Utrecht University

Master Thesis

Project or process? The creation of a conceptual assessment framework

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A thesis submitted in fulfillment of the requirements for the degree of Master Business Informatics

Department of Information and Computing Sciences

May 3, 2021

UTRECHT UNIVERSITY

Abstract

Faculty of Science
Information and Computing Sciences
Master of Business informatics

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Organizations use projects and processes as ways to manage their work and tasks efficiently. Although both management forms have specific characteristics and situations for which they are suited, it is not always immediately apparent if something should be approached as a project or as a process. Projects can transform into processes, and some work cases can even be addressed both as a project and as a process. Few sources of literature or tools are currently available that provide indications on when a management form would be most appropriate. This research aims to fill this gap by developing a conceptual framework depicting several key conceptual characteristics of projects and processes and additional influencing factors that could help management in assessing their work. This study first established four key conceptual characteristics of projects and processes by conducting a literature review. With a case study, the found conceptual characteristics are enriched by characterizing the area between projects and processes and defining several important influential factors. The literature review and case study findings have been used to construct and design the conceptual framework, which ultimately has been validated with experts. The opinions of the experts indicated that the framework is perceived as understandable, useful, and complete relative to representing key conceptual characteristics. While the designed framework does not provide a complete overview of unambiguous recommendations, it enables to make rough estimations on which form seems to be appropriate and facilitates a foundation for discussing this dilemma within organizations.

Keywords: Project management - Process management - Management forms - Conceptual characteristics - Assessment framework

Contents

Chapter 1

Introduction

In the past decades, fast evolution in technologies, products, and services caused significant market changes. These developments also demanded organizations to constantly change their work and management (Turner & Keegan, 2000). To change and adapt the organization and successfully implement strategies applicable to the future, organizations should focus on 'aligning the organization', which could lead to improvements in their ways of performing work (Vargas et al., 2020). The management of work, in this sense, is a vital element for its survival in the future, but it also is an organization's way to deliver products, services to customers in an organized manner (Watson, 2006). Within organizations, every instance of work contains a smaller subset of tasks (Shafritz et al., 2015; Setti, 2010). All these instances of work, together with their relationships, need to be controlled and coordinated in order to achieve an organization's vision and mission statement (Ward & Griffiths, 1996; Scott et al., 1993; Watson, 2006). Since no definition is available regarding the management of work instances in the context of this research, an own definition of work is defined for this study. Based on the literature of Watson (2006); Shafritz et al. (2015); Scott et al. (1993) the following definition of 'work' is constructed that will be further maintained in this research:

> *"An intentionally composed collection of individual tasks which together attempt to achieve a common goal which is relatable to an organizations vision and mission statement".*

Focusing on how work instances within an organization are being managed; two strongly adopted approaches within organizations are project-based and process-based management (Turner & Keegan, 1999; Antoni et al., 2000). Project management is a common way for organizations to manage their work, and it seeks to accomplish work and tasks through the initiation of *projects*. According to Project Management Institute (2013), the concept of a project is temporary in nature and has a specific timeframe with a clear deadline. Each task within a project is unique and has a specific unique deliverable, i.e., a unique product, service or result. Consequently, projects are often undertaken to develop something new or unique (Marchewka, 2016). Before starting each project instance, strict planning of costs, time, phases, and scope should be conducted (Project Management Institute, 2013). Constraints on the performance of work are rigidly formulated and would ideally not be changed (Bekkering et al., 2001). Most literature states that efforts in project management are often geared towards executing work once in an efficient manner. Improved systematic working, increased transparency, customer orientation, employee motivation, and competitive ability have been linked as potential benefits of 'good' project management (Lappe & Spang, 2014).

Compared to project management, process management is a relatively new form of management (Morris & Morris, 1994; Rosemann & vom Brocke, 2011) and envisions the accomplishment of work in the form of *processes*. The concept of a process involves a certain number of successively executed tasks, events, and decisions (Dumas et al., 2018). Each work activity flows from one step to another step in the form of states, and several different instances of a process can be active at the same time.

Processes transform input into specified outputs, and this happens repetitively (Jeston & Nelis, 2014; Dumas et al., 2018). This means that tasks within processes are often cyclically performed several times, and the tasks within processes are of a non-unique nature. Moreover, processes are in theory, not bound to a specific time frame and are instead designed as never-ending as they are being refined (Jeston & Nelis, 2014; Dumas et al., 2018; Setti, 2010). The benefit of managing work into processes is that it enables an organization to work more efficiently by optimizing a designed process, potentially leading to improved operational performance (Rosemann & vom Brocke, 2011). This is being realized through designing processes, which aim to lower their operating costs, improve speeds of their iterations, enhance accuracy and reduce the number of used assets (Jeston & Nelis, 2014; Dumas et al., 2018). Moreover, it enables an organization to streamline their way of working by identifying redundant or inefficient tasks, along with the possibility of automating them. With a retrospective way of analysis, process management aims to find room for improvements that can subsequently improve the learning effects and transfer of experience from each process instance for future executions (Antoni et al., 2000). While providing opportunities for enhancing efficiency, managing work into the form of processes requires various efforts and investments in resources (Mutschler & Reichert, 2013).

1.1 Problem statement

The concepts of projects and processes both have their own specific characteristics. Not only the specific defined duration of a project versus the cyclical nature of a process, but the focus and goals are distinct. These differences in characteristics suggest that both management disciplines are suitable for different situations. Vast amounts of literature have already been written on project management and process management concepts, and one can easily find many handbooks and implementation studies. For both management forms, it is clear what their main definitions are and how they theoretically look at how organizations should manage their work. However, literature on both fields of study consists of generalizations and simplified explanations of concepts (Antoni et al., 2000). Both areas of study seem to mostly explain evident situations that would call for initiating a specific project or process and are thus lacking nuances. Interestingly, concrete overviews depicting characterizations of both management forms are also lacking in the literature. As a result, the characterization of both is too general to guide action upon and hide relationships between both fields (Antoni et al., 2000).

Few tools aid in putting the theory into practice and provide tangible indications on how certain work could best be managed and what conceptually characterizes a project or process. Some studies already indicated some criteria, drivers or triggers which suggest if project management or process management techniques would be required (Izanhour, 1982; Jeston & Nelis, 2014). However, these criteria lack details, are not practically validated and are created in isolation limiting the ability to reflect upon both management forms together, which underexposes the relations between them (Antoni et al., 2000). As a result, it is suggested that the dilemma between choosing one of the management forms is dichotomous and that only one management strategy suits certain work. However, there is not only one 'right' option in which work could be managed, meaning that when an 'unsuited' management form is chosen, work can still be performed but possibly imposes inefficiencies. The study by Adler et al. (1995) shows that this way of thinking in either 'right' or 'wrong' is too superficial and that well-functioning projects could be altered to a process orientation to improve efficiency and performance. These findings imply the presence of a certain transition area where the choice for either management form is not that obvious, but that the decision for either form is important in terms of efficiency. The transition area is indicative of a 'gray area' that exists between both, where

the choice for either seems arbitrary currently.

For organizations, it is essential to decide how they approach specific work, as assessing work either as a project or process has effects on the use of resources within the organization. For example, the deployment of personnel, the use of tools, and other resources differ significantly between both management forms. When a wrong assessment has been made, this could therefore lead to inefficiencies. As an illustration, when work is highly repetitive, there are many instances, and most of the tasks are event-driven, it would be rather cumbersome to initiate a project for each execution of work. This initiation would require an organization to compose specific planning and scheduling of scope, time, costs with distinct phases to be made, and new formation of project teams for every instance of work (Meredith et al., 2017). In this case, this inefficiency in efforts made would potentially likely lead to a loss of productivity and, as a consequence, a loss of financial resources for the organization.

1.2 Research aim and scope

The aim of this study is to fill the existing gap in research and to aid organizations and management in making their decisions in using either management form. By creating a conceptual framework, this research tries to provide a clear overview of conceptual characterizations of projects and processes and insight into the transition area between projects and processes where the choice for either is 'gray'. This framework will encapsulate important indications for using one of the management forms, which should enable the management of organizations to make better-informed decisions when they assess the management of their work.

Important to note is that this research has the aim to study the conceptual characteristics of work performed either as projects or processes, or factors directly related to these characteristics. Other facets that could influence the dilemma between choosing between the management forms but that are not directly related to the pure characterization of work are thus out of the scope of this study. Such facets of importance could include current knowledge on managing methods and techniques related to projects and processes and the deployment of personnel within an organization. The possibility of such facets exerting influence can also be deduced out of factors crucial for the successful use of project or process management which have been noted in several studies (Pinto & Prescott, 1988; Tarhan et al., 2015).

1.3 Research questions

As mentioned in the previous section, the goal of this research is to gain an understanding on when to decide whether work should be managed as a project or either as a process. This study will be guided by the following main research question derived from this goal.

> ***MRQ: When should organizations consider work either as a project, or as a process?***

To answer the main research question and further steer this research, several sub-questions with a narrower scope are defined. With the first sub-question, a set of conceptual characteristics of both projects and processes is defined. These characteristics will be compared to find the differences between both management forms. This is further used as input to examine the area between these conceptual characteristics further.

SQ1: What are distinguishing characteristics between the concepts of projects and processes?

With the second sub-question, the aim is to develop an understanding of where the conceptual definitions of characteristics do not entirely hold up, and the differences between a project and a process become unclear. These 'gray areas' will be subjected to research to find if characterizations of the gray area can be made and find if additional important influencing factors within this dilemma can be identified.

SQ2: How can the gray area between the concepts of projects and processes be characterized?

After getting a better understanding of the gray areas between the concepts of projects and processes, knowledge needs to be translated into tools to aid practitioners within organizations in deciding between the two forms of management. Therefore, this research will try to create a conceptual framework to encapsulate characterizations and directly related factors. The framework should indicate whether it would be sensible for organizations to address work either in the form of a certain project or a process.

SQ3: How helpful is the created framework in providing insights to practitioners relative to choosing whether to address work either as a project or as a process?

Answering SQ3 serves as an evaluation of the designed framework. With the use of expert interviews, this research will try to study if the designed artefact is helpful and provides insights into its intended business environment of practitioners who use project management and process management techniques.

Chapter 2

Literature review

In this chapter, scientific literature regarding the concepts of both projects and processes will be explored to provide context and a theoretical foundation for this research. The first section concerns defining what will be considered as a project and a process in this study. Secondly, current available criteria and drivers for the use of projects or processes will be discussed. Thirdly, literature that studied both management forms will be examined, followed by discussing two studies that suffice as the foundation for the characteristics studied in this research. Lastly, the findings will be synthesized to answer our first research question.

2.1 Defining projects and processes

Project management is, simply stated, a way for organizations to accomplish a set of important tasks into the form of specific projects. In this study, the definition of the Project Management Institute is adopted, which defines the concept of a project as follows; "A temporary endeavor undertaken to create a unique product, service or result" (Project Management Institute, 2013). From this definition, some essential characteristics can be deduced, foremostly the specific start and endpoint and often unique nature of projects. Thus, most work tasks are unique with a specific resulting deliverable to satisfy a clear goal or result (Project Management Institute, 2013; Meredith et al., 2017). While it might be that some tasks have some repetitiveness relative to other projects, it does not affect the fundamentally unique nature of the task (Project Management Institute, 2013). Due to the uniqueness of projects, there might be differences or uncertainties during the creation of products or services, which render existing procedures inadequate. Thus, the essential part of this discipline is that only work that is not part of business as usual is approached into the form of projects (Project Management Institute, 2013; Meredith et al., 2017). For example, the closure of an organizational branch would be a project, while the salary payment of employees not. According to Meredith et al. (2017), projects should be formed in order to "fix the responsibility and authority for the achievement of an organizational goal on an individual or small group when the job does not clearly fall within the definition of routine work".

Business process management (BPM) on the other hand, organizes work around processes. According to Dumas et al. (2018), a business process is: "A collection of inter-related events, activities, and decision points that involve a number of actors and objects, which collectively lead to an outcome that is of value to at least one customer". In this sense, customers are not necessarily only individuals outside the organization but could also be internal employees who use the result of a specific process within an organization. Business processes are a collection of events and activities with often a specific ordering (Dumas et al., 2018; Jeston & Nelis, 2014). Processes involve flows of information and materials from end-to-end while the tasks within a process have certain inputs and

outputs. Processes tend to have a cyclical nature conceptually, whereas they are designed to serve multiple process instances and could theoretically perform indefinitely (Dumas et al., 2018; Jeston & Nelis, 2014). In order for a process to be cyclical and serve multiple instances, the tasks within the process cannot be of a rather unique nature. If the output of tasks within a specific project would be rather unpredictable, it can not be used as input for the following tasks that require a specific input. Processes are thus focused most often on the long-term performance of day-to-day activities of an organization.

2.2 Current available indications

Currently, few studies provide global indications that would specifically call for either the management of work into the form of a project or process. Dumas et al. (2018) created a checklist with five items for identifying processes that help organizations define their processes and ensure correct scoping. From this checklist it is deducible that the concept of processes should need to have a main action applied to a category of cases, each case should be individually identifiable, and there should be at least three people involved. Besides these elements, the checklist does not necessarily indicate a complete overview of important elements or conceptual characteristics which need to be present for it to be considered as a process. It only illustrates if the essentials of processes can be identified at all. A similar checklist for identifying projects has not been constructed in the literature.

Attempts by Izanhour (1982); Jeston & Nelis (2014) have been made to define criteria and drivers when project or process management techniques should be considered. The comparison between both sets does not yield interesting insights in the context of this study. The sets of criteria and drivers do seem to stress the relationship between projects and processes with company objectives and goals but also mention rather trivial drivers and triggers such as the necessity of managing work of 'importance'. Additionally, one can argue that some mentioned drivers and triggers in the studies of Izanhour (1982); Jeston & Nelis (2014) could be applicable for project management as well as process management. Moreover, the list of Jeston & Nelis (2014) contains many superficial drivers and triggers that vary per organization, making it difficult to deduce conceptual characteristics.

For both project management and process management, non-profit institutes have created handbooks to help practitioners by providing guidelines and explaining key concepts. Interestingly, in the 'Body of Knowledge' handbooks (Project Management Institute, 2013; Benedict et al., 2013), the concepts of a project and process as well as for which evident situations they would be suited are only very briefly discussed. However, the small number of conceptual characteristics and definitions of a project and process are superficial and not explicated. The main focus of both bodies of knowledge is primarily on how the management of either a project or process could best be performed. In this sense, the handbooks assume that the decision for either management form has already been made.

2.3 Related studies

Research which already studied both the concepts of projects and processes in the same context is scarce. Only a few studies have been devoted to examining or acknowledging the relations between project management and process management. The studies of Adler et al. (1995); Griffin (1997) noted the transition from managing work as a project type into a process type and the improvements in cycle time. Adler et al. (1995) noticed that many similar flows of activities and sharing of resources

could be observed in different product development projects, which are mostly seen as something inherently unique. Besides the routine manufacturing of products, in at least some unique engineering organizations Adler et al. (1995) found several repetitive elements that rendered the use of process models and 'process approach' beneficial in terms of shortening development cycle times and efficiency. In addition, Adler et al. (1995) concluded that the incorporation of process management techniques produces efficiency improvements by broadening the organization's employees understanding on the operation of the organization.

In a conference paper of the Project Management Institute, Antoni et al. (2000) discusses process orientation in relation to project management. Antoni et al. (2000) illustrates some differences in terms of tasks and roles within both management forms using two case studies. With the case studies, Antoni et al. (2000) highlights the placement of projects and processes in organizations; projects should be of an operational nature and focus on accomplishing tasks and generate revenue, while processes should focus on capturing the experience of projects and feed them back into the organizations. Secondly, Antoni et al. (2000) study emphasizes the difference in how roles within projects and processes manifest. While providing some interesting insights regarding the organizational placement of the management forms and the differences in roles, further key characteristics are not explicated.

2.4 Differentiating characteristics

The previous sections illustrate the lack of knowledge on concrete indications when specific work is more inclined to project or process characteristic and the few available studies which propose a detailed overview of characterization between the management forms. No literature is currently available which directly allows for a comparison of the pure characteristics. Therefore, two studies that propose differentiating dimensions regarding the management forms will be used as a basis on which a set of conceptual characteristics will be derived along with interpretations.

2.4.1 Dimensions of Setti (2010)

In the study of Setti (2010), the combination of the models of project management and process management are studied, and notion is given to a gray area between both. Setti (2010) defines the conceptual differences between projects and processes on several dimensions or categories, which are further classified into main dimensions and 'peculiar dimensions'. While Setti (2010) provides a rather extensive enumeration of dimensions, most lack proper elaboration and interpretations on the conceptual characterization. Therefore, every defined dimension will be discussed below, along with an interpretation for this study.

Instances

Within the concept of a project, projects are undertaken to create and deliver a single result of something unique or out of the ordinary that require a new work method. This result could be a new product, service, result, or a combination of both (Marchewka, 2016; Project Management Institute, 2013). Besides the uniqueness of the result, most of the tasks within a specific project hold unique characteristics and are not conducted in other projects (Meredith et al., 2017; Marchewka, 2016). As already mentioned, some tasks within specific projects could resemble, or are comparable with, tasks within other projects and may show some repetitiveness. However, these tasks do not alter the overall fundamental unique nature of the work within the specific project (Project Management Institute, 2013).

Tasks within the concept of a process are, contrary to projects, not unique since they should apply to a set of cases. Every individual case within a specific process is called an instance, and several instances can be active simultaneously within the same specific process. The tasks in the process itself are performed at minimum several times and in a repetitive manner (Dumas et al., 2018). Multiple instances could possibly lead to the same outcome when the same sets of tasks are performed. However, instances within a specific process could also have different flows in the performance of certain tasks and their sequences. Consequently, different instances of the same specific process show some similarities or are relatable to each other in terms of the tasks they perform and the results they deliver (Dumas et al., 2018; Jeston & Nelis, 2014; Setti, 2010).

Duration

One of the essential characteristics of a project is the predetermined and temporary duration. In this sense, temporary does not relate to absolute time but refers to the beginning and endpoint. Staring a specific project requires estimating an end state or deadline, which will mark the completion of the project. Most projects have a deadline which acts as an ultimatum; the end date is fixed, and the start date should be determined (Marchewka, 2016). In order for a project to end, the predetermined objectives need to be reached or it should be deliberately terminated by stakeholders when objectives cannot be met (Project Management Institute, 2013).

The concept of a process addresses work which is in essence continuously and repetitively executed while predetermined procedures are being followed. A typical process is ongoing for as long as work instances enter the process and can operate indefinitely (Dumas et al., 2018; Jeston & Nelis, 2014). While processes conceptually do not necessarily have a start and endpoint, the individual tasks within a specific process do have specific time frames in which they need to be completed. All together, they form the cycle time of a process instance (Dumas et al., 2018). While it is more like that during the lifetime of a certain process, refinements are made, termination can occur when a process is not any longer beneficial for meeting the intended goals (Jeston & Nelis, 2014).

Task trigger

Projects are conceptually primarily schedule-driven, implying that tasks are executed on specific planned moments defined in a schedule (Meredith et al., 2017; Setti, 2010). The project schedule contains information about the scope of the product or service and the information on the resources and sequences of tasks between predefined phases (Marchewka, 2016; Meredith et al., 2017). The schedule is created at the start of a project and needs to be updated in the occurrence of unforeseen events (Marchewka, 2016).

Within the concept of processes, tasks are performed on an event-driven basis. A specific process consists of a collection of all possible tasks which could be executed by an individual process instance. Each specific process should comprise all possible deviations and exceptions that could occur. While some instances only require main actions to be performed, others require branches or loops within a process to be taken based on certain events that could happen. While during the designing of a process, the possible output or end states are predictable, the actual tasks being performed in a process are probabilistically and dependent on events (Dumas et al., 2018; Setti, 2010).

Closure

As a consequence of the temporary nature of projects, every project has a phase in which it is finalized and closed. This closure occurs when specific goals are achieved or the desired outcomes of the specific project have been realized. The closure stage could initiate a reallocation of resources, administrative work regarding the archiving of project-related information, and an evaluation of the overall performance of the specific project (Marchewka, 2016).

Processes are, on the contrary, designed to -theoretically- never end. A specific process should be designed to be able to serve an unlimited amount of process instances over time. Eventually, a process can be terminated when it does not fulfill the needs or goals of an organization. In reality, while being designed as never-ending, an important element of the management of processes is the redesigning and improving processes (Dumas et al., 2018; Weske, 2007).

Representation

In project management, graphical visualizations are used to depict the schedules and progress of specific projects. The common motivation for using these tools is to identify tasks that need to be performed, coordinate the execution of these tasks, and time management (Meredith et al., 2017). Often used tools are network diagrams or Gantt charts that depict the sequence in which tasks need to be performed across time. In order to provide information regarding the interdependencies between tasks, network diagrams are used (Meredith et al., 2017).

For the management of work into processes, a fundamental tool is process modeling (Weske, 2007). Process models are used to make specific processes within an organization more understandable for stakeholders, provide organizational improvement opportunities, and enable process stakeholders to put a specific process into the perspective of other work of an organization (Dumas et al., 2018; Weske, 2007). A particular process can be visually represented in different notation styles while depicting the collection of tasks, process flows, events, branches, and actors involved (Dumas et al., 2018).

Communication

Within projects, stakeholders with mostly varying backgrounds, interests, and information requirements need to communicate in order to share information resulting in a continuous search of efficient information sharing (Setti, 2010). Communication is essential for a well-managed project, and details on how the information will be collected and distributed should be captured in a project communication plan (Meredith et al., 2017). The communication plan details, for example, information needs and transmitting standards (Marchewka, 2016). Since teams in specific projects often are newly formed, project 'glossaries' are used to prevent communication problems (Setti, 2010)

Similar for processes, communication is an important factor for the efficient execution (Dumas et al., 2018). Since processes are conceptually performed more than once, and each process instance resembles other process instances, the employees involved in the process are familiar with the details of the process and its communication etiquette. Therefore, the lexicon is not a new phenomenon for each process instance, which makes the creation of a glossary unnecessary. Instead, work procedures are composed which describe how work is performed and. The language used is specific per application area or domain (Setti, 2010).

Time perception

The concept of a project addresses work with a definitive time versus the never-ending duration of the concept of a process (Project Management Institute, 2013). In addition to this, the perception of time and time management differs between both management forms. After determining the duration of individual project tasks, the complete project duration is determined. The individual tasks are assigned to project participants while taking constraints and limitations in availability into account (Setti, 2010). According to Setti (2010), the time flow in a specific project is different for each project stakeholder and is influenced by subjective psychological feelings.

For the concept of processes, the perception of time varies depending on the predictability of the specific process (Setti, 2010). For processes with highly predictable tasks, the execution time is schedulable with precision, while the scheduling of unpredictable tasks faces more uncertainties. Loops and different paths in processes make the overall cycle time probabilistic instead of predictable.

Moreover, according to Setti (2010) within specific processes: "The time in the process is often more a collection of events than of durations".

Ownership

According to Setti (2010), for both the concepts of projects and processes a distinction needs to be made between 'committed' and 'involved' employees. The general responsibility for managing a specific project can be accredited to the project manager who is 'committed'. The project manager role is concerned with the planning and organizing of a project, responsible for the day-to-day business activities, making trade-offs, and assessing risks (Meredith et al., 2017; Marchewka, 2016; Project Management Institute, 2013). Team members are 'involved' and perform the actual tasks while being selected based on the required skills (Meredith et al., 2017).

Similar to the role of a project manager, the process owner has the overall responsibility for the management of a specific processes and is 'committed'. The process owner role is assigned to ensure that a specific process is designed, deployed, monitored, and controlled while meeting effectiveness and efficiency expectations. Several other roles can be identified within the operation of processes varying per individual organization (Benedict et al., 2013). Most of these roles play a supportive role in tasks such as analyzing specific processes and performing the actual tasks and are regarded as 'involved' (Setti, 2010).

Talent & skills

For the complete collection of tasks within work entities, a categorization can be made based on different 'types-of-activity' that are taxonomized based on skills required for employees during their execution (Setti, 2010). The different type of tasks which need to be performed can be combined with the known skills of individual employees, skill mappings or skill inventories can be constructed which highlight which employees would be suited for certain tasks. For both projects and processes, a factor of influence on its success is the extent to which the skills of individuals are successfully mapped to tasks (Jeston & Nelis, 2014; Project Management Institute, 2013). Gap analysis could lead to finding to which degree skills are covered or overlapped between skills needed for tasks and skills owned by personnel (Setti, 2010).

Deviations from the baseline

Projects have to be flexible to cope with uncertainties and unplanned events that bring them from predetermined baselines. Uncertainties are the consequence of having unique activities of which cannot be known beforehand how these will manifest. Therefore, risks should be identified and analyzed before starting a specific project. When deviations occur, corrective actions need to be taken in the form of a re-baselining and updating the project plan and schedule (Meredith et al., 2017; Setti, 2010). Risks should be managed while making trade-offs between planned budget, deadlines, and satisfying the clients with the deliverables (Meredith et al., 2017).

Uncertainties and unplanned events during execution are also faced in certain processes. In the design stage of a certain process, most common paths are taken into account. Yet, there is still the possibility that unexpected events occur, or certain tasks are not represented to avoid complexities (Swinnen et al., 2011). Deviations require that specific processes are flexible and able to immediately correct exceptions and errors that occur during the execution of process instances (Setti, 2010). Corrective action depends on whether the deviation results from undesirable behavior or shortcomings within the designed process. Both cases ask to improve, refine and redesign a specific process to prevent future deficiencies (Swinnen et al., 2011; Dumas et al., 2018).

Organizational structure

Most projects often require a selection of multidisciplinary team members. The selection of the team members is mostly based on the necessary technical skills for a specific project (Meredith et al., 2017). As a result, certain projects often require knowledge from different functional departments, and thus crossing the functional boundaries within organizations (Meredith et al., 2017). However, some exceptional projects require a functionally based team and thus, only reside in one functional department (Project Management Institute, 2013; Meredith et al., 2017).

The same is applicable for the concept of a process; processes do not work efficiently with mostly functional-oriented organizations (Setti, 2010; Dumas et al., 2018). Often, specific processes are end-to-end, require knowledge for the execution of tasks from employees in different departments, and, therefore, cross boundaries of units (Jeston & Nelis, 2014). According to Jeston & Nelis (2014), processes mostly function well within process-oriented structures or matrix hierarchical organizations. Nonetheless, there are examples of certain processes that do not require crossing functional departments (Dumas et al., 2018).

2.4.2 Dimensions of Edelenbos & Teisman (2008)

Research on the relationships and differences between project management and process management has been conducted in the field of political science. Edelenbos & Klijn (2009) studied the differences in the perceived outcomes of both management methods regarding decision-making. In a similar context of public-private partnerships, Edelenbos & Teisman (2008) examined how to balance the use of both management disciplines in the cooperation between public-private partnerships. The comparison in this study resulted in the overview table 2.1 which depicts several key conceptual differences along several dimensions.

Dimension	Project management	Process management
Focus	Substance of the project is leading.A thoroughgoing analysis of the issues. Focuses on a sound, well-substantiated project proposal.	Process is leading. Focuses on the most important parties (their interests and views) and how to bring and keep them together.
Core element design	A thorough solution for the problems which makes the way of doing things obsolete.	A description of the process, which is intended to lead to a solution of the problems.
Generate support	Through the content of the initiative: it should be so good and attractive that it persuades everyone, even the criticizers.	Through the process: the relevant parties are allowed to influence the project, which makes it more attractive for them.
Dealing with dynamics	Through decisiveness and averting new possibilities: rapid and clear decision making; changing circumstances have no impact on this.	Through keeping options open and postponing selection and decisions:the initiative must remain attractive for the actors involved.
Communication	Consists of explaining the plan to the actors and persuading them of its merits. This follows decision making.	Is a process of discussion and negotiation. Decision making is the product of this.
Main problem	Result is not sufficiently accepted by the involved actors.	Creating acceptance via process and process rules takes time.

Table 2.1: Difference between project management and process management according to Edelenbos & Teisman (2008)

However, the fundamentals of both studies are biased to the context of strategies of cooperation and the decision-making process in the field of political sciences. While the definition for project management in both studies resembles the definition used in this study, the process management definition is quite different. In the field of policy sciences, process management and its definition is

focused on the cooperation,interaction and negotiation of different involved actors (De Bruijn et al., 2010; Edelenbos, 1999). Therefore, the characteristics and outcomes of both the studies of Edelenbos & Teisman (2008); Edelenbos & Klijn (2009) cannot be directly used in this research. Nonetheless, the aim of both studies and their way of making the comparison between two management models has resemblance with this research. The dimensions used in the study of Edelenbos & Teisman (2008) offer a potential basis for the comparison within this study. While these dimensions have some overlap with the dimension proposed by Setti (2010), some dimensions are more aimed at the differences on a management level and offer a different view on both concepts. In order to distill additional key characteristics, the dimensions and their corresponding conceptual characteristics are interpreted to the definitions used in this research. As a result, the following interpretations per dimension are defined.

Focus

Following the definition of Edelenbos & Klijn (2009) and Meredith et al. (2017), the concept of a project mainly focuses on the internals of the project content, which is a single problem that needs a new unique solution desired by an initiating stakeholder. Projects are primarily result-oriented, and as such, managing tasks in the form of projects lends itself for the execution of work, which is more geared toward innovation, significant change, and developing something new (Setti, 2010). The focus on significant change and innovation can also be observed from the taxonomy of project types by Wheelwright & Clark (1992). Moreover, projects focus on meeting performance criteria of planned budget, deadlines, and satisfying customers (Meredith et al., 2017; Marchewka, 2016).

The overall focus of the concept of processes is on efficiently managing individual repeated sequences of tasks that together fulfill a customer's need or desire. Processes are driven by increasing the repeatability of all tasks by optimizing and refining a specific process's overall performance. The concept of a process focuses on workflows that need to be optimized in the sense of improving their operational elements to reduce operational costs. In addition, the overall goal of processes is to continuously support and maintain the organization (Setti, 2010; Dumas et al., 2018; Jeston & Nelis, 2014).

Core element design

The core element of project management is, according to Edelenbos & Klijn (2009), a substantive and thorough method and final solution for a predetermined problem. Due to the reasonably stable nature of the problem and the required solution, the objectives, a schedule, preconditions and an agreed upon end product can be determined (Edelenbos & Klijn, 2009; Meredith et al., 2017). The management efforts within specific projects should be guided to accomplish the solution and are focused upon controlling the project on five features; quality, cost, time, organization, and scope (Meredith et al., 2017; Turner, 2009).

Based on the interpretation of Edelenbos & Klijn (2009), the core element for the management of work into processes is the description of the overall work-process in which tasks can turn inputs into outputs. Within the definition of a specific process, certain procedures and rules should be defined, which are used by process instances to flow through work tasks while taking different paths. The description of the work suffices as a way to handle multiple executions of collections of tasks and as a way for communication.

Generate support

The management of public-private partnerships projects or processes concern collaborations within organizations with extensive change and improvement programs (Savas, 2000). The public and private organizations involved have different scopes and profit motives, resulting in a strong need for

generating support between actors from different organizations when decisions are made (Edelenbos & Klijn, 2009). However, in the definitions of the projects and processes concepts in this study, there is no direct conflict in scope and motives between involved entities.

Dealing with dynamics

Edelenbos & Klijn (2009) stress the difference between the concepts of both the management of projects and processes in how they deal with dynamics. In this sense, dynamics refer to changes or deviations that occur in the problems, needs, or goals that are solved by managing work into either the management forms. How both the concepts of projects and processes handle these dynamics is already explained in the previous section at 'Deviations from the baseline'.

Communication

According to the definitions of Edelenbos & Klijn (2009), the management of work into specific projects or processes requires communication strategies. For the concepts of projects of processes within this research, specific communication strategies have not been proposed in the literature, but some particularities for both are discussed in the 'Communication' dimension in the previous section.

Main problem

Similar as is discussed in the section 'Generate support', within the public-private partnerships definitions used in the research by Edelenbos & Klijn (2009), the notion of problems mostly concerns problems that arise within the cooperation between large public or private entities. Relative to the definition used in this study, "main problems" relate more to the problems that either management forms try to solve and the goals they strive to achieve. The main problem that is solved with the use of project management and process management techniques is that organizations have methodologies to efficiently and in a structured way organize their work. Tasks are the atomic element of the individual work, and the way how these are executed differs per form of management (Setti, 2010; Meredith et al., 2017; Shafritz et al., 2015). The concept of a project solves the demand of organizations to structure certain work by performing and managing unique tasks. These tasks are executed once and have the goal to deliver a certain new one-off product or result (Meredith et al., 2017). The concept of a process solves the same demand of an organization by designing a process procedure with rules that apply to many cases. This results in cases of work that can repetitively be executed with the ultimate goal of optimizing and improving the overall process (Dumas et al., 2018; Project Management Institute, 2013).

2.5 Synthesis

The first sections of this chapter illustrate that the general conceptual definitions of projects and processes are more or less clear as to define where they are intended for on a rather superficial level. However, for both management forms, the characteristics are both focused on extreme cases, e.g., a one-time effort versus cyclical work. Further refinements on what lies between these conceptual characteristics of either one of the ways of doing work are not available from the literature or are not made explicit. Moreover, a clear and useful set of indicators that determines the requirement for the management of work in the form of projects or processes is lacking.

The studies of Setti (2010) and Edelenbos & Teisman (2008) provide interesting results regarding the categorization of dimensions on which the concepts of projects and processes can be differentiated. The dimensions of Setti (2010) provide some elementary characteristics for both ways of management, while the study of Edelenbos & Teisman (2008) emphasizes distinctions on management aspects.

However, not all dimensions mentioned in the studies of Setti (2010) and Edelenbos & Klijn (2009) are useful for this particular research. The dimensions 'Talent & skills', 'Organizational structure' and 'Time perception' in the study of Setti (2010) for example, do not show clear explicit differences on the concepts of projects and processes. Additionally, the dimensions 'Ownership', 'Communication' and 'Representation' mostly emphasize how the management of specific projects and processes should be performed. Therefore some dimensions do not offer specific insight on the difference of how the specific work can be characterized conceptually. Additionally, some interrelatedness between the dimensions can be observed. The dimension 'duration' refers to the project characteristic of having a specific beginning and end implying a phase of finalization, while the dimension 'closure' specifies for a project that there is a phase of breaking up the project team. In the same sense, for work to be 'Continuous and repetitive', there have to multiple different instances of work. One could argue the presence of certain relationships between the dimensions and that one of the characteristics is the consequence of the other.

For the previously mentioned reasons and to keep this research's scope manageable, four dimensions are chosen. These dimensions will be further extended regarding their conceptual characteristics and possible related influential factors. The chosen dimensions are deemed to be representative of key conceptual characteristics of projects and processes and offer several somewhat different points of view regarding this dilemma. An overview of the elected dimensions and a short interpretation of their conceptual characteristics based on the previous section are displayed in table 2.2.

Dimension	Concept of a project	Concept of a process
Instances	One instance which delivers an unique result through performing unique tasks.	Multiple different instances that show similarities or are relatable with each other
Duration	Temporary duration with a specific beginning and an end.	Continuous and repetitive, could theoretically perform indefinitely
Deviations from the baseline	Identify risks in advance and re-baseline the project when deviations happen	Immediately correct errors and exceptions, redesign and improve the process.
Focus	Innovation and significant changes while meeting performance criteria.	Optimize and refine the process in order to improve operational costs and time.

Table 2.2: Dimensions and characteristics studied in this research

Chapter 3

Research approach

This section will discuss the research methodology, research methods, and research techniques used during this research. First, the Design Science Research methodology of Wieringa (2014) is introduced. Subsequently, the research methods and techniques used within the phases of this methodology will be discussed.

3.1 Design cycle methodology

To answer the stated research questions and assess the gray area between projects and processes, the goal of this study is to create a conceptual framework. This framework solves an identified problem with the creation of a meaningful artifact. Therefore, the Design Science Methodology (Wieringa, 2014) is appropriate for this study. According to Wieringa (2014), design science is "the design and investigation of artifacts in context. The artifacts we study are designed to interact with a problem context in order to improve something in that context". With the Design Science methodology, artifacts are designed and investigated in a certain context through following an iteration of the 'Design Cycle'. The Design Cycle is a sub-cycle of the engineering cycle, which also concerns implementing the created artifact. Since the actual implementation of the constructed framework is out of this research's scope, the 'Engineering cycle' would not be suitable (Wieringa, 2014). An illustration of the Design cycle can be found in figure 3.1.

The Design cycle consists of three phases. The first phase of the cycle is 'problem investigation,' which aims to identify, explain, and describe the problem. The second phase, 'Treatment Design' concerns the creation of an artefact or solution for the previously identified problem . The third and last step is 'Treatment Validation' in which the created treatment, in this case the conceptual framework, is validated.

3.1.1 Problem investigation

In the first phase of Design science, the aim is to identify, describe, explain and evaluate the problem that will be solved to gain the necessary knowledge for the design of the artifact (Wieringa, 2014). This goal was reached by conducting a literature review and performing a case study. The literature review functioned as a starting point to find what has already been studied in both fields of study and define what is considered as a 'project' and 'process' in this research. More importantly, the literature study's goal was to determine a set of conceptual characteristics of projects and processes on which the comparison between both management forms can be made. The differences between the characteristics of both are most important to study, whereas these would indicate when it would be

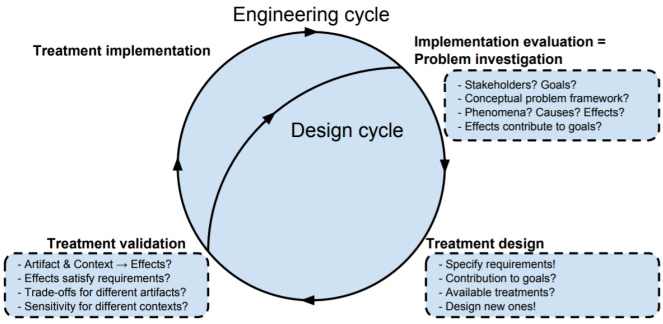

Figure 3.1: The design cycle as a sub-cycle of the engineering cycle (Wieringa, 2014)

more sensible to choose one over the other. The conceptual characteristics displayed in table 2.2 in the literature review were used as a foundation for further examination with the use of a case study.

The case study functioned as a technique to gain more knowledge in the practical setting of an organization on the differences between the conceptual characteristics of projects and processes found in the literature. A case study is an appropriate technique since both management forms always take place within organizational settings (Yin, 2012). The case study organization facilitated a realistic setting to closely examine the gray areas between the found conceptual characteristics. This setting enabled assessing several key elements; (i) whether the found conceptual characteristics in literature hold up in practice, (ii) define the importance between the characteristics, (iii) what further refinements in between these characteristics can be made, (iv) if certain relationships can be identified and (vi) examine if specific turning points or influencing factors can be identified. Insights on these elements yields a better picture of the transition area between projects and processes and potentially provides additional indications for important factors when choosing to address work as a specific project or process.

3.1.2 Treatment design

Based on the knowledge gathered from the literature review and case study, the second phase focused on designing the treatment or artifact, i.e., designing the conceptual framework. Since no previous research has tried to construct a conceptual framework that addresses both the concepts of projects and processes or concepts with any resemblance to this, a new type of framework has been developed. The conceptual characteristics found during the literature study, the characterization of the transition area and influential factors found during the case study were synthesized into the newly designed conceptual framework. The developed framework helps in assessing whether it would better fit certain work to be approached as a certain project or as a process. The function of the framework is to be an indicative point of reference for decision-makers when there is a need for a more informed decision.

During the design of the framework, synthesis matrices have been made to structure the results. Within these matrices, the observed findings were organized, supporting the synthesis of key sources and their analysis (Ramdhani et al., 2014).

3.1.3 Treatment validation

The last phase of the 'Design cycle' by Wieringa (2014) is concerned with the validation of the created artifact or, in this context, the framework. The method used for the validation of the framework was expert interviews to collect experts' opinions in the field. The created conceptual framework has been validated with experts on the degree it positively attributes, or is in any sense helpful, in deciding whether to assess work as either a project or as a process.

3.2 Literature review

The literature review has been conducted to answer the first research sub-question and has three functions within this research. First, it provides additional research context and discusses how projects and processes are defined in this research since definitions vary. Secondly, current indications in the literature for the use of project management and process management techniques are discussed together with related studies. Thirdly, the literature review aimed to find conceptual characterizations on which projects and processes can be compared. The literature study categorically examines essential theoretical differences and similarities between the concepts of projects and processes. This examination establishes a basis for comparing both management forms, which was used as input for the interviews in the case study. The protocol used during the literature review is defined in Appendix A.

3.3 Case study

A case study has been performed to answer our second research sub-question and extend the current knowledge on the gray area between the management forms. Case studies are useful to investigate and provide a deeper understanding of a phenomenon in its own real context, i.e., the intended organizational environment (Wohlin et al., 2012; Hevner & Chatterjee, 2010; Yin, 2012). In addition, case studies are suitable when the study concerns a phenomenon that is difficult to examine in isolation, and the nature of the research is exploratory (Wohlin et al., 2012). For this study, a case study was thus an appropriate and useful technique since it is impossible to isolate projects and processes out of their context, whereas they are part of a specific organization. Moreover, this study has exploratory characteristics since research that compares both ways of managing work is relatively scarce.

The type of case study design that was performed is an embedded single case study (Yin, 2017), which entails a case study in which a single case is examined based on multiple units of analysis. This type of case study was performed to examine several different completed projects at the case study organization on the found conceptual characteristics of projects and processes in literature. In this sense, the case study organization is the 'case' which has been studied and the multiple units of analysis are the different project studied within the organization. The reason for this type of case study is that this research aims to find insights and indications that are applicable for a multitude of different projects and processes. Therefore, examining one single project would pose the threat that only an exceptional case of work is examined. As a consequence, this would not reflect well how work is performed within the case study organization. The data in this case study was collected from semi-structured interviews held within the case study. The used case study materials and interview protocol can be found in Appendix B.

3.3.1 Participant and case selection

The participants that were consulted within the case study, were selected based on their function within the organization and their work experience. The functions which were selected to be eligible for participation are principal consultant, project leader, and consultants. The rationale behind this is that it is important to include perspectives from different perspectives on this topic. Presumably, a manager has a different look at projects and process characteristics compared to a consultant. This selection method means that the population is sampled with a maximum variation sampling technique (Etikan et al., 2016). Participation in this study also required a minimum of 2 years of work experience in their function. Employees who qualified for the research were asked first to complete a case selection survey and, at a later time, were invited for an interview. Information on the selected participants can be found in section B.2.

For the selection of projects in the case study organization to study, it was decided to rely on employees' expertise. This decision has been made since it is difficult to analyze previously executed or currently started projects as the researchers being outsiders. Every employee who qualified for an interview first had to fill in a survey. The survey described two fictional case scenarios, of which one has the conceptual characteristics of a project and the other of a process. The participants were asked to identify three projects within the organization of which they think have resemblance with either of the fictional cases. In addition, they had to identify a project within the organization that has characteristics that precisely fit in between the presented fictional cases. This yielded a set of projects within the case study organization which have the characteristics of a project, a process, and characteristics of both projects and processes. For each of these types, the most frequently mentioned projects within the organization were selected. Thereby, assumed is that the identified projects by the participants are correctly classified. Thus, the method used for selecting cases within the organization makes use of a typical case sampling technique (Etikan et al., 2016). The used case selection questionnaire and information selected projects, or cases, can be found in Appendix B.

3.3.2 Case study organization

The organization in which the case study had been conducted is a consultancy firm specialized in the field of the implementation of healthcare information systems. ilionx Hoorn (ilionx Hoorn, 2021) is a relatively young organization founded in 2007 with around 80 employees and numerous completed projects, of which some seem to have characteristics that are associated with processes. The organization is mainly oriented to the execution of projects and does not manage work in the form of processes at the time of this study. To define a scope for the projects of the case study organization studied in this research, only the projects that contribute to achieving the organization's mission and vision were considered eligible to study.

3.4 Interviews

During the case study, data was collected with the use of semi-structured interviews. Semi-structured interviews have an informal tone, create room for the conversation to take place and enable the researcher to ask follow-up questions. Therefore, the interviewees can easily share their knowledge and experiences (Wohlin et al., 2012).

The case study organization did not manage any work in the form of a process at the time of the interviews study. Consequently, employees presumably did not have profound knowledge

on the conceptual level of project and process management. Therefore, participants were given a short introductory explanation before the interviews on project and process management concepts and on both projects and processes' conceptual characteristics found in the literature. During the interviews, a project of the case study organization was studied, which the participant identified during the case-selection survey. During the discussion, participants were asked to argue why they classified the selected project as a project or process based on conceptual characteristics which were shown to them. Based on their argumentation, information is deduced regarding the area between the concepts of projects and processes. Before conducting the interviews, an interview protocol was constructed along with an informed consent which both can be found in Appendix B. The interviews were held with the use of online video-conference meetings due to COVID-19 measures taken by the Dutch government at the time of this study.

3.4.1 Analysis method

During the interviews, audio recordings were made, with the respondents' consent, and afterward transcribed. For the transcriptions, verbatim transcripts were created, which means that they literally capture all used words. These types of transcriptions keep the intention intact of how participants gave their answers as much as possible. Subsequently, these transcripts were coded thematically using the 'QSR NVivo 12' program (Flick, 2013).

In coding and analyzing the transcripts, two forms of analysis were used; inductive and deductive analysis. Deductive analysis has been used to build further on the knowledge from the literature review and find if more insight can be deduced. Therefore, the dimensions found in the literature review were used as themes to organize the findings of the interviews. In addition, an inductive analysis method has been used in the analysis to generate new theory. The inductive method served to discover and identify important factors that have not yet been described in the literature. The inductive analysis is performed following three steps; open coding, axial coding (focused coding), and selective coding (theoretical coding) (Flick, 2013; Boeije, 2014). The resulting coding scheme can be found in Appendix C.

3.5 Expert validation

The created conceptual framework has been validated using expert validation to answer the third research sub-question. With expert validation, the constructed framework was tested on the quality and efficacy by capturing experts' opinions collectively (Wieringa, 2014).

For the selection of experts, two types of experts were consulted for participation. The first type being experts that work in project management and process management consultancy organizations. These types of experts oversee the matter of either project or process management and how they apply in different industries and different organizations. However, this is from specialism and theory. Thus, they would not necessarily provide insights from the point of view of managers and employees involved in the direct practical execution of projects and processes. Therefore, also other experts were consulted in diverse industries, which are not deeply rooted in theory but can reasonably be expected of that they organize their work in projects and processes, and where the stated problems can arise around this dilemma. When an organization was found to be eligible and willing to participate, a contact person identified experts who were in diverse managing roles and were familiar with the concepts of both management forms. In addition, experts were asked whether they encountered

difficulties in choosing to address work in the form of projects and processes. The techniques used for the sampling are thus a combination of expert sampling and maximum variation sampling techniques (Etikan et al., 2016).

Fully structured interviews were conducted to collect information while maintaining a clear structure and order for all experts. The interviews were held using video-conference software, which enabled the researcher to observe the interviewee, answer questions and give further explanations (Wohlin, 2014). More importantly, all aspects incorporated in the designed framework have been thoroughly explained and placed into context. The interview protocol and informed consent used during the expert interviews can be seen in Appendix E.

3.5.1 Evaluation criteria

The validation aimed to test the designed framework on several criteria. To recall, the intention of the designed framework is to *"provide useful insights and encapsulate important indications for using one of the management forms, which should enable the management of organizations to make better-informed decisions when they assess the management of their work"* as stated in section 1.2. From this statement, three intended aspects of the framework are identified: (i) the framework should capture important elements which are necessary for making the decision between the managing in the form of projects and processes, (ii) the elements within the framework should be understandable in order for them to be of any added value and (iii) the framework should be useful when making the decision to address work in the form of a project or process.

In the study of Prat et al. (2015), a taxonomy of evaluation criteria is proposed for the evaluation of information system artifacts. Taking the prior mentioned intended aspects of the framework into account, four criteria of Prat et al. (2015) have been considered relevant to validate; completeness, understandability, usefulness, and operational feasibility. The definitions of these evaluation criteria were translated and operationalized to the study's context, which sufficed as guidelines for creating the interview protocol. The operationalized definitions can be found in table E.1. For each criterion, several questions have been formulated on which the experts were required to explicitly state if they expressed a supportive or opposed opinion on criteria. After which, they were given the opportunity to provide further explanation regarding their answer. Thus, when an expert strongly and explicitly answered that the framework was not found to be useful, this was reported as an opposed comment. Results of the expert validation are reported in the evaluation communication format proposed by Shrestha et al. (2014).

Chapter 4

Design of the framework

This chapter will concern explaining the design of the conceptual framework by describing actions that lead to the current design. The structure of this chapter will differ from previous chapters for the sake of traceability of the findings, which lead to the designed framework. In the first section, the designed framework will be shown, which suffices as a point of reference in the upcoming sections as fragments of the framework will be shown in upcoming sections.

From sections 4.2 up to 4.5, the conceptual characteristics of projects and processes will be discussed based on the four selected dimensions presented in the literature review. In these sections, the content displayed in the designed framework will be derived from the literature review and case study findings. To recall, the function of the case study is to enrich the findings of the literature study in the form of a characterization of the *transition area* in between the concepts of projects and processes. For each dimension, the conceptual characteristics found in the literature are restated, and the findings of the case study are discussed along several recurring themes mentioned in section 3.1.1. The findings of the case study will be discussed with the use of quotes from participants. Every individual dimension will be synthesized, and a framework snippet will illustrate the translation of the findings to the designed framework. These framework fragments will thus explain where the framework's content is derived and increase traceability of the content. The found relationships between the dimensions and several additional insights in the case study will be discussed in the subsequent sections.

Section 4.8 synthesizes the overall findings and provides overviews of interpretations that have been used during the construction of the framework. The synthesis is followed by discussing the justification and rationale behind choices of the design of the framework. This chapter will end with a short elaboration on the use of the designed framework.

Information regarding the examined projects and interviewed participants in the case study can be found in Appendix B.2. It is important to note that the studied projects within the case study organization are further denoted under the term 'cases' to avoid misinterpretations of the term 'project', in the following sections.

4.1 Designed framework

The designed conceptual framework which was created based of the findings of the literature review and case study is depicted in figure 4.1.

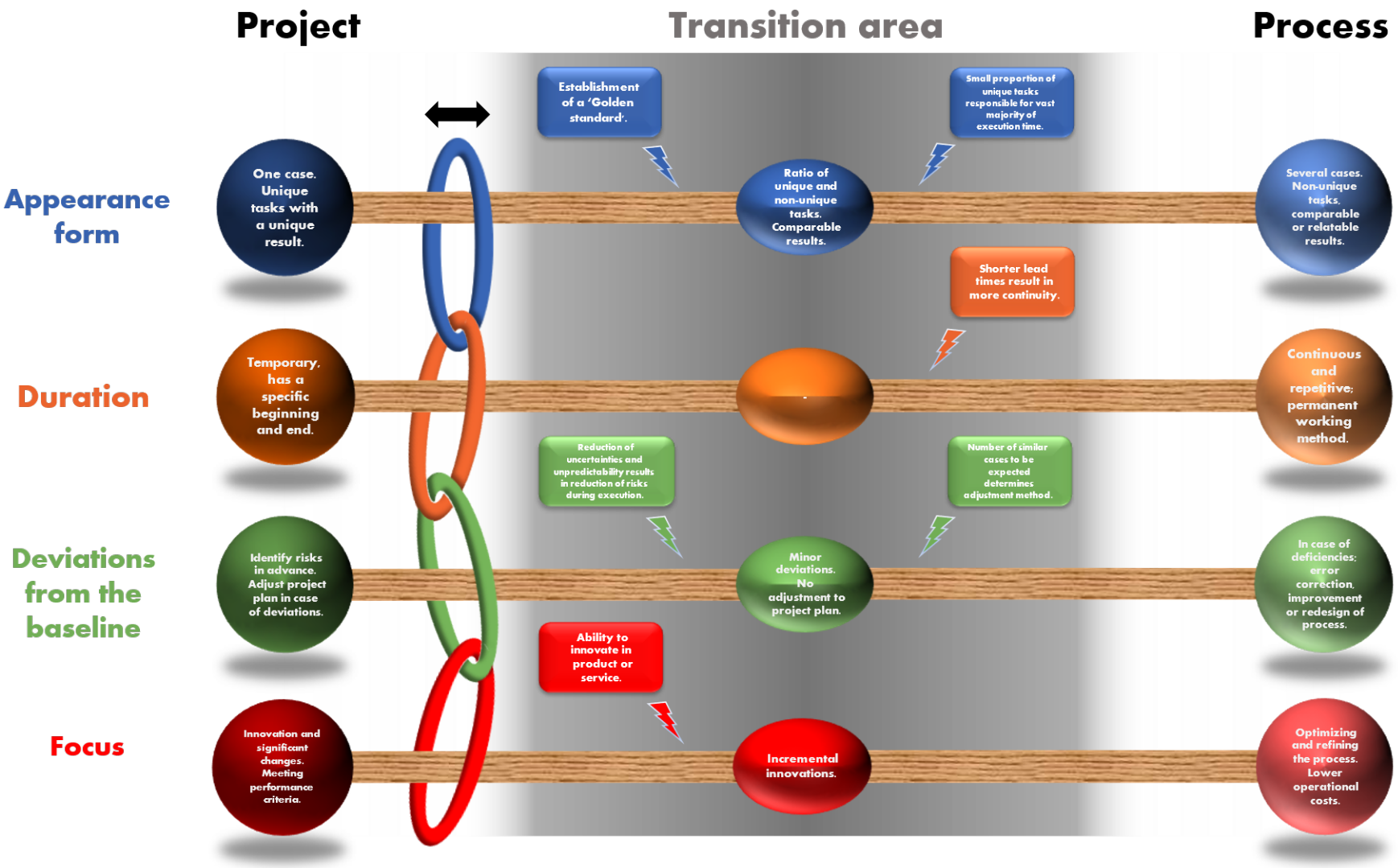

Figure 4.1: The designed conceptual framework

4.2 Instances dimension

Within the projects discussed during the interview, the participants could clearly relate to the 'instances' characteristics out of the literature review presented in table 4.1.

Dimension	Concept of a project	Concept of a process
Instances	One instance which delivers an unique result through performing unique tasks.	Multiple different instances that show similarities or are relatable with each other

Table 4.1: Conceptual characteristics of dimension 'Instances' as proposed in literature section 2.5

Although participants could relate to these characteristics, the defined conceptual process characteristic appeared to be missing the element of 'non-unique tasks'. These type of tasks were often mentioned while discussing the concepts of processes and two participants explicitly stated that they find this element currently missing in the defined characteristic.

> *"With projects, they are unique tasks. With a process that [work] is not that unique. I think that maybe that element in the dimension 'instances' could be a useful addition." – Participant 6*

During the interviews, it also became apparent that the terminology used to designate this dimension was, for several participants, challenging to interpret leading to misinterpretations. The term 'instances' was found somewhat abstract and suggested that something else was meant, resulting in some participants needing further explanation. For these participants, the translation was made with a particular appearance form in which work occurs or the term 'cases'.

4.2.1 Transition area

Based on the interviews, a transition area can be recognized between the conceptual characteristics of a project and a process in terms of the dimension instances. Participants mainly could relate the project characteristics to the first execution of specific work that mainly served as a foundation for further initiations. Several participants mentioned that the first project often could be a world of difference relative to the subsequent executions of a similar project as the consequence of removing imperfections and 'growing pains'. Subsequent executions of a case is beginning to acquire process characteristics in terms of the uniqueness of tasks. Some tasks were regarded as non-unique after a couple of executions of a case in the shift to process characteristics. This translated into proportions of unique tasks and non-unique tasks being recognizable in the execution of subsequent projects within the discussed cases. One participant also indicated these proportions by describing that a proportion of tasks in a certain case are the same for different customers, while another part varies.

> *"When I see these ['instances'] characteristics of projects and processes, I see both properties reflected in case 3. We have a front-end part that is set up the same for every customer, but especially if you look at certain 'special needs' that the customer may or may not have, then you will see the project [characteristics]." – Participant 1*

The task of work in the transition area consisting out of a proportion of unique and non-unique tasks seems to influence the end result of which they are part of. The resulting products and services of the discussed projects with the participants appear to be somewhat comparable with each

other. This similar result was illustrated by a participant stating that a product that needed partly unique and non-unique tasks to be established within a discussed case also resulted in a product that was partly the same and comparable for many customers. Thus, where projects, on the one hand, conceptually have unique tasks and unique results, and a process conceptually has non-unique tasks with comparable results, a combination of both can be observed in the transition area.

4.2.2 Unique tasks responsible for most execution time

While work in the transition area seems to consist out of a specific proportion of unique and non-unique tasks, a substantial amount of non-unique tasks did not specifically mean that participants classified work in this case as a process. Three participants indicated that work with a high percentage of non-unique tasks was still classified as a project because the unique tasks have a considerable influence on the execution of work and the time to perform these type of tasks.

> *"If 75% of your work consists of routine, you probably would fly through those tasks. However, that 25% of unique tasks takes the most time." – Participant 8*

Interestingly, a participant also related this proportion between unique tasks and their execution time to the Pareto principle (Dunford et al., 2014) which states that 80% of the consequences come from 20% of the causes, which appeared to be comparable to proportions mentioned by others.

> *"I think that the 20-80 rule is applicable. That 20% of those exceptions, do consume 80% of your time." – Participant 2*

Thus, a small proportion of unique tasks in a specific case of work could be responsible for a large proportion of execution time. Additionally, work with large proportions of non-unique tasks can still be regarded as project-like work.

4.2.3 Indications for a turning point

Few indications were found for a specific turning point that would denote the change of work from project to process characteristics on this dimension. While some participants observed percentages of non-unique tasks as a turning point, conflicting information on the assessment of these proportions have been noted.

4.2.4 Emergence of a 'golden standard'

In certain discussed cases within the organization, a formation of a 'golden standard' was recognizable in which a base set of tasks was formed. This formation has been deduced from two participants stating that a particular transition is recognizable in the transition area of this dimension. After few executions of a certain case, a basis of non-unique tasks establishes that remains applicable over subsequent executions of specific work. According to the participant, a certain point was noticeable after two or three executions of the concerned case, after which this basis, or 'golden standard' as mentioned by him, was formed.

> *"We often see that the second or third customer where we implement, where we have to do the same thing, becomes our kind of 'golden standard'. From there on, you see that it directly becomes a process. They often do it one, two, three times to learn a little, to fine-tune and, therefore, also to improve." – Participant 8*

A different participant also noted the shift to process characteristics in the same project and indirectly affirmed this formation of this 'golden standard'. The formation of a 'golden standard' is reflected in the participant observing that work tends to standardize and set up in the same way while a small part varies as illustrated in the following quote.

> *"There is also a lot more standardization than with the first [execution] where you implement it as a project. Back then, there was no standard yet, and we still had to develop it, so you are really in that project way of working. But after those first executions or the first two executions, it is all documented and set up in the same way. Then you really go towards 99% process-based work." - Participant 1*

Several participants directly or indirectly also gave notion to the formation of a 'golden standard'. These participants observed this influential factor in different cases, of which some were regarded project-like and others process-like. Thus, the formation of the 'Golden standard' is not reserved for only one management form.

4.2.5 Synthesis

During the case study, the designation 'instances' for this dimension was found to be confusing on several occasions, resulting in a need for changing the designation to 'appearance form'. Additionally, the conceptual characteristic of a process in this dimension was found to be lacking the 'non-unique' element of work. Further, the transition area between the concepts of projects and processes work is characterized by partly unique and partly non-unique tasks and somewhat comparable results. Two influential factors have been observed that influence the transition area of this dimension. Participants indicated that after several executions of specific work, a standard package of tasks establishes which suffices as a 'Golden standard'. A second observable influential factor was that a small proportion of unique tasks could be responsible for most of the required execution time. Combining these case study findings on the transition area with the findings from the literature on project and process characteristics depicted in table 4.1, yields the following framework fragment in figure 4.2.

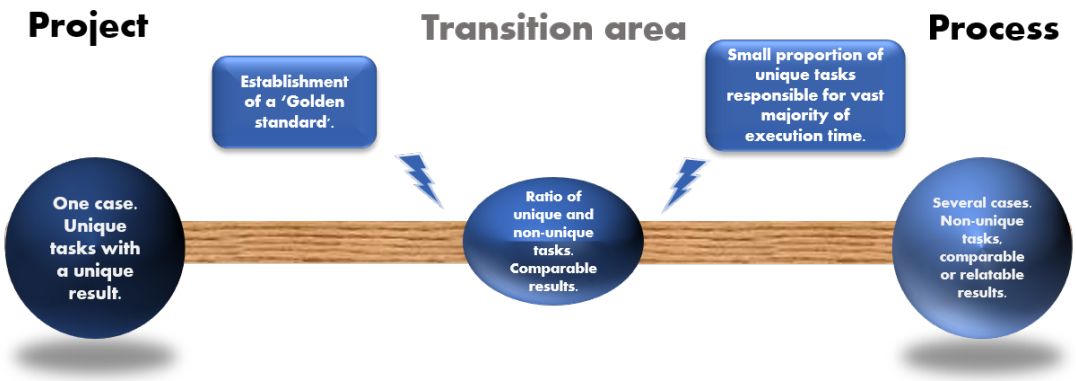

Figure 4.2: Framework fragment of dimension 'Appearance form'

4.3 Duration dimension

The dimension duration referred to work being characterized either finite in time with a temporary nature or work being continuous and repetitively performed as displayed in table 4.2.

Dimension	Concept of a project	Concept of a process
Duration	Temporary duration with a specific beginning and an end.	Continuous and repetitive, could theoretically perform indefinitely

Table 4.2: Conceptual characteristics of dimension 'Duration' as proposed in literature section 2.5

Within the studied cases, most participants could directly relate the conceptual project characteristic to their work. However, from the interviews, it became apparent that generally, participants found it relatively more difficult to relate to the characteristics of a process in this dimension. Many misinterpretations of the concepts were noticed as a result, and some participants needed further clarifications on the concepts. A proportion of the participants initially interpreted that only a project could have a beginning and endpoint while a stand-alone process execution or instance also has a specific beginning and endpoint. Therefore, they regarded most of their work purely as projects and could not reflect on the characteristics of a process. A possible explanation for this could be that participants found it difficult to view the work they perform from the organization's perspective instead of the perspective of themselves. An illustration of the potential influence of perspective can be seen in the following quote from a participant.

> *"I think it [the case] is a project it is actually a clear characteristic. I think that for me also sums up a project because you always know that it is temporary. That is also the nice thing about the job, that you just know; sometimes a project does get extended, or you get a follow-up project. But in any case, you know, I will work at a certain hospital often for several months." - Participant 5*

Moreover, some participants did not interpret the dimension 'duration' to the proposed characteristics but instead related the term duration to a certain absolute timespan. Therefore, some assessed projects and processes in terms of long or short periods of time illustrated by the following quote.

> *"Some processes go on for years, but there are also projects that go on over several years. There are small projects that are almost completed within one day and yet have all these other characteristics, and there are processes that are completed in one day. I would find it very difficult if I had to decide on that alone." - Participant 8*

4.3.1 Transition area and turning point

Partly due to the previously mentioned misinterpretations, the interviews yielded no clear insights into a characterization of the area between projects and processes regarding the dimension 'duration'. Still, one of the interviewees explicitly noted the gray area and the spectrum between these two characteristics. However, this interviewee did not give direct or indirect further insights into this area.

> *"It [the case being discussed] is also somewhere on the line. It is not black or white, it is gray in there." - Participant 9*

In addition, no indications for a specific turning point emerged during the interviews when certain work would move from project to process characteristics on this dimension.

4.3.2 Influence of lead times

Although the absolute duration was not initially part of the characteristics in this dimension, several participants addressed the influence of lead times on their decision-making. Cases at the case study organization that tended to be experienced as 'long' in terms of absolute timespan, e.g., more than a year, were more likely to be categorized as a project overall. An underlying reason for this phenomenon seemed that there were many opportunities for the environment around the case to change during cases that were regarded as relatively long in lead time. Two respondents mentioned that during cases that lasted 12 months on average, the technology had already changed so much that the result at delivery was already outdated and affected continuity. Thus, software and hardware used in one case were too old or no longer available for a subsequent case. This resulted in the need for constant innovations and the necessity of different tasks and specific steps illustrated by the following quote.

> *"The possibilities of software but also hardware innovate very quickly. A server from three years ago is simply no longer available. So, you have to go to a new server with new maps and everything that comes with it." – Participant 4*

4.3.3 Synthesis

Although participants could recognize the conceptual characteristics of projects in their work, participants seemed to find it more difficult to relate to the conceptual characteristics of processes in this dimension. Many misinterpretations lead to no further indications on a characterization of the transition area. However, the presence of an influential factor has been noted during the case study. It appeared that work with long lead times seems to tend less easily towards process characteristics due to many potential developments that cause variations and less continuity. Combining the observed influential factor in the transition area with the findings from the literature on project and process characteristics depicted in table 4.2, yields the following framework fragment in figure 4.3.

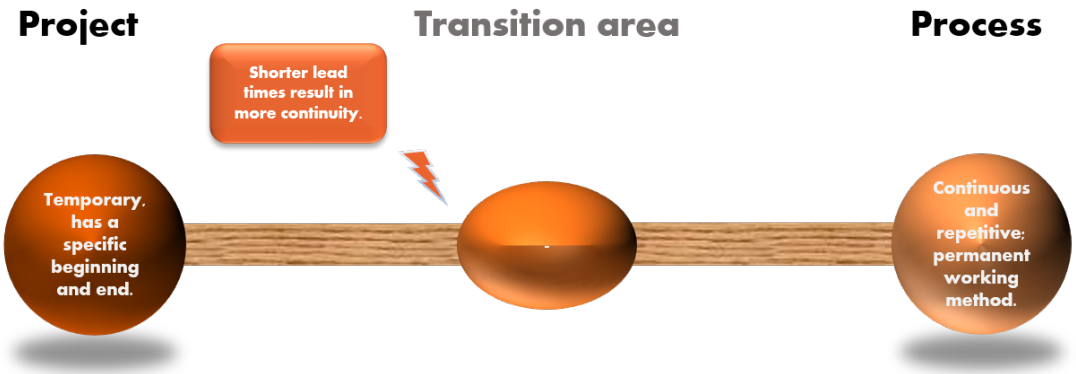

Figure 4.3: Framework fragment of dimension 'Duration'

4.4 Deviations from the baseline dimension

Interviewed participants could all relate the conceptual characteristics depicted in table 4.3 to how work is performed within the case study organization. Also, few difficulties were noted in interpreting the characteristics of this dimension.

Dimension	Concept of a project	Concept of a process
Deviations from the baseline	Identify risks in advance and re-baseline the project when deviations happen	Immediately correct errors and exceptions, redesign and improve the process.

Table 4.3: Conceptual characteristics of dimension 'Deviations from the baseline' as proposed in literature section 2.5

4.4.1 Transition area

During the interviews, a transition area between the project characteristic and process characteristic was observable. This transition area seemed to be characterized by a variable degree of deviations that could occur in work. Based on the interviews, the possibility of deviations is of a lesser extent during the execution of work that was regarded as having process characteristics. This characterization also implies the presence of a relatively higher degree of deviations in projects that can occur during their execution.

> *"It [case 1] simply offers fewer and fewer possibilities to bring deviations within the product. So, if you see it in that way, a shift from previous cases to new cases, I see a shift to more and more process-based work." – Participant 5*

The possibility of deviations is thereby related to two factors. The first factor of influence is the number of deviations occurring. Participants described that they observed fewer numbers of variations and deviations from the established basis in work which was classified as having process characteristics. The second factor of influence is the magnitude of the occurring deviations. When work tends to be oriented towards the process side, the deviations are less severe and have less drastic consequences. Conversely, projects seem to be characterized by more consequential deviations, as illustrated in the following quote.

> *Interviewer: "So it is actually also the size of the risk?" Participant 1: "Yes indeed. Is it an unexpected thing that has no influence on the scoping or the planning? Or is it [the deviation] so minimal that we will not be bothered by it if we implement it in this way? But will it ensure that you will not achieve your planning, or will the scope suddenly completely change? Then the plan will be re-established with the customer. Otherwise, you cannot continue."*

As a consequence of work towards the process side appearing to be less affected by deviations, there are indications that this also influences the need for adjustments in the project plan. Several participants observed that in some cases at the case study organization, which was classified as in between the project and process characteristics, less radical deviations did not make it necessary to adjust the project plan. Participants stated that the deviations that occurred were not of such a large extent that the project and its according plan would be undermined. As a result, a change in the project plan was not necessary to determine a new course of actions. Thus, work in the transition

area of this dimension seems to be characterized by that it must deal with fewer and less extensive deviations. In addition, it seems that as a consequence the project plan does not need to be altered or needs to be adjusted less quickly because of this.

4.4.2 Indications for a turning point

During the interviews, no clear indications emerged from the interviews for a specific turning point regarding the characteristics of this dimension. One participant did mention that the moment variations within certain work would be predictable and entail low risks during execution can be seen as an important point. According to the same participant, this would result in a project leader with less experience could be held responsible for managing work.

> *"I now realize that maybe that is also some kind of important milestone. The fact that you can have it [certain work] carried out by a junior project manager. That there is high degree of predictability, smaller risks involved. That already shows that it is more on the side of processes than projects." – Participant 9*

4.4.3 Influence of expected new cases

An influencing factor that was recognizable during the interviews was the expectation of comparable new work entities. Expected instances of work in this sense relate to the number of cases that an organization will be executing with a relatively high probability in the near future. The expected new cases of certain work affected how deviations are handled. This number of expected executions of a case influenced how people view the improvement of the method of working or prepare for upcoming cases when deviations occur. A participant stated being more inclined to recognize the process characteristic in work, thus improving the process or method of working and preparing for the future, when knowing that several executions of a certain product would shortly follow. Conversely, a participant stated that if there is only a rather small number of expected similar cases or workflows to be expected soon, it would not be worth the effort to redesign and improve the method of working. Namely, this would imply that the method of working needs to be revised and ultimately formalized.

> *"Getting an extra branch [in the process] for a customer who has one web server, that change would probably take so much time to implement that. While so far, we only have two out of twenty who have one web server. So, then it is not worth it." – Participant 8*

4.4.4 Influence of risks, uncertainties and unpredictabilities

A second influential factor that affected whether something was assessed as a specific project or as a process that was recognizable during the interviews was the involved risks during the execution of work. Participants mentioned that work that has project characteristics are quite risky for the organization in their operation. In this sense, potential risks for the company were characterized as risks in the loss of man-hours, money, and risks for the customer. Interviewees mentioned that these risks arise mainly due to uncertainties and unpredictability in the activities that occur during projects. Both uncertainties and unpredictability are the consequences of, for example, the customers unpredictable nature in their requirements and needs. This unpredictable nature would result in a need for a project management way of working because this involves a project leader who would monitor the scope and planning according to an interviewee.

> *"The customer component makes that risks are involved. That it [case 2] is concerned with unpredictable things, and you have to manage it as a project." - Participant 9*

One participant explicitly noted the shift in uncertainties and unpredictabilities in the transition area of the conceptual characteristics of projects and processes. More specifically, the participant noted that a decrease in uncertainties and unpredictability during execution results in a reduction of potential risks and a shift to process characteristics.

> *"In the spectrum where you have a process on the one hand and a project on the other, it shifts more to the process-based side. If you look at it like that, if the risks decrease, and the predictability increases, then it shifts within that spectrum." – Participant 9*

These findings seem to be consistent with what has been stated by other participants, which indicated that when a certain standard is formed that often satisfies customers, fewer varying elements occur. These less occurring variations imply that there is also less chance for unpredictabilities to occur. Additionally, within the literature, review the term 'uncertainty' has several times been used in relation to project management literature.

4.4.5 Synthesis

During the interviews, a dependency on the degree of deviations that occur during work performance has been observed, wherein the transition area, mostly minor deviations seem to appear. Additionally, the degree of deviations occurring influences the necessity of adjusting elements in the project plan. Besides the characterization of the transition area, the presence of two influential factors has been observed. The first observed influential factor relates to the number of expected instances or similar work cases that influence how deviations are handled. The second observed influential factor expresses that there are relatively many unpredictabilities and uncertainties within the concept of projects that make them riskier in execution. In contrast, there appear to be more predictabilities and certainties during the performance of specific processes, resulting in them being less risky ventures for an organization. Combining these case study findings on the transition area with the findings from the literature on project and process characteristics depicted in table 4.3, yields the following framework fragment in figure 4.4

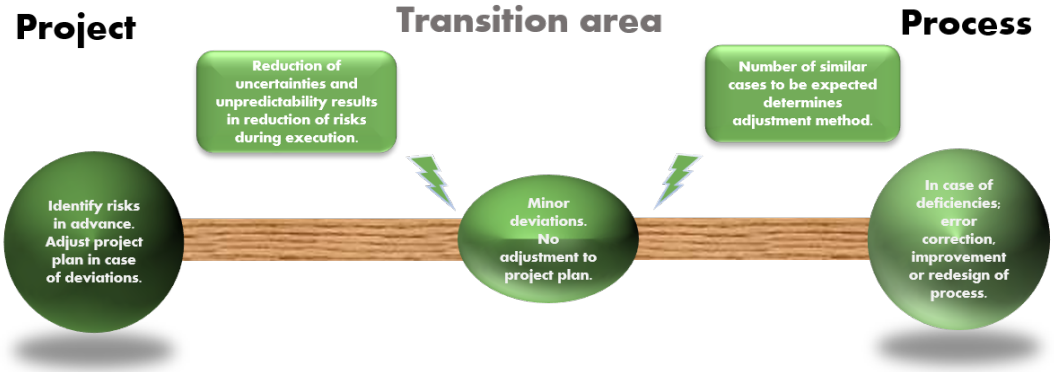

Figure 4.4: Framework fragment of dimension 'Deviations from the baseline'

4.5 Focus dimension

The interviews conducted with the participants indicate that participants were able to reflect the conceptual characteristics displayed in table 4.4, to the way of performing work within the case study organization.

Dimension	Concept of a project	Concept of a process
Focus	Innovation and significant changes while meeting performance criteria.	Optimize and refine the process in order to improve operational costs and time.

Table 4.4: Conceptual characteristics of dimension 'Focus' as proposed in literature section 2.5

However, when the conceptual characteristics were presented to the participants, the term 'innovation' in the conceptual project characteristics initially raised questions for some participants. A few participants indicated that they find the term 'innovation' ambiguous and openly asked how it should be positioned within the organization's work. The suspicion is that participants were particularly unsure about what exactly innovation entails and from which perspective it should be viewed.

4.5.1 Transition area

During the interviews, a transition area between the conceptual characteristics of projects and processes was recognized in certain studied cases within the case study organization. This transition area is characterized by a shift in the degree of innovation and significant changes. While within the concept of projects, work seems to be focused on significant changes and innovations, some participants indicated indirectly or directly that work that tends more towards process characteristics also innovates, but to a smaller degree. As illustrated by the quote below, one of the participants stated that in a studied case which the participant regarded as more process-like, innovations where of a minor and less impactful nature.

> *Participant 3: "You have major innovations and minor innovations. Case 2 can also innovate, also does provide quality improvement, and takes away errors. That is also innovation, of course, ensuring that fewer errors are made on the work floor as a result of the new registration process, or whatever you adapt." Interviewer: "And with case 2, by the way, there you see minor innovations. Participant 3: "Yes."*

A participant with a detailed description also illustrated this characterization of the transition area. In the description, the participant indicated that at the beginning of the executions of a certain case, the focus was on major and significant changes. This focus altered as further executions took place. The participant observed that the significant changes and innovative nature became less, where more guided towards fine-tuning and was more concerned with less drastic changes.

> *"The first to the second customer is: change everything as long as it gets better. From the second to the third customer, a few changes should be possible but we should not go back and 'turn' 180 degrees from that second customer. And from the third customer, changes are good but with the right rationale and necessity." – Participant 8*

The participants could also recognize the focus on achieving performance criteria or reducing operational costs in the studied cases at the case study organization. However, during the discussion of

the selected projects, no clear indications for a specific characterization of the transition area emerged. While these characteristics appeared several times as a focal point in specific cases, participants discussed them mostly separately from innovation and optimization characteristics.

4.5.2 Indication for a turning point

During the interviews, no clear indications were found for a concrete turning point or initiating factors for a turning point aimed at this dimension's characteristics. One participant did suggest that in one of the discussed projects, a turning point occurred quite abruptly from the second to the third execution of a case.

4.5.3 Influence of the ability to innovate

Besides work in the transition area being characterized by minor and less drastic innovations, a product or service ability to further innovate and develop seems to be an additional influencing factor in this dimension. During the interviews, four participants indicated this dependence on the ability to innovate and change relative to whether they assessed a case as having project or process characteristics. Products or services that still had a lot of potential for further innovation and improvements offered room to innovate and thus, develop further. In this sense, products and services that still had a possibility for innovation seemed more tending towards project characteristics. Contrasting, products or services with less room for innovation seem to lean towards the processes side, as illustrated in the following quote.

> *"In the past, it was perhaps more possible to be innovative within case 1 and to deviate from the well-known paths. In that context, I would say that more and more case 1 is moving more from project-like characteristics, to process characteristics." – Participant 5*

4.5.4 Synthesis

In this dimension, work in the transition area between the concepts of projects and processes seems to be characterized by less extensive changes. Additionally, work seems to concentrate on smaller and less substantial innovations. The presence of an influential factor in the transition area has also been observed. Besides the characterization of the extensiveness of innovation or change, the ability a product or service has to innovate, or change seems to influence whether work tends to projects or process characteristics. The interviews indicated that when a product has already been very well developed and few innovations are possible, work tends to process characteristics. Combining these case study findings on the transition area with the findings from the literature on project and process characteristics depicted in table 4.3, yields the following framework fragment in figure 4.5.

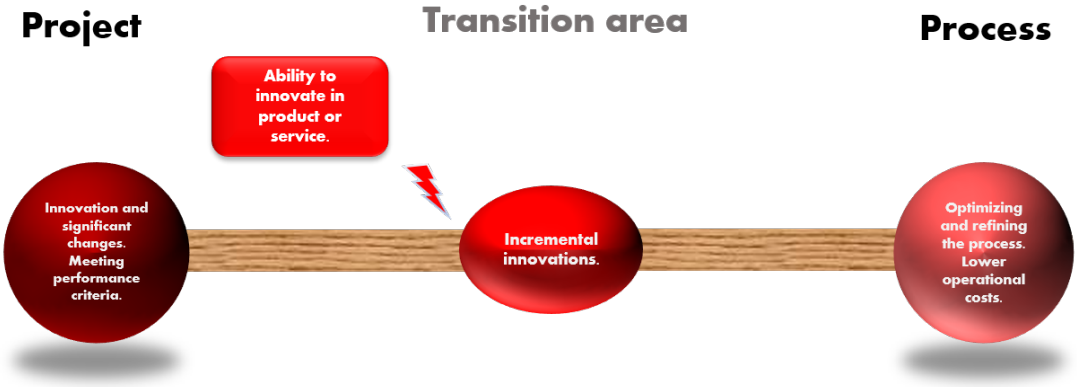

Figure 4.5: Framework fragment of dimension 'Focus'

4.6 Relationships between dimensions

From the interviews with the participants, strong relations and interrelatedness can be recognized amongst the dimensions. The interrelatedness between the characteristics was explicitly confirmed by participants who stated that they observed this connection and relatedness between the different dimensions. One participant also argued that technically, work could not have project characteristics in one dimension while having process characteristics in another dimension.

> *"I do think that it all belongs together. You cannot say something is continuous and repetitive, but then you say; you are going to innovate and make improvements continuously. Then these [characteristics] will clash with each other." [...] "If you ask, with a temporary project with a certain start and endpoint, can you optimize and reduce costs with it? Then I already think that it is not possible. Because you do not yet know where you can reduce costs and what you are going to build. – Participant 8*

Reaffirming, participants almost all made their classification exclusively in the same way. Work that was mostly classified as a project on one dimension was also classified as a project in other dimensions or being in between the characteristics. Thus, no cases of work within the case study were observed with both clear project characteristics and process characteristics at the same time. It also is noteworthy that all participants repeatedly mentioned dimension specific conceptual characteristics across different dimensions in their argumentation. For some participants, it also seemed difficult to discuss the characteristics in isolation. These indications suggest that the characteristics are strongly interdependent and interrelated, whereby the characteristics do not operate in isolation. Consequently, it seems that work cannot have clear project characteristics in one certain dimension, while in other dimensions, it also has clear process characteristics.

4.6.1 Most important and difficult dimension

There was no consensus found on which dimension was considered most important to examine when classifying work as either having project or process characteristics. All dimensions were named

several times by participants and the argumentation differed heavily. These conflicting results were also observed regarding which dimension was considered the most difficult or least clear to assess.

4.6.2 Decisiveness and completeness of dimensions

During the interviews, almost all participants indicated that the set of formulated characteristics was generally decisive enough to choose to approach work as a project or as a process. The chosen dimensions along with the formulated characteristics, seemed to reflect enough indications to make an informed decision based on the pure characterization of work according to the participants.

Only one participant indicated that the elements 'structure' versus 'flexibility' in the dimensions could be lacking. The participant stated that projects require a higher degree of flexibility and that it can use only documentation on a high level of abstraction. In contrast, the participant observed more emphasis on structure and documentation that goes into details within processes.

4.7 Additional found insights

Although the scope of this research is primarily on the pure characterization of work, the presence of certain other facets not directly related to the characteristics emerged during the interviews. In addition to the conceptual characteristics, participants explicitly indicated that they thought certain elements in the organizational environment of a project or process were of influence within the dilemma between the management forms. These facets indirectly influenced whether some of the cases studied would tend to be characterized as a project or a process type. In Appendix D, these facets will briefly be discussed.

4.8 Overall synthesis and interpretations

Based on the interviews held in this case study, the validity of the conceptual characteristics of projects and processes proposed in the literature review in table 2.2 have been confirmed. Participants could mostly relate to the chosen dimensions and formulated conceptual characteristics of projects and processes, and several improvements to the conceptual characteristics have been noted. Specific turning points for the characteristics or certain initiating triggers within the dimensions were not observed during the interviews. Yet, in all dimensions, transition areas seemed to be present between project and processes' conceptual characteristics in the case study. In the dimension 'instances', 'deviations from the basis' and 'focus', also characterizations of the transition area were recognizable. To organize and structure the found conceptual characteristics from the literature review and the case study, a synthesis matrix (Ramdhani et al., 2014) has been made in table 4.5. Within the table the conceptual characteristics underneath the columns 'Projects' and 'Processes' have herein been derived from the literature review. The conceptual characteristics in the column underneath 'Transition area' have been derived from the findings of the case study.

In addition to the characterization of the transition area, influential factors in the transition area have been observed during the case study. For each dimension, influential factors have been noted that influence whether work tended to project or process characteristics in a specific dimension. An overview of the found influential factors can be found in a synthesis matrix Ramdhani et al. (2014) in table 4.6. Additionally, explanations and interpretations of the influential factors are given in this table which will further be used in this research.

Dimension	Project	Transition area	Process
Appearance form	One case consisting out of unique tasks with a unique result.	Ratio of unique and non-unique tasks with mostly comparable results.	Several cases consisting of non-unique tasks, comparable or relatable results.
Duration	Temporary, has a specific beginning and end.	-	Continuous and repetitive; permanent working method.
Deviations from the baseline	Identify risks in advance and adjust project plan in case of deviations occurring.	Mostly minor deviations which result in no adjustment to project plan.	In case of deficiencies; error correction, improvement or redesign of process.
Focus	Innovation and significant changes. Meeting performance criteria.	Smaller and less extensive innovations.	Optimizing and refining the process in order to lower operational costs.

Table 4.5: Synthesis matrix on the found conceptual characteristics

Dimension	influential factor	Interpretation
Appearance form	Establishment of a 'Golden standard'.	After a few executions of certain work, a standard package of tasks is established. While another part still varies, this package is considered sufficient for upcoming executions and will not be changed much.
Appearance form	Small proportion of unique tasks responsible for vast majority of execution time.	In the transition area, a certain ratio of unique and non-unique is observable where small proportions of unique tasks can be responsible for the vast majority of the required execution time.
Duration	Shorter lead times result in more continuity.	Work with a high lead time (e.g., 12 months) seems less likely to tend towards process characteristics. During the execution of such work, many developments can take place that causes variations and less continuity in work.
Deviations from the baseline	Reduction of uncertainties and unpredictability results in reduction of risks during execution.	Within projects, there are many unpredictabilities and uncertainties in their execution, making them risky for an organization. With processes, this seems to be going in the opposite direction; more predictabilities and certainties are riskier in operation.
Deviations from the baseline	Number of similar cases to be expected determines adjustment method.	The number of expected executions of work influences whether in the event of deviations from the basis, the working method is improved or whether only the project plan is adjusted.
Focus	Ability to innovate in product of service.	When a product is almost fully developed, and few innovations are possible, it is more inclined to process characteristics. Work that has project characteristics is more likely to have relatively more ability to innovate.

Table 4.6: Synthesis matrix on the found influential factors in the transition area during the case study

During the interviews, strong relationships between the dimensions have been observed in the sense that they are closely interrelated and do not operate in isolation. Work cannot have project and process characteristics at the extremes of the spectrum across different dimensions. Thus, it would not be possible to have work that is characterized by, for example, having the appearance form of one instance as well as being focused on optimization. Additionally, the four dimensions were for participants sufficiently decisive to choose between a project and process. Hence, the dimensions cover key topics of the concepts of projects and processes. Consistent comments on the most important or difficult to assess dimensions have not been found.

4.9 Design choices and rationale

This section concerns describing the course of actions and their rationale, which led to the created conceptual framework depicted in figure 4.1. First, a set of elements which have been found in the prior sections, and thus in the 'Problem investigation' phase by Wieringa (2014), are described which have been chosen to incorporate in the designed framework. Subsequently, the used findings are further discussed on their function within the designed framework and where the content is derived from. The section ends with describing the design choices and rationale of the visualization and discussing the use of the framework.

4.9.1 Used findings in framework

The literature and case study findings have highlighted several important elements regarding choosing either the management form of a project or process. These findings can be divided into four types that could help achieve the aim of this study as established in section 1.2:

- Conceptual characterizations
- Present influential factors in the transition area
- Relationships between the dimensions
- Additional facets of influence discussed in 4.7

During the design of the framework, three elements have been chosen to include in the design of the framework; the found conceptual characteristics, the observed influential factors in the transition area, and the relationships between the dimensions. It has been decided not to include the findings mentioned in the section 'Additional findings' in this framework since these elements are not the primary focus of this research. As stated in section 1.2 it is the goal to build the framework based on the pure characterizations and indications directly related to these characteristics. Moreover, not enough attention was paid to these elements during the interviews to obtain a complete picture of their influence and integrality. It has also been chosen not to denote the presence of these factors within the framework's design for readability issues and information abundance. Therefore, it is essential to mention this limitation as a disclaimer when the framework is used.

4.9.2 Conceptual characteristics

The first step in the design of the framework was to create a synthesis table (Ramdhani et al., 2014) which depicts the conceptual characteristics found. In the literature review, table 2.2 depicted a set of four dimensions of conceptual characteristics of *project and process* which are considered as key characteristics to be further studied in this research. The findings from the case study extended these set of conceptual characteristics found in the literature by studying *the transition area* in between the concepts of projects and processes. Combining the findings from literature and the case study led to the overview table in table 4.5 which has been mapped to the designed framework. The combination of the literature and case study findings and translation to framework fragments is also illustrated in sections 4.2 up to 4.5, in the synthesis of each dimension. In the framework, the conceptual characteristics of projects and processes from literature are represented in spheres on the left and right side, where they depict the 'ends' of the spectra. In the middle of these spectra, the characteristics of the transition area found during the case study are represented in oval shapes.

The characterization of work provides a conceptual description of how elements are reflected in certain work within an organization. Including these conceptual characteristics within the designed framework should, therefore, enable users of the framework to reflect the depicted characterizations to particular work cases. The reflection should help users asses 'where' in the spectra certain work currently is.

4.9.3 Influential factors in transition area

The second step in the design of the framework was to construct a synthesis matrix (Ramdhani et al., 2014) of the observed influential factors in the case study. In sections 4.2 to 4.6, several influential factors have been discussed which influenced whether work is tending to project or process characteristics. Compared to work characteristics, the influential factors found in the transition area are directly related to the conceptual characteristics. More specifically, every influential factor affects whether work would move to project or process characteristics in a specific dimension's transition area. An overview of the influential factors with interpretations can be found in table 4.6. For each dimension, the corresponding influential factors have been placed underneath the designation 'transition area' in rectangles in the designed framework.

In addition to the characterization of work, the displayed influential factors within the framework provide further indications of 'where' a certain case would be in the spectra. Thereby, the influential factors are helpful because they further specify the transition area per dimension and provide additional insights.

4.9.4 Relationships between the dimensions

During the case study, significant interrelatedness between the dimensions of conceptual characteristics has been observed, as discussed in section 4.6. The characterizations of work seem to operate in a bandwidth relative to each other. Thus, the interrelatedness entails that certain work cannot be characterized by pure project and process characteristics at the same time. Moreover, the dimensions were together found to be sufficiently decisive to choose between the management forms based on characterizations. Hence, in order for work to be reflected on its characteristics, one should consider all dimensions. These relationships are represented in the designed framework by four chained rings on the left side, which will be discussed in the following section.

4.9.5 Rationale of visualizations

The dimensions of conceptual characteristics of projects and processes served as the basis for the framework and are placed in the framework on the inside of spheres. The transition area characteristics are placed in ovals for readability reasons, and this specific shape has no other specific meaning. In order to make the transition area between the project and process side apparent, a background with a gradient of a gray color has been applied. This color also serves as a reference to the gray area in which the choice for either specific management form is not obvious. The transition between the project characteristics, the transition area, and process characteristics are represented by wooden sticks connecting the circles and ovals. A color gradient also represents the transition of the conceptual characteristics in the background for each dimension. The project characteristics are a bright and dark color, and this becomes less and less bright in the transition area and process characteristics. Important to mention is that while the characteristics in the framework are represented on the same

scale of distance relative to each other, the distance is arbitrarily chosen and does not relate to the meaning of the content. Thus, a spectrum of one dimension can in reality, be 'wider' and 'narrower' than a spectrum of another dimension based on its semantics. In the same sense, are the transition area characteristics semantically not exactly in the 'middle' as is illustrated in the framework.

The influencing factors present in the transition area are illustrated in a rectangle with the color of the corresponding dimension together with a lightning bolt depicting the 'effect' it has on the transition area. There is no further intention behind the influential factors being placed on the left or right side in the transition area. Finally, the interrelatedness of the dimensions is represented in the framework by four chained rings. Each ring can be placed separately in the spectrum between project and process characteristics reflected by the double-sided arrow above the chained rings. The rings are stuck together, meaning that the rings cannot be far apart relative to each other. This chaining illustrates the relationship between the dimensions, where the conceptual characteristics of particular work cannot be 'scattered' across the spectra. Work cannot be on one dimension at the extreme of the spectrum's project side and on a different dimension at the extreme of the process side of the spectrum. It is important to note that the ratio used between the size of the rings relative to the width of the spectra is arbitrarily chosen and does not entail any further meaning.

4.10 Use of the framework

The use of the design framework is twofold: (i) enabling to 'test' if a particular case of work is conceptually more inclined to project or process characteristics and (ii) demonstrating several vital aspects which are essential to make the distinction between the two management forms.

The designed framework can test where in the spectrum of a dimension a certain case of work is currently 'located'. When examining a certain case of work, it should be first reflected on the conceptual characteristics depicted. After this reflection, the rings in the designed framework function as a representation of the examined case of work. Each individual ring can be shifted in the spectrum of a dimension between the concepts of projects and processes. With the rings being chained, they can only be placed in the spectrum within a certain bandwidth relative to each other. Additionally, the chaining of the rings entails that testing a certain case of work requires reflecting on the conceptual characteristics of each dimension. The second step would be to fine-tune the placement of the rings in the spectra by reflecting the case of work to the influential factors displayed in the rectangles within the transition area. Reflection on these influential factors should establish an additional sense of the spectrum per dimension and lead to more insights on the current 'state' of the case of work.

A second potential use of this framework can be to function as a concept to explain the main differences between the management forms. In this sense, it could give an individual who is not familiar with one or both management forms indications on the main differences between the concepts. Moreover, the framework clarifies what characteristics have to be dealt with when initiating a specific project or process, and notes that the choice for either of the forms is not obvious.

Chapter 5

Validation of the framework

This section will discuss the validation of the designed framework in the previous section, while following the validation strategy described in section 3.5.1. The first section will show an overview that summarizes the evaluation findings. Afterward, the results of the conducted interviews with experts are discussed and elaborated upon following the defined evaluation criteria. This chapter ends with a synthesis of the findings. An overview of the interviewed experts and the types of organizations that participated in the validation is shown in Appendix E.4.

5.1 Summary of findings table

A summary of the results from the expert interviews is presented in table 5.1, which is based on the reporting structure for evaluation work as proposed by Shrestha et al. (2014). Comments on an evaluation criterium that expressed strong support are reported as positive ☑. Evidence for opposed comments on a certain evaluation criterion are reported as negative ☒.

Usability characteristics	Case evidence (No. comments)	Prominent comments
Understandability	☑ x 14 ☒ x 2	☑ Expert 8: *"Yes, I think it is understandable. But I like to have an explanation for each dimension."* ☑ *Expert 4: "For me they make the difference between a project and a process very clear. When I reflect on what would I put into a project form and where does it concerns processes, I recognize those little circles and also being as the extremes"*
Completeness	☑ x 11 ☒ x 2	☑ Expert 5: *"I recognize the influential factors you describe, and I can follow and translate them as well."* ☒ *Expert 1: "You can monitor a project with a generic method, but a process is in fact the method for monitoring the workflow. So, monitoring and control. Then I do not see the word 'control' coming back."*
Usefulness	☑ x 15 ☒ x 1	☑ Expert 9: *"I think it clarifies yes. I think this is another point of view on this topic that clarifies. If you put things opposite each other, you also start to think about things differently."* ☑ *Expert 7: "When I get the question: is it a project or a process. Then I can clearly put this next to it and say; on the basis of this framework, it tends to lean towards a project rather than a process. Yes, I think this is useful."*
Operational feasibility.	☑ x 2 ☒ x 3	☑ Expert 9: *"Yes, I think so. Yes, I can see myself using it (the framework) when we run into it."* ☒ *Expert 5: "It can support. I do not know if this is enough to make the decisions. You also need other information to choose either the project or process side."*

☑ indicates comments that strongly supported the evaluation criteria
☒ indicates comments that strongly opposed the evaluation criteria

Table 5.1: Summary of the evaluation findings, in the reporting structure of Shrestha et al. (2014)

5.2 Understandability

There was strong support from all experts except one, that the represented conceptual characteristics within the framework were comprehensible in terms of understandability. Experts stated that they found the characteristics understandable as they were recognizable within the practice of their work. Additionally, experts noted that the presence of the gray area is quite well made explicit.

> *"They are easy for me to follow. I can reflect it on the practice that I deal with. I also recognize the transition area. It is also often very shady." - Expert 5*

Only one expert stated that the represented conceptual characteristics are in multiple ways interpretable and difficult to understand. The expert asked for an illustrative example case on which the characteristics can be applied. The described influential factors in the framework were overall perceived as understandable. Eight experts stated that the influential factors are understandable, of which three experts noted that the explanations and contextualization during the introduction of the framework were essential for comprehending them.

> *"I find them understandable, but it is helpful to go through what exactly you mean with the influential factors per dimension and per item. I read 'gold standard'. Which gold standard do you mean? So, it is good to walk through that and hear the elaboration on it, and then it starts to get clear." - Expert 8*

One expert, however, explicitly noted that the influential factors displayed in the framework are harder to interpret. The expert noted being confused by formulating them having 'effect', which the researchers described the influential factor during the explanation of the framework.

> *"Then I look for the definition effect. The effect of what? Of the project, the product, or the fact that such a characteristic occurs. No, the word effect is confusing. Influencing factors would be more clear to me." – Expert 1*

The explanation of influential factors having 'effects' on the transition area not being suited may be related to participants needing more context placement to interpret the displayed influential factors in the framework. Thus, compared to the conceptual characterizations, the influential factors displayed in the framework seem to be somewhat less understandable.

5.3 Completeness

Regarding the completeness of the framework, seven out of the interviewed experts strongly found the set of conceptual characteristics in the framework representative of key conceptual aspects in the distinction between projects and processes. According to these experts, the dimensions sufficiently expressed the main characterizations of both management forms and the area in-between. However, two experts explicitly expressed an issue or shortcoming in the framework. The expert from the process management consultancy firm noted that a characteristics is currently missing. According to the expert, projects are monitored with the use of generic management methods, while processes are the method of managing and controlling the workflow itself. Therefore, the expert indicated the characteristics monitoring versus controlling are currently missing. Nevertheless, the same expert noted that the framework provides a good overview of the differences between both management forms.

> *"You can monitor a project with a generic method, but a process is, in fact, the method for monitoring the workflow. So, monitoring and control. I do not see the word 'control' coming back. Controlling the flow of execution is really a characteristic that is different." – Expert 1*

Another expert openly questioned if the conceptual characteristics on projects and processes in the dimension 'focus' match the naming of the dimensions. According to the expert, other characteristics could be placed under the naming of this dimension as well.

> *"You could also say with focus on process that the focus is to go through the same process as efficiently as possible." – Expert 3*

Regarding the depicted influential factors in the framework, all experts could recognize the presence of most of the factors in their work. Yet, three experts expressed that they could relate to a displayed influential factor to a lesser extent. The expert from the Process management consultancy firm, being one of these, stated that the influential factor "Ability to innovate in product or service" was not completely valid since innovations within projects are of a different nature relative to processes. According to the expert, innovations are performed on the process itself instead of the product that a specific processes could deliver.

> *"A product or service is the outcome of a project, and at the same time, it is the project itself: the manufacturing process of that product itself. In the case of processes, the innovation that you implement is not carried out on your product but on your process because you influence your product with that." – Expert 1*

However, this difference in innovative nature does not necessarily mean that the influence of the ability a product or service has to innovate on the dilemma is non-existing. Instead, this shift in innovative nature could potentially be seen as a different influential factor related to the type of innovation.

None of the other experts mentioned missing influential factors in the framework. Yet, one of the experts noted that more time would be needed, or an example case, to determine if more factors related to the conceptual characteristics would be of influence. Additionally, one comment was also present on the applicability of the conceptual characteristics and influential factors on different domains or industries. One of the experts stated that influential factors and characteristics such as 'lowering of operational costs', which relate to commercial aspects, were less explicitly in the foreground as being employed in a non-profit organization.

Indirect influencing facets

Four of the experts expressed that certain facets of influence in deciding whether work should be approached as a project or as a process are unrepresented in the framework. Mentioned facets are *human aspects, legislation, and organizational strategy.* While these aspects could influence the dilemma between the management forms and thus could be of importance, the mentioned facets are not directly related to the conceptual characteristics or influential factors in the designed framework. As mentioned in 1.2, these aspects are not in the scope of the designed framework as it was intended only to capture key conceptual characteristics and directly related influential factors. These facets are consequentially not considered as currently lacking in the framework or a potential addition to this framework in the future. Nonetheless, the findings of these aspects will shortly be discussed.

Two experts indicated that they find *'human aspects'* of influence within the dilemma. Human aspects were in this sense related to knowledge of employees on work and project or process management techniques and learning capabilities. Additionally, an expert also mentioned the influence of the deployment of personnel within the organization. The expert illustrated this influence by stating that some personnel is deployed within various different cases of work which affects the continuity of performing work. Another expert mentioned the influence of *legislation*, for example, privacy laws. Where innovation is a free choice, the expert noted that legislation is obligated, which influences the ability to innovate and create variations in products and services.

Lastly, one expert emphasized the influence of the *strategy and goals* of an organization. The expert noted that projects have transitioned into processes in its employed organization due to a shift in organizational goals.

> *"I have seen that this [the strategy and goal of an organization] can mean a lot, resulting in a project shifting towards a process. Because the objective or goal that one started with [of a product] is modified or changed". - Expert 5*

Interestingly, these mentioned facets by the experts have also been observed in the case study, of which the results are discussed in section 4.7.

5.4 Usefulness

In terms of the designed framework providing useful insights regarding the dilemma, all experts expressed supportive comments. Experts unanimously expressed that the framework clarifies the relationships between the concepts of projects and processes. In particular, experts indicated that the framework helps to stimulate the reflection on work and how it is managed.

> *"I notice that it also makes me think, so I find it interesting from that perspective." – Expert 4*

The experts' opinions on the added value of the designed framework during the decision-making between the management forms were predominantly positive. Six experts expressed it would be useful in their decision-making and would increase their awareness on key concepts in this dilemma. Two comments were also noted on that the framework would be especially beneficial for the discussion of this dilemma within an organization.

> *"It is about the discussion, and it is about the feeling that the managers and project managers involved have. Thus, it can be a tool in the discussion and also, a tool in the debate on how we in the organization deal with process-based or project-based working." - Expert 6*

Only one expert made skeptical comments regarding the added value of the framework. However, these comments were more related to whether the dilemma exists at all. The expert indicated that the absolute decision does not occur since the choice for either management form is naturally formed over a time-span and is constantly mutating.

> *"It is not like that management makes a decision, left or right. It is always in a hybrid form and in mutation. That is less due to the framework itself than to the fact that I think the 'decision' does not exist" – Expert 1*

While this comment has been noted, confirming or studying the existence of the dilemma between the management forms was not the aim of the study and did not necessarily affect the validity of the framework. Therefore, this comment will be further disregarded.

5.5 Operational feasibility

Two experts strongly commented that the framework could provide a supporting role within their practice. One other expert expressed a more moderate added value of the framework in their practice. The expert stated that the framework should be added with questions that could provide more explicit input for the decision.

> *"You now have a theoretical model. You have to load it with questions, which you then can validate, and then it becomes an input for the decision." - Expert 6*

Three strongly opposed comments were noted regarding the operational feasibility. Two of these experts explicitly noted that the choice for either management form is not occurring regularly, especially not in their day-to-day practice. Additionally, two of these experts commented that far more details are necessary to choose either the management of work into projects or processes.

> *"If you have to decide, you need more details, more reports on the quality, sustainability, and failure rates. Conceptually it can help but not operationally." - Expert 1*

The same expert also noted that the operational feasibility could be improved by formulating questions that could help in 'testing' the placement of a particular case of work within the framework.

5.6 Synthesis

The expert interviews exhibit predominantly supportive comments on the framework's understandability with 14 supportive comments. Two experts experienced difficulties in interpretation. Concerning the completeness of the framework in the sense that it adequately represents important characteristics and influential factors, 11 supportive comments have been noted. Only one expert expressed opposed comments regarding the completeness, stating that the characteristics 'monitoring' versus 'controlling' are currently missing. The same expert also gave notion to a different influential factor regarding the 'type' of innovation. Additionally, influential facets such as *human aspects, legislation and organizational strategy* have been mentioned by experts, which are influential in the dilemma but are not in the scope of this study and thus this framework. Regarding the usefulness of the designed framework, all experts strongly mentioned that it helps provide them with helpful insights regarding the concepts of projects and processes and their relationships. Moreover, two experts noted that the framework would be specifically useful during the discussion of this dilemma in an organization and that it improves awareness of the topic. Comments on the usefulness of the designed framework during the decision-making in using either management forms were predominately positive, with six experts expressing supportive comments. Only one expert made opposed comments, but these were geared on the existence of the dilemma instead of the framework, indicating that overall the framework was found to be useful. The comments on the operational feasibility of the framework seem to be divided and overall more moderate. Two experts strongly noted it would be supportive in practice, while two other experts stated that more factors need to be considered when deciding to approach work as a specific project or process.

Chapter 6

Discussion

In this chapter, several items will be discussed to improve this study's scientific value and transparency. The first section will relate the findings of this study to research in a different field of study. Afterward, the validity threats and limitations encountered in this research will be discussed. This chapter will end by discussing the practical and scientific contributions.

6.1 Interpretation of findings

Not much literature on this topic or similar studies is available, making it difficult to compare the findings with other research. However, resemblance between this study's results and the field of organizational change management has been discovered. Organizational change management is concerned with changes in the structure of organizations wherein three different types of organizational change can be identified (Boonstra et al., 2018; Boonstra, 2000).

First-order changes have the characteristic that they concern *improvements and optimization* tasks where the problems and solutions are both known. First-order changes manifest in stable and predictable situations. The problems in this type are in nature routine problems and require routine actions (Boonstra, 2000). An ordered approach is used during these kinds of changes, and there must be insights into the relationships between causes and consequences of certain developments. The aim is to predict and reduce uncertainties while also learn from errors and adjust the 'actions' in the way of working (Boonstra, 2004).

Within first-order organizational change, several characteristics similar to the concepts of *processes* can be observed. Both processes and first-order change both concern improvement and optimizations situations, with routine 'issues' and tasks to be solved (Boonstra, 2004; Setti, 2010). Similarly, both processes and first-order changes operate in stable and rather predictable situations, as also can be deduced from the characteristics in the designed framework. Moreover, both the concepts of first-order changes and processes do not operate effectively with uncertainties and unpredictabilities. Thus both should manage and adapt these uncertainties to gain control and handle and learn from exceptions or errors (Boonstra, 2004; Jennings et al., 2000; Dumas et al., 2018). Interestingly, two of the approaches to guide first-order changes are Business Process Redesign and Total Quality Management, which are the origins of BPM (Boonstra, 2004; Rosemann & vom Brocke, 2011).

Second-order changes are planned change where the starting point is clear, only the direction of the endpoint is known, and where the emphasis is on a *adjusting nature*. The way in which these types of changes work depends on the course of events and is shaped by continuous adjustment to circumstances. It is an effective approach for non-routine problems that also require customization (Boonstra, 2000). According to Boonstra (2000, 2004), second-order changes are "often capricious and partly unpredictable" and require innovation or renewal.

With second-order change, similarity with the *'transition area'* depicted within the designed framework can be observed. According to Boonstra (2002), second-order change require customization and the adjustment of a proportion of existent routines. Meaning thus, that these types of changes concern partly new tasks and partly non-unique tasks. Likewise, the transition area between projects and processes seems to be characterized by a ratio of unique and non-unique tasks. The partly unpredictable nature of second-order changes can also be found within the transition area depicted in the designed framework. The influential factors 'Reduction of uncertainties and unpredictability results in reduction of risks during execution' entails that there is a shift from unpredictabilities to predictabilities between projects and processes and, thus, a 'partly' unpredictable nature.

Third-order changes are lastly defined by Boonstra (2004, 2000) and are characterized by ambiguous unpredictable situations and require *transformational change*. Likewise, the problems and solutions are ambiguous and renewal procedures consisting of non-routine tasks are initiated, resulting in a new 'state'. The direction of the change is not predictable, resulting in room for creativity, unforeseen methods, and innovation. Additionally, organizations have to deal more with unstructured issues and play with dynamical systems, uncertainties and take risks (Boonstra, 2006).

Third-order organizational changes have several resemblances with the concept of *projects*. Where third-order change concerns transformational changes, projects concern conceptually significant change (Boonstra, 2004; Setti, 2010). Thus, both concern large and extensive forms of change. Both third-order changes and projects also aim to achieve a completely new 'state' where something out of the ordinary is the result. Consequentially, the nature of third-order changes and projects are both innovative. Lastly, third-order changes relate to unpredictable situations (Boonstra, 2004, 2006) which is similar to projects, as can be seen in the influential factor 'Reduction of uncertainties and unpredictability results in a reduction of risks during execution' within the designed framework.

As illustrated in the characteristics of the three types of organizational change, several similarities are observed with how this study distinguishes organizational forms of work. One could relate first-order changes with the concept of processes, second-order changes with the concept of 'transition area', and third-order changes with the concept of projects. Interestingly, also within the field of organizational change, a dilemma in the deciding between the assessment of types of change is present. The studies of Boonstra (2006); Boonstra & Vink (1996), state that there is a dilemma in deciding to regard something as an 'improvement' or 'transformational change' and note the accompanying difficulties. However, whereas the division in types is fixated to organizational change, not all characteristics of the types of change are similar to the concepts of this study.

6.2 Threats to the validity

The threats to the validity of this study will be discussed according to four categories defined by Wohlin et al. (2012) which apply mainly to qualitative studies. Wohlin et al. (2012) categorized the following types of validity: internal validity, construct validity, external validity and reliability. Each specific validity aspect and its threats in this research will be discussed in the following subsections.

6.2.1 Internal validity

The internal validity concerns the extent to which the 'treatments' in this research cause the 'outcomes' without the interference of other unnoticed factors (Wohlin et al., 2012). The most crucial internal validity threat of this study is that it was part of the approach in this study to omit specific

facets. It was intended to study whether the conceptual characterization of work can help practitioners to decide between both the management forms. This limitation meant that this study did not include, for example, the current level of knowledge regarding project and process management. As also appeared during the case study and evaluation, such facets do influence the choice for either of the management forms. As the presence of these factors was known, no mitigating actions were taken.

Secondly, the participants in the case study were regarded as 'experts' in the sense that they could adequately assess how work is executed within the case organization. However, they were not all completely familiar with the main concepts of project and process management. Despite giving elaborate explanations of project and process management concepts to the participants before the interviews, several did find it rather difficult to relate this to the concepts of projects and processes. As a result, some clear misinterpretations were noted and omitted from the results. Additionally, two interviews were fully transcribed and analyzed but eventually omitted since both participants structurally misinterpreted the concepts of project and process management and contradicted themselves. This careful reading and interpreting to find misinterpretations pose unmitigable internal validity threats. Additionally, the participants in the case study and expert evaluation had to answer 'on the spot' about rather complex themes. Likely, participants generally did not know all the essential facets surrounding the dilemma off the top of their heads. Possibly some may have not even completely thought about the issue at all. While the experts were familiar with the concepts, it might that they thought it was a complete overview of important characteristics and influential factors due to not having the opportunity to think extensively. Although all participants have been informed about the content and context in advance of the interview, this threat cannot be completely mitigated.

6.2.2 Construct validity

Construct validity concerns the degree to which the operational constructs in this research reflect the theory well, both on the measures used and the results found (Wohlin et al., 2012). Since the conceptual characteristics were abstracted from the theoretical review, there is a threat that the constructs are not well enough defined. Before the case study interviews, abbreviated operational definitions of the conceptual characteristics were specified. This abbreviation made it possible to discuss and analyze work within the organization based on these short descriptions. However, the threat to the validity is that the definitions do not adequately reflect the constructs from the theory and may lead to personal interpretations.

Additionally, the defined conceptual characteristics have been deliberately formulated openly, with associated consequences. This decision has been made to make the conceptual characteristics applicable for a wide spectrum of work and ensure that they can also be reflected upon in other industries. However, this brings the risk that the elements are multi-interpretable and sensitive to the participants' subjectivity. Reaffirmed by participants of the case study explicitly stating that terms such as 'unique' and 'innovation' are quite abstract.

6.2.3 External validity

The external validity is the degree to which the conclusions of this study are generalizable outside the scope of this study (Wohlin et al., 2012). In this study, the use of a single case, or in this context a single organization, during the case study poses a threat to the external validity. The reason for studying one organization was being limited in resources and one researcher conducting

the study, which was restricted to a specific time frame. The resulting external threat is that the results are biased to the studied organization, which has specific characteristics regarding the type of the organization. Thus, the results of the case study results are mainly biased to non-process-oriented IT consultancy firms that are active in the profit sector. At the same time, the created framework has been aimed to be applicable for organizations in general and not for a specific type of organization. Therefore, to lessen the effects of the use of a single case study on generalizability, the framework has been validated by diverse organizations and experts. Organizations from different industries and experts with different backgrounds and functions were involved in the validation.

6.2.4 Reliability

The last category of validity defined by Wohlin et al. (2012) is reliability, which relates to the extent to which the results are dependent on the researchers that conducted the study. Potential threats can be found in the reliability of the measures used. Thus the instrumentation used during the interviews should yield the same result if measured twice. To mitigate potential effects from this threat, the interview protocols used have been discussed and refined with other and more experienced researchers. In addition, scripts were created before conducting the interviews which have been used to guide the researcher through the interviews and ensure all participants were given the same information.

A second reliability limitation is the lack of literature on the conceptual characteristics of projects and processes and this research field. Only two studies gave indications on the conceptual differences between both management forms. One of these coined certain dimensions without proper elaboration on which both can be compared, while the other provided characteristics on certain dimensions which are aimed at a different field of study. Consequently, to establish a set of characteristics along a set of dimensions for this study, the researchers had to define interpretations of the characteristics themselves. This poses the threat of incorrect or incomplete definitions influencing the overall research. Due to the limited availability of literature, this threat had to be accepted.

6.3 Practical and scientific implications

Within this study, several practical issues for organizations have been addressed. Organizations that are not familiar with working in the form of projects or processes have more support in assessing work based on conceptual characterizations. The designed framework provides a structured overview of essential elements. Also, it provides a supplementary view on influential factors within the transition area between the two management forms, potentially leading to additional insights. Also, for organizations that already are familiar with the use of both management forms in their operation, this research can lead to a better understanding of how work should be 'placed' within the organization. Since the designed framework does not cover all factors exhaustively in relation to the dilemma, it mainly serves as an indicative basis and supportive tool in discussing this dilemma.

Scientific literature has been supplemented by making key conceptual characteristics of projects and processes explicit. This study determined that these characteristics based on several dimensions hold up in practice, and relationships in the form of interrelatedness have been found. New theory has emerged between the defined conceptual characteristics of both management forms, consisting of a characterization of the transition area and the determination of directly related influential factors. Also, some influencing facets unrelated to the conceptual characterizations have been noted.

Chapter 7

Conclusion

The goal of this study was to "gain an understanding on when to decide whether work should be managed as a project or either as a process". To determine if this goal is achieved, this section concerns answering the sub-questions defined in section 1.3. Subsequently, the main research question is answered, and conclusions will be drawn.

7.1 Sub-questions

SQ1: What are distinguishing characteristics between the concepts of projects and processes?

During the literature research described in chapter 2, the conceptual characteristics of projects and processes have been identified. First, certain dimensions were established on which projects and processes can conceptually be compared. Based on the studies of Setti (2010); Edelenbos & Teisman (2008), conceptual characteristics of the dimensions have been made explicit with the use of available literature. Each dimension provides a different point of view on what characterizes a project or process conceptually. Four dimensions were ultimately chosen to represent the differences between both management forms in this research: (i) appearance form, (ii) duration, (iii) deviations from the baseline and (iv) focus. Table 2.2 depicts how projects and processes relate to each other based on the defined dimensions.

SQ2: How can the gray area between the concepts of projects and processes be characterized?

In chapter 4, the results from the case study are discussed. The results indicated that the drafted conceptual characteristics resulting from answering SQ1 hold up in practice, and are representative of key concepts of projects and processes. More importantly, a transition area has been recognized between the previously defined conceptual characteristics where projects can transition into processes and vice versa. This transition area is typical for the gray area between management forms and has been specified with distinct characterizations for several dimensions. Additionally, all conceptual characteristics in the dimensions are strongly interrelated and do not operate in isolation. In addition to the conceptual characteristics, influential factors related to the conceptual characteristics have been found for each dimension. An overview of the extended conceptual characteristics and influential factors, along with their interpretation, are described in table 4.5 & 4.6. Additional facets of influence not directly related to the characteristics defined in this study have been noted, which are discussed in section 4.7.

SQ3: How helpful is the created framework in providing insights to practitioners relative to choosing whether to address work either as a project or as a process?

A conceptual framework has been designed encompassing the found conceptual characteristics and influential factors related to the dimensions, which should help practitioners in the field. In chapter 5, the results of the validation of the framework with experts are discussed. The conducted expert interviews showed that almost all participants understood the elements represented and found them recognizable in relation to how they perform and manage work in their organization. The designed framework was also predominantly found complete in the sense it adequately reflects key characteristics. One expert did note explicitly the lack of a characterization and a potential additional influential factor. All experts indicated that the framework is useful in providing insight into the concepts and relationships between the two management forms. Additionally, most experts stated that it would help them in deciding to organize specific work in either of the management forms. However, opinions on the operational feasibility of the framework seem to be divided and overall more moderate. Several comments on facets related to the dilemma between the management forms have been noted, but these do not relate to the conceptual characteristics and influential factors in the designed framework.

7.2 Main research question

Drawing from the previously stated insights resulting out of answering of sub-questions, an answer to the main research question can be formulated.

MRQ: When should organizations consider work either as a project, or as a process?

Building on the findings in literature and the case study, the designed conceptual framework defines four key dimensions that provide understandable and helpful insights into when a project or process management form would be appropriate. The conceptual characterizations of the dimensions *instances, duration, deviations from the baseline and focus* and supplementary direct influential factors render indications on how certain elements are reflected in work. More specifically, it defines this for project-based, process-based work and work that seems to be in the transition area between both management forms. The designed conceptual framework depicted in section 4.9, provides understandable, useful and a complete overview of key characterizations and influencing factors.

Further research into the relationships between projects and processes is needed since the dilemma between both management forms is also reliant on other facets besides the pure characterization of work. Therefore, the designed framework does not provide unambiguous recommendations but enables to make rough estimations on which form is expected to be sensible and facilitates a foundation for discussing this dilemma. Thus, the elements in the framework are of an indicative nature and not exhaustive or prescriptive relative to the issue.

7.3 Future work

First and foremost, more research is necessary to study the facets which deliberately have not been included in this research. The facets that were noted during the case study and expert interviews (sections 4.7 and 5.3), or studies describing critical success factors for projects and processes (Pinto

& Prescott, 1988; Tarhan et al., 2015), could be used as a starting point. Such studies would pursue a more overall view on important elements besides the pure conceptual characterization of work that need to be considered when assessing the dilemma. Together with the created framework in this study, this would provide more insights on all necessary considerations in the dilemma between both management forms. Regardless of such exhaustive studies, it would also be useful to determine what elements in the created framework or facets outside this research are the most important to consider.

One of the experts in the validation mentioned a lacking conceptual characterization and gave notion to a possible additional influential factor. Therefore, future studies could examine these mentioned elements and find how these relate to the conceptual characteristics studied in this research. A different approach for future studies could be to further explicate the conceptual characteristics used in this study and make more operationalized definitions. This further explication can also be in the form of a tool with certain predefined questions, which would render an overview of where certain work is 'located' in the spectrum of certain dimensions. Such tools would further improve the indications provided by the framework and support options for experimental studies. In both ways, it would be important to further validate the framework by means of empirical research if such extensions are made. Different techniques than the ones used in this study are recommended, as this would potentially provide other kinds of insights. Interesting techniques include the use of technical action research, focus groups, or surveys.

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Appendix A

Literature research protocol

A.1 Database research

In order to generate a profound understanding of the definitions, characteristics and current state of research on projects and processes, a literature review was conducted. Furthermore, with the literature found the gap in current research is illustrated and will provide criteria which will be build upon.

For the collection of scientific papers, journals and book several search engines have been used as a 'database search' method (Wohlin, 2014). The databases which have been consulted are Google, Google Scholar, ACM Digital Library, and SpringerLink. The search terms which have been used in the previously mentioned search engines are depicted in table A.1.

Process management AND project management	From AND Project AND Process
Project management OR process management types	Workflow AND Project management
Starting AND Process management OR Project management	Business process redesign AND project management
Guidelines AND process management OR project management	Evolution AND Process management OR Project management
Project AND transition AND Process	Project AND Process AND Evolution
Project AND Process AND versus OR compared	When AND Process management OR project management
Concepts AND Process management OR Project management	Characteristics AND Process management OR Project management
Indications AND Process management OR Project management	Handbook AND Process management OR Project management
Implementing AND Process management OR Project management	Organisation theory

Table A.1: Search terms used in the databases

Due to the many, and often unrelated, results which are provided by these resources, several exclusion criteria have been applied (Kitchenham, 2004):

- Articles or books were excluded when they were not written in English.
- Results were not used when they were not scientific or of which the author is unknown.
- Literature which uses a definition which is not reconcilable compared with the definition used in this research.

Moreover, several inclusion criteria have been applied when literature was searched. The following inclusion criteria have been used:

- Grey literature of professional association organizations
- The literature should address the notion of specific projects and processes

The exclusion and inclusion criteria were applied to the title, abstract, introduction and conclusion and ultimately the full text. When necessary, introductions or individual chapters were also read. Table A.2 shows the amount of articles or books which have been found while applying the above mentioned exclusion and inclusion criteria.

Stage	Number of papers and books
Search results	950
Title	264
Abstract	138
Introduction and conclusion	90
Full text search	76

Table A.2: Filter process of literature review

After the relevant literature had been assessed on the defined criteria and had been secured, the material was thoroughly studied and examined. Important parts of text were be highlighted in Adobe Reader and used for the literature review section.

A.2 Snowballing method

In addition to the literature research through the use of online search engines, a significant amount of literature has been found through the 'snowballing' approach described in Wohlin et al. (2012). With this method, the risk of missing relevant and useful literature is mitigated. Snowballing works through analyzing references of previously found papers or books to find other relevant material. Forward snowballing is the same principle but focuses on literature that cite the paper which has already been found. This method is repeated every time new material is found. For this research, 'snowballing' is an appropriate and useful technique since the search terms project and process often lead to unrelated search results. Both words are often used in articles without being related to either the context of project management or BPM; the words are regularly used in a general way of speaking.

Appendix B

Case study documents

B.1 Case selection form

Projecten selecteren voor onderzoek

Beste ICTZ collega,

Zoals ook al even per mail besproken; als student aan de masterstudie Business Informatics van de Universiteit Utrecht ben ik bezig met mijn afstudeeropdracht. In dat kader ga ik mij bezig houden met het bestuderen van een aantal projecten die zich bij ICTZ hebben afgespeeld. Ik wil graag tot de selectie komen van een beperkt aantal te bestuderen projecten waarover ik later een verdiepend interview met je wil houden. In dat gesprek zal ik ook verder ingaan op de exacte bedoeling van mijn onderzoek.

Vul hieronder als eerste je naam in voordat je op de 'Next' knop drukt. Op de volgende pagina staan twee casus beschrijvingen; casus A en casus B. Lees als eerst deze casussen aandachtig door om vervolgens naar de daaropvolgende pagina te gaan.

Hierna wil ik je vragen om specifieke externe projecten die door ICTZ zijn uitgevoerd bij naam te noemen waar jij aan hebt meegewerkt, en die wat betreft kenmerken lijkt op de situatie zoals beschreven in casus A en casus B. Daarbij zullen er ook projecten zijn die zowel kenmerken hebben van casus A maar ook van casus B, en daarom eigenlijk tussen de casussen invallen. Ook daarvan zou ik graag willen weten welke dat zijn.

Op de laatste pagina van dit formulier kan je de projecten die je in je hoofd hebt invullen. Het zou mooi zijn als je drie projecten per vraag kan invullen. Hierbij moet je het recente project bij Defensie buiten beschouwing laten.

*Vereist

Wat is je naam? *

Jouw antwoord

Volgende

Projecten selecteren voor onderzoek

Casus A en casus B

Casus A

Organisatie Bmslot wil voor het volgend najaar een nieuw product in de markt zetten. Het gaat om een zelfrijdende scooter die tevens zonne-energie gebruikt als energiebron. Het moet een energiezuinig en klimaatvriendelijk ontwerp worden. Doelgroep zijn de 'Young Urban Professionals', maar mogelijk ook de groep jongeren die zich nu massaal per elektrisch fiets verplaatst in woon -werkverkeer en niet meer zijn fiets of scooter wil opladen.

Het doel is om eerst één prototype scooter te maken. Het is dus vrij duidelijk wat er moet worden opgeleverd: een uniek prototype wat een innovatie in de fietsen en bromfietsen markt gaat zijn. De start van deze onderneming is in december 2020, en in juni 2022 moet alles worden afgerond en het prototype worden opgeleverd.

Bmslot gaat het team waarmee ze het prototype willen ontwikkelen over een maand formeren en daarbij is ook een duidelijk plan gemaakt. Hierin staan alle losstaande taken gepland die moeten worden uitgevoerd met bijbehorende deadlines. In dit plan zijn ook mogelijke risico's en ongebruikelijkheden opgenomen die zich tijdens het creëren van de scooter kunnen voordoen en welke mogelijke maatregelen daarbij moeten worden getroffen. Mocht het plan als gevolg van iets onverwachts moeten worden aangepast, moeten er ook afwegingen worden gemaakt in het budget, behalen van de deadline en het tevredenstellen van de klant.

Kortom: Bmslot creëert een nieuw uniek product waarbij innovatie belangrijk is.

Casus B

Organisatie Bmslot is ook al zeer geruime tijd aanwezig in de markt van het verkopen van normale benzinescooters. Hierbij is Bmslot een van de marktleiders omdat zij scooters op het niveau van Vespa's weten te maken, maar voor de helft van de prijs. Eén van de onderliggende redenen hiervoor is dat Bmslot het maken van zijn scooters steeds weer heeft weten te verfijnen en optimaliseren.

Niet alleen heeft Bmslot weinig opslag nodig omdat de onderdelen voor de scooters op het goede moment op de goede plek zijn, maar ook de efficiëntie van de inzet van hun personeel is van een hoog niveau. Wanneer een order voor een nieuwe scooter binnenkomt zijn precies alle taken die moeten worden uitgevoerd per scooter duidelijk verankerd in een complete beschreven procedure. Wanneer een taak is uitgevoerd door een medewerker, is een volgende medewerker gelijk op de hoogte dat hij/zij zijn taak kan uitvoeren. Zo worden er meerdere verschillende orders tegelijk behandeld.

Door deze werkwijze kan Bmslot al jaren lang meer dan 100 scooters per dag fabriceren terwijl de scooters ook nog in verschillende configuraties kunnen worden besteld zoals andere zadels, kinderzitjes en kleuren. Recentelijk bestelde een klant via de telefoon een configuratie die niet mogelijk was; een eenpersoons zadel maar daarbij ook een kinderzitje. Hierop heeft Bmslot in hun procedures opgenomen dat medewerkers de combinatie van zadel en kinderzitje altijd moeten checken zodat de werkwijze verbeterd kan worden. Bijna alles omtrent hun werkwijze hebben zij weten te verankeren in procedures en regels.

Kortom: Bmslot produceert vergelijkbare producten waarbij optimalisatie belangrijk is.

Vorige Volgende

Projecten selecteren voor onderzoek

*Vereist

Vergelijk casussen met projecten ICTZ

Vul onderstaande vragen in. Wanneer je de casussen nog een keertje wilt bekijken kan je dat gerust doen; je antwoorden blijven opgeslagen wanneer je naar de vorige pagina gaat.

Graag bij de antwoorden de naam van het specifieke project invullen, of het type project bij een specifieke klant!

Welke drie externe projecten die bij ICTZ zijn uitgevoerd vind jij wat betreft kenmerken het meest lijken op casus A? *

Jouw antwoord

Welke drie externe projecten die bij ICTZ zijn uitgevoerd vind jij wat betreft kenmerken het meest lijken op casus B? *

Jouw antwoord

Welke drie externe projecten die bij ICTZ zijn uitgevoerd vind jij tussen de kenmerken van casus A en B vallen? *

Jouw antwoord

Vorige Volgende

B.2 Discussed projects and overview of interviewed participants

Four projects at the case study organization were selected as cases to be discussed with the participants based on the case selection protocol. From these selected projects, one case was classified as a project which had the characteristics of a project (case 1), one case had the characteristics of a process (case 2) and two cases had characteristics of both (case 3 and case 4). An overview of the interviewees which participated in the case study can be found in table B.1. To maintain the privacy of the interviewees, every respondent is assigned a number which will be referred to in the quotes of the case study findings.

Participant number	Function within organization	Years of work experience in function
1	Consultant	4
2	Consultant	8
3	Consultant	4
4	Principal consultant	7
5	Consultant	2
6	Project manager	4
7	Product owner	2
8	Consultant	8
9	Project manager	3

Table B.1: Participants consulted during case study

B.3 Case study interview consent form

Beste deelnemer,

Je bent uitgenodigd om deel te nemen aan een onderzoek naar project en proces eigenschappen binnen de context van Project Management en Business Process Management. Dit onderzoek wordt uitgevoerd door Louis Lomans in het kader van een afstudeer thesis van de studie Business Informatics aan de Universiteit Utrecht. Het onderzoek is onder begeleiding van Hajo Reijers en Iris Beerepoot.

Het doel van dit onderzoek is een beter beeld te krijgen tussen de verschillen van een 'project' en een 'proces' binnen bedrijven. Door middel van het uitvoeren van interviews en een case study bij ICTZ wordt geprobeerd meer inzicht krijgen tussen wanneer werk als een project of als een proces moet worden gezien, en wat voor grijze gebieden er zijn tussen deze twee concepten.

Gedurende het interview zal een audio en video-opname (in Microsoft Teams) worden gemaakt. Dit dient het doel om het interview te kunnen transcriberen en later te analyseren. De informatie die hieruit voortvloeit zal als vertrouwelijk worden behandeld en zal na het voltooien van het onderzoek worden verwijderd. Persoonlijke informatie in dit onderzoek zal worden geanonimiseerd en niet verder gedeeld worden met andere personen dan diegene die direct betrokken zijn in het onderzoek (Louis Lomans, Hajo Reijers en Iris Beerepoot).

Deelname aan dit onderzoek is compleet vrijwillig en op elk moment gedurende het interview is het mogelijk om te stoppen. Mocht het zijn dat je na het interview niet meer wilt deelnemen aan het onderzoek kan je dat laten weten via onderstaand emailadres. In dit geval zullen alle opgeslagen gegevens worden gewist en niet verder worden gebruikt in het onderzoek.

Mochten er na het interview nog vragen zijn, kunnen deze worden gesteld via onderstaande contact informatie.

Toestemming

Met onderstaande handtekening geef ik aan kennis te hebben genomen van bovenstaande. Hierbij ga ik akkoord dat deelname op vrijwillige basis is, dat op elk moment gestopt kan worden, ik in de gelegenheid ben gesteld om vragen te stellen en dat informatie uit het interview wordt opgenomen met als doeleinde te worden gebruikt in het onderzoek van Louis Lomans.

Naam

Datum

Handtekening

Contact informatie onderzoekers:
Naam: Louis Lomans, mail: l.f.lomans@students.uu.nl
Naam: Hajo Reijers, mail: h.a.reijers@uu.nl
Naam: Iris Beerepoot, mail: i.m.beerepoot@uu.nl

B.4 Case study interview protocol

Kenmerk instanties

- Vind jij op basis van dit criterium van de projectbeschrijving dat het momenteel een project is? Waarom vind je dat wel of niet?
- Vind jij op basis van dit criterium van de projectbeschrijving dat het momenteel een proces is? Waarom vind je dat wel of niet?
- Zou het kunnen zijn dat er van beide karakteristieken momenteel iets is terug te vinden? Waarom vind je dat?
- Wat is de afweging die je maakt?
- Wanneer je kijkt naar het verloop van vergelijkbare projecten. Zou je dan kunnen zeggen dat er een omslagpunt is tussen deze kenmerken waarbij je kan zeggen, het is toch een project of het is toch een process?

Kenmerk duratie

- Vind jij op basis van dit criterium van de projectbeschrijving dat het momenteel een project is? Waarom vind je dat wel of niet?
- Vind jij op basis van dit criterium van de projectbeschrijving dat het momenteel een proces is? Waarom vind je dat wel of niet?
- Zou het kunnen zijn dat er van beide karakteristieken momenteel iets is terug te vinden? Waarom vind je dat?
- Wat is de afweging die je maakt?
- Wanneer je kijkt naar het verloop van vergelijkbare projecten. Zou je dan kunnen zeggen dat er een omslagpunt is tussen deze kenmerken waarbij je kan zeggen, het is toch een project of het is toch een process?

Kenmerk afwijkingen van de basis

- Vind jij op basis van dit criterium van de projectbeschrijving dat het momenteel een project is? Waarom vind je dat wel of niet?
- Vind jij op basis van dit criterium van de projectbeschrijving dat het momenteel een proces is? Waarom vind je dat wel of niet?
- Zou het kunnen zijn dat er van beide karakteristieken momenteel iets is terug te vinden? Waarom vind je dat?
- Wat is de afweging die je maakt?
- Wanneer je kijkt naar het verloop van vergelijkbare projecten. Zou je dan kunnen zeggen dat er een omslagpunt is tussen deze kenmerken waarbij je kan zeggen, het is toch een project of het is toch een process?

Kenmerk Focus

- Vind jij op basis van dit criterium van de projectbeschrijving dat het momenteel een project is? Waarom vind je dat wel of niet?
- Vind jij op basis van dit criterium van de projectbeschrijving dat het momenteel een proces is? Waarom vind je dat wel of niet?
- Zou het kunnen zijn dat er van beide karakteristieken momenteel iets is terug te vinden? Waarom vind je dat?
- Wat is de afweging die je maakt?
- Wanneer je kijkt naar het verloop van vergelijkbare projecten. Zou je dan kunnen zeggen dat er een omslagpunt is tussen deze kenmerken waarbij je kan zeggen, het is toch een project of het is toch een process?

Relaties

- Welk karakteristiek vind jij het belangrijkst?
- Welke karakteristieken vind jij het minst helder of lastig te beoordelen?
- Denk jij dat er tussen de kenmerken onderling verband is?
- Vind je dat deze criteria voldoende doorslaggevend zijn om het onderscheid te kunnen maken? Zo nee, wat mis je dan nog?
- Denk je dat er essentiële onderwerpen niet besproken zijn?

Appendix C

Coding scheme

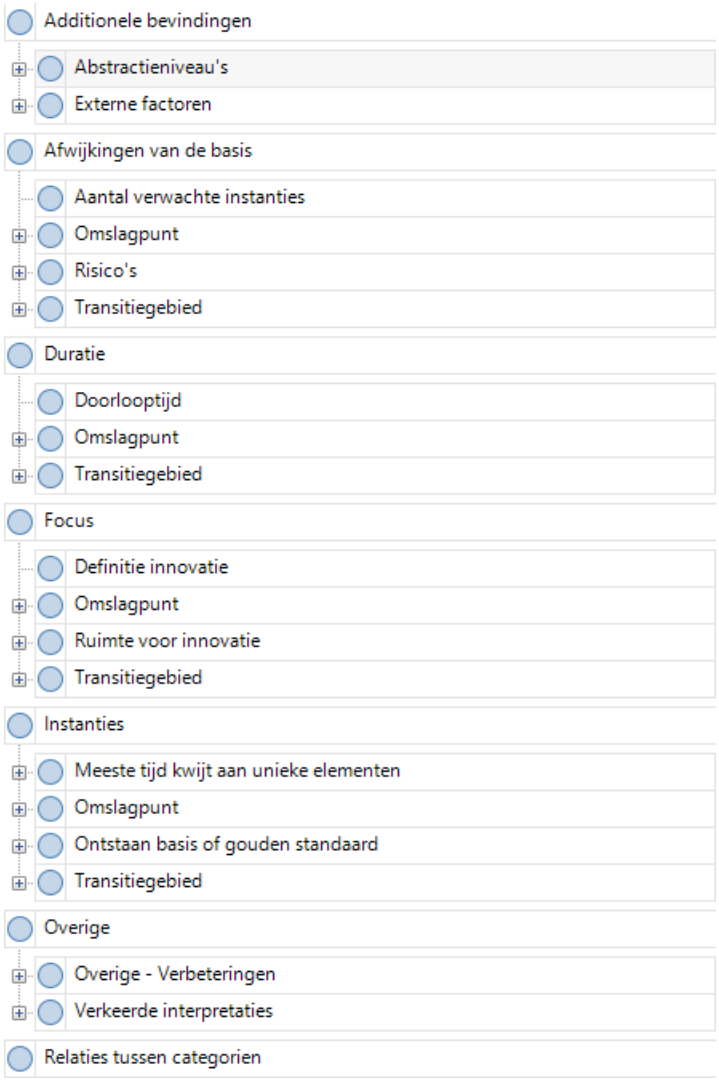

Figure C.1: Coding scheme used during analysis of the case study

Appendix D

Additional findings from the case study

D.1 Influence of different abstraction levels

During the interviews, a substantial part of the participants noted that the tasks managed in projects or processes could be seen and discussed at different abstraction levels. Several participants stated that they could identify process steps at a high abstraction level for work that was identified as a project by them. However, the more tasks at a lower abstraction level were discussed, the more participants identified project-like work. With this, there seem to be indications that the level of abstraction on which a particular case of work is discussed, influences the classification of work.

> "The deeper you go into a project, the more they become small projects. The higher you go, the more it may also tend towards a process, the more often you do a project ... a similar project... because projects are never the same. They are similar, but not the same." – Participant 3

One participant indicated during the interviews that he only classifies work as a process when the level of abstraction was of added value to him. He also stated that when the options in a process are too extensive, this makes the work more likely to lean towards a project.

> "And I think there are a lot of process elements in it, for sure. However, that will be so unique, that ... that flowchart you just showed ... I think you can certainly map out a HIP process at a global level. But the moment you go into details which we need as consultants, well ... then you are ... then you probably have such a huge model, that it becomes unclear. Then, I get to the point of, well, then maybe I better all figure it out myself." – Participant 9

However, another participant also stated that he recognized a project at a high abstraction level and small sub-processes at a low level in a particular project of the case study organization.

> "So, with this definition I would definitely ... I would not see the project ... the big picture as one process, well, yes, I immediately see processes within the project, so to speak." – Participant 5

These findings raise suspicions that projects and processes can operate in the same context. The level of abstraction at which work is discussed also influences whether something is seen as a project or a process.

D.2 Influence of external factors

Besides the importance of the level of abstraction used when discussing work, participants noted certain external factors that are not directly related to the conceptual characteristics and influence the environment in which projects and processes take place. These external factors can be divided into three types: management factors, customer factors and suppliers' factors.

D.2.1 Management factors

During the interviews, many factors were mentioned that influence the case study organization that manifest at a managerial level. The current deployment of personnel seemed one of these important factors. Participants mentioned that when, for example, there is a shortage of certain employees for activities, they quickly fall back to a project formation. A participant also mentioned that the establishment of a basis, which was discussed in the paragraph of the dimension "instances", was influenced by lots of changes in involved employees.

> "The moment you do not have enough operators, but you do have available technicians, then you will have those technicians involved again. These types of projects are also influenced by the availability of certain qualities and quantities within your organization." – Participant 4

An organization's mission and strategy on the overall business operation and their products were also mentioned as influencing factors. Several participants implicitly and explicitly stated that both the strategy and mission determine whether a company tries to optimize or improve activities. These factors seem to influence, for example, whether deviations that the customer may cause are accepted or rejected. A software product that was derived from another product but for which it was the strategy that deviations of customers were not accepted was, therefore, several times found to be more process oriented.

> "Yes, but also the focus that the organization has on our products, on the work we do. So, you notice with HIP (project 3) that was really our showpiece for a few years. Then you see that innovation is moving quite quickly and that we also want to improve quickly. I think we also had a few products that we did not put focus on. Yes, we delivered it but rather not or it was not very interesting to us. And then you see that you just put a lot less effort into eventually turn it into a process or improve it or something like that." – Participant 8

D.2.2 Customer factors

All participants often mentioned the influence of the customers within their work during the interviews. Variations in certain activities seemed to arise because customers wanted to make changes during the performance of certain activities, that they were not aware of certain requirements or had not provided the correct information themselves unknowingly. This resulted in work tending to project characteristics.

> "In practice, of course, there is always the possibility of a customer who says; oh, I did not know that I also needed a VPN. I'm having trouble with my internet provider, I have to order certificates for you, but I ordered the wrong certificates." – Participant 9

Legislation that customers must comply with were also noted as an influencing factor. Participants mentioned in the interviews that some products require specific certifications. In the case study organization, safety certifications were mentioned as factors that standardize tasks or do not allow for certain activities to deviate from each other resulting in tasks becoming unique and thus, more process-like.

> "But everything else, the installations are all the same and that is also necessary for certain DigiD certificates that we receive on those environments. They must also be identical to each other." – Participant 1

D.2.3 Supplier factors

Participants also stated that at the time of the interviews, the software supplier was trying to standardize parts of software packages and the options they offer. For the buyers of the products, this meant that they had less opportunity to receive personalized software or customization options. As a result, for the case study organization, which sits between the supplier and the buyer of the software, there were fewer possibilities for variations, unique tasks, and possible deviations in the work they had to perform which tended the work to process characteristics.

> "Look, I think the advantage is that 90% of the market is currently on the same (software) package. So, it just phases out slowly too. Look, if you now have two customers that are merging, chances are that the underlying packages are already the same. And that is the case in recent years, that Chipsoft (the supplier) has really become the market leader." – Participant 2

Appendix E

Expert validation documents

E.1 Operationalization evaluation criteria

Evaluation criteria	Evaluation criteria definitions proposed by Prat et al. (2015)	Operationalisation for this study
Completeness	The degree to which the structure of the artefact contains all necessary elements and relationships between elements.	To which degree does the created framework contain all necessary elements which should be considered when choosing to approach work into the form of a project or process?
Understandability	The degree to which the artefact can be comprehended, both at a global level and at the detailed level of the elements and relationships in the artefact.	To which degree can the elements represented in the framework at a global and lower level be comprehended?
Usefulness	The degree to which the artefact positively impacts the task performance of individuals.	To which degree is the framework providing helpful insights and is perceived as added value to practitioners when making the decision regarding assessing work either as a project or process?
Operational feasibility	The degree to which management, employees and other stakeholders will support, operate and integrate the proposed artefact it into their daily practice.	To which degree would the practitioners support, operate and integrate the created framework in their day-to-day practice?

Table E.1: Operationalized evaluation criteria based on criteria proposed byPrat et al. (2015)

E.2 Expert interview consent form

Beste deelnemer,

U bent uitgenodigd om deel te nemen aan een onderzoek naar project en proces eigenschappen binnen de context van Projectmanagement en Business Process Management. Dit onderzoek wordt uitgevoerd door Louis Lomans in het kader van een afstudeer thesis van de studie Business Informatics aan de Universiteit Utrecht. Het onderzoek is onder begeleiding van Hajo Reijers en Iris Beerepoot.

Het doel van dit onderzoek is een beter beeld te krijgen tussen de verschillen van het uitvoeren vaneen 'project' en een 'proces' binnen bedrijven. Door middel van het uitvoeren van interviews en een case study is geprobeerd meer inzicht krijgen tussen wanneer werk als een project of als een proces moet worden gezien, en wat voor grijs gebied er is tussen deze twee concepten. Hierbij is een conceptueel framework gecreëerd wat doormiddels van interviews zal worden gevalideerd.

Gedurende het interview zal een en video-opname (in Microsoft Teams) worden gemaakt. Dit dient het doel om het interview later te kunnen analyseren. De informatie die hieruit voortvloeit zal als vertrouwelijk worden behandeld en zal na het voltooien van het onderzoek worden verwijderd. Persoonlijke informatie in dit onderzoek zal worden geanonimiseerd en niet verder gedeeld worden met andere personen dan diegene die direct betrokken zijn in het onderzoek (Louis Lomans, Hajo Reijers en Iris Beerepoot).

Deelname aan dit onderzoek is compleet vrijwillig en op elk moment gedurende het interview is het mogelijk om te stoppen. Mocht het zijn dat u na het interview niet meer wilt deelnemen aan het onderzoek kan u dat laten weten via onderstaand emailadres. In dit geval zullen alle opgeslagen gegevens worden gewist en niet verder worden gebruikt in het onderzoek.

Mochten er na het gesprek nog vragen zijn, kunnen deze uiteraard direct worden gesteld of via onderstaande contact informatie.

Toestemming

Met onderstaande handtekening geef ik aan kennis te hebben genomen van bovenstaande. Hierbij ga ik akkoord dat deelname op vrijwillige basis is, dat op elk moment gestopt kan worden, ik in de gelegenheid ben gesteld om vragen te stellen en dat informatie uit het interview wordt opgenomen met als doeleinde te worden gebruikt in het onderzoek van Louis Lomans.

Naam

Datum

Handtekening

Contact informatie onderzoekers:

Naam: Louis Lomans, mail: l.f.lomans@students.uu.nl
Naam: Hajo Reijers, mail: h.a.reijers@uu.nl
Naam: Iris Beerepoot, mail: i.m.beerepoot@uu.nl

E.3 Expert interview questions

Begrijpelijkheid

- Zijn de karakteristieken van projecten en processen in het framework gemakkelijk te begrijpen? Waarom wel of niet?
- Zijn de effecten in het transitie gebied tussen projecten en processen in het framework gemakkelijk te begrijpen? Waarom wel of niet?

Compleetheid

- Beschrijft het framework adequaat belangrijke karakteristieken en de relaties daartussen van projecten en processen? Waarom wel of niet?
- Beschrijft het framework adequaat belangrijke effecten van projecten en processen in het transitiegebied? Waarom wel of niet?

Bruikbaarheid

- Vind je dat het framework de relatie tussen de begrippen van projecten en processen verheldert? Waarom wel of niet?
- Is het framework van toegevoegde waarde tijdens het nemen van de beslissing of bepaald werk als project of als een proces moet worden georganiseerd? Waarom wel of niet?

Operationele uitvoerbaarheid

- Is dit model in de dagelijkse beslissingspraktijk bruikbaar voor managers om de beslissing te nemen, of bepaald werk als project of als een proces moet worden georganiseerd? Waarom wel of niet?

E.4 Interviewed experts

As is described in section 3.5, for the validation two types of experts are selected. For the first type of experts, e.g., experts within project management or process management consultancy firms, three experts have been consulted. For the second type of experts, e.g., experts within organizations who face the dilemma of choosing either of the management forms, six experts deemed eligible and expressed interest in participation. An overview of the experts which participated in the validation along with the type of organisation they are employed in and their specific role can be seen in table E.2.

Expert number	Type of organisation	Function
1	Process management consultancy firm	Managing director
2	IT and Business consultancy firm	Project management officer
3	IT and Business consultancy firm	Management consultant
4	Dutch national police	District's head of operations
5	Dutch national police	Programme manager / forensic specialist
6	Bank	Product owner/programme manager
7	Bank	Project manager
8	Educational institute	Board director
9	Educational institute	Head ICT department

Table E.2: Interviewed experts