



**VILNIUS UNIVERSITY  
BUSINESS SCHOOL**

**INTERNATIONAL PROJECT MANAGEMENT**

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***MASTER'S THESIS***

<b>Projektų vadovų perspektyva apie kuriamą įmonės vertę naudojant projekto valdymo modelį</b>	<b>Project Managers Perspective on creating Company Value via Project Management Model</b>
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## SUMMARY

VILNIUS UNIVERSITY  
BUSINESS SCHOOL  
INTERNATIONAL PROJECT MANAGEMENT  
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PROJECT MANAGERS PERSPECTIVE ON CREATING COMPANY VALUE VIA PROJECT  
MANAGEMENT MODEL

Supervisor – Part. Assoc. Prof. Artūras Bučinskas

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The aim of the thesis was to analyse key factors in project management and determine the main contributors for value creation in an organisation through the context of a project management model. The objectives of the thesis were to analyse the key factors in projects and project management in the context of value creation. Research project management models with decision making framework. Present a methodology to determine the beneficial approaches that contribute to value creation in project management. And conduct research and present results on most effective approaches, that contribute to the value growth of a company throughout the project life cycle.

To achieve the objectives of this paper and to distinguish the value creators within a project management model, several different techniques were applied for data analysis, such as theoretical evaluation of scientific literature, a qualitative study – a structured interview. In hope that empirical research will provide more reliable and targeted results, to uncover the drivers of value, which factors create value for companies through the project management model. The gathered information was analysed accordingly, the thematical analysis method was chosen to be able to systematically and in an understandable manner to deliver the obtained results of the structured interviews.

The gathered and analysed information presented different and well-argued findings regarding the main value creators in project management. As eight factors were analysed, the perspectives of project managers aligned on their importance in the life cycle of a project, but only four of the approaches were evident as the main value drivers.

# SANTRAUKA

VILNIAUS UNIVERSITETO  
VERSLO MOKYKLA  
TARPTAUTINĖ PROJEKTŲ VADYBA  
STUDENTĖ OLGA FALEJEVA  
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Šio baigiamojo darbo tikslas buvo išanalizuoti pagrindinius projektų valdymo veiksnius ir nustatyti pagrindinius elementus, kurie prisideda prie vertės kūrimo organizacijoje, taikant projektų valdymo modelį. Baigiamojo darbo uždaviniai buvo išanalizuoti pagrindinius projektų ir projektų valdymo veiksnius vertės kūrimo kontekste. Ištirti projektų valdymo modelius su sprendimų priėmimo sistema. Pateikti metodiką, skirtą nustatyti naudingus veiksnius, kurie prisideda prie vertės kūrimo projektų valdyme. Ir atlikti tyrimą bei pateikti rezultatus apie efektyviausius veiksnius, kurie prisideda prie įmonės vertės augimo per visą projekto gyvavimo ciklą.

Siekiant įgyvendinti šio darbo tikslus ir išskirti vertės kūrėjus projektų valdymo modelyje, duomenų analizei buvo taikomi keli skirtingi metodai, tokie kaip teorinis mokslinės literatūros vertinimas, kokybinis tyrimas - struktūruotas interviu. Tikintis, kad empirinis tyrimas leis gauti patikimesnius ir tikslingesnius rezultatus, siekiant atskleisti vertę kuriančius veiksnius, kurie elementai kuria vertę įmonėms taikant projektų valdymo modelį. Surinkta informacija buvo atitinkamai analizuojama, pasirinktas teminės analizės metodas, kad būtų galima sistemingai ir suprantamai pateikti gautus struktūruoto interviu rezultatus.

Surinkta ir išanalizuota informacija pateikė skirtingas ir gerai argumentuotas išvadas apie pagrindinius projektų valdymo vertės kūrėjus. Kadangi buvo analizuojami aštuoni veiksniai, projektų vadovų požiūriai dėl jų svarbos projekto gyvavimo cikle sutapo, tačiau tik keturi veiksniai buvo akivaizdūs, kaip pagrindiniai vertės kūrėjai.

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## INTRODUCTION

Nowadays organizations are basing the important activities that drive the profitability as project management processes. What is more, projects are increasingly aligned and incorporated into strategic goals of organizations and strategic objectives are often pursued through them. The importance and usage of defined project management activities has been growing in the recent years and various project management models are considered to be implemented to support the effectiveness and efficiency of the process. This growth can indicate the significant benefit for organizations for them to take on new processes and methods. The value creation of the mentioned approach is recognised with the contribution of various success factors, which can be considered as value creating factors, but which elements are the drivers is not well indicated.

**Relevance of the topic.** An effective way to manage projects is one of the most important tasks for companies to be able to reach their KPIs, to present favourable results to the stakeholders as well as to reach the demands of the customers. Up to 68% of projects are killed, even before the initiation phase (Johnson, 2009, as cited Ramazani & Jergeas, 2015). This imposes a significant question of the factors that make up an effective project management approach.

There is a vast majority of project management frameworks to adapt for each sector, industry and need of a company. They are often associated with creating more value in the process and helping to reach the company goals in a structured and managed manner. Often the term “value creation” is understood in various ways and might be misleading. Value for a company can be described as exceeding shareholders’ expectations. They can entail taking a portion of the market, upholding the reputation, receiving the highest profitability. In this research value can be considered as meeting the needs, requirements, and demands of the customer and be interchangeable with the word *success*. But in order to reach those goals, the project management process needs to be systematic, in control and effective, with clear key factors that support the value creation process.

**Problem description.** It is known that project frameworks are not adapted in every company that has active projects to control the life cycle of them. Nevertheless, they are still being carried out and successfully closed. The ones, that choose to integrate project systems in their processes, they can effectively manage them. One of widely used phase-gate processes allows to systematically track the progress, as it is divided into stages, make decisions, based on the conducted tasks, whether to continue or terminate the project. This process creates additional workload for a project manager, and this arises the discussions, what are the reasons to invest valuable time and efforts for project stage reviews. Moreover, solely having a model in place, does not guarantee the success of the project. It is very

important to analyse and determine the key factors, required for a victorious closure of a project. Additionally, a considerable number of companies have running projects, however some have a framework, while others do not. This raises the question whether the choice to not implement a model in organisations is due to the lack of awareness and knowledge of the added value that the framework offers for them.

**The object of the thesis.** Key approaches in a project management model.

**The aim of the thesis.** Analyse key factors in project management and determine the main contributors for value creation.

**The objectives.**

- Analyse the key factors in projects and project management in the context of value creation.
- Research project management models with decision making framework.
- Present a methodology to determine the beneficial approaches that contribute to value creation in project management.
- Conduct research and present results on most effective approaches, that contribute to the value growth of a company throughout the project life cycle.

**Methods applied in the thesis.** To achieve the objectives of this paper and to distinguish the value creators within a project management model, several different techniques will be applied for data analysis. These were tools chosen with the intention to provide the necessary accurate and informational data:

- Theoretical evaluation and summarization of project management and project success factors using the analysis of scientific literature.
- Preparation and execution of a qualitative research - structured interview with the participation of experienced project managers.
- Thematic analysis on the gathered data from perspectives of project managers on value creating factors in the stage-gate model.

**Structure of thesis.** This thesis is divided into several parts: introduction, three main chapters and conclusions with recommendations. *The first chapter* analyses the scientific literature on project and project management success factors separately. Various approaches were found and their impact on the project were described, leading to the selection of specific factors to be analysed further. *The second chapter* describes the methodological aspects of the research of value creators in project management. The procedure of the study was broken down into steps that were taken, and the decisions supported by



scientific literature findings. *The third chapter* consists of the thematic analysis on the received data from study participants. The analysis was presented according to each selected key factor and its sub-topic with the perspectives of project managers together with summarisation and interpretations. After the analysis of scientific literature and its findings, and conducted research with obtained results, conclusions and recommendations were presented according to the study findings.

**Difficulties and limitations of the research.** One of the most limiting problems was the availability of project managers who worked with a project management framework. Furthermore, the results of the socio-demographic section of the questionnaire revealed that the demographic distribution of the participants was not as broad and diversified as expected for the study's findings to be applicable to project managers in general.

# **1. THEORETICAL ASPECTS OF PROJECT MANAGEMENT**

## **1.1. The process of project management**

Before looking at project management processes and implementation features, it is useful to define projects themselves and their management.

Ramanauskienė (2010) quotes Kerzner (2000) in her book “Innovation and project management”, who defines a project as an activity aimed at achieving a specific goal, where resources (money, human resources, equipment, etc.) are used, and where certain constraints such as limited duration or funding are considered. A similar view is also shared by Lawal and Onohaebi (2010), who define a project as a set of non-repetitive activities with a defined beginning and end, resulting in a unique product. Bersėnaitė and Šiožinytė (2011) also tend to agree with this, but the authors, like Ramanauskienė, stress that it is a temporary process with certain resources, quality requirements, time constraints, and therefore needs to be managed. All the definitions are brought together by the ISO 10006 Guidelines for Quality Management in Projects (2017), which state that a project is a unique process consisting of a set of activities that are coordinated and managed, with a start and end dates, and is designed to achieve a goal that meets specific requirements, taking into account the constraints of time, costs and resources. It can be noted that the definitions refer to the activities that, as both Bersėnaitė and Šiožinytė (2011) point out, need to be managed.

As a term, project management was first mentioned in 1953 in the US defence and space sector. Nowadays, project management can be seen as a professional discipline with its own knowledge and skills (Kirsi, 2017), and involves the use of skills, tools, and techniques to perform tasks to meet the needs of a project (Viliūnas, 2010). According to Ramanauskienė (2010), managing a project means implementing the project in a proper and timely manner to meet the requirements of stakeholders. Thus, the main objective of project management is to deliver the project(s) in a proper and punctual manner and to meet the requirements of stakeholders (Koul & Alexander, 2013).

It is emphasised that project management is the planning, organising, monitoring, and controlling of all aspects of project, motivating everyone to achieve the objectives of a project within an approved schedule, budget, and performance criteria (International Project Management Association, 2006 as cited in Venczel, Berenyi & Hriczo, 2021). One could agree with Wrona and Zell (2017), that the project manager plays a significant part in project management, as they have to bring the team together, motivate them to achieve and meet the project objectives, as well as manage risks, create value by reducing costs and increasing productivity.

The project itself can be seen as one continuous process with a clear beginning and end, but another approach to project management can be used, breaking it down into smaller processes according to the project cycle and individual activities (ISO 21500, 2012). Bersénaitė and Šiožinytė (2011) distinguish the phases of identification, planning, implementation, completion, and evaluation. The authors note that:

- The *identification phase* identifies project ideas, defines the project theme, provides a rationale, outlines the goal, objectives, key project activities, analyses stakeholder needs and issues, considers the expected benefits in the context of the organisation's strategic objectives, describes the expected outcome of the project, establishes the project team, and assigns responsibilities.

- In the *planning phase*, the project idea is broken down into tasks, detailing the purpose, sequencing, activities, and outcomes. It identifies the resources required, the schedule, the budget, the risks, the interaction with other projects and activities in the organisation.

- During the *implementation phase*, project activities are implemented, publicity is given to the project (objectives, results), reports are prepared and submitted, and project implementation is monitored to measure progress and adjustment are made.

- The *closure phase* confirms that the project has been implemented as planned, includes project verification and handover and acceptance, lessons learned overview, presenting the project results to stakeholders, completing administrative procedures, thanking the project team, and releasing them from the project.

- The *evaluation phase* assesses how well the project has performed, determines the relevance of achievements, the effectiveness of implementation and the impact and continuity of the project, evaluates lessons learned and prepares the final report on project implementation and the final request for payment. The evaluation can thus be classified as the last phase of project management. It should be noted that the activities of the evaluation phase are often integrated and included in the last phase of the project life cycle.

In contrast, the international standards state that the project cycle includes project initiation, planning, execution, monitoring and control, and project closure, at the end of which there is a discussion and evaluation of the project implementation process (ISO 1006, 2017). Table 1 shows the implementation of the project management processes according to the phases of the project cycle.

Table 1

*Project management process implementation according to project cycles*

<b>Project cycle phases/ management processes</b>	<b>Initiation</b>	<b>Planning</b>	<b>Implementation</b>	<b>Monitoring and control</b>	<b>Closure</b>
Integration management	+	+	+	+	+
Scope management		+		+	
Time management		+		+	
Budget management		+		+	
Quality management	+	+	+	+	
Sustainability management	+	+	+	+	+
Procurement management		+	+	+	
Human resources management	+	+	+	+	
Communication management		+	+	+	
Risk management		+	+	+	
Stakeholder management	+		+		

*Source:* compiled by author, based on ISO 21500, 2012

Thus, the phases of the project management process include the initiation phase, when the project goals and objectives are only considered, the project needs a clarified, and the management of the integration, quality, sustainability, and human resources processes, because it is essential for the selection of the project manager, team, etc. The planning phase, which includes all the cycles such as integration, scope, time, budget, quality, sustainability, procurement, human resources, communication, and risk management. The implementation phase, where there is no longer scope, time, and budget management, however a cycle of stakeholder management emerges. The monitoring and controlling phase, and the closure, where the results are “collected” or where the management of the area is evaluated, lessons learned and recommendations are identified, which should lead to continuous improvement of the management processes.

As regards to the sustainability of the projects, it is important that projects meet the requirements of the present, while simultaneously not harming future generations and allowing them to meet their own needs. In general, the notion of sustainability can be divided into three main classifications –

environmental, financial, and social sustainability – which are interrelated and are equally relevant to the operation and management of a sustainable project. And while in the past, the main objective of project performance was to uphold high growth rates and financial sustainability, with the minimum consideration of environmental and social sustainability, it is now worldwide recognised that environmental, social, and financial sustainability are equally important for sustainable management of projects (Elkington, 1994, 1997 as cited Chawla, Chanda, Surjit & Chawla, 2018). Therefore, Habibi, Barzinpour and Sadjadi (2018) believe that decisions in a project context must take into account sustainability at all stages of the project.

Other researchers also emphasise the need for organisations to embrace sustainability – taking a universal approach, by thinking about the economic, environmental, and social dimensions of companies (Chang et. al., 2017) in their project management practices and not only considering quality, cost, and time factors (Ebbesen & Hope, 2013; Silvius & Schipper, 2014). As sustainability in project management delivers value and benefits to the overall organisational performance (Kivilä, Martinsuo & Vuorinen, 2017), helps to manage resources and enable competitive advantage (Klewitz & Hansen, 2014; Falle, Rauter, Engert & Baumgartner, 2016).

It is also important to carry out an evaluation once a project has been implemented. Evaluation is the process of comparing the progress or results of a project against the indicators set out in the plans. Project evaluation supports decision-making and is used to develop the management of other projects. Project management evaluation provides insight into how successful a project has been and what needs to be changed in the future project activities (Bersėnaitė & Šiožinytė, 2011). While Parsanejad, Matsukawa and Teimoury (2013) argue that a project should be evaluated at the very beginning, i.e., at the project selection stage, and then when considering the project's execution and operational phases, assessing risks.

In summary, projects need to be managed because of the limited resources, time, and while aiming for quality. Project management helps to systematically manage project time, quality, budget, human resources, change and risks, while achieving the intended objectives, systematically developing, and implementing projects, helping organisations to remain flexible and competitive in the market. The project management process is represented by the project cycle, which is the period from the idea of a project to its completion phase. The project cycle usually consists of identification, planning, implementation, and closure phases. Each of these stages consists of separate activities which, when combined into a single system, result in a coherent process that reflects how the project is managed.

## 1.2. Success and aspects of projects and project management

What, what kind, and which characteristics make a successful and value creating project has been much debated in the project management discipline, but there is still no universally accepted definition/agreement (Müller & Judgev, 2012), as success is understood differently by different stakeholders - the different perceptions and approaches have led to disagreements on whether or not a project is a success (Frefer, Mahmoud, Haleema, & Almamlook, 2018). As Freeman and Beale (1992) point out, success can mean different things to different people: an architect might think of it in terms of aesthetics, an engineer might think of it in terms of technical aspects, and a human resource manager might think of it in terms of employee satisfaction. According to Lamproua and Vagiona (2018), the success of a project should be interpreted from the viewpoint of different stakeholders (owner, contractor, project manager, client, user, community), so that a project can be considered a success for some parties and a failure for others. Other researchers such as Baker et al. (1983), meanwhile, believe that a project is considered successful if the project meets the technical execution specification and/or mission to be accomplished, and if key people are satisfied with the outcome. In contrast, Lim and Mohamed (1999) consider that project success is usually considered as the accomplishment of some predefined project objectives, which usually include several parameters (Lamproua & Vagiona, 2018). While Silva, Warnakulasuriya and Arachchige (2016) noted that in a project, there is no such thing as absolute success; only perceived success exists.

It is highlighted that in order to properly measure success, it is needed to distinguish between *project management success* and *project success*. These are two concepts that are closely linked but distinct (DeWit, 1988 cited in Parsanejad, Matsukawa & Teimoury, 2013; Munso, Bjeirmi, 1996 cited in Lamproua & Vagiona, 2018; Baccarini, 1999 cited in Nguyen, Tu, Pham & Le, 2019; Serrador & Turner, 2015; Frefer, Mahmoud, Haleema & Almamlook, 2018; Venczel, Berenyi & Hriczo, 2021). For example, De Wit (1988) suggests that project management success is determined by key success criteria/constraints (after considering activity cost, time, and quality - the Iron triangle model), and that project success is defined as the overall achievement of the project's goals and objectives. It should be noted that while competent project management can help a project succeed, it is unlikely to prevent it from failing (De Wit, 1988 cited in Lamproua & Vagiona, 2018; Frefer, Mahmoud, Haleema & Almamlook, 2018; Venczel, Berenyi & Hriczo, 2021). As a result, while both concepts are concerned with the proper completion of a project, their objectives and nature are vastly different. For example, some projects have a high success rate over time while not being finished within established restrictions (bad project management), and vice versa (Munns & Bjeirmi, 1996 cited in Lamproua & Vagiona, 2018; Machado & Martes, 2015). And according to other scholars, projects can succeed or fail independently

of the project management process, so assessing the success of a project need not be limited to assessing the effectiveness of the project management processes used (Iram, Khan & Sherani, 2016). One could agree with Munns and Bjeirmi (1996) that although project success and project management success are linked, the latter is principally a subsection of overall project success. According to these authors, successful project management will contribute to project delivery, but it will not stop project failure, but at the same time, one could also agree with Collins and Baccarini (2004) that there is a positive relationship between the success of project management and the success of the project (Frefer, Mahmoud, Haleema & Almamlook, 2018).

Interestingly, Ghasabeh and Chabok (2009) found that 43% of the surveyed professionals thought that project success was certainly linked to management success, while 46% of the respondents specified that they were quite different. Similarly, in a study conducted by Omer and Haleem (2017), 48% of the surveyed professionals believed that project success is indeed linked to management success, while 52% of the respondents tended to disagree (as cited in Pham, Nguyen, Tu, & Le, 2019). It can be argued that even in practice, the notion of project success varies and is ambiguously understood. However, it is generally accepted that project management success is mainly measured by three criteria: cost, quality, and time (Aranyosy, Blaskovics & Horváth, 2018), but other scholars tend to disagree, arguing that success cannot be achieved by these three criteria alone, as project success is more complex (Kylindri, Blanas, Henriksen & Stoyan, 2012). Iram and Khan (2016) distinguish between cost, time, performance, satisfaction, and efficiency. Bahia & De Farias Filho (2010) - cost, time, quality, customer satisfaction, team satisfaction, shareholder satisfaction. Gomesa and Romao (2016) - cost, time, customer satisfaction, goal achievement. And Mukhtar and Amirudin (2016) - customer satisfaction, project completion on time, within budget, meeting quality.

It is recognised that there are two main components to project success, namely project success criteria and project success factors. Project success criteria are the dependent variables (principles, measures, standards (Al-Ageeli & Alzobaee, 2016; Frefer, Mahmoud, Haleema & Almamlook, 2018)) that measure and evaluate a successful project outcome (Ika, 2009; Müller & Judgev, 2012; Srimathi, Dinesh, & Sethuraman, 2017), while project success factors are independent elements of a project (circumstances, facts, elements, influences) that can affect success (Ika, 2009; Müller & Judgev, 2012).

Lim and Muhammad (1999), on the other hand, divide project success into two categories: macro and micro project success. Macro project success takes into account the original project concept and if this is achieved, the project is successful (cited in Frefer, Mahmoud, Haleema & Almamlook, 2018). In other words, the authors argued that two criteria are sufficient to determine the macro approach to project success: completion and satisfaction (cited in Gudienė, Banaitis & Banaitienė, 2013). On the other hand, the micro view of project success is measured by looking at achievements in smaller components (Lim,

Muhammad, 1999 cited in Frefer, Mahmoud, Haleema, & Almamlook, 2018) - examining the factors that affect the success of a project. These factors are called critical success factors (Lim, Muhammad, 1999 cited in Gudienė, Banaitis & Banaitienė, 2013).

In summary, in order to properly measure success, it is necessary to differentiate and measure *project management success* and *project success* separately, as project success and project management success are not equal. Success criteria are the dependent variables that measure and evaluate the success of a project, whereas success factors are the independent variables that can influence and consequently increase the probability of project success. In other words, success criteria are used to measure success and success factors have a correspondingly positive effect on success. The success of project management can be measured by looking at the main success criteria (cost, time, and quality of activities), while the success of the project can only be measured after the project has been completed: whether the project has achieved its objectives and targets. It is assumed that a project can be successful without successful project management, but that successful project management can increase its success. However, the success of a project, as well as the success of project management, can be influenced by a variety of factors.

### **1.3. Key attributes of projects and project management**

#### **1.3.1. Key attributes of successful project management**

In 1961 D. Ronald Daniel created the concept of "success factors", followed by John F. Rockart's "Critical Success Factors" in 1981, who defined Critical Success Factors as early as 1979 as "a limited number of areas in which satisfactory performance will ensure successful competition for an individual, a department, or an organisation" (as cited in Srimathi, Dinesh & Sethuraman, 2017). It has been observed that in the literature, the terms 'critical success factors' and 'success factors' are used interchangeably in the same context in projects (Ahmad, Waqas, Akram & Tan, 2021). Meanwhile, Amade, Ubani, Omajeh, and Anita (2015) claimed that critical success elements are a few important variables or factors that a manager should prioritize in order to meet his or her present or future performance goals.

Critical success factors can directly or indirectly control the success of a project, according to researchers such as Alias, Zawawi, Yusof and Aris (2014), Iram, Khan and Sherani (2016) and Ahmad, Waqas, Akram and Tan (2021). Project management success factors directly or indirectly determine the completion of a project within a fixed timeframe, budget and required quality or functionality. Conversely, the correct classification of such factors reduces the risks associated with project



management (Vrchota, Rehor, Maríková & Pech, 2021). As Ika, Diallo, and Thuillier (2012) argue, the greater the influence on success, the more significant the success factor, and therefore it is important to identify what the true success factors are (Ika, Diallo, & Thuillier, 2010). In addition, according to Grunert and Ellegaard (1992) there are perceived key success factors and actual success factors. The perceived ones are based on practitioners' experience, while the actual success factors are the outcome of a statistical analysis of the relationship between success factors, costs, and goals. Actual success factors based on statistical analysis are considered to be more useful to the project (Cserhádi & Szabó, 2014; Ika, Diallo & Thuillier, 2012).

An analysis of the scientific literature shows that researchers have identified various success factors for project management (Figure 1).

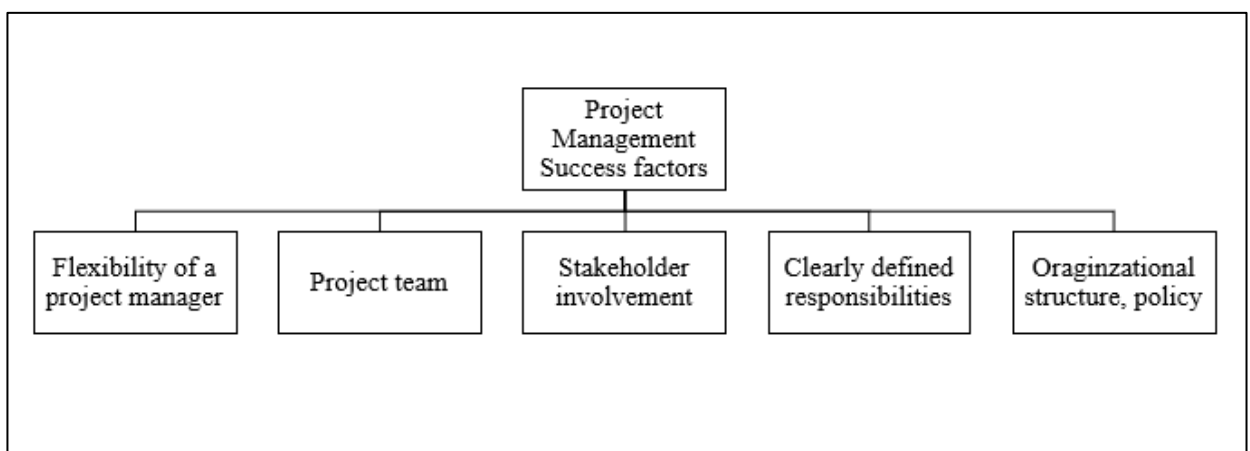


Figure 1. Key factors in project management

Source: compiled by the author based on Ofori, 2013; Montequin, Cousillas, Ortega and Villanueva, 2014; Silva, Warnakulasuriya and Arachchige, 2016, Radujkovič and Sjekavica, 2017, Almeida, Figueiredo, Estevão-Beal and Uchoa-Passos, 2020, Ahmad, Waqas, Akram, and Tan, 2021, et al.

Researchers have identified the following factors as influencing project management success:

- *flexibility of a project manager* - successful project management requires managers to be flexible in order to better adapt to changing environments (Takagi & Varajao, 2019).

- *project team, teamwork* (Wilfong, 2014; Vrchota, Rehor, Maríková & Pech, 2021). Pham, Nguyen, Tu, Pham and Le (2019) found in their study that the project team/personnel had the greatest influence on successful project management. In addition, the impact coefficient of the personnel – value was higher for the project manager, indicating that the study found that project members have a more significant impact on project management success compared to project managers. According to the researchers, teamwork influences successful project management (Müller & Jugdev, 2012). A qualified,

sufficient project team is important (Almeida, Figueiredo, Estevão-Beal & Uchoa-Passos, 2020). Other researchers also point to the importance of the project team (its competences), which can impact the success of a project (Wai, Yusof & Ismail, 2012; Ofori, 2013; Montequin, Cousillas, Ortega & Villanueva, 2014; Silva, Warnakulasuriya & Arachchige, 2016). It emphasises that project team members should have the right managerial and technical competencies to be able to carry out the project as it was designed (Lamproua & Vagiona, 2018).

- *stakeholder involvement* (Niu, Lechler & Jung-long, 2010; Yang, Huang & Wu, 2011), as well as customer/user involvement (Almeida, Figueiredo, Estevão-Beal & Uchoa-Passos, 2020)

- *clearly defined responsibilities and roles* (Hwang & Ng, 2013; Ahmad, Waqas, Akram, & Tan, 2021).

- *organisational structure, organisational policy/philosophy* (Ofori, 2013, Wai, Yusof & Ismail, 2012, Ilias, Zawawi, Yusof & Aris, 2014, Sliva, Warnakulasuriya & Arachchige, 2016, Yong & Mustaffa, 2017, Lamproua & Vagiona, 2018)

Other researchers such as Radujkovic and Sjekavica (2017) believe that if an organisation has a knowledgeable and well-coordinated project manager, a project team, the right organisational culture, structure, competence and atmosphere, and the right use of project management tools; then there is a higher probability of successful project management, and this, they argue, will lead to the success of the project.

In summary, successful project management is influenced by the flexibility of the project manager, the project team/personnel, clearly defined responsibilities, stakeholder involvement, as well as the organisation's structure, policies, philosophy. All these factors (project management factors) can influence project success, but as mentioned in section 1.2, project management does not always influence project success. There are other factors that influence project success, which the author will discuss in the following section.

### **1.3.2. Key attributes of successful projects**

An analysis of the scientific literature has shown that many factors can influence the success of projects:

- *Competences, experience, knowledge, and leadership of the project manager* (Alias, Zawawi, Yusof & Aris, 2014; Montequin, Cousillas, Ortega & Villanueva, 2014; Osei-Kyei & Chan, 2015; Sliva, Warnakulasuriya & Arachchige, 2016; Yong & Mustaffa, 2017; Vrchota, Rehor, Maríková & Pech, 2021). When assessing the factors that influence project success, Czech managers (almost half of them) emphasised the leadership of the project manager the most, with a significant positive effect between

project management leader and project success (Christenson, 2004 as cited in Vrchota, Rehor, Maríková & Pech, 2021). Other studies have identified the competences of the project manager as the most important factor for project success, with more than 80% of Bulgarian respondents tending to agree (Alexandrova & Ivanova-Stankova, 2013). And Spalek (2005) conducted a study (interviewing 82 project managers) and found that 88% of managers included project manager competencies among the project success factors (as cited in Venczel, Berenyi & Hriczo, 2021). The importance of project managers and their competences, skills, and experience in influencing project success has been argued by Thi and Swierczek (2010), Lamproua and Vagiona (2018), as well as by Nixon, Harrington, and Parker (2012), Wilfong (2014), Heaton, Skok, and Kovala (2016), Radujkovic and Sjekavica (2017). Manager-related factors include a manager's ability to communicate, provide feedback, make decisions, planning and organisational skills, and management experience (Venczel, Berenyi & Hriczo, 2021; Vrchota, Rehor, Maríková & Pech, 2021). Sousa, Tereso, Alves and Gomes (2018) also pointed out that a manager's knowledge, ability to communicate, and ability to organise teamwork influence project success. In other words, the manager's ability to motivate and support employees can influence project success (Almeida, Figueiredo, Estevão-Beal, & Uchoa-Passos, 2020), which is important as poor communication with employees is a common cause of project failure (Longenecker, Longenecker, & Gering, 2014; Dwivedi, Wastell, Laumer, & Henriksen, 2015).

- *Staff/project team satisfaction* (Lamproua & Vagiona, 2018).

- *The technologies used* (Al-Tmeemy, Abdul-Rahman & Harun, 2011; Wai, Yusof & Ismail, 2012; Nguyen, Chovichien & Takano, 2013; Alias, Zawawi, Yusof & Aris, 2014; Montequin, Cousillas, Ortega & Villanueva, 2014; Osei-Kyei & Chan, 2015; Sliva, Warnakulasuriya & Arachchige, 2016; Sliva, Warnakulasuriya & Arachchige, 2016; Yong & Mustaffa, 2017; Ahmad, Waqas, Akram & Tan, 2021) - modern, advanced, appropriate technology, level/availability of technology, etc. (Lamproua & Vagiona, 2018).

- *Commitment from partners* (Ahmad, Waqas, Akram & Tan, 2021).

- *Positive environmental impacts* (Nguyen, Chovichien & Takano, 2013, Mukhtar & Amirudin, 2016, Sliva, Warnakulasuriya & Arachchige, 2016).

- *Future prospects* (Nguyen, Chovichien & Takano, 2013, Mukhtar & Amirudin, 2016, Sliva, Warnakulasuriya & Arachchige, 2016). It has been pointed out that future perspectives are closely related to achieving and sustaining the success of a project after its completion and during its operation (Lamproua & Vagiona, 2018).

- *Planning phase factors*: appropriate risk allocation and risk sharing, comprehensive and realistic cost-benefit assessment (Ahmad, Waqas, Akram & Tan, 2021). That the planning phase is essential for a successful project has also been argued by Ahmad, Ibrahim, and Abu Bakar (2018).

- *Support from top level/senior management* (Sliva, Warnakulasuriya & Arachchige, 2016; Yong & Mustaffa, 2017, Frefer, Mahmoud, Haleema & Almamlook, 2018, Vrchota, Rehor, Maríková & Pech, 2021). Top management support and commitment from senior leaders in organisations give a project special significance and can considerably increase its likelihood of success from the early stages of development (Lamproua & Vagiona, 2018). Spalek (2005) found that 84% of the managers who participated in the study indicated that top management support for the project influenced the success of the project (cited in Venczel, Berenyi & Hriczo, 2021).

- *Formal appointment of a project manager* - Spalek (2005) found in a study (survey of 82 project managers) that the most important factor influencing the success of a project is: the formal appointment of a project manager (93%) (as cited in Venczel, Berenyi & Hriczo, 2021).

- *Project vision, perception, mission/goals, and objectives* (Zwikael, Globerson, 2006 as cited in Bersénaitė & Šižinytė, 2011, Lamproua & Vagiona, 2018). The mission of a project is considered to be one of the most significant factors of a project, which includes the definition of its scope, direction, goals and objectives. Appropriate definition of the project and its goals and objectives among all stakeholders is a precondition for its success (Sliva, Warnakulasuriya & Arachchige, 2016; Yong & Mustaffa, 2017). And in a study conducted by Spalek (2005), as many as 90% of the managers who participated in the study indicated that clearly defined project objectives are the most influential factor in the success of a project (as cited in Venczel, Berenyi & Hriczo, 2021).

- *Project monitoring, control, and feedback* (Ofori, 2013; Alias, Zawawi, Yusof & Aris, 2014; Montequin, Cousillas, Ortega & Villanueva, 2014; Osei-Kyei & Chan, 2015; Sliva, Warnakulasuriya & Arachchige, 2016; Sliva, Warnakulasuriya & Arachchige, 2016; Yong & Mustaffa, 2017; Almeida, Figueiredo, Estevão-Beal & Uchoa-Passos, 2020; Vrchota, Rehor, Maríková & Pech, 2021). It should be stressed that correct and accurate monitoring and control of the project provides the project manager and each stakeholder with access to information on the development of the project, so as to be ready to get involved in case of possible shortcomings or encountered blocking points (Lamproua & Vagiona, 2018).

- *The political, social, and economic environment* (Alias, Zawawi, Yusof & Aris, 2014; Montequin, Cousillas, Ortega & Villanueva, 2014; Osei-Kyei & Chan, 2015; Sliva, Warnakulasuriya & Arachchige, 2016; Yong & Mustaffa, 2017, Lamproua & Vagiona, 2018, Ahmad, Waqas, Akram & Tan, 2021)

- *External and internal project communication* (Alias, Zawawi, Yusof & Aris, 2014; Montequin, Cousillas, Ortega & Villanueva, 2014; Osei-Kyei & Chan, 2015; Sliva, Warnakulasuriya & Arachchige, 2016; Yong & Mustaffa, 2017, Frefer, Mahmoud, Haleema & Almamlook, 2018, Lamproua & Vagiona, 2018, Vrchota, Rehor, Maríková & Pech, 2021).

- *Project risk assessment/analysis/identification, management* (Ofori, 2013; Wai, Yusof & Ismail, 2012; Lias, Zawawi, Yusof & Aris, 2014; Sliva, Warnakulasuriya & Arachchige, 2016; Yong & Mustaffa, 2017; Lamproua & Vagiona, 2018; Almeida, Figueiredo, Estevão-Beal & Uchoa-Passos, 2020; Ahmad, Waqas, Akram & Tan, 2021).

- *Project characteristics* (Ofori, 2013; Wai, Yusof & Ismail, 2012; Lias, Zawawi, Yusof & Aris, 2014; Sliva, Warnakulasuriya & Arachchige, 2016; Yong & Mustaffa, 2017). These include project size/value/complexity, project duration (Lamproua & Vagiona, 2018), and funding (Lamproua & Vagiona, 2018, Vrchota, Rehor, Maríková & Pech, 2021).

- *The competence, capacity, and effectiveness of project team members* (Khang, Moe, 2008, as cited in Bersénaitė & Šižinytė, 2011, Lamproua & Vagiona, 2018), as well as the joint efforts of all team members to successfully implement the project (Vrchota, Rehor, Maríková & Pech, 2021)

- *Stakeholder satisfaction/expectation satisfaction* - Ahmad, Wagas, Akram and Tan (2021) surveyed project managers and found that stakeholder satisfaction also influences project success. That stakeholder satisfaction influences project success has also been argued by Al-Tmeemy, Abdul-Rahman and Harun (2011), Wai, Yusof and Ismail (2012), Nguyen, Chovichien, and Takano (2013), Serrador and Turner (2014), Sliva, Warnakulasuriya, and Arachchige (2016), Mukhtar and Amirudin (2016), and Lamproua and Vagiona (2018). In this context, Khang, Moe (2008) point out the importance of engaging with stakeholders at all stages of the project lifecycle (as cited in Bersénaitė & Šižinytė, 2011).

- *Time, cost, quality*. It emphasises that a successful project is one that is completed within the timeframe (time), within budget (cost) and with quality results. Quality - the project produces the expected result. Cost - the result of the project, achieved within the budgeted costs. Time - the result of the project produced within the timeframe. However, projects must take into account the needs of the client in all three categories. The above aspects form the so-called 'Iron Triangle', a metaphor for the relationship between several variables that work together and compete to create a project. The sides of the triangle are interdependent in the same way as the three project factors are interdependent. A change in one side of the triangle affects at least one other side (Morris & McWhorter Sember, 2010, as cited in Bersénaitė & Šižinytė, 2011). These three factors simultaneously reflect the supposed success of project management and can usually be assessed during the implementation and completion of each project. Ahmad, Wagas, Akram and Tan (2021), in order to investigate the factors influencing project success, surveyed project managers and found that, according to the managers, project success is influenced by time, cost, and quality of project. Thus, according to the study, a project is considered successful if it is completed within the estimated cost, within the estimated time, delivers the desired services, and achieves all its objectives and quality. This is in line with the findings of previous studies like Ika, Diallo and Thuillier (2012). According to these authors, the first success factor of a project is

time, which they consider as a measure of efficiency. The second aspect of success is cost, which plays a crucial role in the success of a project as it affects the overall budget. Some researchers attribute the cost of the project to sticking to the budget (Osei-Kyei & Chan, 2018). The quality aspect is important because if the quality of services is low there will be dissatisfaction among stakeholders and the project itself may be terminated. Thus, quality affects all stakeholders (Ika, Diallo & Thuillier, 2012). While other scholars classify time, cost/budget, quality as project management domains (Lamproua & Vagiona, 2018).

One can agree with Almeida, Figueiredo, Estevão-Beal and Uchoa-Passos (2020) and group the above-mentioned project success factors into four categories: communication, strategy, management, and human resources. Meanwhile, Radujkovic and Sjekavica (2017) classify the success factors into three categories:

- the elements of project management competence, including behavioural, technical, and contextual competences of the project manager and project team members,
- the organisation's culture, structure, competence, atmosphere,
- project management methodologies, software, tools, techniques, risk assessment tools and communication tools.

Of course, the type of project highlights the factors that are important for its success. For example, if the project is urgent, time is a critical factor. In other cases, it may be the size of the project, its value, etc. (Litsikakis, 2009, as cited in Bersėnaitė & Šižinytė, 2011). It should be noted that project success factors also change over time. Although many project managers could list the main reasons for project success and failure, the number of unsuccessful projects remains quite high (Bersėnaitė & Šižinytė, 2011).

According to Bersėnaitė and Šižinytė (2011), it is also useful to take into account the success and failure factors of projects. Every project has positive and negative aspects: good experiences can be learnt from and successfully applied in one's own activities, but it is equally important to know the reasons for failures, as these can be used to make adjustments and avoid mistakes. For example, in a study on the causes of project failures (70 unsuccessful projects were analysed), Cerpa and Verner (2009) noted that project failure is often caused by several reasons, often interrelated, rather than a single cause. The most common negative factors are inconsistencies in the project completion date, which leads to adjustments in project development (no time left for activity reviews), underestimation of project resources, failure to carry out repeated risk assessments, and lack of control during the project (as cited in Bersėnaitė & Šižinytė, 2011). While Houston (2015) identifies six project success factors: communication, project management experience, relationship management, project team, collaboration, change management.

Project failure is believed to be mostly connected to the project manager, his/her management, the company as a whole, its organisation and culture, the technology used or the business processes (Rodríguez-Rivero, Ortiz-Marcos, Ballesteros-Sánchez & Martínez-Beneitez, 2020). And Nelson (2007) argues that around 20% of project failures are caused by people (the project team), while technology accounts for less than 10% of failures. Therefore, organisations that invest in developing their human resources are more likely to achieve project success (as cited in Al Aina & Atan, 2020).

It is essential to know the success and failure factors at each stage of project management. As mentioned in section 1.1, project management consists of 5 project phases. Bersėnaitė and Šižinytė (2011) summarised and identified the main success factors of a project that occur in different project phases:

- *In the project initiation phase, the* authors consider that the alignment of strategic priorities, the benefits generated for stakeholders, the organisation's capacity, and readiness to deliver the project, and a motivated project team can have the greatest impact on the success of the project.

- *In the project planning phase, the* success of a project may depend mainly on the alignment of the priorities of the project stakeholders, the fulfilment of commitments, the clarity of goals and objectives for all, the availability of sufficient resources, and the precise definition and scheduling of project activities.

- *During the implementation phase, the* following factors can determine the success of a project: alignment and implementation of activities according to plan (within the deadlines set), use of resources according to plan, results that meet the expected requirements and quality, effective management of activities and changes, and effective communication.

- *In the completion phase, the* success of a project can be influenced by: completing the project according to plan (transferring, accepting and usage of the results), preparing financial reports, and developing the culture and values of the organisation.

Based on the analysis of the scientific literature, it is equally important in the identification phase to carefully assess the financing options and describe the expected results. In the planning phase, it is important to be realistic in terms of timing, budget, objectives, activities, and risk assessment. It should also include active engagement with stakeholders, consistency of tasks and synergies with other activities of the organisation, based on scientific publications and expert opinions. Project implementation involves the creation of an implementation team, adjustments (in the event of changes in external conditions), adherence to the timetable and documentation. It is advisable to monitor the implementation of the project and actively communicate with stakeholders. At the completion stage, according to the staff, the final documents are prepared, the achievement of the results is assessed, and the project results are reflected on by the stakeholders. It is advisable to take into account the results of

the project and to learn from experience. Experts consider that successful project management is based on clear and achievable objectives, detailed planning (objectives, resources), delivery of activities and a collaborative and experienced team. However, the success factors mentioned in the literature and by experts in the phases of project management need to be taken into account, and these factors need to be taken into account at each phase. The success of the identification phase is determined by the team ready to execute the project and by a careful assessment of the requirements of the project. The success of the planning phase is linked to the agreed needs of the stakeholders, sufficient resources (as cited in Bersėnaitė & Šižinytė, 2011).

Other researchers, such as Kviklienė (2016), also point out that in order to achieve a successful project:

- *During the project implementation phase:*

- Achieving its goals and objectives, taking into account the needs and expectations of customers and other stakeholders. The objectives themselves may be adjusted during the implementation of the project.

- Budgeting in a targeted way. The project budget needs to be well managed, allocating costs where they are needed. The budget may vary if the aim is to improve the quality of the project, to meet (or even exceed) the needs and expectations of stakeholders (especially the targeted group). The budget needs to be monitored on a regular basis, noting on which activities it has been spent, how much has been spent and any deviations from the plan. The budget shall be continuously aligned with project activities, project objectives, other resources, work organisation and other project processes.

- Assessing the realism of the project plan and timetable, the relevance of the project to the overall picture (objectives, results, impacts, stakeholder needs, relevance to the budget, taking into account the results of the environmental analysis). The dependency of the activities, the realism of the duration of activities. During the project implementation phase, monitor whether the plan is being followed and, if not, the reasons for this. Monitor the organisation of work and the management of project processes, take into account the principle of flexibility and generativity, and assess the implementation of the project plan.

- Planning activities. Activity planning is a core axis of project quality, linked to other project quality factors. Activities must meet the needs and requirements of the stakeholders (especially the targeted group, customers). Activities must be targeted to achieve the objective, the impact, clearly set out in a timetable, a programme of activities, it must be clear when one activity starts and the other one ends, what the dependency relationship is. Activities shall be coordinated and carried out by a competent team. Activities must be documented. They shall be evaluated against the project objectives during and at the end of the project, highlighting recommendations, lessons learned.



- Managing risks. All potential project risks need to be well assessed at the project planning stage. Risk assessment is linked to other project quality factors such as environmental assessment, stakeholder needs. Quality requirements can be related to risk management, opportunity management.

- Organising work. The allocation of responsibilities within the team must take into account the wishes and abilities of the person concerned, so that he or she does only the work that is appropriate, acceptable, and suitable for him or her. In terms of work organisation, e.g., the setting of deadlines should not be based on the project manager's speed or imagination of how to do the work, but on the person doing it.

- Evaluating and monitoring. The evaluation takes place during the course of the project and at the end of the project, an evaluation of the project as a whole (all its processes, principles) is carried out. The data obtained from the evaluation can help to adjust actions, identify areas of need, and take preventive measures. Monitoring includes various measurements to see whether and how the project is achieving the indicators set out in the project, e.g., the achievement of the project's objective, the implementation of the project plan, the time plan of activities, etc. The recommendations and lessons learned from the evaluation help to improve the organisation and project processes; to adjust actions; to take preventive measures; and to contribute to people's learning and development.

- Administering the project. Good administration means keeping all the necessary documents (related to the project; in accordance with the laws, regulations, etc. of the Republic of Lithuania). It also includes procurement and its management; logistics administration; it may also include compliance with requirements, fulfilment of funders' conditions.

- Identifying the necessary competences. The competence of the project manager and the whole team, and its proper use, contributes to the quality of the project. The organisation needs to be clear about what competences are needed for the success of the project and to select individuals or provide the necessary competences based on those competences (importance of learning).

- Providing necessary training. Project learning (of the project team, of the stakeholders) can be organised in a variety of innovative ways, both virtually and through face-to-face meetings, using a variety of methods, and adapting to the learning needs, capabilities and pace of the target group or project team.

- Strengthening communication. The quality of the project is ensured by strong communication between all project parties (both internal project team, staff, and communication between/with stakeholders). The quality of a project today is determined by the ability of the team and partners to work virtually, using information technologies, tools, the ability to work remotely and to plan their agenda, organise activities, perform their responsibilities and functions without live discussions, meetings. The frequency and timing of communication is managed in a flexible manner: depending on

the situation in the project, it may be necessary to communicate more frequently, more intensively than agreed or through other forms of communication. The forms, frequency and content of communication must be continuously monitored and evaluated in order to meet the needs of the people involved in communication.

- Publicising the project. Project publicity is related to project communication, but it is the dissemination of project activities and results to the public and other relevant stakeholders (accountability). Publicity can be a quality factor for the project and be part of the overall communication plan. Public relations cannot happen on their own, but must be planned with clear objectives, messages, audiences, etc.

- *In the project initiation and planning phases:*

- Identifying stakeholders, their needs, and requirements. To ensure the quality of the project, key stakeholders must be clearly identified at the project initiation and planning stages and their needs and requirements analysed. Agreed requirements are usually stable and easier to control. In particular, the requirements of funders and subcontractors can have an impact on the flexibility of project managers, which is important in order to meet the needs of the project target group. The implementation of needs may change over time and therefore the implementation of stakeholders' needs, and requirements needs to be continuously monitored and supervised. Ongoing management of needs helps to ensure the sustainability of the project results and their further use. The involvement of the target group in the project and the use of the project results depends on the extent to which they meet the needs of the target group (even if they change during the project). Involving the target group in the project provides more information about their needs and interests.

- Analysing the project and the organisation's environment (political, economic, social, environmental, etc.) to help plan the project's objectives, anticipate potential risks to the project, plan communication and publicity for the project, and utilization of the project's results. The organisation needs to understand the project, its nature, its subject matter, and its impact on the environment. An analysis of the project environment can reduce the impact of various factors on the quality of the project.

- *During the project completion phase:*

- Determining the sustainability and continuity of the project. The impact and results of a project are sustainable if they meet the needs and interests of the organisation and other stakeholders (contextual understanding, environmental analysis in project planning is important). If the project benefits the implementing organisations as well, and not only the target group (which may be different from the implementing organisation), then the organisation will be more likely to benefit from the project's outputs and will be more interested in carrying out the project's activities in a quality manner.

- Determining the fulfilment of requirements, meeting the needs of interested parties.

Relevant throughout the project:

- Be able to identify and draw on staff experience (project or otherwise) that can help improve the quality of project implementation.

- Assessing past mistakes - what to do and what not to do in a project, which helps to assess the scope of the work and the corresponding adherence to deadlines. Identifying lessons learned strengthens project and its quality management

- Motivating the project manager. The quality of the project is determined by the motivation of the project manager, e.g., interest in the project topic, having personal goals for the project. Flexibility and generativity (the ability to manage risks under contingent conditions at the current time) influence the impact of the project and are important prerequisites for project quality. It is necessary to react to the situations that arise in the project, to the needs of the stakeholders (in particular the target group, the clients) and to make adjustments accordingly.

- Continuous improvement. Continuous improvement in the overall performance of the organisation should be a constant objective of the organisation and its project. The continuous improvement cycle is based on the concept of "plan-do-check-act". Continuous improvement is closely linked to other project quality factors such as the assurance of learning in the project and the evaluation process. Lessons learned and recommendations are identified during the evaluation and learning process and contribute to continuous improvement.

In summary, it can be stated that the success of projects is influenced by a variety of factors (Figure 2). It can be seen that some factors are influenced by others. The satisfaction of the project team, external and internal communication, project monitoring, control, risk identification, assessment, preparation, and management, as well as the satisfaction of the partners, depend on the project manager, his competences, experience, and knowledge, as well as the support of the project team. All of these factors can be managed and controlled by the project team itself - its competences and skills.

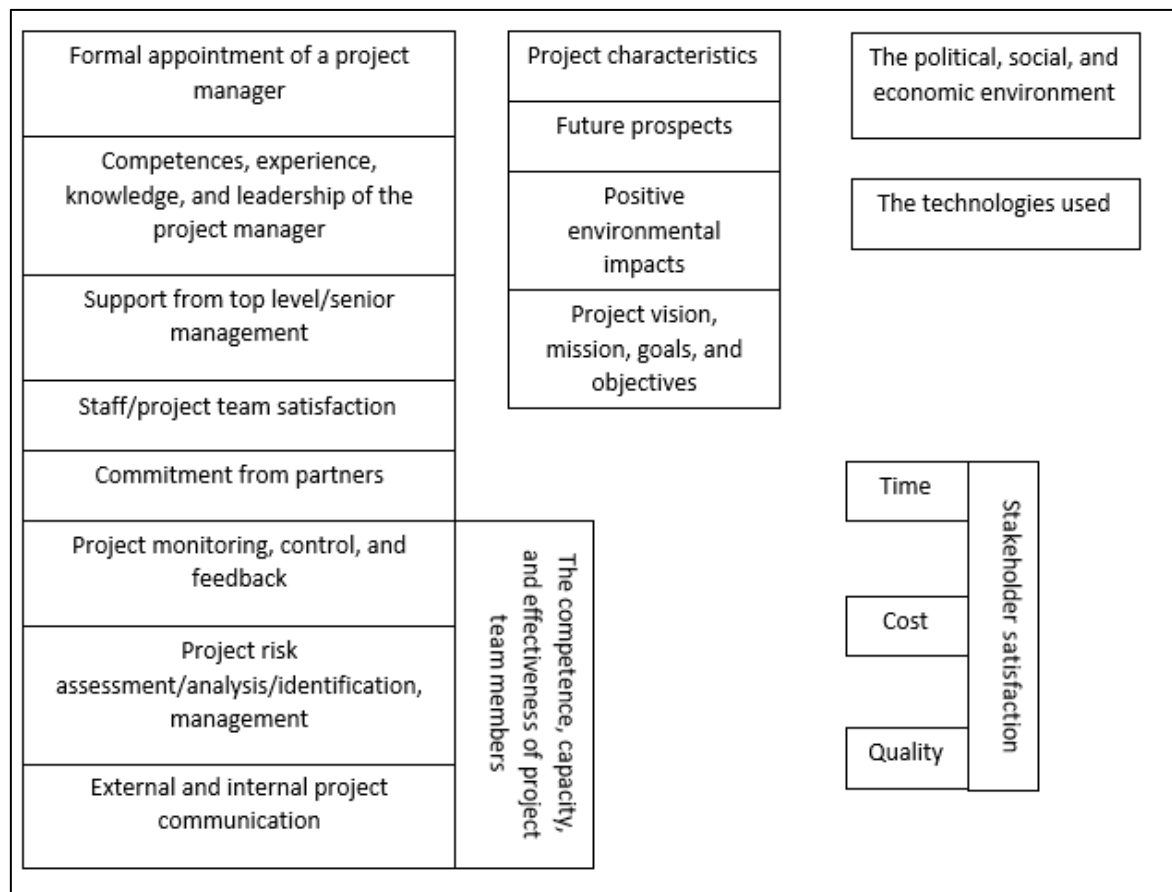


Figure 2. Key factors that impact the success of a project

Source: compiled by the author based on Alias, Zawawi, Yusof and Aris, 2014; Montequin, Cousillas, Ortega and Villanueva, 2014; Osei-Kyei and Chan, 2015; Sliva, Warnakulasuriya and Arachchige, 2016; Yong and Mustafa, 2017, Frefer, Mahmoud, Haleema and Almamlook, 2018, Lamproua and Vagiona, 2018, Vrchota, Rehor, Maríková and Pech, 2021.

The success of a project is also influenced by the characteristics of the project itself: its future prospects, its positive impact on the environment, as well as the project's vision, mission, goals, and objectives. There are also external factors such as the political, social, and economic environment. Factors related to the organisation, such as the technology used. All of these factors ultimately translate into time, cost, and quality - which in turn determines stakeholder satisfaction - a very important factor in determining whether a project is successful. It is important to use all these key factors at every stage of project management (initiation, planning, implementation, and completion).

#### 1.4. Project management models

There are different models of project management for successful projects and successful project management. Some of the most analysed in the scientific literature and applied in practice:

The “*Stage-Gate*” model. It is a value-creating business process and risk model. The model can increase the productivity of the project team, focusing on customers and the market, decisions, accountability, alignment, discipline, speed, and quality. The Stage-Gate model is said to improve processes through stages (project activities and milestones) and gates (assessments and decisions). Stage-Gate assesses, improves, and supports preparatory activities (business justification and pre-feasibility), development activities (technical feasibility, marketing, and operations) and commercialisation activities (market learning and post-launch learning) (Edgett, 2018). Stage gates are stated to be the “go/kill” points for project decisions and specific criteria must be met to move to the next stage. Gates are essentially quality checkpoints where senior management reviews the project and decides whether to continue spending funds and resources (Cooper, 1995, as cited in Aslanzadeh & Davoodi, 2014). It is emphasised that the Stage-Gate model ensures a well-structured and organised project flow (Koul & Alexander, 2013).

*Phases.* A project manager guides the project through each phase. Each phase is intended to collect specific data that will aid in the project's progression to the next phase or decision point. The activities that take place throughout each phase characterize it. These activities are multipurpose and conducted in parallel, allowing projects to progress quickly to completion. The actions are intended to collect data while gradually reducing uncertainty and risk. Each stage becomes more expensive and emphasizes the gathering of additional data to lessen uncertainty. The outcomes of this comprehensive analysis are turned into a set of outputs that are used to make decisions (Gates). In a typical Stage-Gate model, there are 5 stages (Edgett, 2018). Although the number of stages and gates varies by company or division, it typically consists of four to seven stages and gates (Cooper, 2008, as cited in Aslanzadeh & Davoodi, 2014).

Edgett (2018) points out that:

- Stage 1 - scope. A quick, low-cost preliminary study of the project and its scope. Often at this point, various aspects are identified, ranging from market analysis, needs, competitive position, product superiority, etc. (Cooper, 1990, as cited in Aslanzadeh & Davoodi, 2014).

- Stage 2 - case study. A comprehensive study covering primary research (customer, market and technical) resulting in a business case, including a project definition, project justification and a proposed development plan. In other words, the second stage develops the business case and identifies the market need. In stage 2 activities include: research on customer needs and wants, identification of the ideal product based on the end user's desires, competitive analysis, technical and operational assessments, legal assessment, and detailed financial analysis (Cooper, 1990, as cited in Aslanzadeh & Davoodi, 2014).

- Stage 3 - development. The definite thorough design and development of a new project/product and the design of the procedures or manufacturing process needed for final full production.

- Stage 4 - testing. Testing in the laboratory, in the factory and on the market to verify and validate the suggested new product, brand/marketing and production/operating plans.

- Stage 5 - launch. Commercialisation: the start of full operations or production, marketing, and sales.

The aim of each stage is to cost-effectively minimise the risk of following stages. If the risks of succeeding phases cannot be adequately mitigated, the project may be terminated at an early stage. The allocation of project assets to each stage shall be based on the successful accomplishment of the previous stages and if the previous stage fails to satisfactorily mitigate the risk, it may be addressed, e.g., supplementary work may be requested before authorisation to continue to the next phase is given. In retrospect, it should be demonstrated that the milestones of the phase and all the criteria for the phase have been achieved. The evaluation committee shall evaluate, validate, and approve the work carried out during the phase and officially accept the results or outcomes of the phase. Before the phase is formally closed, it shall be confirmed that there are no unresolved issues. In addition, the completion of a phase usually informs about the planning of the next phase. Once a completed phase has been approved, the project team will normally submit a proposal or suggestion for the next phase to the steering committee, based on the detailed planning that has been done for the upcoming phase. The decision makers assess whether the detailed planning is sufficient for the next phase, whether resources are available, whether there are risks, and whether it will be possible to implement the remaining of the project. If the review board is satisfied, the next phase of the project is permitted (Lotz, Brent & Steyn, 2009). In other words, if the project does not meet the expected benefits or strategic objectives or does not inspire assurance at any stage of the project review cycle, it is possible to return to the beginning of the phase, or to revert to the core value-added concept and implementation phase (Wittig, 2019).

*Gates.* The project passes through a gate before each phase, where the decision to continue investing in the project (the "Go/Kill" option) is taken. These are quality control points with three goals: ensuring execution quality, evaluating business logic, and validating the project plan and resources. Each gate serves a distinct role. Gate 1 is a softer, early evaluation of fresh ideas, whereas Gate 3 is a more rigorous, rational, business-oriented judgment gate that approves concepts intended for a more costly development phase. Each project is evaluated against a set of important criteria that are clearly specified. An authentic Stage-Gate process typically includes six proven criterias: product and competitive advantage, market attractiveness, technical capability, synergies/core competencies, financial reward/risk (Edgett, 2018).

It is highlighted that the Stage-gate model empowers the project team by offering them a roadmap with distinct decisions, priorities, and deliverables at each gate (Edgett, 2018), increases the commitment of the work to the assigned project and also helps to eliminate bias in the approval process. The model itself can be used as a guide to form a model of the whole process to achieve the desired goal of the project, by breaking the project down into a number of possible processes to identify and analyse new suitable processes and to provide new ideas for further refinement of the project (Barringer & Gresock, 2008, as cited in Koul & Alexander, 2013).

The “*Process Gate*” approach. The Process Gate approach involves project management, a decision-making process, and a continuous workflow to validate quality. It is used to eliminate a defect at the process stage (Koul & Alexander, 2013).

The “*Phase-Gate Process*” is also divided into phases. However, it is considered to be most suitable for projects with large teams from several different departments. It is typically used for new product development and launch, software/website launches and business-wide changes (Scavetta, 2019).

The “*Project Excellence*” model delivers a theory and practice-based methodology that links success criteria to success factors, including result areas (project success criteria such as leadership and team, policy and strategy, stakeholder management, resources, agreements, project management) and organisational areas (critical success factors). The outcome areas are based on the "Iron Triangle" of quality, time, and scope, but are expanded with other criteria. Research shows that it is unlikely to be possible to create a single list of success criteria, as they vary from project to project. Thus, rather than specifying precise criteria, the model creates groups of success criteria (Venczel, Berenyi & Hriczo, 2021).

In summary, current project management models consist of phases, processes, and gates (solutions) that help to identify problems and losses in the early stages, thus helping to assess the potential risks and to successfully develop the project through improvements.

## 2. PROJECT MANAGEMENT RESEARCH METHODOLOGY

This chapter is dedicated to providing the information about the methodology used to conduct the qualitative research following the review of literature on key aspects in value creation through a specific project management framework. It contains information on the research technique employed as well as a justification for that approach's usage. The chapter also goes through the many steps of the study, such as participant selection, data collecting, and data analysis. The main *aim of the study* was to identify the key factors that create value for companies through the project management model. In order to reach the core objective of the research the following questions should be answered:

1. Which key attributes are the most important from project managers' perspective in a practical working environment?
2. What kind of impact the key factors have on the stage-gate model in project management?
3. Does the perspective differ regarding main value creating factors in project management between having a framework in use or not?

The literature review presented a great deal of various factors that support the project management process. To achieve the aim of this study only several approaches were chosen based on the authors experience and several found gaps in the literature, as it was believed to be beneficial to include additional, previously not mentioned factors.

Table 2

*Key factors to be analysed*

Key factor	Value contribution aspects
1. Official project manager appointed	Main responsible, first level support
2. Project checklist for stages	Guideline for activities, task planning
3. Management competences a of project manager	Clear communication, decision making, organisational skills
4. New employee learning curve	Clear guidelines, structure
5. Upper management support	Guidance, decision making
6. Tracking of project, control, and feedback	Information transparency, risk mitigation
7. Regular risk review in project	Forecasting of blocking points, risk mitigation
8. Gate decision communication	Known status, trust between all the parties

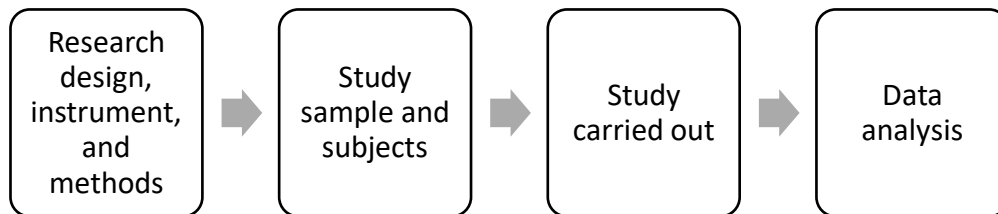
*Source:* compiled by author, based on literature review

As the conducted study was done regarding value creation using a project management model, the factor of having a project checklist for stages was added, as this aspect is one of the core features of



the framework. What is more, the new employee learning curve factor is believed to be very relevant in the research due to the nature of the model, structure, and the way of handling projects. Lastly, the aspect of communication was analysed by several scholars, however the impact of gate communication in the model is a crucial aspect of project management that might as well be a value creator.

**Procedure of the study.** The investigation procedure was divided and carried out in four steps, which are presented in the figure below.



*Figure 3.* Procedure of the research

*Source:* compiled by author

The first stage of the procedure consisted of choosing the research design, instrument, and methods. In hope that empirical research will provide more reliable and targeted results, in order to uncover the drivers of value, which factors create value for companies through the project management model, it was decided to carry out a qualitative study – a structured interview. It allowed the author to refer to a beforehand prepared plan, with specific questions. The interview method was also chosen to allow respondents to express their subjective views on critical factors in project management and the usage of a stage-gate model more freely, rather than being limited to the theoretically identified success factors, value creators. The questions were presented in general terms without asking interviewees to assess particular important elements in project management. This indicates that during the interviews while questioning the interviewees, possible answer options were not directly presented. According to researchers such as Kardelis (2007) and Bitinas (2006), by asking questions and listening to the informants during the interviews, it is possible to better investigate their views on the aspects of interest. The author of the paper considers this method the most appropriate and tends to agree with Luobikiene (2002) and Tidikis (2003) that a lot of valuable information can be obtained during the interviews. And as for the survey instrument – structured interviews, a questionnaire was developed (see Appendix 1), consisting of six socio-demographic questions and 16 questions covering eight key factors (table 3), which were identified in table 2:

Table 3

*Selected eight key factors and their description*

<b>Selected Key factor</b>	<b>Key factor description</b>	<b>Value contribution aspects</b>
Official project manager appointed	Official project manager appointed before starting any company project for all project lifecycle	Main responsible, first level support
Project checklist for stages	Project checklists are used by Project manager before every key project decision is taken by the gate release director, in order to proceed with next stage execution	Clear communication, decision making, organisational skills
Management competences of project manager	The ability of a project manager to effectively communicate, manage time and plan project related activities	Information transparency, risk mitigation
New employee learning curve	A stage gate system in use facilitates the integration of a new employee in the project by having the checklist as a guideline	Risk mitigation, reduction and prevention of mistakes
Upper management engagement in gate decision making	Upper management is engaged in project lifecycle via notification of gate decisions taken. Some dedicated gate decisions are taken by upper management for higher investment projects.	Guidance, decision making
Tracking of project, control, and feedback	Project managers use daily, weekly, monthly meetings to report progress to upper management for monitoring and support if needed	Information transparency, risk mitigation
Regular risk review in project	Project manager revise risks before every gate decision in project lifecycle/model by using checklist and leading project team members. Risk mitigation actions are approved on very gate decision.	Forecasting of blocking points, risk mitigation
Gate decision communication	Taken project lifecycle gate decisions are communicated internal and externally by senior project manager with necessary follow-up decided actions internally and externally.	Known status by all relevant stakeholders, trust between all the parties established

*Source:* compiled by author

**Study interview structure.** The questionnaire was divided into two sections. The first one consisted of socio-demographic questions about age, level of experience, number of projects managed to get a view on the demographic variety of the participants. The second section consisted of questions related to the established key factors. Each factor had two questions, which were inquiring about project

management in general and the stage-gate model accordingly. This division is due to the fact of comparing the conducted literature analysis with the perspectives of project managers where possible and collecting information on value creation through the stage-gate model.

The following step of the procedure consisted of assessing the *study sample and subjects*. Qualitative research does not require a large number of subjects - some researchers mention 5, others up to 15 (Rupšienė, 2007). The sample of the study was selected according to the idea of criterion sampling - the study includes subjects who meet the criteria set by the researcher (Rupšienė, 2007).

*Criteria for selecting subjects:*

- Project managers who have worked with the Stage-gate project management model for at least 1 year.
- Project managers who do not work with any project management model.

There were no age or educational requirements for participants. In total eight project managers participated in the study, and their characteristics are presented in table 4.

Table 4

*Characteristics of the project managers who took part in the survey*

<b>Respondents</b>	<b>Essential role description from project management perspective</b>	<b>Project framework in use</b>	<b>Number of participants</b>
Project Managers	Planning and execution of project deliverables to agreed customer objectives	Yes	6
Project Managers	Project manager - planning and management of project delivery according to agreed project objectives	No	2

*Source:* Compiled by author

Majority of the participants work in a company, which implemented and has been working with a project management model – the stage-gate model. As the research aim is to analyse the value creation through such a framework, this particular study sample was the target audience for the selection. The two participants, who do not work with any model, were chosen to be a part of the study in order to assess if there are differences in perspectives from the value creation standpoint.

**Data analysis method.** As the collected qualitative data is left for interpretation, it is critical to analyse the information in a methodical manner if the researched data is to produce relevant and helpful results. Accordingly, the thematical analysis method was chosen to be able to systematically and in an understandable manner to deliver the obtained results of the structured interviews. As it was stated by Alhojailan (2012) this particular method is appropriate for analysis when the study sample used is

determined and defined beforehand, when factors or variables need to be detected that effect the topic being researched, supports in drawing interpretations, the influence of any variable that participants use in a practical approach to examine and determine how their perspectives influence current conditions and provides the chance to categorise data into themes. The collected information from participants was analysed according to the key approaches and their corresponding questions by drawing out factors representing an interpreted theme.

**Ethics of the study and procedure.** For interviews, respondents were contacted by email. Participants were told that the information they provide would only be utilized for scientific reasons and that their privacy and confidentiality would be protected. The objective of the empirical study, the topic matter of the interview, the course of the interview, and the duration of the interview were all explained to the participants, and an online meeting was scheduled on the time, which was available for the project managers. The duration of each interview was up to 45 minutes long. The eight structured interviews were performed without using any audio recording devices. The author noted down the most relevant points during the interviews as the questions were structured and specific.

**Study restrictions.** Availability of project managers working with a project management model was one of the most restricting factors. Also, the results from the socio-demographic part of the questionnaire presented that the demographic distribution of the participants was not as broad and diverse for the study results to be applied to the general perspective of project managers.

### **3. KEY FACTORS IN PROJECT MANAGEMENT FRAMEWORK RESEARCH RESULTS AND ANALYSIS**

The results from conducted interviews regarding key attributes, that help create value in project management, will be presented and analysed in this chapter. As it has been stated previously that the implementation and usage of a stage-gate project management model is a choice not all companies consider and take. Nevertheless, even just by having a framework in place it does not guarantee immediate project success. It is important to know the *key aspects* that contribute to the overall value creation and successful management within the scope of an existing framework in project management. The purpose of the study was to reveal the most effective approaches, that add to the value growth of a company throughout the project life cycle. In order to fulfil the purpose of the study the following questions should be answered:

- Which key attributes are the most important from project managers' perspective in a practical working environment?
- What kind of impact the key factors have on the stage-gate model in project management?
- Does the perspective differ regarding main value creating factors in project management between having a framework in use or not?

The purpose of this chapter is to present the data collected from conducted interviews regarding the selected main eight key factors. The received and provided information is a reflection by verbatim quotations or extracts of the perspective of project managers from a practical point of view. Verbatim quotations, like statistical data, provide proof for the interpretation - that is, they indicate how the findings originated from the data, providing an "audit trail" that improves credibility (Croden & Sainsbury, 2006). The objective is to indicate not only qualitative data but to explore the correlation between the previously stated literature findings if the project managers' perspective aligns with the researched information. The findings are presented in an elaborate method in keeping with the theme of each key attribute and a corresponding participant's view on the subject.

#### **3.1. General data about the study participants**

The studied sample consisted of 6 project managers working in projects that deal with early-stage products and have a stage-gate framework, and 2 project managers without a framework to work

with from separate industries and work fields. Due to the agreed confidentiality, participants names, exact job titles and represented organizations will not be disclosed. Only two main criterias were considered for the choosing of the participants: project management framework available in the workplace and experience on the job for at least one year. Interviewing was chosen as the method of data collection because of the nature of the process, to be able to gather data face to face and inquire about inconsistencies or difficulties in understanding the provided information. Below the socio-demographic trends of the participants can be observed (tables 5-6) that would entail the trustworthiness of data collected.

Table 5

*Respondents' work experience in project management*

Respondent	Work experience	Stage-gate usage
1	9 years	Yes
2	5 years	Yes
3	7 years	Yes
4	4 years	No
5	5 years	Yes
6	8 years	Yes
7	1 year	No
8	7 years	Yes

*Source:* Compiled by author

The data provided in table 5 is an indicator of experienced professionals that have participated in the study. Only one participant had less than four years of experience, starting a career in the project management field, while the other interviewees have been working for more than four years, from which half of the respondents had worked in the field for at least seven years. The accumulated experience throughout the years is very valuable for the conducted research and is reflected in the answers with deeper insights in the subject of value creating key aspects. Furthermore, two of the participants currently do not use any project management framework, which is an important aspect in order to answer the third research question. Their perspective will give more insight whether there is a difference on the perception which factors in project management bring more value.

Table 6

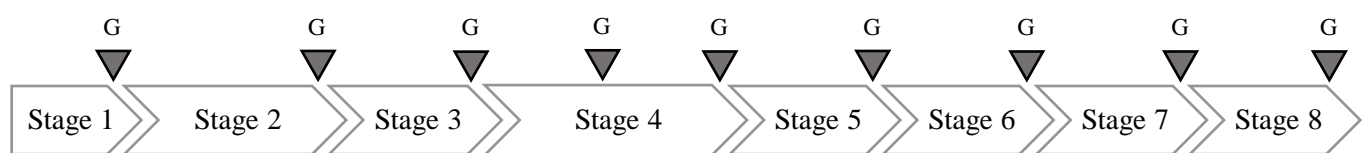
*Respondents' number of managed projects*

Respondent	Projects Managed
1	15
2	4
3	6
4	8
5	5
6	12
7	2
8	4

*Source:* Compiled by author

Furthermore, table 6 supports the collected data's reliability, as it showcases the participant's involvement in multiple projects throughout the years. Three participants have managed over eight projects, while the average number involvement in projects is seven. The project managers, who are working with the stage-gate system, are involved in large scale projects, that last several years as the lifetime cycle consists from developing to launching a new product. The knowledge gained from diverse project phases has provided beneficial and in-depth information on the topic of success factors.

The stage-gate model that the study participants are working with within the life cycle of their projects is illustrated below, portraying the different stages, and shortly describing the activities involved.



*Figure 4.* Stage-gate model of the participants

*Source:* Compiled by author

The framework that the participants are using consists of eight stages and nine gates due to the complexity of the projects. It can be observed that one stage has two gates, as the stage is difficult and requires careful planning and tracking of the necessary deliverables. Each gate has its own checklist that needs to be filled before the gate meeting, where the Gate Release Director together with the Project Management Office makes the decision of gate change based on the project team's preparedness and

project status. Having received a positive review, the project can continue to the next stage, while a not favourable review prevents the continuation and gives the team an opportunity to adjust the insufficiencies and repeat the gate review meeting once more after an agreed upon time period. After each meeting a gate release note is prepared and provided to the project manager to track the project progress.

### 3.2. Project managers' perspective on key factors in project management framework

In this section the gathered data from the structured interviews will be presented in the order of selected project management factors and the corresponding perspective of the participant.

**Official Project Manager appointed.** To begin with, it is broadly agreed and understood that every project must have an official leading person in charge to lead the team and successfully reach the project closure phase. This is supported by the literature findings in the previous chapter as Spalek (2005) found in a study that the most important factor influencing the success of a project is having the formal project manager appointed (93%) (as cited in Venczel, Berenyi & Hriczo, 2021). In the study conducted by the author the participants' perspectives are in line with scholars', as they, without hesitation, agreed on the importance of one key person leading the project and the team. In the table below the main aspects from the impact of having a person in charge of the project can be observed.

Table 7

*The impact of having an official project manager appointed*

Aspect	Supporting statement
Responsibility	"... project manager is the main responsible for the overall project execution..." (R2)
Support	"The team identifies the leader which will sponsor their activities and keep track of the project status" (R3)
Decision making	"The project manager is the highest decision authority...they have to decide case by case what is the best way to bring the project to success..." (R5)
Communication	"Getting a single point of contact that drive the project activities..." (R1)
Motivation	"... they play an important role keeping everyone on track by motivating..." (R8)
Organisation	"An official project manager sets the tone ... for the project, aligning to reach the set milestones" (R8)

*Source:* Compiled by author

The respondents collectively agree with the factor of having an official project manager appointed to the team, as it is one of the main value creators, not only when working with the stage-gate model but for the company in general. It has been observed that one of the firsts aspects mentioned was



regarding the main role of being *responsible*. Respondent 3 indicated the value of having a single point of contact in the team to drive the project activities, allocate resources and clearly state the ownership of each discipline as being crucial for the successful completion. Being responsible and managing the team helps drive the project in a needed direction and sets the tone of it. What is more, the participants made a lot of emphasis on the third aspect mentioned in the table, due to the nature of the position, as it is the highest *decision-making* role in the project team. Respondent 5 stated that the project manager must have widespread interdisciplinary knowledge, as it provides more valuable insight into each arising blocking point and aids into making favourable decisions that eventually lead the project to success in terms of quality, time, and cost efficiency. Another aspect mentioned often was receiving *support* from the project manager. Respondent 2 accurately described how the team can expect support from the project manager in case needed. For the project team this is very valuable as the encounter of issues, struggles, and uncertainties can have a negative impact on the outcomes and milestones. The project manager's ability to efficiently and in a timely manner to provide the needed support to the team results in a higher probability of a successful project completion, which in the end results in customer satisfaction. Additionally, the aspects of *communication* and *organisation* were mentioned as they bring structure and clarity within the project team, especially when working with a framework, as the stage-gate model. As respondent 8 mentioned, that the project manager sets the structure, the strategic framework for the project and defines the milestones. This clear structurization and breakdown of the projects also sets guidelines of communication paths. As respondent 1 stated that having a single point of contact can help in activity and responsibility distribution, escalation in case of blocking points. One person as the main contact either to the team or other stakeholders clarifies the distribution of information. Such clarity supports the team in case of escalation, problem solving and provides a timely reaction. Lastly, one respondent talked about *motivation*, which was not mentioned by other participants. However, it is perceived as a valuable aspect of having an official team leader appointed, as while working with long and complex projects, the team naturally loses motivation. By having the main project driver, who can bring the team back on path, it is highly valuable for the end outcome of the project.

The participants unanimous perspective can be observed when asked about the situation, when the project does not have a manager appointed to lead it. The main effects to the project can be observed in the table below.

Table 8

*Effect on the project with no official project manager*

Effect	Supporting statement
Lack of accountability	“In general lack of control would be felt and delays on the tasks” (R4)
Goals not reached	“...ultimately mean that set milestones and the overall outcomes are not reached...” (R8)
Cancellation	“Project needs to be cancelled” (R5)
Lack of tracking	“Could be hard to have one clear vision of project progress, collect all data...” (R6)
Lack of communication points	“...execution would not be possible due to the need of open point escalation...” (R2)

Source: Compiled by author

Majority of the participants talked about the scenario, where the project cannot even be continued without a main person to lead it. One of the reasons being – *lack of accountability*. As respondent 1 has pointed out, there would be no project drive, no accountability of the people working for the project, as the scope and responsibilities would not be defined. This would lead to the following effect of *not being able to reach initial goals*. Keeping in line with the milestones and successfully completing them is very crucial when working with the stage-gate model, as this is the main source of receiving the permission for the project to progress to the following stages. Without a leader the team is not able to complete their tasks in the case of support or guidance needed. Furthermore, the snowball effect can be noticed as the previous drawback leads to the following – *lack of tracking*. Respondent 8 clearly pointed out that this would cause the lack of structure and alignment, as respondent 6 supported the view and adding the missing clear vision of the progress and collected information. These effects can be clear blocking points when working with the project model, as the checklist in each stage would be flawed or an inaccurate representation of the actual project status. What is more, *lack of communication* would also greatly affect the project completion throughout the stages without a manager. As it was previously mentioned, the importance of the team leader in setting the communication paths, without this person the team would lose the bigger picture, a clear overview of the project status and may not be able to receive the needed support. And lastly, the four of the interviewees have stated that a *desirable project outcome would not be possible* without the project manager leading the team. Respondent 5 clearly stated the outcome of project cancellation while respondents 2, 3 and 8 reasoned the effects it would cause but also agreeing with the implementation of the project as not possible/successful.

The interviewed project managers’ perspectives clearly affirm the importance of an officially appointed manager to lead the project team. Not only are they important to ensure the continuous and efficient performance throughout the stages, but it does also entail the added value for the company, as the end receiver of the project outcome, the customer, will be satisfied with a successful project closure.

**Project checklist for stages.** A checklist of the needed activities to be done in each stage in order to be able to move to the following phase of the project can be viewed as a beneficial tool. It provides an overview of the project status, acts as a reminder and reduces uncertainty and risk. During the conducted interviews, the majority of project managers agreed to the benefits of a stage's checklist throughout the life cycle of a project, some were emphasising on the value-added aspect, while the respondent's, who do not work with the framework, mentioned new ideas. The results are presented in the table below.

Table 9

*Help of checklist to manage a project*

Aspect	Supporting statement
Guideline	"Works as a guideline of the things that need to be prepared" (R1); "Indicates activities that need to be completed in specific gate" (R2)
Activity tracker	"A helpful reminder on the tasks pending" (R4); "Helps not to forget key project deliverables..." (R6)
Lessons learned	"It helps by providing information on past project stages and their finishing time" (R7)
Appointed responsibilities	"...helps to distribute the outlined checklist tasks to appropriate project team members" (R8)

*Source:* Compiled by author

The most common word used, describing the checklist, was *guideline*. As it defines the activities, that need to be completed in order to progress to the next stage, it provides a very thorough and clear picture of the overall status and progress of the project in each phase. Respondent 1 described this tool as a guideline of things that need to be prepared, which in the end gives confidence to the project, that they can close all the activities within a valid timeframe. This can be viewed as a value creator, due to the fact that a clear outline is presented in each gate, giving the team a clear direction with key activities to be completed for a fruitful project launch. Due to the nature of this framework tool, several project managers also described it as an *activity tracker*. Respondent 6 pointed out that this is a great tool to keep track of key activities and put much emphasis on the fact that it provides an overview of some small details that might not seem relevant at that moment, but later on could be a showstopper. This indicates the beneficial aspect of the checklist that acts as a safety net that protects from unforeseen risks and gives way for a high-quality gate closure. The participants who do not have a project framework in place have pointed out a few different aspects that they perceive as beneficial if they had such a model to work with. Respondent 7 described the checklist as a possible *lesson learned* source from other

projects, how the stages were completed and a realistic activity closure time frame. This can help the projects to estimate their resources and time allocations based on previous experience if the scope and targets are similar. While respondent 8 pointed out that the checklist can provide a clear overview on the responsibilities of each task, which guides in activity distribution within the project team. Such clear division leaves no room for interpretations and passing on of responsibilities to other disciplines. Maintenance of coherence within the team serves as a very beneficial aspect that can ensure a more stable and efficient journey through the stages.

It is observed that by having a checklist in place while managing a project can bring value and support to the overall project implementation. However, the quality of the filled tool before any gate review can impact not only the gate decision but the project itself. The project managers' insights on the importance of an accurate information representation can be seen in the table below.

Table 10

*Impact of checklist quality on gate decision*

Aspect	Supporting statement
Postponement	"Incorrectly filled checklist could lead to missing information to make correct decision on gate" (R3); "bad quality can lead to late gate closures" (R6)
Possible misinformation	"...the way the content is prepared and how topics are sold, are influencing the decision" (R1)
Transparency	"...transparency creation allows to understand the status of the project" (R2)
Uncomplicated decision making	"...it can be seen as a great tool that makes the decision to change gates simple and the overview clear" (R8)

*Source:* Compiled by author

Project managers clearly emphasised on the importance of a correctly and accurately filled checklist for the best gate results and a seamless gate decision making process. A filled checklist gives an overview on open and completed items – *transparency*, including the status of critical activities, by respondent 2 this is perceived as clarity that allows to understand the actual status of the project. Project members carry the responsibility to accurately fill their respective tasks in order to provide the whole team with a truthful view on the status and provide the possibility to make informed and correct decisions on the following actions. To add to this beneficial aspect respondent 8 reasoned how the team effort and truthfulness can aid in making *easy and correct decisions* based on the provided facts. A correctly filled checklist that is seen as high quality can bring great value for the team and the project itself in the long run, as the informed decision made during the gate review accurately represents the status, allowing for a smooth project execution through the phases and eventual closure. However, the

project managers also noted very crucial and impactful aspects of a poorly filled checklist that can negatively impact the project and gate decisions. *Possible misinformation* can occur when the checklist is not representing the reality of the activities. As respondent 1 has pointed out, gate decisions are made based on facts that are reflected in the checklist, on the way the content is prepared. Which means if the questions are not answered correctly, or the data is not prepared in an accurate way, the information is misleading, and incorrect decisions can be made which might negatively impact the overall project status. This can lead to *postponement* of the next project stages, activities due to missing information to make correct decisions as respondent 3 has noted. Accurate checklist fulfilment and information input is crucial for the project team and for the project manager to ensure that it is followed and respected.

In general, this stage-gate model tool is perceived as a key aspect of a project success but has to be approached with caution and precise up to date information. If the tool is used in an incorrect, not the intended way, then the consequences for the project can be significant. The project managers have stated the importance of the content and how the data is presented in the tool to be able to receive the most value and to convey it to the later stages and end result of the project.

**Management competences of a project manager.** Every position in a company requires to have a certain skill set to enable the person to effectively complete tasks and fulfil the needed requirements. The experts from the literature findings argued for the importance of project managers and their competences, abilities, and experience in affecting project success. A manager's capacity to communicate, provide feedback, make decisions, planning and organizational abilities, and management experience are all elements to consider (Venczel, Berenyi, & Hriczo, 2021; Vrchota, Rehor, Marková, & Pech, 2021). The interviewed project managers' perspectives go along with the academics on the importance of having strong competences while managing a project. However, they bring in new aspects that can be seen in the table below.

Table 11

*Impact of strong management competences*

Aspect	Supporting statement
Motivation	“Strong competences motivate the team better” (R3); “... retains motivation throughout the duration of the project” (R8)
Triple constraint management	“Smooth running project in time, cost, and scope” (R5); “Project in time, scope, and budget if all loose ends are followed up by a competent project manager” (R6)
Risk mitigation	“...allow to foresee possible risks” (R2); “... better detection of risks” (R1)
Timely reaction	“... solutions to arising problems are generated quickly, changes are communicated effectively” (R8)

*Source:* Compiled by author

When a project manager has strong competences and soft skills, one of the main benefits mentioned was the ability to *motivate* the team. As respondent 2 accurately pointed out, the ability to motivate the team also helps to lead them in a correct direction and in task prioritization. A team with high spirits is less likely to make mistakes and are able to better perceive the scope at the current stage of the project. Another interesting aspect of how the project management competences help the project and the team is by effectively *managing the triple constraint*. Respondent 5 was the first to mention the three most significant restrictions in project management and that the competences can support in a smooth-running project. Respondent 6 also shares this perspective, as the project manager with the right skill set is capable of following up on open topics and ensuring a positive outcome. As these three factors have to be constantly managed and monitored, a skilled professional that is qualified to set realistic timings, deliverables, and spending forecasts, is a valuable addition to the company itself, who will ensure desirable results for the customer. Another important aspect in project management is *managing risks*, as they constantly arise and need attention, which can be mitigated by having the required competences. According to several respondents (1 and 2), the project leader has the correct skills, they are able to foresee the possible future risks and create mitigation plans. Accurate risk evaluation is very crucial while leading a project, as an incorrectly assessed threat can have a negative impact on the current project stage or even the final outcome. In order to avoid such risks a *timely reaction* is important, that has been mentioned by the interviewees as a benefit that the project manager can bring to the team. Respondent 8 pointed out that a skilled project manager can use the competences to support the team and the project when an issue occurs by quickly reacting, notifying the team and pulling in the necessary members that can help. An understanding of the ongoing topics, the ability to communicate effectively, problem solving skills – all these attributes allow to react quickly and effectively to a potential issue, communicate to the team the situation and course of actions to take. A fast reaction protects the project and secures a further smooth implementation.

The importance of strong management competences is evident from the gathered perspectives and the benefits it brings to the team, the project, and the company. As the project manager is able to guarantee a running project and meeting the necessary deliverables, the upper management can be secured in a successful project delivery to the customer. While the benefits are clear in the general scope of project management, the research participants also explored how competences help within the stage-gate model (table 12).

Table 12

*Benefits of management competences through project stages*

Aspect	Supporting statement
Project need identification	"... to identify who needs to bring in and how the person needs to be involved in order to solve a topic" (R1)
Communication	"...communication to the team members what needs to be done" (R7); "Achievements and setbacks are communicated effectively to the team" (R8)
Motivation	"...project manager motivates the team better" (R3)
Obtaining information	"... to ask the experts in the team in the right way to get information..." (R5)
Reaching milestones	"Milestones are planned ..., achieved on a timely matter" (R8)

*Source:* Compiled by author

During the lifecycle of a project while working with the stage-gate model, there are additional tasks to be done, more activities to be considered. For this reason, respondent 1 has highlighted that the correct competences aid in *identifying project needs* in this framework. The project manager may not have all the answers but having the competences gives them the tool to identify which discipline needs to be involved throughout the different stages and what they have to bring into the project. This identification and pulling in when needed helps the team to feel more organized and in sync with the deliverables per each stage and ready for gate reviews. Another aspect that has been previously mentioned in association with a project leader and is repeated again by the participants is *communication*. During the project stages it is crucial for the team to be in contact and aware of the ongoing activities and any occurring problems. As respondents 7 and 8 have stated that communication of distributed responsibilities and current situations in the project respectively, it can be taken as a very high value creating aspect arising from the competence of the manager. Transparency created by communication aids the project success. Furthermore, as the interviewees mentioned the *motivational* factor once more, where the project manager is concerned, it is evident how important the role and the person's qualifications are to the project. An interesting aspect has been brought up by respondent 4, stating that the competences can help in *obtaining project relevant information*. This is specifically important during the preparation stages for gate reviews, as the need of accurate information is high. The project leader's ability to ask the correct and relevant questions, in order to collect necessary data can lead to a successful gate closure and a smooth transition to the next stage. And lastly, competences like time management, communication, planning can help in *achieving the set milestones* through the stages. All the above-mentioned aspects very well support this last factor of having the right tools and being able to fulfil the plan. Also, the competences allow to easier navigate within the project by

understanding the inter connection links between different project stakeholders, thus the gained knowledge aids in achieving the needed deliverables.

To sum up, the studied perspective of the project managers indicates the importance of competences and how it can influence the project outcome. Previously mentioned surveys from the literature research have found that the project manager's skills are the most significant aspect in project success, with more than 80% of Bulgarian respondents agreeing (Alexandrova & Ivanova-Stankova, 2013). These findings support the value creation aspect of the competences factor, as a professional of their field is capable of accomplishing the set deliverables by leading the team towards successful project completion.

**New employee learning curve.** Onboarding a new colleague in any team is always a challenge. Providing the correct tools and information, transferring the needed knowledge, training about the used procedures and standards is time and effort consuming. Entering the world of project management can be daunting but the stage-gate model can become a guiding tool for a new employee. The project managers working with this framework have stated positive arguments for the statement, which are showed below (table 13)

Table 13

*Benefits of having the framework*

Aspect	Supporting statement
Structurization	“Structured approach to learn” (R1); “...make it more structured and easier to follow up” (R6)
Bigger picture understanding	“...understand the interrelation between stages to stage planning” (R2)
Knowledge foundation	“It’s a good framework for the start how the perfect project progress should be” (R5)
Clear overview	“It’s clear what needs to be completed at a certain time” (R7); “Provides a clear overview of the project and visual representation...” (R8)

*Source:* Compiled by author

*Structure* was the first word spoken for some of the project managers when asked about the benefits of the framework for new colleagues. As respondent 1 has accurately pointed out it not only provides a structured approach to learn about activities in each project phase but also leaves less room for interpretation, what each stage entails. For respondent 6 the structure also helps in prioritization, as the new employee is guided in what is critical and what is not to be delivered during the certain phase. It can be compared how the checklist is guiding the project managers through each stage, the framework itself is a guidance for a new hire on a bigger scale. This leads to the other perspective, as respondent 2 reasoned the *bigger picture understanding* that the framework provides. As the model gives an overview



of the deliverables that need to be achieved in each stage, the understanding of them can bring a better perspective of the relations between stage-to-stage planning, thus the impact current activities have on the future ones in later stages. The realization of interrelations between all the deliverables and the influence on any aspect of the project might not come instantly for the new employee, however having the bigger picture aids in a faster integration process. It is important to mention how the declared aspects by the research participants are linked together and compliment by adding new perspectives to the benefit of the model. Another valuable factor is how the framework lays the *knowledge foundation* for the new team member. Even though respondent 5 mentioned that the stage-gate model shows an example of a perfect project progress, it is undeniable that the experience of going step by step in project planning stages, as respondent 2 has stated, gives the needed knowledge and first-hand experience. The base information is received by going through each deliverable that in the future can be beneficial when repeating the same stages for a different project. And lastly, a very accurate description of the framework benefits from the perspective of the project managers was having a *clear overview*. Respondent 8 has mentioned an interesting aspect that with providing a clear overview, the framework can also be used as a visual representation of the project, the stages and applicable deliverables which can also present the current state and status. The overview can act as a guidance in each stage, that would allow the employee to feel more comfortable and confident with each new challenge through the project.

In general, the framework is perceived positively by the project managers in the aspect of application in the new employee integration process. It can be used as a tool of guidance, initial information transfer, and awareness creation within the whole project scope. And it also can be perceived as an instrument to avoid mistakes, which in the final stages could prevent losses for the team and ensure a successful closure. The main mistakes to be avoided from the perspective of project managers are listed below.

Table 14

*Mistakes avoided by having the framework*

<b>Mistake</b>	<b>Supporting statement</b>
Incorrect resource allocation	“The main mistake avoided is the risk of working on incorrect activities” (R2)
Bad time management	“Important work products are not dropped or started late” (R5)
Misunderstandings	“Important aspects of the project are not missed out and done according to the set plan and procedures” (R8)
Irrelevant induction trainings	“Onboarding a new person without structure” (R4)

*Source:* Compiled by author

Project managers mentioned a variety of avoidable mistakes when asked the question, but the four distinguished aspects were the most repeated and unique from a certain perspective. For a new employee tackling new activities might be daunting, especially during a running project, when the list seems endless. However, the stage-gate model acts as a guideline, which has been analysed previously, by having the descriptions of each stage and the checklist and prevents from *incorrect resource allocation*. Respondent 2 has confirmed this by stating, how the framework aids to avoid working on incorrect activities, that would take time and effort. The model clearly states what needs to be done and for a new hire makes it easier to manage the workload. This leads to the following aspect of preventing *bad time management*. As the framework is structured and the timeline is set by the project manager, for the new team member it becomes more transparent, in what pace the project should be progressing, as respondent 5 stated, that it's avoided of missing the correct timing of the deliverables. Thus, keeping the project on track even with a new person onboard, ensuring the smooth completion of stages, which is a very valuable attribute to the company. What is more, having such a structured model in place helps to avoid *misunderstandings*. Respondent 1 mentioned that it eliminates misunderstandings on the expectations the new employee might have on his role and tasks within the project. While respondent 3 – misunderstandings within the project, what kind of project management tools or methods need to be used to achieve the goals and milestones. As the model gives clear descriptions and guidelines, it helps to eliminate the factor of interpretation and misalignment within the team. And one aspect that was presented from a different perspective – *irrelevant induction trainings* are avoided. The respondent 4, who does not work with any project management framework, reasoned that the integration process of a new employee can actually be improved and accustomed to the required needs. This means that the given information can be tailored, avoiding an overload of material, that can even be unnecessary. Interestingly, respondent 7, who also works without a model, shared aspects in the field of induction as well. They reasoned, how the model can be used by the supervisor to determine the strong and weak points of the employee during the beginning period. This would entail that the new hire can receive required trainings to gain more knowledge in weak areas faster, thus, avoiding a slow integration and irrelevant process and quickly concentrating on improving specified areas, adding to the overall value creation of the model for the company.

In general, it is observed and analysed that the project management model is beneficial not only for the experienced and knowledgeable project managers, but also is a great support for the integration of a new employee, ensuring a more smooth and sustainable process. Adding a new member to the new is a challenge in most circumstances and the model provides additional structure and guidance, that can be beneficial to the company in resource allocation and the satisfaction of the employees.

**Upper management support.** Having a manager’s support in a professional environment in general is beneficial to the employee, as it provides motivation and reassurance that roadblocks can be solved. This can also be applied for project management, as it was previously stated that support from top management and dedication from senior leaders in organizations offer a project unique meaning and can considerably boost its chances of success from the start (Lamproua & Vagona, 2018). The perspective of participants is presented in table 15 on the value of support during the project.

Table 15

*Upper management support through the project*

Aspect	Supporting statement
Prioritization	“...especially when prioritization is needed” (R1)
Decision making	“... take business critical or sensitive decisions” (R2)
Guidance	“Important to have support to unlock road blockers” (R3); “Essential during a crisis...” (R4); “...support on with a kind of consulting” (R5)

*Source:* Compiled by author

All the project managers view management support as very valuable, identifying various aspects and benefits that are brought in through the project cycle, which can be categorized in three main themes. Senior managers can help in *prioritization*, whenever issues occur. Respondent 1 has provided an example of whenever resources are limited in accomplishing tasks and reaching deadlines, managers can support by allocating additional internal or external resources to ensure there are no stoppages in the implementation of the project. This is very beneficial support, especially in ever changing current times. What is more, one of the most common answers was the support in *decision making*. As higher up managers have more experience and specific field knowledge, they are able to direct the team onto a more correct path if the situation arises. This was reasoned by respondent 8, stating that managers can make the decision-making process simpler, generate new ideas and resolve issues quicker. While respondent 2 mentioned support in decision making regarding sensitive/critical business cases, where the customer, project profitability or overall execution is concerned. Different aspects of the project and problems can benefit from the support of higher managers in order to continue with the project and bring it to an eventual successful closure. One of the more frequent benefits mentioned was *guidance*. It can be perceived and received in diverse situations, within any stage of the project. One of the instances was presented by respondent 5, stating that support in consultation can be received in case of escalations toward stakeholders when the project plan is running out of track. While participant 3 mentioned needed support in unlocking road blockers during the project runtime. And project manager 4 viewed it valuable during crisis. It is evident, how much value the support from senior managers bring to the team by

directing them in the correct direction, especially if requested for it in a timely manner that can help keep the timeline and present the needed deliverables.

The described various scenarios from their perspectives and experiences present valuable information on the added benefits of having upper management support during the implementation of a project. Unanimously it is agreed on the importance they have in the decision-making progress, prioritization, and guidance. However, a slightly different situation was encountered when analysing the support during gate transitioning period.

Table 16

*Upper management support in gate preparation*

Aspect	Supporting statement
Transparency	"... everybody onboard ... knowing the gaps and potential risks" (R1)
Decision making	"... activities could not be completed ... decision is needed" (R2); "... helps to decide without too many doubts" (R6)
Approval	"Faster preparation" (R7); "... review and provide recommendations" (R8)

*Source:* Compiled by author

The factor of upper management support during the gate review process has received mixed reactions and perspectives from the study participants. Nevertheless, *transparency* was indicated as one of the first positive factors. In case of existing deviations or not fully completed deliverables, respondent 1 reasoned, that it is important to have everybody up to date about the current situation, possible risks, and intentions to close the gate. Informing senior managers on the gate status serves as an agreement of approval while proceeding with the project in case of deviations in the future and aids in receiving needed support in a timely manner, as everyone was informed beforehand. This leads to the following beneficial aspect that has been previously analysed – *decision making*. Similarly, as receiving a manager's support in decision making throughout the project, it has been mentioned, how important it is during a closure of a stage while working with the stage-gate model. Respondent 2 accurately described that a senior manager's input can bring value, when certain activities could not be completed in a specific time frame and a decision needs to be made whether the situation has become critical, or an exception can be made. With such support the execution time can be extended without an impact on the overall deliverables, thus preventing any blocking points in the future stages. The perceived benefits of upper management experience and input in the project demonstrates how much value it brings to the company, which allocates their senior employees' time to be involved in project activities. Furthermore, the aspect of *approval* can be linked together with the previous one, as it requires to be informed about the details of the project stages. Respondent 8 highlighted the importance of support in reviewing the

status of the gate preparation and providing recommendations if necessary. The feedback after revision can be taken into account when moving on with the gate closure. Respondent 7 reasoned that the preparation for the gate closure might take place faster if the management is involved as their inputs can close certain open points that the team has been working on for a longer time. This brings benefit for the team as a closure of one point helps to move onto another topic which needs attention. However, several respondents mentioned that support in the gate decision process is either not as important as throughout the project life, or it is not needed, as the project manager should have a satisfactory overview of the gate preparation. Nevertheless, none of the participants mentioned it is not necessary at all.

In general, upper management support is viewed as a positive attribute during the different stages of the project and while working with the framework. The inputs they bring from their experience is valuable to the team to make informed decisions, ease blocking points, and ensure a better project implementation. For some companies having their senior employees involved in tasks that might be out of their scope, can bring some difficulties regarding resource allocation but the value it brings in the end is very evident from the perspective of project managers.

**Tracking, control, and feedback of the project.** In the previous key factors, project managers have mentioned the importance of tracking the progress of the project and how it can impact the outcome. It has been found that scholars have also emphasized that proper and accurate project monitoring and control offers the project manager and each stakeholder with access to information on the project's progress, allowing them to intervene in the event of potential flaws or met roadblocks (Lamproua & Vagiona, 2018). The more in-depth perspective on a valuable factor can be observed below.

Table 17

*Benefit of controlling project progress*

Aspect	Supporting statement
Prevention	"...early detection on risks and blocking points" (R1)
Fast reaction	"... triggers dedicated members to seek for solutions..." (R8)
Transparency	"All people around informed" (R6)
Future lessons learned	"... employees can avoid same mistakes..." (R7)

*Source:* Compiled by author

As it could have been assumed, majority of the project managers view this key factor as a way of *prevention* from possible blockers in the project. For respondent 1 it is a way to detect risks and blocking points early, while for respondent 5 it works as a roadmap, that shows deviations from the path of a project and enables steering against them. It is understood, that keeping track and control over a

project, helps to foresee potential or incoming issues and provides time to prepare on an action plan to ensure no negative impact is brought upon the project. A good overview of the project status is given by tracking the progress, which in the end aids in a *fast reaction* if such a situation occurs. This was reasoned by respondent 8 as they state that dedicated project team members can be triggered if any shortcomings are identified, and solutions can be quickly found. It is especially valuable in critical cases that are time sensitive, or a project is in a stage, where activities are nearing their deadlines to be completed. Also, the perspective of respondent 5 supports this idea, as he stated that a reaction is possible only on what is known. If a project would not be controlled, then the team would not be able to react and solve issues accordingly. A repeated aspect from other factors, which has been mentioned once more is *transparency* but from another point of view. Respondent 6 pointed out as all the team members are informed when the project is being tracked, they can efficiently step in as soon as their input is needed. While respondent 2 elaborated on how critical the activity is for everyone to understand where the project is and where it should be. Transparency is a broad term that evidently helps to bring more value within project management and usage of a model. Interestingly, participant 7 presented an unusual idea, that the tracking of projects can be used as a *lesson learned*. They reasoned it can be used for future projects, as a well-controlled project can provide valuable information and future teams can avoid similar mistakes if they appear to face alike situations. And as a general idea respondent 3 reasoned that this activity is more of a requirement in the project, especially of the benefits it brings. Such an outlook within a team can be very valuable not necessarily for the present teams but for the future ones, which in the end would also benefit the company to have a source of constructive information.

Project managers perceive several benefits from such an activity within the project in general, as it can be a foundation for decision making, communication, and overall implementation. Also, the same activity is done when working with a project management framework as the stage-gate model. Additional benefits of this key factor are presented accordingly.

Table 18

*Value of project tracking in stage-gate model*

<b>Aspect</b>	<b>Supporting statement</b>
Security	"... secures the fulfilment of the milestones..." (R1)
Overview	"... understand the actual status..." (R2); "... shows what needs to be finished..." (R5)
Gate preparation	"Be ready in time with activities which are required for the gate" (R3)
Quality	"Stages are fulfilled with better quality..." (R8)

*Source:* Compiled by author

One important aspect unveiled during the study was being *secure* in the implementation of a project plan. This was reasoned by respondent 1 that a tracking activity secures the fulfilment of the deliverables according to plan. It can be argued as an aid in pulsing the pace of all team members working on the project and ensuring that the checklist is completed, the required milestones are achieved for the specific gates. Tracking and keeping control over a project helps to prepare for the gates and be secured in a decision-making process by providing a clear *overview* on the different stages. A few participants agreed with the said aspect, that it helps to comprehend the actual status (respondent 2) and shows the team the tasks that need to be finished until a certain time (respondent 5). In the framework tracking is crucial, it helps to foresee risks that could prevent to complete any upcoming activity, such as a gate closure. Also, supports in finishing milestones on time, is a great guidance tool in orientation, especially in large scale projects. This leads to the following aspect of *gate preparation*. Changing from one stage to another is a very crucial activity involving making a decision during a gate review meeting. Exercising control over a project and tracking the progress constantly, according to respondent 3 and 4 presents the knowledge whether the project is ready to move on milestone and time plan wise. Getting the information on the current status and comparing it to the initial project plan presents a picture of the project readiness for the next stages. Furthermore, a new aspect appeared during the study, which was not mentioned before, *quality*. The importance of this factor is undeniable, as it not only increases the chances of successfully completing any project activity, but also helps to ensure customer satisfaction with the final results. This was supported by respondent 8, stating the stages are fulfilled with higher quality, as the overview received from tracking the progress allows to make adjustments accordingly and improve where it is needed. A valuable aspect that supports the project team in achieving high standards of a project implementation.

In general, the project managers perceive this key factor of controlling and tracking a project as a value driven activity within the team and organization. It brings benefits in many of the analysed aspects, helps to oversee and prevent risks, brings transparency of the project to the members and certain stakeholders, provides and overview of the status for potential improvements to stages with the best possible results.

**Regular risk review in project.** As it was analysed how tracking and controlling the project supports in detecting possible risks, it is also beneficial to analyse more in depth the added value of reviewing risks within the project. Some of the ideas have been discussed previously, but new ones were also presented and can be observed below.

Table 19

*Benefit of risk revision in project*

Aspect	Supporting statement
Mitigation actions	“Ensure there are backup plans that will help...” (R1)
Prevention	“... can prevent the risk from actually happening...” (R4)
Future implementations	“... helps for future developments and lessons learned” (R6)

*Source:* Compiled by author

This particular factor is distinguished into less aspects, as the project managers’ perspectives were in most situations aligned on this topic. Half of the participants agreed on the aspect of risk revision helping to come up with *mitigation actions*. Different scenarios were shared but with the matching idea behind them. Respondent 1 reasoned that constant revision ensures there are back up or mitigation plans, respondent 3 thought it helps to mitigate the risk, respondent 5 believed it aids in thinking about alternative solutions or mitigations, while respondent 7 considered revision on various risks as a help to prepare various scenarios on how to solve occurred problems. Reviewing risks regularly keeps the project going even when facing unexpected results or situations, also to identify and address potential road blockers early on enough to possibly avoid them. What is more, revision helps to understand the risk and the impact better, which clearly states the value this factor holds as half of the participants’ perspectives of the study were aligned on this idea. Another aspect that was repeated by some participants as a beneficial feature of risk revision – *prevention*. They reasoned that prevention comes after developing a mitigation plan. Respondent 4 stated how the activity can prevent the risk from occurring, while respondent 8 reasoned it can help the project team to avoid making inefficient decisions that may harm the project. These arguments present the importance of regular revision, as it can block from critical problems if done in a timely manner. What is more, project team’s time and efforts can be allocated on more important activities, because of in time detected and mitigated/prevented risks. And the last aspect is very similar from the previous key factor’s mentioned aspect – *future implementations*. Risk revision, just like control and tracking of a project, is important for the future activities, just like the present. Respondent 6 sparked the idea of using the current risk review for future developments and lessons learned. This presents the added value of the factor, the versatile usage throughout time in the organization.

Regular risk reviews, similarly, to project tracking, happens to be a beneficial activity within the project and brings both short-term and long-term benefits. As the positive aspects have been analysed, and to present them as a truly value adding factor, the project managers portrayed the negative impact on the project if the activity would not take place.



Table 20

*Impact on gate if risks are not reviewed*

Impact	Supporting statement
Roadblocks	“Known risks become road blockers...” (R3)
Challenges	“This can impact a project milestone...” (R5); “... project not finished on time” (R7)
Gate closure	“No tracking and evaluation on future gates” (R6); “Project gates may not be achieved...” (R8)

Source: Compiled by author

Project managers perceived several negative aspects that would happen within a project if there was no risk review. One of the first impacts that would be present to the team is *roadblocks*. No revision activity present, according to respondent 2, would allow for risks to materialize in the end and block the project from moving forward until a solution is found. Respondent 3 supported the idea as they stated that known risks become road blockers for the progress of the project. It is clear that without proper and constant revision the risks cannot be foreseen, and therefore blocked or mitigated before a negative impact is felt on the project implementation, such as moving forward to a new stage. An associated effect follows – *challenges*. A project can face a lot of problems, which can be linked to poor or no revision, as unexpected issues cannot be prepared for and negatively influence the progress. A snowball effect was used to describe the situation by respondent 1 stating that by not ensuring a plan to mitigate the risks the probability and number of project’s future challenges increases in the next phases, if not deal with in the current stage. From the perspective of respondent 5, it also had an impact on the project milestones, due to the fact that a risky item might not get the needed attention from a team member to be considered and solved on time, which eventually would lead to new challenges. While respondent 7 sees a very high probability of the project not being implemented at all or the gate being closed on time in case of no risk revision. The challenges presented from the participants are evaluated to have a very negative impact on the stage gate processes, as a road blocker not foreseen in the current state can lead to worse encounters in the future stages or block from moving on. For this reason, several project managers also argued on the impact of *gate closures*. As respondent 6 stated if tracking and assessment of future gates would not exist, then the quality of the current stage could not be sufficient enough to move on the next stage. And respondent 8 supported the impact on the gate closure, as they mentioned time sensitive activities might not be implemented due to the unforeseen risks. It is observed how much of a negative impact unrevised risks could have on the implementation of new stages in the project, as several project managers shared similar perspectives.

Altogether, regularly reviewing risks in a project together with the team conveys several value creating aspects, such as having a mitigation plan in case of risk materialization, prevention of

roadblocks and securing successful gate reviews. The perspective on this factor was very aligned within the project managers as their ideas shared very similar concepts and clearly presented the benefits to the organization.

**Gate decision communication.** Communication within any team is very important to keep the transparency and information flow between all the disciplines. It provides guidance to the members on current topics, issues, and activities that require attention. As previously it was mentioned by Kviklienė (2016) strong communication between all project partners ensures the project's excellence. However, for a stage-gate model it is important to know whether gate decision communication is as important and what value it brings to the team. The results from the study can be found below on what kind of impact lack of communication would have in the team.

Table 21

*Gate decision not communicated to stakeholders*

Impact	Supporting statement
Waste of resources	“People will not be working in the same direction...” (R1)
Not met deliverables	“... would not be aware of the open items...” (R2)
Misalignment	“Team members might be working on different stages...” (R8); “There would be a lot of miscommunications that would lead to failure” (R7)
Implementation delay	“Chaos within the team and delay...” (R6)

*Source:* Compiled by author

It is observed from the received answers that from the project managers perspective, there would be various impact on the project without gate decision communication that can affect multiple disciplines and stakeholders. One of the first impacts mentioned was *waste of resources*. Respondent 3 reasoned that a potential delay in the project may occur as resources are not allocated on time. As the team would not be aware of any gate decision, whether good or bad, they would not be able to provide the needed input in a timely manner. While respondent 1 argued, that lack of communication would divide the team to work in different directions, meaning bad allocation of their time and efforts. It can be perceived as a lack of guidance and direction within the project team when the gate change is not announced. Furthermore, without a clear roadmap, the team might not *meet the needed deliverables*. Lack of communication leads to lack of information and as respondent 2 stated, the team members would not be aware of the open milestones for them to accomplish. This is very critical during a gate change, when it is not known for the members of the transition and there are open items left. An impact on any of the disciplines can be felt, as they would have to allocate more time and effort to close the open items, when they were planned in a different manner. This leads to another impact of *misalignment*,

that brings confusion and potential mistakes in the team. For example, respondent 8 described, how lack of communication can divide the team, as some members might be working on the previous stage, while others already have moved on to the next one. While respondent 7 stated that potential miscommunication might occur which eventually would lead to failure. As there is no information spread, the team is not in sync and seeing different project status overviews. Similarly, respondent 4 shared, that lack of responsibility might occur, as not knowing the status of the gate and which actions to work on, might be difficult to assign actions to correct people in the team or ask for support when needed. This work environment is not beneficial to the team, without structure, it is difficult to track open items and complete them. Furthermore, this kind of misalignment in the team can cause the *delay of deliverables* implementation. This was brought up by respondent 6, as they summarized all the impacts on the stages if the gate decision was not communicated, which would lead into chaos in the team and eventual delay of deliverables. This also, clearly brings up the value that communication holds within the stage-gate model and gate decisions.

The project managers perspective clearly stated several factors that would impact the team and the project if there was a lack of gate decision announcement. The impacts mentioned had their own effects, but the ideas were similar as it would cause chaos, misalignment, and division, which are very important factors to keep the team working and reaching the set goal. To be clear with the value adding aspect of announcing the gate change decision, the project managers have shared the most important aspects for this particular factor below.

Table 22

*Important factor in communication gate decision to project team*

<b>Aspect</b>	<b>Supporting statement</b>
Planning	“To have a clear plan on the next activities” (R1); “Planning next steps” (R4)
Transparency	“... communication without hiding...” (R2); “... keeping all stakeholders aligned...” (R8)

*Source:* Compiled by author

The participants distinguished only 2 main aspects, which indicates the important alignment between the perspectives and how truly value adding it is for the team and the associated stakeholders. One of the aspects uncovered was the activity of *planning*. Respondent 1 reasoned that the transparent information allows the team to create a clear plan for the upcoming milestones and deliverables. While respondent 4 stated it guides the team to allocate their time in a better way by planning the next steps. As the communication aspect has been analysed previously from other key factors, it is evident, how much of importance it carries through the project to have the team aligned on the planning aspect. It

allows to accurately allocate the resources, plan the activities, and therefore be aligned with all the disciplines on the next course of actions. This can increase the chances of successfully completing the upcoming stages and closing a project in an appropriate quality standard with the achieved customer requirements. Furthermore, project managers highlighted the importance of another aspect – *transparency*. Respondents 3 and 8 talked about stakeholder alignment with the project actual status, while respondent 2 reasoned on the alignment within the team about the actual project overview, without hiding any information and facts, for everyone to understand the situation. Working with a team that is transparent on all the ongoing topics, project, and gate statuses, supports in completing the needed deliverables for each stage, if needed follow ups are organized with the set responsibilities and deadlines. This creates a clear overview and goals that need to be achieved in the team. Which presents the benefits of this key factor to the organization, as the team is well managed, informed and aligned on the needed milestones to reach a successful project closure.

To summarise, the key factor of gate decision communication is a valuable aspect of project management within the team and organization. It brings transparency to all the stakeholders and supports in planning activities that aid in reaching the initial scope of the project. It is perceived as a value creator by the project managers, due to their alignment on shared perspectives and the benefits it provides to the project team.

To conclude, the stage-gate model in project management is a useful tool in managing and guiding large scale projects through its life cycle and phases until completion. The benefits and value creating aspects were evident from the perspectives of project managers. One of the first presented key approaches, which has a significant benefit, was the appointment of an official project manager, as it is the main pillar on which the whole project is being implemented and executed. Together with the factor of the project manager having management competences as this supports the team with foreseeing risks, motivation, and solving of issues in a timely manner. Tracking and control of the project was seen as a factor that aids in establishing a clear overview, prevention of risks, and was mentioned not only as a benefit but a requirement for every project. And the added value of the model by having the checklist of each stage as a guidance to complete the necessary deliverables, including critical activities, on time to ensure an effective project implementation. These four attributes were discussed the most by the project managers and given a lot of importance through the whole project life cycle. While emphasising the positive impact they have, the most commonly used aspects to describe them were helping in the decision-making process, establishing clear communication and transparency, helping with the motivation and timely reaction to risks, and providing lessons learned for the future implementations, projects. Furthermore, a significant difference was not observed on the perspectives of the respondents who are working and who are not working with a project management framework regarding the main

value creating factors. The viewpoints were aligned on the aspects of the importance of an official project manager and their management competences, as well even on the benefits of a checklist. However, the aspect of tracking and control did not receive as much importance from the two respondents as from the rest of the participants, which might be due to its higher significance for the stage-gate process. The studied key factors are valuable beyond the stage-gate framework as it makes a significant impact on project management while working on current implementations and future projects.

## CONCLUSIONS AND RECOMMENDATIONS

### *Conclusions:*

1. There is a difference between project management success and project success. Project success is described as the overall achievement of the project's goals and objectives, while project management is determined by key success criteria/constraints (after considering activity cost, time, and quality - the Iron triangle model).
2. Modern project management models include phases, processes, and gates (solutions) that aid in the early detection of problems and losses, allowing prospective risks to be assessed and the project to be effectively developed through changes. The implementation of a value-creating business process and risk model supports the project managers in a sustainable and effective project management practice for a successful project closure and result delivery.
3. Having an officially appointed project manager has been perceived as a high value creating factor by the project managers as six main aspects were discussed of having one main responsible leading the team, having support in achieving the deliverables, the project manager being the highest decision-making authority, setting the communication paths, motivating the team, and setting the organisational structure of the team.
4. The stage-gate framework has been described as a value-creating model, which aligns with the perspectives of the project managers. The most significant aspect that it brings is the checklist, which acts as a guideline throughout the project lifecycle, track the activities and deliverables necessary for a successful closure, retains beneficial information on past projects for potential lessons learned to avoid mistakes and sets the responsibilities of activities to the members, which in turn presents transparency and clear overview that supports in a successful management of a project.
5. Strong management competences of a project manager have been identified as the following high value creating key factor due to the aspects of ability to motivate the team, effective management of the triple constraint, efficient risk mitigation and timely reaction that support in project need identification, communication with the team and stakeholders, and reaching the needed project deliverables to meet the stakeholder requirements.
6. Due to the nature of the framework and its guiding aspects, it does bring benefit in the integration of a new employee in the project, but the perspective of project managers does not view it as a crucial key factor in the value creating aspect. Nevertheless, the advantages of providing structure, a better understanding of the bigger picture, laying an important knowledge foundation, and providing a clear

overview of the project management process are considerable and beneficial for any organisation for a value creating future.

7. Having upper management support has been identified as a very crucial and beneficial aspect of project management but not as significant when going through the stages of the framework. From the perspectives of project managers main key aspects of receiving assistance is due to support in prioritization, decision making and guidance.
8. Tracking and control of a project was argued to be not only a benefit but a requirement which supports the high value creation aspect of this key approach. The project managers identified prevention of risks, the possibility of timely reactions to upcoming problems, transparency with the stakeholders and the team as the value creating aspects that support in a successful project completion. This added value activity further contributes in the stage-gate model by providing the team with security of milestone fulfilment, overview of the project and possible impacts, more in-depth preparation for the gates and higher quality of the overall stage.
9. A more specified factor of risk revision has its own benefits but not as significant as the previously mentioned. Nevertheless, the project managers agreed on the advantageous aspects that risk reviewing brings such as preparing mitigation actions, supporting in preventing risks from actualising and providing valuable information for future projects from the gathered data.
10. The perspectives of project managers on gate decision communication were aligned that it is a value adding factor, as two main aspects were uncovered of planning on the following activities after any gate decision and bringing transparency to the stakeholders on the status of the stages. This entails on the alignment and transparency between the project team and ensures the right direction for the team to go on providing the support for a successful project completion.
11. The conducted study showed the favourable outlook on the stage-gate model from the project managers, as it supports them, particularly in the context of large-scale projects. It was noticeable how the project managers were able to quickly identify the benefits and aspects of value of the framework, when working with it, as they perceive the tool as a structured guideline, that provides more assurance and stability while navigating complex projects.
12. Generally, the value of a project management model can be perceived and understood better from practical field experience. It is noteworthy to indicate additional value creating aspects of the framework such as easier keeping with the timeline of the project when the lifespan of it is divided into stages that highlights the major milestones and deliverables to be reached on time, greater project team engagement and involvement due to the appointed responsibilities per deliverables as observed by the author.

*Recommendations:*

1. The perspectives of the project managers were very much aligned on four main value creating factors and having an official project manager appointed was discussed with high importance. This would lead to the recommendation from the author to take caution when appointing a leader for the project team. The process of choosing the person should be thought out and the management competences taken into consideration as this factor was as well highly praised as a value creator. The selection process must be thorough as the selected person can have a significant impact on the outcome of the project.
2. Tracking and control of a project must be prioritized in the project management field due to the value creating aspect from the experience of project managers. A recommendation would be for the upper management to be involved in the life cycles of projects and convey the message of importance to the project teams of this activity and how impactful it is.
3. A significant benefit of the stage-gate model is the availability of a checklist which, from the perspectives of the project managers, is a value creating attribute. The implementation of a framework in an organisation that currently manages high complexity projects can be considered as a future investment to ensure a smooth project execution and stakeholder satisfaction.
4. As the conducted study included only eight key factors from the ones researched in the literature analysis it would be appropriate to continue the study regarding the remaining factors to present more in-depth and accurate results on the value creating aspects that contribute to the overall success of projects.
5. The studied value creating aspects of the framework support that it would be beneficial for companies, working with large-scale projects, to implement such a model. It would provide structure, guidance and clarity while managing projects and in the team itself, as well as bring assurance and transparency to the customers, knowing that their products are being developed in a systematic and structured manner. A well designed and dependable framework design should be the main focus point of implementation with the correct activities in each stage, defined responsibilities and an applicable decision-making process. This would also entail setting up a steering committee that would approve of the gate decisions, consisting of a senior project manager and including the upper management to not only receive their support and involvement but also the value creating aspects would be perceived during the stage reviews by the highest authorities of the company.



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## ANNEXES

### Annex 1

#### Demographic characteristics

Question	Answer
1. Gender	
2. Age	
3. Education	
4. How many years have you worked in project management?	
5. Does your company have a project management framework in use?	
6. How many projects have you managed?	

#### Key factors in project management

Key factor	Question
Official project manager appointed	<ol style="list-style-type: none"> <li>1. What is the impact of having an official project manager appointed?</li> <li>2. What kind of affect it would have on the stage-gate model if there was no project manager appointed?</li> </ol>
Project checklist for stages	<ol style="list-style-type: none"> <li>1. How does the checklist help manage a project?</li> <li>2. What kind of impact can the quality of a filled checklist have on the gate decision?</li> </ol>
Management competences of project manager	<ol style="list-style-type: none"> <li>1. What is the impact on the project when the project manager has strong competences?</li> <li>2. How do the competences help going through different stages of the project?</li> </ol>
New employee learning curve	<ol style="list-style-type: none"> <li>1. What are the main benefits of having a stage-gate model in place for the integration of new employees?</li> <li>2. What main mistakes are avoided by having the model in the company?</li> </ol>
Upper management support	<ol style="list-style-type: none"> <li>1. How valuable is having the upper management support through the life of a project?</li> <li>2. How important is it to have upper management in the preparation for changing to the next project gate?</li> </ol>
Tracking of project and control	<ol style="list-style-type: none"> <li>1. What is the benefit of keeping track of a project progress?</li> <li>2. What value does tracking bring in the stage gate process?</li> </ol>
Regular risk review in project	<ol style="list-style-type: none"> <li>1. How does risk revision help throughout the lifetime of a project?</li> <li>2. What would be the impact on the project gate if risks were not reviewed?</li> </ol>
Gate decision communication	<ol style="list-style-type: none"> <li>1. What would happen in the project stages, if the gate decision was not communicated to the relevant parties?</li> <li>2. What is one main important factor in communicating the decision to the team?</li> </ol>