting the deadline of the project	• Besteiro et al. (2015, 31)
Negotiation	• Alvarenga et al. (2019, 8)
Oral culture in terms of valuable face-to-face communication	• Taherdoost and Abolfazl Keshavarzsaleh (2015, 21)

Positive work environment	● Bhoola (2015, 122)
Problem solving	● Aga et al. (2016, 814)
Project manager's adaptive style	● Taherdoost and Abolfazl Keshavarzsaleh (2015, 22)
Project's innovation	● Nugroho (2018, 84)
Quality of workmanship	● Thomas et Anu Thomas (2017, 2)
Schedule monitoring	● Nugroho (2018, 84)
Selecting the right project	● Thomas et Anu Thomas (2017, 2)
Self-management	● Alvarenga et al. (2019, 8-9, 11)
Team satisfaction	● Turner et al. (2018, 238)
The necessity for the project	● Thomas et Anu Thomas (2017, 2)
Time management	● Alvarenga et al. (2019, 8)
Troubleshooting	● Alvarenga et al. (2019, 8)
User satisfaction	● Turner et al. (2018, 238)
Value for money	● Thomas et Anu Thomas (2017, 2)
Well-followed project processes	● Bhoola (2015, 122)

APPENDIX B. THE SURVEY FORM

EXPERT'S SURVEY REGARDING CRITICAL FACTORS OF PROJECT SUCCESS

The aim of this survey is to find out which factors have the highest influence on the project success and compare the gathered results from this survey with the existing views in the recent scientific literature.

1	In your opinion, what factors should have the highest influence on a project success? *Numbering in order of importance from 1 to 10, the most important is 1, second 2 and etc.*		Communication		Risk management
			Leadership		Education and training
			Trust-based relationships (*between team members and project manager*)		Clear/realistic goals and objectives
			Planning and process management		Competent project team
			Conflict management		Team coordination

2 Compared to your opinion regarding which factors of success should be the most important, how is it in reality? What factors of project success are most relevant in your current or recent project? Please write (X) in the appropriate section.

Factor of success	Always relevant	Often relevant	Sometimes relevant	Rarely relevant	Never relevant
Communication					
Leadership					
Trust-based relationships					
Planning and process management					
Conflict management					
Risk management					
Education and training					
Clear/realistic goals and objectives					
Competent project team					
Customer satisfaction					

3 From your experience why each of these factors can be important for the project success?

For example: *Communication is important for distribution of information among all participants of a project, motivation of team members, dealing with stakeholders …*

Communication	
Leadership	
Trust-based relationships	
Planning and process management	
Conflict management	
Risk management	
Education and training	
Realistic goals and objectives	
Competent project team	
Team coordination	

Magistro baigiamojo darbo autoriaus el. paštas:

vitalijus.aleksejevec@gmail.com