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Innovation Engineering & Management

**Definition of innovation project
management excellence and implications
for operating firms**

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DECLARATION OF ACADEMIC INTEGRITY

Hereby, I declare that I have composed the presented paper independently on my own and without any other resources than the ones indicated. All thoughts taken directly or indirectly from external sources are properly denoted as such.

This paper has neither been previously submitted to another authority nor has it been published yet.

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Magdalena Winkler

Wels, June 2022

KURZFASSUNG

Vorliegende Arbeit präsentiert eine literaturbasierte Definition von Innovation Project Management Excellence. Da es noch keine Forschung zu diesem Thema gibt, stammt die abgeleitete Definition aus einer qualitativen Inhaltsanalyse bestehender Definitionen für Business Exzellenz, Projekt- und Projektmanagement-Exzellenz und Innovation Exzellenz. Die Exzellenz im Innovationsprojektmanagement besteht aus fünf Bereichen, nämlich Strategie, Führung, Menschen, Prozesse und Ergebnisse.

Der zweite Teil der Arbeit befasst sich mit den Auswirkungen dieser Definition auf die in diesem Bereich tätigen Unternehmen. Um die aktuelle Situation in Unternehmen zu verstehen, wurden Experteninterviews in einem Unternehmen durchgeführt. Darauf aufbauend wurde ein Vergleich mit der abgeleiteten Definition durchgeführt, um Bereiche zu identifizieren, in denen das Unternehmen noch Verbesserungspotenzial hat, um exzellent zu werden. Die identifizierten Bereiche des Unternehmens betreffen die Themen Ressourcenmanagement, Portfoliomanagement und Engagement und erlaubt Einblicke in relevante Aspekte für Unternehmen allgemein.

ABSTRACT

This thesis presents a literature-based definition of innovation project management excellence. As there is no research on this topic yet, the derived definition originates from qualitative content analysis of existing definitions for business excellence, project and project management excellence and innovation excellence. Innovation project management excellence consists of five areas, namely strategy, leadership, people, processes and results.

The second part of the thesis discusses the implications of this definition for operating firms in this area. Therefore, expert interviews with employees of one company have been conducted to understand the current situation within the company. Based on this, a comparison with the derived definition has been performed to identify areas, in which the company has still potential to improve to become excellent. The identified areas concern the topics resource management, portfolio management and involvement. This allows insights to relevant aspects for companies in general.

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1 INTRODUCTION

The role of project management steadily gains importance. The Job Growth and Talent Gap Report in 2017 estimates that 87.7 million people will be working in project management-oriented jobs by 2027 (cf. PMI, 2017, p. 2). The report further states that project management has an important impact on a nation's productivity, and therefore directly contributes to the GDP (cf. PMI, 2017, p. 5). Further, Joseph Cahill, current CCO of the Project Management Institute stated in an interview in 2019 "that a million dollars is lost every 20 seconds because companies fail to implement their strategies due to poor project management" (TBD Media Group, 2019). Those facts imply that the need for and importance of well-executed project management are increasing.

Almost all businesses and industries, and therefore also projects, operate in a so-called VUCA-context (Forsythe et al., 2018). VUCA stands for volatile, uncertain, complex, and ambiguous and describes prevalent characteristics of today's world (Kraaijenbrink, 2018). Innovation is a critical success factor for companies in this environment (Joshi & Shukla, 2020), for example through supporting the survival in global competition or sustaining competitiveness (Dereli, 2015). The Covid19-crisis has emphasized the need for innovation (Am et al., 2020). However, even though the need for innovation is known and covered in almost all business strategies, only 6 % of CEOs are content with their innovation performance (McKinsey, n.d.).

Sampaio et al. (2012) state that "organizational excellence is one of the preconditions for sustainable success". An increasing number of companies have strategically established business excellence to ensure quality as well as continuous improvement (Cobb, 2003; Sampaio et al., 2012). Excellence is generally defined as "the quality of being extremely good" (Oxford Learner's Dictionaries, 15.04.22).

1.1 PROBLEM STATEMENT

There are various definitions of what the term 'Excellence' means in different contexts. Further, frameworks describe how 'Excellence' can be achieved. For example, one can find definitions and frameworks for business excellence, project excellence, or innovation excellence, but there is not a combined definition for these areas yet. Innovations are well

eligible to be managed in a project approach (Deák, 2009). They are also underlying general business principles. Therefore, it is of interest to combine all three fields. This paper aims to contribute to the existing literature by defining innovation project management excellence, addressing the described need for excellence in this area.

1.2 OBJECTIVE

The aim of this thesis is to explore what Excellence stands for in innovation project management and to understand the current situation regarding excellence of operating firms. This leads to the following research questions:

- (1) What does Excellence mean for innovation project management?
- (2) On which areas should companies focus for achieving excellence in this field?

The objective of this thesis is therefore first to define the term ‘innovation project management excellence’. Second, the current situation of companies practising innovation project management should be captured and further compared to an ideal situation. This will be done on the example of one company. Based on this evaluation, focus areas for improvement will be derived.

It is not the goal of this thesis to elaborate a detailed implementation plan for the derived focus areas or define precise steps on the way to innovation project management excellence.

1.3 METHOD

The first research question was answered through literature research, exploring existing definitions of business excellence, project management excellence and innovation excellence. After that, a qualitative content analysis following Mayrings approach of inductive category forming was applied, with the goal of developing a combined definition. This approach allows considering only aspects of the material, which are relevant for category forming (Kuckartz, 2016). The inductive method can act as a base for a following quantitative analysis, which will be used to determine the most relevant excellence factors (Mayring, 2015).

The second research question was answered using the example of a leading Austrian company in the chemical industry, which can give valuable insights into this topic and offer a starting point for further research (Yin, 2018). The company has a professionally set-up innovation project management department and is therefore a well-suited use case.

To comprehend the current understanding of the term excellence as well as the practice, semi-structured interviews with employees in the field of innovation-project management have been conducted. Semi-structured interviews have been chosen as they allow the chance to change the order of questions, add questions and adapt them (Saunders et al., 2006). Therefore, background information and a deeper understanding of the employee's viewpoint can be attained. Employees working in this area can provide the best insights to practices and challenges, which is necessary to understand the current circumstances.

The gathered data of the interviews was analysed using qualitative data analysis. Additionally, the results of a current audit process provided further insights from an external perspective. The results of both were compared to the collected literature findings. The outcomes were used to derive focus areas for the company.

2 PROJECT MANAGEMENT

Project management is widely used in organizations today, as described above. Application, execution, and characteristics of project management can differ in organizations. Following, the most important terms are defined to provide a common basis for the thesis.

There is no universal definition of the term project, however, some characteristics can be found consistently in different definitions of respected organizations. Accordingly, projects can be defined as temporary and unique endeavours that are undertaken to achieve certain objectives (International Organization of Standardization, 2021; IPMA, 2015; PMA, 2019; PMI, 2021) The pm baseline by the organization Project Management Austria (2019, p. 6) includes in its definition the aspect of solving “complex tasks” and being a “social system”.

Project management are the activities needed to realize agreed objectives (International Organization of Standardization, 2021; PMI, 2021). Processes that are included are starting, planning and coordinating, controlling and closing the project (International Organization of Standardization, 2021; PMA, 2019). Another aspect is the management of resources (International Organization for Standardization, 2021) and the appropriate use of tools and methods during the implementation (PMI, 2021). Projects therefore have similar characteristics, yet each project is unique, for example due to differences in the objectives set, the stakeholders involved, the resources available or the methods used (cf. International Organization for Standardization, 2021, p. 5 f.)

Project management is put into practice by project teams, which can be defined as a “set of individuals performing the work of the project” (PMI, 2021, p. 5) and led by a project manager, a “person assigned by performing organization to lead the project team that is responsible for achieving the project objectives” (PMI, 2021, p. 4).

The ISO standard 21502:2021 Project, programme and portfolio management – Guidance on project management can act as a guideline for the execution of projects. Other internationally respected frameworks are the current versions of the Project Management

Body of Knowledge from the Project Management Institute or the Individual Competence Baseline from the International Project Management Association.

The management of innovation projects poses special challenges for those responsible. Among other factors, the level of uncertainty and risk is higher than in other projects, which also means a higher chance of failure (Deák, 2009, Kerzner, n.d.). Additionally, innovation projects are facing frequently changing constraints and requirements (Deák, 2009, Kerzner, n.d.).

To meet those requirements, different project management approaches and methods can be used. The next chapters discuss the characteristics of predictive, agile and hybrid approaches, how they can be differentiated and how they address the mentioned challenges. This is important, as the chosen project management approach directly influences the execution of an excellent innovation project.

2.1 PREDICTIVE APPROACH

The predictive approach, often also called waterfall approach, describes a linear process (PMI, 2017; PMI, 2021; Salameh, 2014). This approach is applicable for life cycles, where one phase is superseded by the next, and each phase is only performed once (PMI, 2021). Each phase has distinctive tasks, which are completed in sequence (Low, 2009; PMI, 2021). However, in reality, changed circumstances often require the repetition of project phases (cf. PMI, 2021, p. 43). The project management institute (2021, p. 131) further emphasizes the need for adaptation of “project management approaches, governance and processes to make them more suitable for the given environment and work at hand”. The project controlling process also ensures regular reviews of the current status and execution of according actions (PMA, 2019).

The definition of project parameters such as scope, schedule, cost, resource needs, and risks is done at the beginning of the project when using a predictive approach (PMI, 2021). Long-term planning for the entire life cycle is done in early stages of the project (Copola Azenha et al., 2021). The predictive approach presumes that the taken assumptions are stable (PMI, 2021) and that changes effecting the project can be forecasted (Low, 2009). Controlling and monitoring is done with the help of

“performance indicators, time lines, formal documentation, performance reviews, and audits, with extensive and infrequent team meetings” (Copola Azenha et al., 2021).

As the phases are completed one after another, they can be easily differentiated from another (Low, 2009). There are seven common aspects that can be found in various predictive approaches, with typical tasks and operations in each of them:

- project concept and start,
- project analysis and feasibility,
- project design and staffing,
- project execution,
- project verification and validation,
- project product training, and
- project post deployment (cf. p. 8, Masciadra, 2017).

In the predictive approach, a project manager is leading a specialized team and is in control of the dimensions scope, time, and budget (Copola Azenha et al., 2021).

The ‘triple constraint’ or ‘iron triangle’, namely cost, time and quality has been used to measure success in project management for a long time but can be considered as not sufficient anymore (Atkinson, 1999). Beise et al. (2010) note that a differentiation of project management success and project success is important. Project management success focuses on the outcomes at the end of the project such as the fulfilling the objectives regarding time, cost, and quality (Beise et al., 2010). Project success includes “longer-term and customer-oriented results”, which should include the aspects customer satisfaction and business success (Beise et al., 2010, p. 653).

The strengths of the predictive approach lay in the detailed upfront planning and the focus on meeting defined objectives (Low, 2009). Additionally, it gives the chance to evaluate the project at the end of each phase and decide about a continuation or stop (Archer & Kaufman, 2013). Challenges of this approach are the need for a clear definition of

requirements in the early stages of a project (Low, 2009; Salameh, 2014). Further, projects only seldomly follow a sequential flow (Low, 2009; Salameh, 2014). Another drawback is that the implementation of customer feedback and changed requirements implementation are difficult due to length of phases and separation of lifecycles into separated phases (Archer & Kaufman, 2013).

This project management approach can be applied when a project is faced with considerable capital investments together with a high level of risk (PMI, 2021). It comes to its limitations, when project requirements cannot be clearly defined and are subject to change, like in software and IT projects (Salameh, 2014). To meet those circumstances, another approach, namely the agile approach has evolved from the field software development (Salameh, 2014). This approach will be described in more detail in the following chapter.

Referring to the above stated challenges of innovation project management, like high risk and uncertainty as well as changing requirements, one can see that the predictive approach is only capable to face those challenges to some extent.

2.2 AGILE APPROACH

Agile methods can be traced back until the 1930s, when Walter Shewhart introduced Plan-Do-Study-Act cycles for product and process improvement (Rigby et al., 2016). His mentee Edwards Deming implemented this knowledge during his time with Toyota, later on also developing the groundworks for lean thinking (Rigby et al., 2016). In 1995, Jeff Sutherland and Ken Schwaber presented the framework scrum (Rigby et. al, 2016), currently the most used agile methodology (digital.ai, 2021). In 2001, the *Manifesto for Agile Software Development* as well as the *Principles Behind the Agile Manifesto* were developed by 17 developers (Rigby et al., 2016). From then on, all approaches, methodologies and techniques that are in alignment with the manifesto and the principles, are called agile (Rigby et al., 2016). Following, the four key values of the manifesto are listed.

Individuals and interactions over processes and tools.

Working software over comprehensive documentation.

Customer collaboration over contract negotiation.

Responding to change over following a plan. (Beck et al., 2001)

Therefore, it can be understood that the terms ‘agile approach’ and ‘agile method’ are not formalized and do not describe a single procedure but act more like an “umbrella terms that cover a variety of frameworks and methods” (PMI, 2017, p. 11). Still, there are similarities and characteristics that can be allocated to agile approaches, which are listed in the following paragraphs.

Agile approaches consist of multiple iterative planning and development cycles (Low, 2009; Salameh, 2014). This process allows the team to immediately implement stakeholder feedback, continuously assess the process and the developing product and implement learnings (Low, 2009). The agile approach is therefore allowing prompt changes of the project, as “requirements are reviewed and evaluated in each iteration” (Salameh, 2014, p. 56).

Planning is part of agile run projects. The key difference to the predictive approach, where planning is mostly done in a high detailed grade in the beginning of the project, is that planning in the agile approach means to replan continuously during the project as more information becomes available due to new feedback (PMI, 2017). This means that planning is conducted for a short-term horizon, focusing on the objectives for the next iteration (Copola Azenha et al., 2021). Controlling and monitoring is done with the help of physical artifacts during brief, recurring team reviews (Copola Azenha et al., 2021).

Conforto et al. (2014, p. 24) identified six key practices that can be seen as typical for the agile approach, which are namely

- “Use of the ‘product vision’ concept
- Use of simple project plan communication tools and processes
- Use of iterative planning
- Developing activities using self-managed and self-directed teams in project plan

- Use of self-managed and self-directed teams in the project plan monitoring and updating activities
- Frequently apply project plan monitoring and updating processes”

In an agile approach, the ‘traditional’ leadership task of a project manager does not exist but is split between different roles (Bolender et al., 2022; Copola Azenha et al., 2021). The multidisciplinary, self-managed team (Copola Azenha et al., 2021) is heavily engaged in planning tasks and scope definition (PMI, 2021). Further, the team is closely collaborating with customers (PMI, 2021; Salameh, 2014).

The strength of agile approaches is their ability to quickly adapt their work based on customer feedback due to the short iteration cycles (PMI, 2017; Salameh, 2014). This makes them useful for projects with a high level of uncertainty, which also means high possibilities of scope changes, high complexity and therefore risk (PMI, 2017; PMI, 2021). The agile approach is applicable when the project value is clear, active customer involvement exists, the customer and the project team are co-located, incremental development is possible and visual documentation is accepted (Low, 2009).

According to the Annual State of Agile Report, the success of agile delivery is measured by delivery of business value, customer satisfaction and time of delivery in most organizations (digital.ai, 2021).

Challenges of this approach are the implementation and use of it, for example because of the need for full-time dedicated multidisciplinary project teams and high involvement of customers and suppliers or the co-location of all team members (cf. Conforto et al., 2014, p. 30 f) Those circumstances and challenges apply especially in traditional industries (cf. Conforto et al., 2014, p. 30). This can be also seen as a major challenge for the management of innovation projects with this approach. When implemented successfully, Ciric et al. (2018) identified higher flexibility, reduced cost, schedule and planning time, improved communication, and better result conformity with customer expectations among others as benefits for the use of agile approaches in innovation management and product development.

Many organizations are not practicing either of the two elaborated approaches fully, but rather use a so-called hybrid approach, taking advantage of the benefits both approaches offer (Belling, 2020). This method is discussed in the following chapter.

2.3 HYBRID APPROACH

How agile or predictive the hybrid approach is executed, can be described like a continuum as shown in figure 1 (Belling, 2020).



Figure 1: Hybrid Continuum (own graphic, based on Belling, 2020, p. 4)

Belling (2020, p. 4 f) identified following factors, which determine the position of the organization on mentioned continuum:

- Service life of a project outcome: If the outcome of a project has a long service life, projects tend to be realized rather predictive.
- Economies of scale: If a project requires to procure a high number of resources already in the beginning of a project, it is reasonable to approach it rather predictively.
- Level of risk: If the project involves a high level of risk and the need for extensive planning and research in the beginning, the project approach points to the predictive end of the continuum.
- Need for innovation: If organizations have the need to take risks and accept early failures to stay competitive, projects can be approached in a more agile manner.
- Organizational culture: Large and bureaucratic organizations have troubles implementing agile approaches, as decision-taking requires more time. Those organizations are rather on the predictive side of the continuum.

Examples for hybrid approaches are ‘AgileFall’, ‘ScrumBan’, ‘LeanBan’, or ‘FrAgile’ (Belling, 2020). It is important to note that the method itself is not as essential as choosing and modifying the method that addresses the needs and realities of projects and organizations (Fewell, 2010). According to the Project Management Body of Knowledge, hybrid approaches often apply an incremental or iterative development approach (PMI, 2021). An incremental approach continuously adds value and functionality to the deliverable, while an iterative approach continuously provides satisfactory value but improving the accordance with customer expectations (PMI, 2021). The incremental approach is therefore useful to develop a deliverable over time, while the iterative approach can explore different possibilities and specify demands (PMI, 2021).

Planning in hybrid approached projects is done both with a long-term and short-term horizon (Copola Azenha et al., 2021). Long-term planning is used for the entire project life cycle and short-term planning for the respective iteration; therefore it can be considered detailed with continuous re-evaluation (Copola Azenha et al., 2021).

A hybrid approach can be applicable when uncertainty or risk play a role when defining the project requirements, the project objectives can be unitized, or deliverables can be created by different teams (PMI, 2021).

Several authors are discussing hybrid approaches as a possible solution of helping to improve the performance of innovation projects (Conforto & Amaral, 2016). The strength of the hybrid approach is the combination of the benefits of predictive and agile – “to decrease risk and increase stakeholder feedback and impact throughout the project” (Archer & Kaufman, 2013). Conforto & Amaral (2016, p. 12) state that a hybrid approach can improve “information accuracy, commitment, and leadership”. Nevertheless, a hybrid approach is only as good and efficient as its implementation. Critical factors include “team characteristics, people competencies, organizational culture, structure, and available resources, technology uncertainty, and market characteristics” (Conforto & Amaral, 2016, p. 12).

The next chapter discusses the definition of the term excellence, and in particular innovation project management excellence.

3 EXCELLENCE

This chapter discusses the meaning of the term excellence as well as the need for and importance of it. Further, innovation project management excellence is defined.

3.1 EXCELLENCE IN GENERAL

Excellence is defined as “the quality of being extremely good” (Oxford Dict, 15.04.22). Further, excellence is described as a ‘continuously moving target’ (IPMA, 2016), closely linked with the aim for improvement (Anninos, 2007; IPMA, 2016).

Excellence as a concept for outstanding performance in organizations has a long history. The ideas of Edwards Deming as well as the introduction of Total Quality Management had a big impact on the management of organizations (Anninos, 2007). Since the 1980s, many different frameworks and excellence models have been suggested, starting with the McKinsey 7s model by Peters and Waterman in 1980 followed by their book ‘In Search of Excellence’ in 1982 (Anninos, 2007). Further, there are also awards given for excellent performance like the Deming Prize in 1951, the Malcolm Baldrige Award in 1987 or the European Quality Award in 1991 (Anninos, 2007).

This small glimpse shows the importance of the term, and it makes understandable why an increasing number of companies have strategically established business excellence to ensure quality and continuous improvement (Cobb, 2003; Sampaio et al., 2010). According to the International Project Management Association (2016), aiming for excellence can also lead to unique capabilities and competitive advantage.

To define the term excellence for innovation project management, existing literature of the influential fields, namely business excellence, project management excellence and innovation excellence, has been individually analysed, summarized and compared with each other. Through the identification of overlapping elements, the common definition of innovation project management excellence has emerged. Further details about the execution of literature analysis can be found in chapter 4.2.

The following chapter is elaborating on the developed combined definition of innovation project management excellence, which is the base for the comparison with the current situation of a company’s innovation project management.

3.2 INNOVATION PROJECT MANAGEMENT EXCELLENCE

Innovation project management excellence consists of the five areas strategy, leadership, people, processes and results, which are linked to each other as shown in figure 2. The following chapters describe their meaning, contents and how they are linked to each other in detail. After that, common topics of the five areas will also be highlighted.



Figure 2: Areas of Innovation Project Management Excellence and their connections (own graphic)

3.2.1 STRATEGY

Following aspects should be considered when creating a strategy for innovation project management:

- Governance, legal compliance and ethics
- Environmental and social concerns
- Business environment and the corporate strategy
- Culture and values

- Project goals, project competencies and project restrictions
- Stakeholder needs and requirements

Further, the strategy should include a clear focus on innovation, meaning to implement the goals and priorities of the overall innovation strategy, emphasising measures for continuous improvement and ensure the permanent identification and usage of new opportunities.

The strategy should also be stakeholder-oriented, which includes the identification of and knowledge about core stakeholders and the engagement of stakeholders during the project.

By creating a strategy, clear goals and objectives which are to be executed are defined (IPMA, 2015). The area strategy therefore is in relation with the areas results and leadership. Leadership is responsible for executing the defined goals in strategy, and therefore influenced by the content. Actual project outcomes, included in the area results, are compared to the previously set strategy. Both areas, leadership and results, are also influencing the development of the strategy.

3.2.2 LEADERSHIP

This area describes first, which tasks leaders in excellent innovation project management should fulfill. Second, it describes the core values and principles that should be represented by leaders and passed on to the project team.

Leaders recognize, reward, communicate and celebrate achievements within the project, which can lead to higher motivation and engagement. Another core task is the creation of an environment for innovation, meaning to enable creativity, understand risk and responsible risk taking, commit to continuous improvement and support employees in their actions. It is also their responsibility to set values and direction and steer the project culture. Leaders should act as role models for their peers, meaning to actively live and integrate the following values and principles in everyday life.

- Support: The creation of a supportive environment as well as empowerment and enablement.

- Collaboration: The creation of a trusting, respectful and open environment. Further, ongoing communication between all stakeholders is ensured. Skills and knowledge between employees and stakeholders are shared. Reliability is prevalent.
- Involvement: All persons involved are engaged, feel included and are committed to the project. They share a common sense of purpose, vision, and strategy of the project.
- Innovation-Mindset: Having an innovation-mindset means to enable creativity and innovation, to be flexible, to have a risk attitude and to embrace failure.
- Goal-orientation: To focus on results and the achievement of objectives, favour actions over theory and act efficiently and effectively.
- Integrity: To be honest and truthful, acting to high ethical standards.

By setting those values and steering the culture, leadership influences the area strategy and vice versa. The area leadership is also closely linked to the area people, as it sets the framework and creates the basic work environment for employees.

3.2.3 PEOPLE

The area people consists of the two components employees and stakeholders, which should be closely collaborating with each other.

Excellent innovation projects therefore form partnerships, alliances and/or networks with core stakeholders. Their interests, influences and expectations are continuously surveyed, considered, and managed. The core stakeholders agree with the project objectives.

The area includes the recruitment of people with the needed professional and social skillset. This includes social skills like communication, creativity, and teamwork skills. Employees should be able to develop themselves personally and professionally as well as to progress in their career. This should be supported with a specified development plan and training possibilities. The knowledge and competences of employees are one of the most valuable resources of a company and should therefore be well fostered.

This area is related to the area leadership, as employees are supported and enabled by their actions. Further, the area people is linked with the area processes, as they develop and utilize those within the project.

3.2.4 PROCESSES

This area considers the different necessary management processes, that are needed to ensure excellent innovation project management.

- Portfolio management and project management: To choose the fitting approach, methods, and tools according to the project objectives and project environment. The quality of planning of design, scope, time, and financial aspects. The execution of portfolio and change management.
- Innovation management: Including idea and portfolio management, the usage of the right methods and the development and commercialisation of innovation. To use the project as a chance for a transformation towards the future. The quality of planning, controlling, and checking innovation.
- Resource and competence management: The development, application, and management of resources as well as the definition, acquirement and controlling of resources (e.g. knowledge, people, facilities, equipment, material, tools, infrastructure, and financial resources).
- Stakeholder management: Including supplier and partner processes, the customer feedback process, the communication process with stakeholders and the execution of stakeholder engagement.

All management processes should have a clear focus on continuous process improvement and delivering high quality as well as efficient and effective execution.

The area relates to the area people, as processes support the increase of efficiency and effectiveness of people's activities. By following a process, objectives can be reached, which links the area processes with the area results.

3.2.5 RESULTS

This area can be divided into performance results and people results. People results are the achieved satisfaction of customers, employees, and other stakeholders during and with the innovation project management. Performance results can be further categorised into the following aspects:

- Operational performance: The level of effectiveness and efficiency in innovation project management. The level of competitiveness that was achieved through the innovation project. The balance of the overall portfolio.
- Achievement of objectives: Describing how successful the innovation project was in delivering its strategy and how well it is contributing to the business objectives. Further, if the activities can be overall considered successful and if the innovation project was realized within planned time, scope, and budget. Last, how sustainable the project activities and outcomes are.
- Economic results: Addresses financial and market results of the innovation project.

By assessing the operational performance, the area results relates with the area processes, as observations and learnings can be used to develop processes further. The area is also influencing the development of next strategies, thus the area strategy.

3.2.6 COMMON TOPICS

The following five topics can be found in more than one excellence area and therefore act as important links between the excellence areas (see fig. 3). They are listed ascending regarding their occurrence.

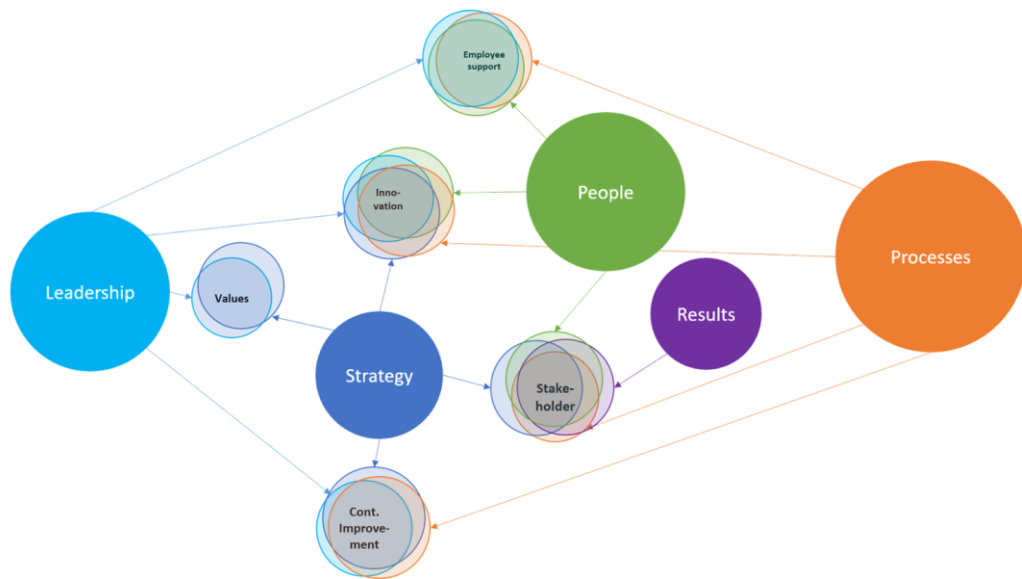


Figure 3: Common topics between the excellence areas (own graphic)

- Values: They are linking the areas strategy and leadership, as values are influencing the strategy and set and lived by leaders.
- Employee support: This relates to the areas leadership, people and processes, as it is executed by leaders through processes and influencing employees.
- Continuous improvement: This aspect should be embedded in the strategy, lived by leaders as core principle and integrated in all processes.
- Stakeholder: The interaction with stakeholders and how it is realized is an important aspect in the areas strategy, people, processes, and results.
- Innovation: It is embedded in the strategy, in core principles of leadership, in the skills of people and in the area processes.

These aspects do not only work as connection between the excellence areas, they can be also seen as important topics for innovation project management excellence. Therefore, focused attention should be put on the fulfillment of these aspects.

4 EMPIRICAL RESEARCH

This chapter elaborates on the chosen empirical research strategy and approach. The research was split into two parts to answer the presented research questions:

- (1) *What does Excellence mean for innovation project management?*
- (2) *On which areas should companies focus for achieving excellence in this field?*

Following, the applied methods, data collection and data analysis will be presented.

4.1 QUALITATIVE RESEARCH

Qualitative research is applied “to understand peoples’ beliefs, experiences, attitudes, behavior, and interactions” (Pathak et al., 2013, p. 192). The purpose is therefore to understand underlying reasons, influences, and processes (Hennink et al., 2020). Used methods to realize qualitative research are for example interviews, focus group discussions or content analysis (cf. Hennink et al., 2020, p. 10). Contrary to quantitative analysis methods, where quantified data is measured to identify patterns or frequencies, qualitative research allows to gain a deeper understanding concerning the research topic (Hennink et al., 2020). As the aim of this thesis is to explore a topic which is not discussed in literature yet and where no quantitative data is available, both research questions are answered with the help of qualitative research methods.

Mayring (2015) states that traditional quality criteria reliability and validity cannot be applied to qualitative research methods. Quality criteria named by Mayring (2015, p. 125) for qualitative research methods which have been applied to this thesis are process documentation, argumentative interpretation hedging, proximity to the subject, rule-guidedness, communicative validation and triangulation.

The following chapters respectively present the addressed research question, the chosen research method, data collection and data analysis for both parts of the empirical research.

4.2 PART 1: LITERATURE ANALYSIS

To answer the first research question of the thesis ‘*What does Excellence mean for innovation project management?*’, literature analysis was performed. Findings from literature review showed that there is no definition for this field yet. Therefore, a combination of existing definitions from relevant aspects, namely business excellence, project management excellence and innovation excellence was aspired. The following chapters describe the pursued process.

4.2.1 DATA COLLECTION

The used material are definitions of excellence of the aspects business, project management and innovation. Those definitions have been obtained through literature review. The search terms have been used in English and in German language. The search was performed using Google, Google Scholar and the library search engine PRIMO. Definitions were only chosen if published by a respected organization or presented in a scientific article. As some of the original frameworks were not openly accessible, papers which presented their criteria have been used instead. Table 1 shows the full list of used definitions, their authors and the used source.

Table 1: Used definitions of business, project management and innovation excellence

Framework	Author	Origin
Business Excellence		
7S-Framework (1982)	Tom Peters Robert H. Waterman Jr.	Dahlgaard-Park, S. M., & Dahlgaard, J. J. (2006). <i>In Search of Excellence – Past, Present and Future.</i>
8 Attributes of Excellence (1982)	Tom Peters Robert H. Waterman Jr.	Dahlgaard-Park, S. M., & Dahlgaard, J. J. (2006). <i>In Search of Excellence – Past, Present and Future.</i>
A Simple Model of Excellence (1985)	Tom Peters Nancy Austin	Dahlgaard-Park, S. M., & Dahlgaard, J. J. (2006). <i>In Search of Excellence – Past, Present and Future.</i>
4P Model for building organizational excellence (1998)	Jens J. Dahlgaard Su Mi Dahlgaard-Park	Dahlgaard-Park, S. M., & Dahlgaard, J. J. (2006). <i>In</i>

		<i>Search of Excellence – Past, Present and Future.</i>
The EFQM Model – Revised 2 nd edition (2021)	EFQM	www.efqm.org
Baldrige Excellence Framework (2021)	National Institute of Standards and Technology	https://www.nist.gov/baldrige/baldrige-criteria-commentary
Australian Business Excellence Framework	Business Excellence Australia	https://www.joondalup.wa.gov.au/files/committees/POLI/2017/Attach2agnPOLICY170612.pdf
Iberoamerican Quality Award Excellence Model	Iberoamerican Foundation for Quality Management	Sampaio, P., Saraiva, P., & Monteiro, A. (2012). A comparison and usage overview of business excellence models. <i>The TQM Journal</i> , 24(2), 181-200. https://doi.org/10.1108/17542731211215125
Project Management Excellence		
Individual Competences (2015)	International Project Management Association	Individual Competence Baseline for Project, Programme & Portfolio Management, Version 4.0
Talent Triangle (2015)	Project Management Institute	https://de.scribd.com/doc/316758149/PMI-talent-triangle-flyer-pdf
Project Excellence Baseline (2016)	International Project Management Association	Project Excellence Baseline for Achieving Excellence in Projects and Programmes, Version 1.0
Project Performance Domains (2021)	Project Management Institute	A Guide to the Project Management Body of Knowledge (PMBOK Guide) Seventh Edition
Project Excellence Model	GPM	https://www.project-excellence-award.de/project-excellence/
Innovation Excellence		
Innovation Excellence Model	PFI Plattform für Innovation	https://www.pfi.or.at/was-wir-tun/benchmarking-innovate-

		new/innovation-excellence-model/
Innovation Excellence Model	Arthur D. Little	https://www.adlittle.com/sites/default/files/2022-03/TIM_2013_Innovex_Report.pdf
Model for Innovation Performance	Anne Martensen Jens J. Dahlgaard Su Mi Park-Dahlgaard Lars Grønholdt	Martensen, A., Dahlgaard, J. J., Park-Dahlgaard, S. M., & Grønholdt, L. (2007) Measuring and diagnosing innovation excellence – simple contra advanced approaches: a Danish study. <i>Measuring Business Excellence</i> , 11(4), 51-65. https://doi.org/10.1108/13683040710837928
Integrated Framework for the assessment of a firm’s innovation excellence	Kostas N. Dervitsiotis	Dervitsiotis, K. N. (2010). A framework for the assessment of an organization’s innovation excellence. <i>Total Quality Management</i> , 21(9), 903-918. https://doi.org/10.1080/14783363.2010.487702

4.2.2 DATA ANALYSIS

The literature research and analysis were performed following Mayrings (2015) approach to qualitative content analysis. The process is subsequently described as recommended.

- 1) **Definition of material:** The used definitions for excellence in the respective areas are guidelines or frameworks from respected organizations as well as scientific articles as presented in table 1, page 20. In total, a number of 17 different definitions have been assessed whereof eight are regarding business excellence, five regarding project or project management excellence and four regarding innovation excellence.
- 2) **Situation surrounding the origin:** The used definitions have been collected through literature research through the search engines Google, Google Scholar

and the library search engine PRIMO. The chosen definitions are either provided by international respected organizations or presented in scientific articles.

- 3) **Characteristics of material:** The used material is available online and has been analysed in text form.
- 4) **Direction of analysis:** The used documents should be analysed regarding their content. The definitions and frameworks are to be searched for criteria which are necessary for excellence. After common criteria have been defined, the documents should also be used to find common explanations for these criteria.
- 5) **Theoretical differentiation of the research question:** The conducted material contains different definitions of the term ‘excellence’. To answer the first research question and define innovation project management excellence, it should be analysed to which extent similarities exist and in which aspects they correspond. To create a generally valid definition of the term, three different ‘excellence-aspects’ have been considered. First, the broader context, business, is analysed. Second, project management as the acting approach and last, innovation, as it is the area of the projects. The research questions for the literature analysis are therefore:
 - RQ1.1: Which common areas can be found in definitions for business, project management and innovation excellence?
 - RQ1.2: How can those areas be implemented? What do the areas mean for companies?
- 6) **Definition of the analysis method:** As the used guidelines, frameworks and articles were screened and their contents aggregated regarding the research questions, the chosen analysis technique is summary. This technique is used to reduce material to the main content and give an overview to relevant contents according to the research questions (Mayring, 2015).
- 7) **Definition of analysing units:** The coding unit, and with that the smallest possible text component that can be analysed is specified as one word. The context unit,

the text component which can be analysed is specified as the whole present document. The evaluation unit is specified as all documents that have been chosen for the literature analysis as listed in table 1, p 20.

- 8) **Conduct of analysis:** Inductive category forming was chosen as the process design. This allows to directly derive the categories (codes) from the material while analysing, following the research questions (Mayring, 2015). This process design is especially applicable for ‘which’-questions, such as RQ1.1 (Mayring, 2015). The process for inductive category was followed as shown in fig. 4.

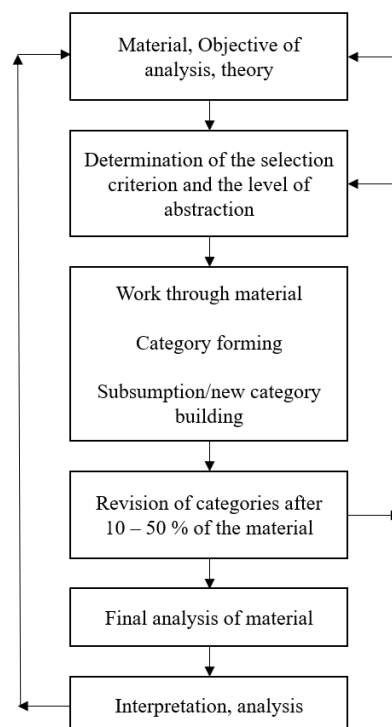


Figure 4: Inductive category forming (own graphic, based on Mayring, 2015, p. 86)

Selection criterion and level of abstraction: Descriptions, requirements, and implementation references for excellence in the respective guidelines, frameworks, and articles. The word excellence is generally defined as “the quality of being extremely good” (Oxford Dict, 15.04.22).

The analysis has been conducted with the help of the software tool MAXQDA 2022. The documents have been revised several times, until the final coding

system had been established. After the response for RQ1.1 had been generated through the analysis and common areas for innovation project management excellence had been found, the process was repeated to attain a common explanation for those areas and answer RQ1.2. Not all used frameworks and definitions provided detailed explanation, therefore the common aspects have been summarized to explain the beforehand derived areas.

9) Presentation and interpretation of results regarding the research question:

In total, 139 text elements have been found and put into categories, whereof 51 originate from documents regarding business excellence, 57 from documents regarding project (management) excellence and 31 from documents regarding innovation excellence as shown in figure 5. The difference between the coded elements is due to the different numbers of used documents per excellence aspect. The lower number of used documents for innovation excellence is therefore reflected by a lower number of coded elements in this aspect.

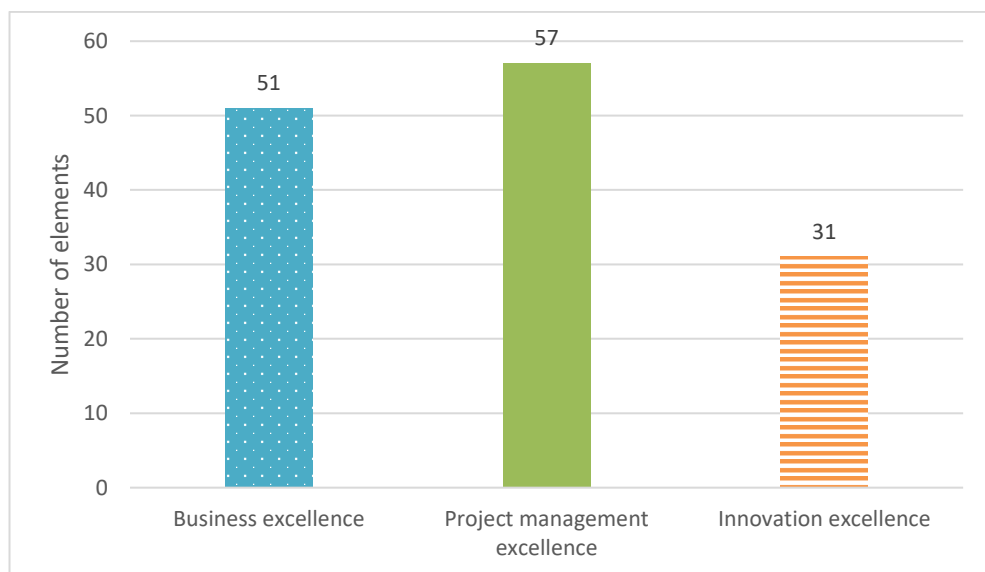


Figure 5: Number of coded categories per excellence aspect

Figure 6 shows the detected common areas of innovation project management excellence and the frequency of coded elements within the respective area. The five detected areas are *Processes*, *People*, *Strategy*, *Results* and *Leadership*. The areas *Processes* has occurred most often, while the area *Leadership* was cited the

least often. The frequency of mentions can be seen as an indicator for the importance of the area for innovation project management excellence. It has to be taken into consideration that the three aspects of excellence have not flown equally into the analysis as explained above and shown in figure 5 though.

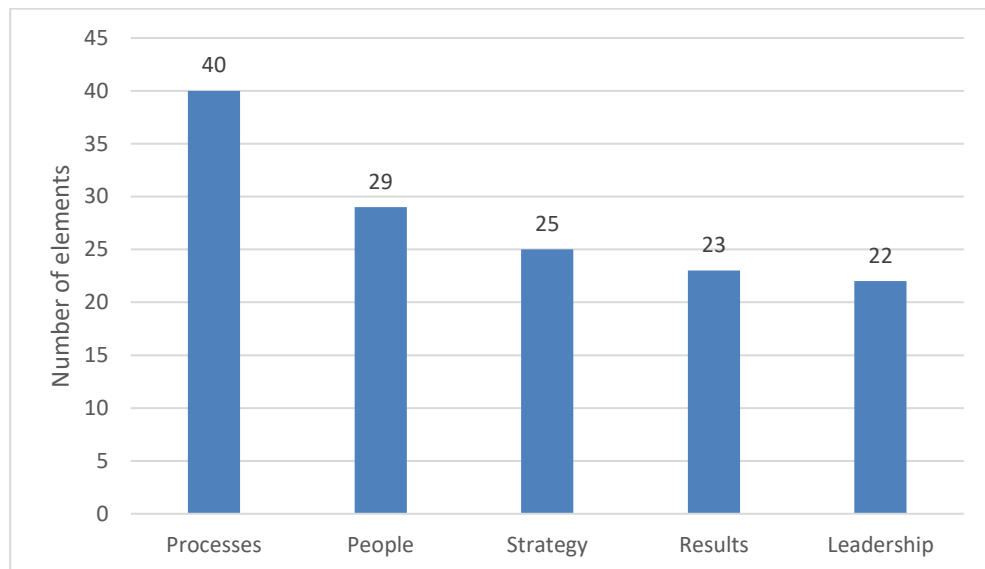


Figure 6: Areas of innovation project management excellence

To get a better understanding how the three aspects (business, project management and innovation) have contributed to the final result, figure 7 shows the distribution of coded elements per excellence aspect within the five areas. The first bar of each area shows the number of coded elements from documents regarding business excellence. The second bar refers to the number of coded elements from documents about project management excellence and the third bar of describes the number of coded elements from documents about innovation excellence.

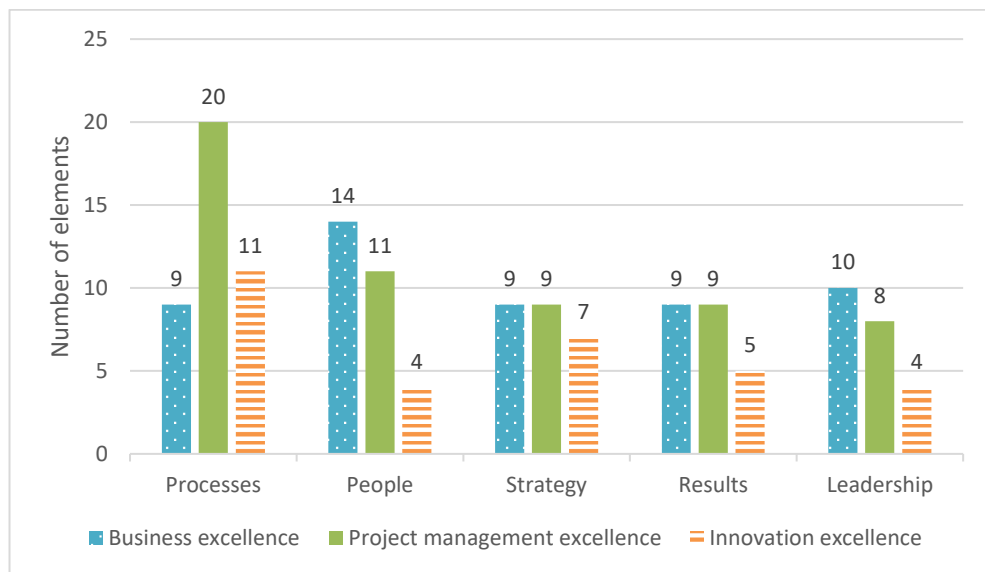


Figure 7: Breakdown of coded elements per excellence aspect within excellence areas

A detailed explanation of the areas and their meaning for companies can be found in chapter 3.2, where the gained definition of innovation project management excellence is presented. Additionally, a checklist based on the developed definition has been created to evaluate the state of innovation project management excellence within an organization. This checklist can be found in the Appendix.

4.3 PART 2: EXPERT INTERVIEWS

To answer the second research question *‘On which areas should companies focus for achieving excellence in this field?’*, the status of innovation project management has been surveyed on the example of a leading Austrian company in the chemical industry. The consideration of individual cases can act as a starting point for further research and provide first valuable insights into the topic (Yin, 2018). The further chapters describe the procedure of the survey process.

4.3.1 DATA COLLECTION

To ascertain the status of the company's innovation project management, semi-structured expert interviews were conducted. Semi-structures interviews allow to understand underlying reasons and to gain a deeper understanding for the research topic (Saunders et al., 2007). They are conducted with the help of a guideline, where relevant topics and

questions are listed (Saunders et al., 2007). According to the respective interview, the order of questions can be varied, additional questions can be asked, and particular topics can be discussed (Saunders et al., 2007).

The interview partners have been selected with the help of the company. It was aspired to obtain a holistic picture of the perception of innovation project management in the company. The selected interview partners cover employees that work in projects, manage projects or are internal stakeholders of projects.

The interviews have been subsequently transcribed with the help of the software MAXQDA and, for the interviews that have been performed online, with the help of the automatic transcription of MS Teams. The interviews have been conducted in German and English language and transcribed completely and word-by-word in the respective language.

4.3.2 DATA ANALYSIS

The evaluation of the conducted interviews has been done following Mayrings (2015) approach of qualitative content analysis with inductive category forming. Following, the different steps are explained in detail.

- 1) **Definition of material:** Fourteen interviews have been conducted and used for the analysis of the status of innovation project management within the company. All interviews have been transcribed.
- 2) **Situation surrounding the origin:** The interviews have been conducted within the 29th of April and 18th of May 2022. In total, a number of 14 interviews were performed. The interviews had an average length of 33 minutes. Two of the interviews could be conducted in person, 11 were carried out via MS Teams and one employee was interviewed on the phone. Ten interviews have been executed in English and four interviews in German. All interview partners have been informed that the interviews are done as a part of a bachelor thesis. Further, the permission to record the interviews has been obtained in the beginning of the conversation.

- 3) **Characteristics of material:** The survey method was a semi-structured interview. The conducted interviews have been recorded with a mobile phone or, if conducted via MS Teams with the recording-function of the software. Afterwards, they have been transcribed as described in chapter 4.3.1.
- 4) **Direction of analysis:** The interview partners were asked regarding their personal opinions, feelings, wishes and review on the topic innovation project management excellence.
- 5) **Theoretical differentiation of the research question:** The interviews have been conducted to help answering the superior research question *‘On which areas do companies have to focus for achieving excellence in this field?’*. The interview guideline has been developed in order to answer the following underlying questions:
 - RQ 2.1: What does the term ‘Excellence’ mean for employees in the area innovation project management?
 - RQ 2.2: How excellent is the current set-up?
 - RQ 2.3: What are best practices for employees?
- 6) **Definition of the analysis method:** The used analysis method is summary (Mayring, 2015), as the statements of the interview partners have been aggregated to assign to fitting categories.
- 7) **Definition of analysing units:** The coding unit is specified as one word. The context unit is specified as full interview transcript. The evaluation unit are the 14 transcribed interviews that have been conducted.
- 8) **Conduct of analysis:** The chosen process was again inductive category forming as described above and presented in figure 4.
- 9) **Presentation and interpretation of results regarding the research question:** To answer RQ 2.1, the answers of all interview partners have been categorized into the prior defined excellence areas. The majority stated that excellence is

related to processes and results. Only few people directly related excellence with the factor people (see fig. 8). Particularities that interview partners see in innovation project management are among others higher uncertainty, the need for flexibility or the need for continuous improvement.

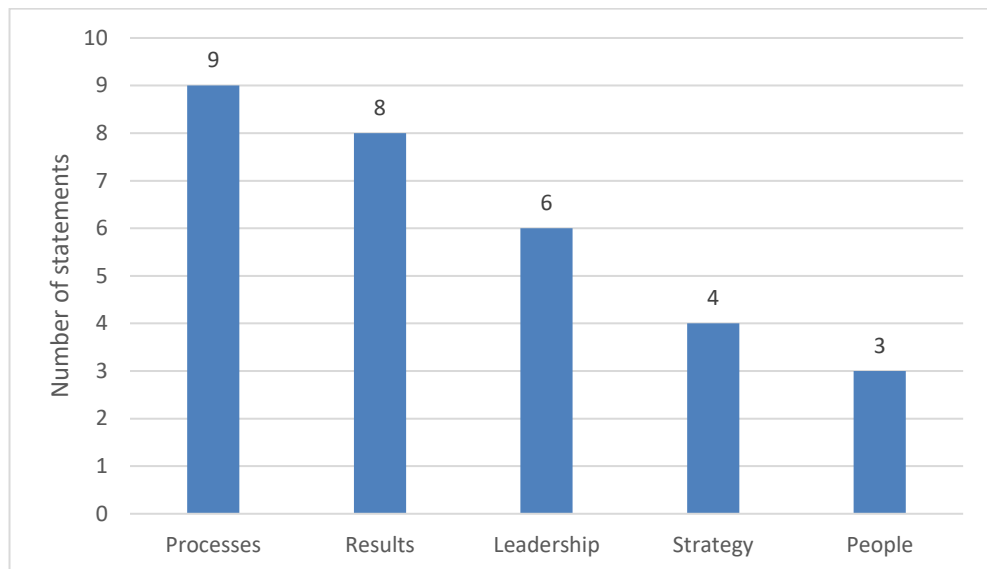


Figure 8: Definition of the term excellence through interviews ($n=14$)

Compared to the definition found in literature (see fig. 6), it can be noted that the area *Processes* is listed first again, while the area *People* is comparatively sparsely mentioned.

To answer RQ 2.2, interview partners have been asked which aspects are already excellent and what can be improved in their perception. Figure 9 shows most mentioned aspects which were positively highlighted by interviewees.

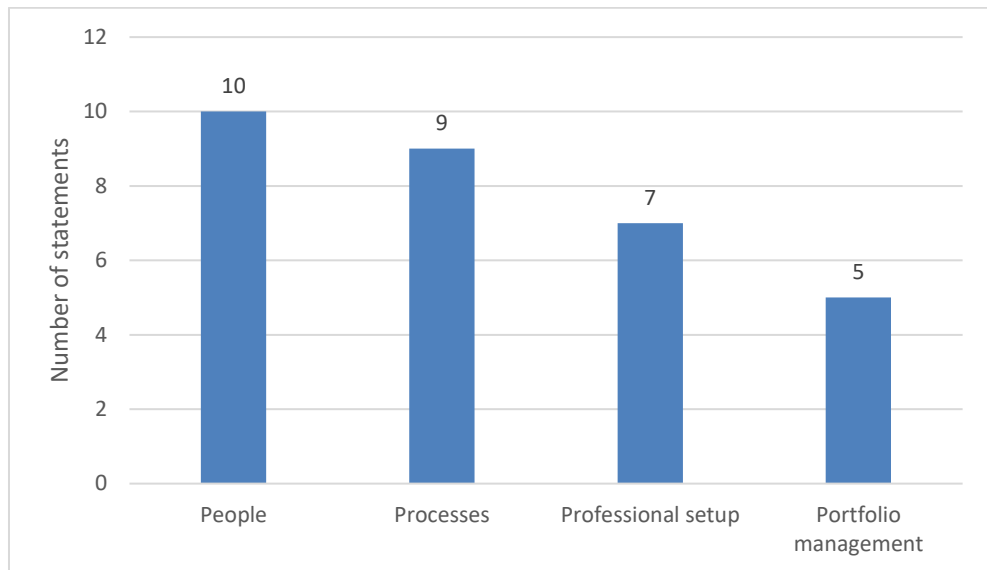


Figure 9: Excellent aspects in innovation project management (n=14)

The team set-up, the professional and social competence of team members, the acknowledgement of achievements and the communication with other departments and stakeholders have been summarized in the aspect *People*.

Another strength, according to 9 of 14 interview partners are the well documented and described *Processes*. This aspect further incorporates the set-up of the innovation project management process with its different stages and the support functions such as regular reviews.

Comments regarding the professional execution of projects, the existence of professional project managers and the familiarity of the process within the organization have been combined in the aspect *Professional setup*.

Portfolio management has been mentioned especially due to its improvement compared to the past, like the following statement shows: ‘I think there we have made a tremendous step forward.’

Aspects that can be improved in the opinion of the interviewed employees are shown in figure 10. It has to be noted that in total, a number of 15 different improvement aspects have been collected. Following, only aspects with more than two collected statements are shown and described in detail to ensure that presented topics are not only relevant to individuals.

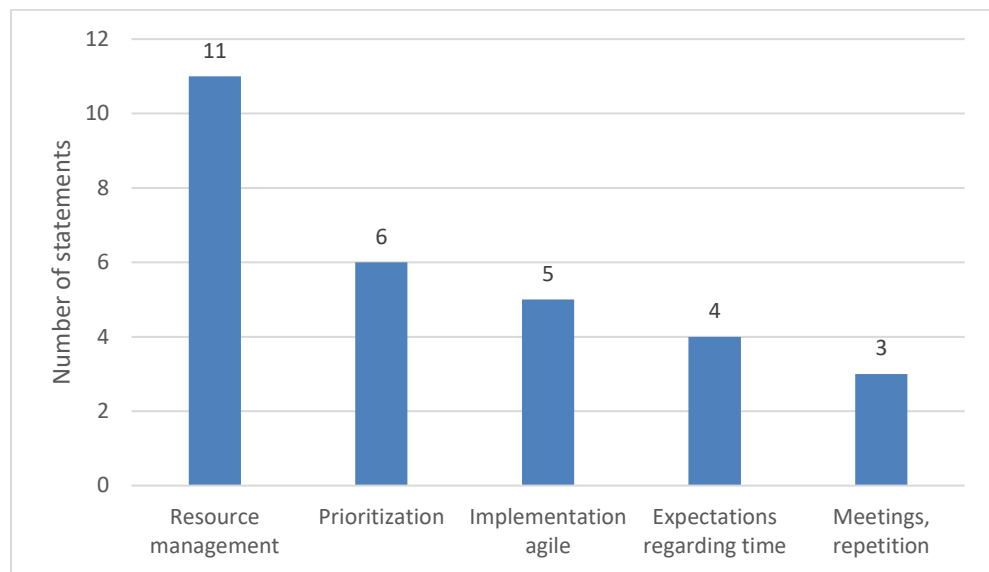


Figure 10: Improvement aspects in innovation project management (n=14)

More than three quarters of participants stated that topics regarding *Resource management* can be improved. The most addressed issue was planning and controlling. As one interview partner said: ‘Here we have one thing that we can improve. The quality of input for the resource discussions. Or we can decrease the effort regarding follow-up and forecasting resources’. Other discussed subjects were resource availability, the lack of communication between the different IT-systems in use and the number of projects per project manager.

Almost half of the interview partners mentioned that the *Prioritization* process can be improved. One participant stated that the process is available, but the decisions to follow the consequences that are correlated with prioritization are not made.

Five of the fourteen interviewees elaborated on the missing *Implementation of agile* methods or the missing agile mindset within the organization.

Another repeatedly stated topic was that *Expectations regarding time* by the management are extremely challenging. This does not allow enough time for test runs or failures and lead people to disregard basic principles.

The last issue to be presented is regarding *Meetings and repetition*. One interview partner summarized this topic saying ‘We present left, right and top and center. And I wonder whether this is all needed’.

Thirteen interview partners have answered questions in regard to RQ 2.3 (*What are best practices for employees?*). Thereof twelve mentioned a specific example. Five named employees, six talked about projects and one company was mentioned. This collected list can serve as a reference point for the innovation project management department. As the projects and names of employees concern company-specific details, the list will not be included within this thesis. Still, common characteristics between the mentioned best practices and role models could be detected and are shown in figure 11.

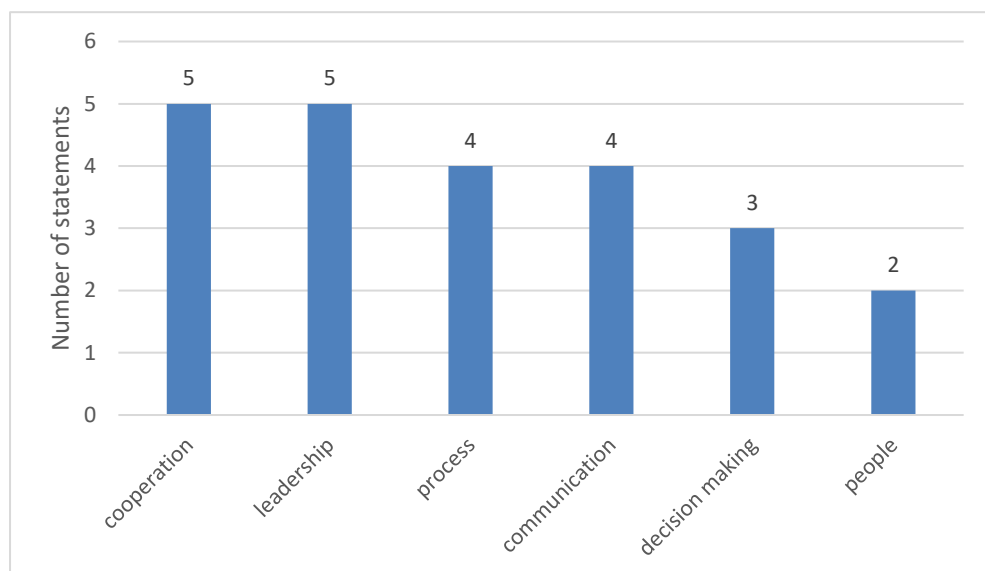


Figure 11: Characteristics of mentioned role models and best practices (n=13)

Almost half of the interview partners named excellent *cooperation* between departments or excellent *leadership* as a reason to consider a project best practice or someone a role model. Four out of thirteen participants mentioned excellent *process* execution or excellent *communication* when talking about their chosen example. Other common characteristics that could be detected within the collection of best practices and role models are exemplary *decision making* and having the best *people* in the project.

5 RESULTS

This chapter presents the results, namely areas where companies should focus to achieve excellence in the field of innovation project management. The surveyed status as described in chapter 4.3.2 has been compared to the developed literature definition of innovation project management excellence, which is described in chapter 3.2.

Additionally, the results from an audit process that has examined the quality of the innovation project management process have been used. Interview results and audit results showed many common findings. Regarding possibilities of improvement, both interviews and audit results found following aspects:

- Resource management
- Implementation of agile approaches
- Expectations regarding time
- Prioritization

This is especially of interest, as 10 interview partners are internal stakeholders of projects while the auditing company spoke with operating employees. The accordance of results can therefore be considered as a verifying indicator. The detailed audit results cannot be shared in this thesis due to confidentiality reasons.

The comparison of the developed literature definition and empirical findings has been done with the help of the developed Innovation Project Management Excellence Checklist (see Appendix). Figure 12 shows a part of the evaluation.

5 Results

				IMPROVEMENT					GOOD								
				yes	progres	no	Justification Audit	Number	Justification Interviews -> Code	Number	Sum	Justification Audit	Number	Justification Interviews -> Code	Number	Sum	SUM OVERALL
Leadership																	
Achievements	2.1	Leaders act as a role model.								0					0	0	
	2.2	Leaders set values, direction and steer the culture.	x							0					0	0	
	2.3	Achievements are recognized.			x				IMPROVEMENT/recognition	1	1				0	-1	
	2.4	Achievements are rewarded.	x								0		GOOD/people		1	1	
	2.5	Achievements are communicated.				x		Communicate internal success stories to motivate the teams is missing	1		1				0	-1	
	2.6	Achievements are celebrated.				x			IMPROVEMENT/recognition	1	1				0	-1	
Innovation environment	2.7	Leaders enable and support creativity.		x						0					0	0	
	2.8	Leaders understand risk and support responsible risk taking.	x							0					0	0	
	2.9	Leaders commit to continuous improvement.	x							0					0	0	
	2.10	Leaders are supporting employees.				x		Improve leadership idea for project managers to support the team (e.g. scientists)	1		1				0	-1	
Supported values	2.11	Support: supportive environment, empowerment, enablement		x						0					0	0	
	2.12	Collaboration: sharing of skills and knowledge, communication, trust, respect, openness, reliability	x							0		GOOD/people		1	1		
	2.13	Involvement: engagement of employees, inclusion, commitment, uniting behind purpose, vision and strategy				x		PM is doing the management work without involving the team	1		4	5			0	-5	
	2.14	Innovation-Mindset: enablement of creativity and innovation, flexibility, risk-attitude, embracement of failure				x		Agile mindset is missing overall	1		3	4			0	-4	
	2.15	Goal-orientation: focus on result, actions, objectives, productivity				x				1	1				0	-1	
	2.16	Integrity	x								0				0	0	
People																	
Stakeholders	3.1	Partnerships, alliances and networks with important stakeholders are formed and fostered.	x							0					0	0	
	3.2	Stakeholder interests, influences and expectations are known and managed.		x						0					0	0	
	3.3	Stakeholders agree with project objectives.			x					0					0	0	
	3.4	Employees have social skills, are creative and work well in teams.	x							0		GOOD/people		2	2		
	3.5	People with the needed competences are employed.	x							0		GOOD/people; GOOD/professional setup		6	6		

Figure 12: Checklist-Evaluation

Checkpoints that could be confirmed with positive statements of interviews or positive observations from the audit were evaluated with points in the column *GOOD*. Interview statements and audit observations that rebutted checkpoints have been counted in the column *IMPROVEMENT*. The column *SUM OVERALL* shows the result after subtracting the improvement-sum from the good-sum. Checkpoints with a positive result were evaluated as being already excellent at the company and marked in green colour. Checkpoints with a negative outcome have been identified as an area where actions still need to be taken to become excellent and marked in red. Checkpoints, where collected good and improvement mentions were equally distributed have been assessed as areas in progress and marked in yellow. Checkpoints that could not be evaluated through collected interview and audit results were assessed through additional collected estimations of the company supervisors of the bachelor thesis.

The following three presented checkpoints obtained the smallest sums and can therefore be seen as the areas with the biggest potential to improve. Finally, the overall excellence profile of the company is presented.

5.1 FOCUS AREA 1

Checkpoint 4.15: Resource management is done in an efficient and effective way.

This checkpoint originates from the excellence area *Processes*, as described in chapter 3.2.4. It combines the demand for resource (and competence) management and the request that all processes should be executed as efficient and effective as possible. Resources are specified as knowledge, people, facilities, equipment, material, tools, infrastructure, and financial resources.

Collected insights from interviews and audit showed two big issues, which influence each other, that resulted in a final evaluation of this checkpoint of -12. The two lacking aspects are namely the used IT-systems and the planning and controlling process, which are below explained in more detail.

- IT-systems: There are many different IT-tools used for documentation and communication and no standard is in place. Further, cost and personnel controlling are executed in different IT-systems, without a definition of the

leading one. The interface to the lab-management system is missing, which results in additional manual work. In general, it has been stated that the used IT-tools are not synchronized with one another, which results in a lack of quality of the provided data within the systems.

- Planning and controlling: The planning and controlling processes are very time-intensive and without general standards. The accuracy of planning is done the same way for short- and long-term planning. The effort that is put into planning is not in relation to the quality of input coming from IT-systems.

5.2 FOCUS AREA 2

Checkpoint 4.7: Decisions from portfolio management can be realized accordingly.

The second focus area also descends from the excellence area *Processes*, as described in chapter 3.2.4. The evaluated checkpoint describes the influence of portfolio management on innovation project management and links the two management processes project management and innovation management that are listed within the excellence area.

The collected observations and statements from interviews and audits showed improvement potential in this area, with a final sum of -9. One issue is that the number of projects per project manager is too high, and the overload can result in a compromised quality per project. Further, it has been stated that the predetermined timeline is partially not realistic. This is also due to resource availabilities. In general, the challenging time expectations and the predominant focus to reduce the time of projects diminishes opportunities to fail, try out things, learn or do test runs. It can also result of disregarding basic principles such as to avoid single sourced products.

5.3 FOCUS AREA 3

Checkpoint 2.13: Supported value Involvement: engagement of employees, inclusion, commitment, uniting behind purpose, vision, and strategy.

This checkpoint is derived from the excellence area *Leadership*, as elaborated in chapter 3.2.2. Leaders should live and integrate cited values in their everyday life, of which one is Involvement, which includes the above stated elements.

The collected statements and observations from audit and interview resulted in an overall sum of -5 due to the following issues. It has been found that the project manager is doing the management work without the involvement of the project team. In general, decision making is also done without general involvement and not enough insights are provided to support a deeper understanding. It has been stated that people engagement and involvement can be improved so employees feel inspired, motivated and have fun at work.

5.4 EXCELLENCE PROFILE

The completed checklist further allows the conclusion, how excellent a company is in the respective areas. Checkpoints assessed as already being excellent have been counted with the full percentage. Checkpoints that are in progress have been counted with half of the percentage. Checkpoints that are not yet excellent have not been counted at all. The calculation for each excellence area was therefore:

$$\frac{\text{Number of achieved excellent checkpoints/excellence area} * 100}{\text{Total number of checkpoints/excellence area}} + \frac{\text{Number of achieved progress checkpoints/excellence area} * 50}{\text{Total number of checkpoints/excellence area}}$$

For example: The excellence area strategy consists of 10 checkpoints. If a checkpoint was evaluated as excellent, it achieved 10 % (full percentage). A checkpoint in progress was counted with 5 % (half percentage).

Figure 13 shows the final evaluation for the reviewed company.



Figure 13: Excellence profile

It can be seen that the company is already on a positive way within the excellence areas *People* and *Strategy*. There is still improvement potential in the areas *Results*, *Leadership* and *Processes*. This is also reflected in the above presented focus areas, as they describe aspects within the areas *Processes* and *Leadership*.

6 DISCUSSION

The five excellence areas of innovation project management excellence *Strategy, Leadership, People, Processes* and *Results* have been identified with the help of qualitative content analysis. The basis were existing excellence definitions of the aspects business, project (management) and innovation. As only definitions from international recognised organisations or scientific articles have been used, and the five areas could be found consistently in the used definitions, the definition can be seen as valid. Further, the five areas have also been found in the comparison of different business excellence definitions by Toma & Marinescu (2018).

The second goal, to identify focus areas for companies to achieve excellence, has been answered on the example of one company. The found results can be seen on the one hand as important insights and indications also for other companies, as the identified aspects will exist in most innovation project management departments. On the other hand, it has to be noted that the three identified focus areas derive directly from company-specific information, and other companies might struggle more in different areas.

The second research question was therefore not answered generally but company-specific due to the limited time and no access to other innovation project management departments. The developed innovation project management excellence definition and the excellence checklist (see Appendix) can be used to identify focus areas in other companies. This can be the basis for a possible future survey with the goal to generally identify areas in which companies should focus to achieve excellence in innovation project management.

7 CONCLUSION

The goal of this thesis was to define the term innovation project management excellence. Further, areas in which companies should focus in order to obtain excellence should have been identified.

The definition of innovation project management excellence has been obtained through literature research and a following qualitative content analysis. Five areas of excellence have been found and defined in more detail, namely Strategy, Leadership, People, Processes and Results. To the knowledge of the author, the definition of innovation project management excellence has been made for the first time.

The identification of focus areas was achieved on the example of one company. The status quo of innovation project management excellence as well as good aspects and improvement suggestions have been surveyed through semi-structured interviews. Three main improvement aspects within the areas Processes and Leadership have been found. They concern resource management, portfolio management and team involvement.

The definition of innovation project management excellence can act as a general guideline for companies. Further, the developed excellence checklist enables companies to examine their individual excellence in innovation project management. The identified improvement areas give indication on difficult aspects for operating companies. It has to be pointed out that further research of multiple companies is needed to generalize and confirm the findings.

The surveyed company will use the described focus areas to develop a roadmap to excellence. The aspects will be transformed to concise action points that can be implemented.

8 LIST OF FIGURES

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10 BIBLIOGRAPHY

- Am, J. B., Furstenthal, L., Jorge, F., & Roth, E. (2020). *Innovation in a crisis: Why it is more critical than ever*. McKinsey & Company. <https://www.mckinsey.com/~media/McKinsey/Business Functions/Strategy and Corporate Finance/Our Insights/Innovation in a crisis Why it is more critical than ever/Innovation-in-a-crisis-Why-it-is-more-critical-than-ever-vF.pdf>
- Anninos, L. N. (2007). The archetype of excellence in universities and TQM. *Journal of Management History*, 13(4), 307-321. <https://doi.org/10.1108/17511340710819561>
- Archer, S. & Kaufman, C. (2013, 29. October). *Accelerating outcomes with a hybrid approach within a waterfall environment* [conference paper]. PMI Global Congress 2013 – North America, New Orleans, United States of America.
- Atkinson, R. (1999). Project management: cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria. *International Journal of Project Management*, 17(6), 337-342. [https://doi.org/10.1016/s0263-7863\(98\)00069-6](https://doi.org/10.1016/s0263-7863(98)00069-6)
- Beck, K., Beedle, M., van Bennekum, A., Cockburn, A., Cunningham, W., Fowler, M., Grenning, J., Highsmith, J., Hunt, A., Jeffries, R., Kern, J., Marick, B., Martin, R. C., Mellor, S., Schwaber, K., Sutherland, J. & Thomas, D. (2001). *Manifesto for Agile Software Development*. Manifesto for Agile Software Development. <https://agilemanifesto.org/>
- Beise, C., Papke-Shields, K. E., & Quan, J. (2010). Do project managers practice what they preach, and does it matter to project success? *International Journal of Project Management*, 28(7), 650–662. <https://doi.org/10.1016/j.ijproman.2009.11.002>
- Belling, S. (2020). *Succeeding with Agile Hybrids*. Apress. <https://doi.org/10.1007/978-1-4842-6461-4>

- Bolender, A.-K., Liechti M., & Scherrer R. (2022). Agilität trifft Projektmanagement. *Projektmanagement Aktuell*, 33(1), 43-48. <https://doi.org/10.24053/PM-2022-0013>
- Ciric D., Lalic B., Gracanin D., Palcic I., & Zivlak N. (2018, 30. March – 1. April) *Agile Project Management in New Product Development and Innovation Processes: Challenges and Benefits Beyond Software Domain* [conference paper]. IEEE International Symposium on Innovation and Entrepreneurship (TEMS-ISIE), Beijing, China. <https://doi.org/10.1109/TEMS-ISIE.2018.8478461>
- Cobb, C. G. (2003). *From Quality to Business Excellence: A systems Approach to Management*. ASQ Quality Press: Milwaukee.
- Conforto, E. C., Salum, F., Amaral, D. C., da Silva, S. L., & de Almeida, L. F. M. (2014). Can Agile Project Management be Adopted by Industries Other than Software Development? *Project Management Journal*, 45(3), 21-34. <https://doi.org/10.1002/pmj.21410>
- Conforto, E. C., & Amaral D. C. (2016). Agile project management and stage-gate model – A hybrid framework for technology-based companies. *Journal of Engineering and Technology Management*, 40(2016), 1-14.
- Copola Azenha, F., Aparecida Reis, D. & Leme Fleury, A. (2021). The Role and Characteristics of Hybrid Approaches to Project Management in the Development of Technology-Based Products and Services. *Project Management Journal*, 52(1), 90–110. <https://doi.org/10.1177/8756972820956884>
- Deák, C. (2009). *Managing Innovation Projects versus Ordinary Project Management* [Conference contribution]. 2nd ISPIM Innovation Symposium: Stimulating Recovery - The Role of Innovation Management, New York City, USA.
- Deniz, D. D. (2015). Innovation Management in Global Competition and Competitive Advantage. *Procedia – Social and Behavioral Sciences*, (195), 1365 – 1370. <https://doi.org/10.1016/j.sbspro.2015.06.323>

- Digital.ai. (2021). *15th State of Agile Report*. <https://digital.ai/resource-center/analyst-reports/state-of-agile>
- Fewell, J. (2010). The great debate. *PM Network*, 24(1), 27.
- Forsythe, G., Kuhla, K. & Rice, D. (2018, 15. Mai). *Understanding the Challenges of a VUCA Environment*. ChiefExecutive. Abgerufen am 10. Juni 2022, von <https://chiefexecutive.net/understanding-vuca-environment/>
- Hennink, M., Hutter, I., & Bailey, A. (2020) *Qualitative Research Methods* (2nd ed.) SAGE.
- International Organization for Standardization. (2021). *Project, programme and portfolio management*. (ISO Standard No. 21502:2020). <https://www.iso.org/standard/74947.html>
- IPMA. (2015). *Individual Competence Baseline*. (4th ed.). International Project Management Association.
- IPMA. (2016). *Project Excellence Baseline for Achieving Excellence in Projects and Programmes*. (Version 1.0). International Project Management Association.
- Joshi, M. & Shukla, B. (2020, 3. September). *Creativity And Innovation In A VUCA World*. Businessworld. <https://www.businessworld.in/article/Creativity-And-Innovation-In-A-VUCA-World/03-09-2020-316251/>
- Kerzner, H. (n.d.). Can the Words “Innovation” and “Project Management” Be Used In The Same Sentence?. *International Institute for Learning*. <https://blog.iil.com/innovation-project-management/>
- Kraaijenbrink, J. (2018, 19. December). *What Does VUCA Really Mean?.* Forbes. <https://www.forbes.com/sites/jeroenkraaijenbrink/2018/12/19/what-does-vuca-really-mean/?sh=15b0fa7a17d6>
- Kuckartz, U. (2016). *Qualitative Inhaltsanalyse. Methoden, Praxis, Computerunterstützung* (3rd ed.). Beltz Juventa.

- Low, C. (2009, 10. März). *The Blending of Traditional and Agile Project Management*. PMtimes. <https://www.projecttimes.com/articles/the-blending-of-traditional-and-agile-project-management/>
- Marinescu, P. & Toma, S.-G. (2018). Business excellence models: a comparison. *Proceedings of the International Conference on Business Excellence*, 12(1), 966-974. <https://doi.org/10.2478/picbe-2018-0086>
- Masciadra, E. (2017). Traditional Project Management. In Handzic, M. & Bassi, A. (eds.), *Knowledge and Project Management*. (p. 3-23). Springer Publishing.
- Mayring, P. (2015). *Qualitative Inhaltsanalyse. Grundlagen und Techniken* (12th ed.). Beltz.
- McKinsey & Company. (n.d.). *Growth & Innovation*. McKinsey & Company. Last downloaded 20. April 2022. <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/how-we-help-clients/growth-and-innovation>
- Oxford Learner's Dictionaries. (n.d.). excellence. In Oxford Learner's Dictionaries. Last downloaded 20. April 2022. <https://www.oxfordlearnersdictionaries.com/definition/english/excellence?q=excellence>
- Pathak, V., Jena, B., & Kalra, S. (2013). Qualitative research. *Perspectives in Clinical Research*, 4(3), 192. <https://doi.org/10.4103/2229-3485.115389>
- PMA. (2019). *pm baseline* (Version 3.1). Projekt Management Austria.
- PMI. (2017). *Job Growth and Talent Gap Report 2017 - 2027*. <https://www.pmi.org/-/media/pmi/documents/public/pdf/learning/job-growth-report.pdf>
- PMI. (2017). *Agile Practice Guide*. Project Management Institute.
- PMI. (2021). *The standard for project management and a guide to the project management body of knowledge (PMBOK guide)* (7th ed.). Project Management Institute.

- Rigby, D. K., Sutherland, J., & Takeuchi, H. (2016, 20. April). *The Secret History of Agile Innovation*. Harvard Business Review. <https://hbr.org/2016/04/the-secret-history-of-agile-innovation>
- Salameh, H. (2014). What, When, Why, and How? A Comparison between Agile Project Management and Traditional Project Management Methods. *International Journal of Business and Management Review*, 2(5), 52-74.
- Sampaio, P., Saraiva, P. & Monteiro, A. (2012). A comparison and usage overview of business excellence models. *The TQM Journal*, 24(2), 181-200. <https://doi.org/10.1108/17542731211215125>
- Saunders, M., Lewis, P., & Thornhill, A. (2006). *Research Methods for Business Students* (4th ed.). Pearson Education.
- TBD Media Group. (2019, 23. January). *PMI – Project Management Excellence* [Video]. YouTube. <https://www.youtube.com/watch?v=9nT6z5wXSM0>
- Toma, S. & Marinescu, P. (2018). Business excellence models: a comparison. *Proceedings of the International Conference on Business Excellence*, 12(1) 966-974. <https://doi.org/10.2478/picbe-2018-0086>
- Yin, R. K. (2018). *Case study research and applications: design and methods* (6th ed.). SAGE.

11 APPENDIX

Excellence checklist..... 50

EXCELLENCE CHECKLIST

			yes	progress	no
Strategy					
Consideration of...	1.1	Governance, legal compliance, and ethics.			
	1.2	Environmental and social concerns.			
	1.3	Business environment & corporate strategy, culture and values.			
	1.4	Project goals, competences, and restrictions.			
	1.5	Stakeholder needs and requirements.			
Inno-vation	1.6	Strategy has a clear innovation orientation, taking the innovation strategy into account.			
	1.7	Strategy has a focus on continuous improvement.			
	1.8	Strategy identifies and reacts to new opportunities.			
Stakeholder	1.9	Strategy has a clear stakeholder orientation.			
	1.10	Strategy takes knowledge about stakeholders into account.			
Leadership					
	2.1	Leaders act as a role model.			
	2.2	Leaders set values, direction and steer the culture.			
Achievements	2.3	Achievements are recognized.			
	2.4	Achievements are rewarded.			
	2.5	Achievements are communicated.			
	2.6	Achievements are celebrated.			
Innovation environment	2.7	Leaders enable and support creativity.			
	2.8	Leaders understand risk and support responsible risk taking.			
	2.9	Leaders commit to continuous improvement.			
	2.10	Leaders are supporting employees.			
Supported values	2.11	Support: supportive environment, empowerment, enablement			
	2.12	Collaboration: sharing of skills and knowledge, communication, trust, respect, openness, reliability			
	2.13	Involvement: engagement of employees, inclusion, commitment, uniting behind purpose, vision and strategy			
	2.14	Innovation-Mindset: enablement of creativity and innovation, flexibility, risk-attitude, embracement of failure			
	2.15	Goal-orientation: focus on result, actions, objectives, productivity			
	2.16	Integrity			

People					
Stakeholders	3.1	Partnerships, alliances and networks with important stakeholders are formed and fostered.			
	3.2	Stakeholder interests, influences and expectations are known and managed.			
	3.3	Stakeholders agree with project objectives.			
Employees	3.4	Employees have social skills, are creative and work well in teams.			
	3.5	People with the needed competences are employed.			
	3.6	The development of interests, career and personality is supported.			
	3.7	There is a development plan for employees.			
	3.8	Trainings are provided for employees.			
	3.9	Knowledge and competences of employees are fostered.			
	3.10	Health and safety are prioritized.			
	3.11	Employees work in a trusting, safe, effective and cooperative work-environment.			
Processes					
	4.1	There is a focus on (process) continuous improvement.			
	4.2	There is a focus on high quality throughout the project.			
	4.3	There is a focus on efficient and effective execution of all processes and activities.			
Project m.	4.4	Choosing the right approach for the project.			
	4.5	Using the right methods and tools for the project.			
	4.6	Planning of design, scope, time and financial aspects.			
	4.7	Decisions from portfolio management can be realized accordingly.			
Innovation m.	4.8	Actions from idea and portfolio management contribute to the successful execution of innovation projects.			
	4.9	Planning, control and check of innovation management is done.			
	4.10	Innovation Management helps to transform the company for the future, according to strategy.			
	4.11	Innovations are developed and commercialized.			
Resource m.	4.12	Needed resources are defined.			
	4.13	Needed resources are developed.			
	4.14	Available resources are applied.			
	4.15	Resource management is done in an efficient and effective way.			
	4.16	Needed resources are acquired.			

11 Appendix

Stakeholder p.	4.17	There is a successful supplier and partner process in place.			
	4.18	A customer feedback process is implemented and used.			
	4.19	Stakeholder engagement is ensured and practiced.			
	4.20	Communication during the project is effective, efficient and includes all parties involved.			
Results					
Performance	5.1	Effectiveness and efficiency is measured and evaluated.			
	5.2	The level of competitiveness of the project outcome is assessed.			
	5.3	The project outcome contribution to the overall balance of the portfolio is evaluated.			
	5.4	Measurement and controlling of following aspects: delivering strategy, contribution to business objectives, success of activity, respected timeline, sustainability results.			
	5.5	Financial results are measured and evaluated.			
	5.6	Market results are measured and evaluated.			
People	5.7	Satisfaction of customers is measured and evaluated.			
	5.8	Satisfaction of employees is measured and evaluated.			
	5.9	Satisfaction of other stakeholders is measured and evaluated.			