Silje Ulvestad

Navigating Complexity: Project Models and Value Creation in the Shipbuilding Industry

Exploring the impact of project models in multi-organizational shipbuilding projects

Master's thesis in Organization and Leadership
Supervisor: Nils Olsson
November 2023

◻ NTNU
Norwegian University of
Science and Technology

Silje Ulvestad

Navigating Complexity: Project Models and Value Creation in the Shipbuilding Industry

Exploring the impact of project models in multi-organizational shipbuilding projects

Master's thesis in Organization and Leadership
Supervisor: Nils Olsson
November 2023

Norwegian University of Science and Technology
Faculty of Engineering
Department of Mechanical and Industrial Engineering

NTNU
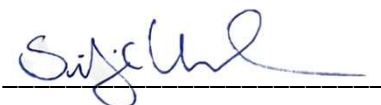Norwegian University of
Science and Technology

ABSTRACT

The thesis investigates how project models can affect management of complex projects, in the context of a large shipbuilding organization executing large-scale and multi-organizational projects. Projects within the shipbuilding industry are often technologically advanced and dynamic, making them interesting and relevant for researching management of complex projects.

Project management is a highly relevant field in today's business environment, where both the amount and complexity of projects are increasing. Having a common project model is one of the tools for handling such complexity, with a prerequisite that it is accepted and properly utilized in the organization. The thesis investigates what effects can be seen both from the presence and absence of such a model.

To research the chosen topic, theories surrounding project management, project models and change will be looked into, both from an historical and a modern perspective. They are further complemented by topics such as project complexity, commitment and multi-organizational projects.

Based on the literature review, an interview guide closely linked to the theoretical basis was developed and used for performing 11 in-depth interviews with project managers from the case-organization. The interviews were transcribed and analysed using Aksel Tjora's stepwise-deductive-inductive method, finally collecting the codes in groups and main groups.

When presenting the results, it became evident that there were several challenges related to the absence of a clearly defined and agreed project model in the case-organization. Resource allocation, dropping commitment and unclear ways of measuring project success were some of these. The project managers experience with the importance of project commitment amongst the project team members to execute such complex projects was also heavily emphasized.

In the discussion, the results were compared to assumptions from the literature, showing that most of the findings were in line with what existing theories stated. An interesting correlation between complexity and commitment in projects was discovered, highlighting the possibility of the factors being interrelated.

Lastly, the thesis concludes with the effects of lacking a clearly defined project model presenting itself through challenges with properly defining goals and plans, not having clear lines of communication and creating challenges with sub-optimalization. Having a common project model would positively contribute to these factors.

When implementing or adapting a project model, it's essential for an organization to properly involve the employees, facilitating for commitment and grounded implementation.

CONTENTS

List of figures

List of tables

1 INTRODUCTION

In this first chapter, the foundation and motivation for the thesis will be presented, together with an outline of the research questions. A short description of the thesis' structure concludes the chapter.

1.1 Background

Project management is a field well known for many, and a highly relevant one in today's world where projects are becoming more and more complex, not to mention more and more common (Kerzner, 2022). As the field has developed from being seen as an optional activity, to an integrated part of many organizations, several structured forms for performing project management have emerged, often referred to as project models.

Although becoming more common, complex projects are nothing new. They can be seen as what initiated the need for defining and systematizing project management in the first place (Seymour & Hussein, 2014). A description of large scale, complex projects by Sterman (1992) are that they:

- Consist of multiple interdependent components/stakeholders
- Are highly dynamic
- Have multiple feedback processes
- Involve nonlinear relationships

He further underlines the importance of defining a project model that is capable of representing these characteristics, while still being understandable for the project managers, if one seeks to manage such complexity.

Having a project model can seem like a simple step to initiate and execute, but to the contrary it requires a deep understanding of the organization and its projects specific needs to be successfully implemented and accepted. Sufficient knowledge of change management and the organizations structural elements is also necessary. Due to the dynamic and unique nature of projects, the repetitive elements can be hard to properly identify (Eskerod & Riis, 2009).

One industry where the projects by nature are large, complex and dynamic is the shipbuilding industry. Projects within shipbuilding often are technologically demanding, involving an enormous degree of uncertainty (Chu, et al., 2021). They require a high effort of design and engineering, often taking place simultaneously with the actual execution of the project (Emblemsvåg, 2014; Chu, et al.,

2021). The standardization ratio within the industry is low, often due to rapid development, little possibility for mass-production and high demand for customization (Chu, et al., 2021).

Emblemsvåg (2014) highlights five peculiarities for shipbuilding projects:

1. Many one-of-a-kind projects
2. Site production similar to manufacturing
3. Temporary multi-organizational cooperation
4. Rapid regulatory development
5. Engineering and design concurrently with production

These factors can be linked to the defined elements that make for a complex project, with the addition of risk from the highly dynamic market demands and regulations. This calls for a higher degree of flexibility in the project, which according to Olsson (2008) is not normally desired in the context of project management.

What is described by Chu et al. (2021) and Emblemsvåg (2014) about the specifics and peculiarities of shipbuilding can be seen in relation to engineer-to-order projects (ETO). This method makes it possible for organizations to offer their customers specialized products, tailored to their specific needs (Kaufmann & Kock, 2022). While to some degree being a competitive advantage, this added degree of customization further increases the level of complexity in the projects.

One could draw a correlation between this and the increased need for a clearly defined project model in organizations operating within this industry, mainly executing these types of projects. However, Kaufmann & Kock (2022) emphasizes that project management efforts do not universally correlate with maximized project outcomes, but none the less there are several indicators that a situational approach to defining a project model is beneficial for the organization's value creation through its projects (Eskerod & Riis, 2009).

When looking at implementing, or adapting an existing project model, it's important to have sufficient knowledge on change management. Clearly defining the need for change, onboarding the necessary resources and executing the change in a proactive manner is important to avoid resistance and opposition to the change effort (Klev & Levin, 2021).

1.1.1   Case organization

One of the largest shipbuilding groups in Norway has in recent years undergone both internal organizational changes, as well as being highly affected by the market development within the offshore segment. They are owned by a major European shipbuilding group, introducing different practices and cultural norms into the organization.

The shipbuilding group has been specialized within the offshore- and seafood segments for many decades, recently also venturing into the adventure segments for smaller expedition cruise vessels. Within the newest segment the European owner has more relevant experience, making it natural for them to take a more prominent role within also the Norwegian operations.

As a result of this, the organization was split into two divisions; cruise and offshore. This entailed big changes within the organization, some of them being:

- The European owner placing its employees in managing roles in the Norwegian organization
- New roles for control and coordination being implemented in the projects
- Changes to mandates and responsibilities for existing roles
- Re-structuring of the engineering department and yards (more functional)
- Project managers employment moved from the yards to HQ
- New requirements for reporting in the projects

These changes were met with enthusiasm from some, and resistance from others. Since being the standard practice for a couple of years now, one can assume they have become the new normal. Smaller changes are still being made, mostly in an effort to adapt these more rigid systems to the flexible project execution that the organization has previously been known to do.

The level of actual implementation of the changes varied between the cruise and the offshore divisions. Since the cruise division was closer to the European owner's regular business it was natural that this new division was more easily adapted to the changes, while the offshore division had a more pre-defined way of doing things.

Looking at project execution in the organization, there does not seem to be a clearly defined project model. There have been some elements of a model before the organizational changes, and some have been introduced as part of the changes. However, a clear framework and systematization of project tools are not evident, making it an interesting case for looking into how complex projects are executed without such a framework, and what the effects are.

1.2 Problem definition and research questions

Complex projects are naturally challenging, involving intricate interdependencies, uncertainties and changing requirements. As previously stated, they are also becoming more common in today's business environment. These types of projects are also the foundation for many organizations business, increasing the relevance of looking into tools for determining project success, create value and manage such projects.

A multitude of different project models exists and selecting and implementing the most suitable one for an organization can be a challenging, yet rewarding, task.

As project models have been introduced as a method of navigating such complexity, the thesis aims to study how an organization can identify its project model, and what effects can be seen from both its presence and its absence. The following research questions will guide the investigation:

- What components of a project model can be identified in the case organization, and are they effective?
- How can project models contribute to management of complex projects?
- What factors should an organization consider when implementing a new project model?

To study the research questions theories surrounding project management, project models and change will be highlighted, complemented by topics such as project complexity, commitment and multi-organizational projects.

Researching these questions in an organization operating within the shipbuilding industry is found to be highly relevant, as the industry is known for its complexity and highly dynamic environment. The presence of recent changes in both the industry and the organization also gives another dimension to more accurately evaluate how implementation can be done successfully, learning from what experiences the previous change efforts has created.

1.3 Structure of the thesis

The thesis follows a common structure for scientific research, a short description for the chapters and framework can be found in table 1 below.

Table 1 Thesis' structure

Chapter	Description
1 Introduction	The introduction chapter presents the thesis topic, background and motivation. The chapter also outlines the case organization and research questions.
2 Literature Review	The literature review chapter collects existing theories thought to be relevant for investigating the thesis' topics. It includes both historical and modern takes on project management, project models, change management. Each main topic has several subchapters delving deeper into particularly relevant parts of the research.
3 Method	The method chapter presents the process of researching for the thesis, introducing methods, design and considerations. A description of how the chosen method was specifically used for the thesis is also given, together with assumed limitations of the thesis and its research.
4 Results	The result chapter presents the collected empirical data after coding, structured after the main code groups. Quotes from the respondents is heavily used to keep the results close to the empirical data.
5 Discussion	The discussion chapter connects and compares the empirical data found in the results chapter to the literature review chapter.
6 Conclusion	With the discussion chapter as its foundation, the conclusion chapter pursues to answer the research questions and topic for the thesis. Recommendations and suggestions for further research is given.

2 LITERATURE REVIEW

To form the basis for investigating and discussing the research questions, theories on project management, project models and change will be presented. The chapter starts by presenting a general and historical overview of project management as a discipline, before going into topics such as project complexity, the organization of projects and multi-organizational projects. The first part of the chapter ends with the presentation of factors for project commitment.

The second part of the chapter looks into project models, different types of project models, how they come to be and what the potential benefits of having a common project model could be. A separation between rigid and agile project models is made. Topics such as what can potentially lead to the failure of a project model is also briefly touched on, as well as a specific part of many project models; the project management office.

Moving on to the third part of the chapter change, and more specifically change management, is investigated. Historical theories are presented to form the basis for further discussion, while more modern approaches and elements such as power, involvement and resistance will also be presented.

In the fourth and last part of the chapter, theories on project models and change are combined to investigate how an organization could potentially create and implement new project models.

2.1 Project management

Project management is the discipline dedicated to managing the effort of creating value through temporary teams, often with a unique product, service or result as the end goal (PMI, 2022).

Lester (2021, p. 7) defines project management as: *"The planning, monitoring, and control of all aspects of a project and the motivation of all those involved in it, in order to achieve the project objectives within agreed criteria of time, cost and performance"*.

The definition gives an insight into the width of the discipline, a project manager is responsible for making the plan, executing it within set boundaries while simultaneously keeping his or her human resources motivated, informed, and aligned with the goals of the project in order to achieve success and customer satisfaction.

Although a global phenomenon, there is no singular theory of project management (Garel, 2013). Instead, there is a collection of best practices, as well as multiple bodies of knowledge (Kerzner, 2022), and, as is the case with many management theories, this might be due to the fact that we act

more or less on "instinct" when faced with a problem to solve (or a project to manage) if one is not aware of the different theories and approaches already defined.

Kaufmann and Kock (2022) has pointed to a significant correlation between the degree of project management training and the ability to stick to the planned schedule and maintain the margins of a project. Knowing how to do something decreases the risk of making beginners mistakes. This is also supported by Emblemsvåg (2014), underlining the importance of training to be able to execute projects as planned. Further to this, early project management efforts like breakdown of a project's tasks and risks, stakeholder analysis, and definition of processes are seen to be especially effective (Kaufmann & Kock, 2022).

The definition of clear project goals is one of these processes, and Kaufmann and Kock (2022) highlight that doing so is associated with both a higher degree of efficiency in the project, better schedule adherence and improved problem-solving abilities in the project team. All of which can be thought to be important factors when executing complex projects.

2.1.1 Historical development of the field

Long before being defined and named, project management was practiced for thousands of years (Carayannis, et al., 2005). Seymour & Hussein (2014) even speculates that project management has been practiced for as long as humans have inhabited the earth.

Even though project management today is a highly recognized and well-documented field within management, it wasn't until the 1950s one first started venturing into intentional development of systems and techniques (Morris, et al., 2012; Rolstadås, et al., 2020). As projects became more complex, the need for tools and techniques to handle them became evident (Carayannis, et al., 2005; Seymour & Hussein, 2014).

Originating from projects initiated by the US defence-aerospace sector (Morris, et al., 2012), where the focus was on creating plans and progress reports to keep track of goals and time constraints (Rolstadås, et al., 2020), the field has since rapidly broadened and become much more detailed.

Already in the early 1980s one could, according to Morris et al. (2012), see a lot of the same components that we know from modern project management. Some of these being management of scope changes, time constraints, cost, procurement, resource allocation, quality control, risks and opportunities within projects.

Certain industries has had a longer history with project management than others (Cooke-Davies & Arzymanow, 2003), but by the 1990s the tools and theories were widely known across a multitude of

different industries and organizations (Carayannis, et al., 2005). An historical overview of the field's development can be found in table 2 below.

Table 2 Various stages within the field of project management and the main aspects of them, divided into four periods, between 1958-2005 (Carayannis, et al., 2005)

	Technology	Management Science	Project Management & Technology	Major Projects	Project Office
-1958	- Telegraph - Telephone - First Computer - Automobile - Airplane - First database	- Adam Smith - Frederick W. Taylor - Henry Fayor - Henry Gantt - A McGregor's XY theory	- Parametric Cost Estimating - PERT/CPM - Gantt chart - Monte Carlo simulation - Systematic application	- Intercontinental railroads - Hoover Dam - Polaris - Manhattan project - Panama Canal	- Focal point "proximity" - Traditional project office functions - Navy Special Project Office (SPO)
1959 - 1979	- IBM 7090 - Xcrox copier - UNIX - Microsoft founded	- ISO - Total Quality Management - Globalization - Quality management	- PMI - Inventory control - Material requirement planning	- Apollo II - ARPANET	- Project supporting office
1980 - 1994	- Personal computer - Wireless in-building network - First internet browser (MOSAIC)	- Manufacturing resource planning - Risk management	- Matrix organization PM software for PC	- Boeing 777 - Space shuttle Challenger - The English-France Channel project	- Project headquarter - War room
1995 - 2005	- Internet	- Critical chain - Enterprise resource planning	- PMBOK (PMI)	- Iridium Y2K project	- Virtual project office - Web-based project office

2.1.1.1 The future of project management

Not without resistance, the field has grown and developed from being seen as a part-time job, into a fundamental and integrated part of any project-based company (Kerzner, 2022). But like with the definition of project management, there is no consensus on where project management is headed (Seymour & Hussein, 2014).

The field of project management has been, and will likely continue to be, under rapid development (Seymour & Hussein, 2014; Carayannis, et al., 2005). In their historical overviews of the field, both Carayannis, et al. (2005) and Seymour & Hussein (2014) point to the lack of documentation and information sharing in the early stages of project management. Kerzner (2022) highlights the fact that this practice now seems to have changed, and that since becoming a "way of life" in many

companies, project management practices and methodologies are being shared. This allows for synergies and a more focused approach to the challenges that needs further development. According to Kerzner (2022), eight recent interest areas within project management are:

- The project management maturity model (PMMM)
- Developing effective procedural documentation
- Project models
- Continuous improvement
- Capacity planning
- Competency models
- Managing multiple projects
- The business of scope changes
- End-of-phase review meetings

2.1.2   Project complexity

As projects increase in size, the business environments become more competitive and dynamic, technology rapidly changes, and workforces rapidly becoming more multicultural, there is a clear increase in the complexity these types of projects (Jepson, et al., 2017). The increasing complexity of projects are thought to be one of the driving forces for the definition and development of the project management field, making it relevant to understand the concept and drivers of it.

Like project management, there is not one singular definition for what project complexity is (Rolstadås & Schifloe, 2017; Kaufmann & Kock, 2022; Jepson, et al., 2017). However, combining a definition of complexity; *"The interconnectivity and interdependency of multiple parts and variables. Some information available but its volume makes it difficult to handle."* (Clegg, et al., 2021, p. 317), with Jepson et al.'s (2017) simplified explanation that a complex project is a project where the goals are unclear, as well as the methods for how to reach them, making it impossible to plan and execute the project in a tidy sequential manner, can give a basis of understanding for further discussion.

As an addition to the above one should note that the difficulty of understanding complexity in projects often lies in the fact that the causes and effects are not obviously related (Klakegg, et al., 2010). The causal effects are often time delayed with the results not being easy to foresee or estimate.

When applying the general definition of complexity to the context of a project, one can see the parts and variables as the characteristics of the project and how these relate to one another. Kaufmann & Kock (2022) links the uncertainty related to the project's characteristics to the overall complexity of

the project. They describe factors such as the teams experience, the available information, and the innovativeness of the project deliverables as drives for this uncertainty, and hence the complexity of the project. Another way to phrase it, is that project complexity is how difficult the project is in comparison with the organization's capabilities (Aarseth, et al., 2015).

Different researchers use different terminology and groupings of complexity factors, but most of them contain the same main elements. The groupings and definitions from Jepson et al. (2017) and Kaufmann & Kock (2022) can be found in table 3 below:

Table 3 Definitions on complexity factors by Jepson et al. (2017) and Kaufmann & Kock (2022)

Jepson et al. (2017)		Kaufmann & Kock (2022)	
Directional complexity	Uncertainty and lack of consensus on project goals, stakeholder disagreements, hidden agendas, and ambiguity	**Sociopolitical complexity**	Interaction and consensus among project team members, support from management and stakeholders
Temporal complexity	Uncertainty in the project's context and changes in the context over time	**Emergent complexity**	Level of uncertainty related to a project's characteristics, product novelty, the teams experience and availability of information
Technical complexity	The level of novelty of the technology in the project		
Structural complexity	Complexity of the projects structure and difficulties in keeping track of tasks and activities, number of interdependencies in the project	**Structural complexity**	A projects size, variety, and interdependence

Instead of complexity groups, Rolstadås & Schifloe (2017) choose to use complexity drivers. Complexity drivers are more generic groupings of complexity factors, that create complexity in the project execution (Rolstadås & Schifloe, 2017).

The most significant complexity drivers according to Rolstadås & Schifloe (2017) are:

- Ambiguity
- Uncertainty
- Unpredictability
- Pace

The pace-driver is not often directly mentioned in the other groupings of complexity factors but is supported by Maylor et al. (2008) who points out that the scale of change and frequency of change are important complexity factors in a project.

To utilize the understanding of complexity drivers, and manage project complexity before and during project execution, one must be familiar with the specific complexity factors affecting the project (Rolstadås & Schifloe, 2017). The complexity drivers broken down into complexity factors, also taking into account the external sources affecting them, is shown in figure 1.
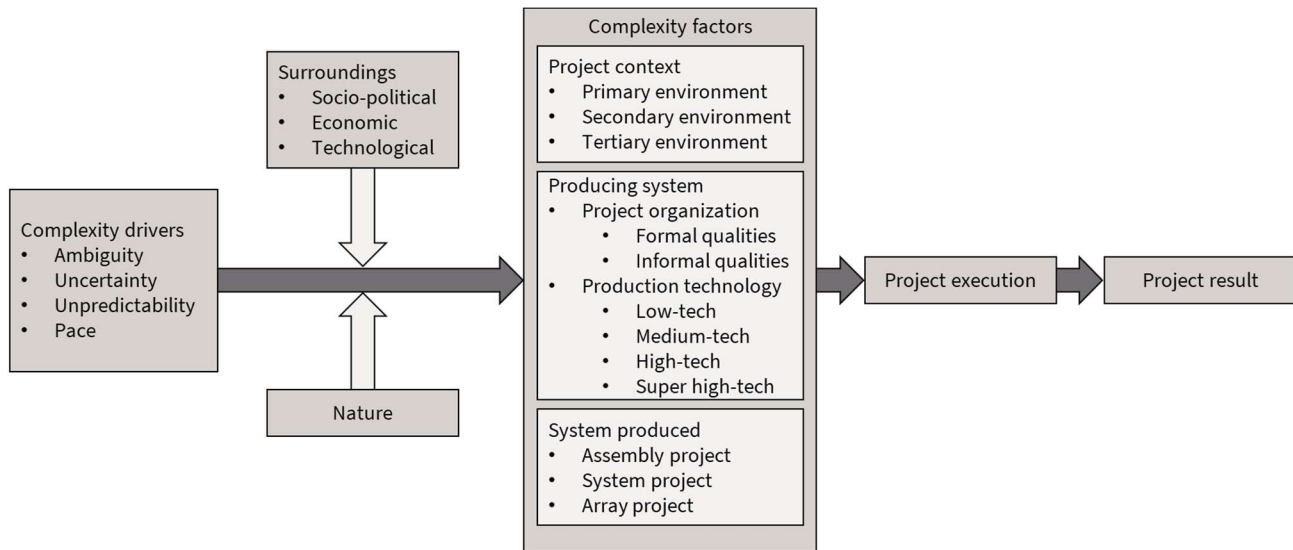
Figure 1 Project complexity model (Rolstadås & Schifloe, 2017)

2.1.3   Managerial view on project complexity

Mikkelsen (2020) highlights that a project manager deals with perceived complexity, as it's not possible to understand and deal with the whole reality and complexity of a project. This means that the level of complexity is a subjective assessment of the intricacies and challenges with a project, influenced by various factors. As a proposed solution to this, and seeking to further conceptualize and define the elements of project complexity seen from a managerial perspective, Maylor, et al. (2008) developed the MODeST model, through workshops with practitioners of project management (Mikkelsen, 2020).

The MODeST model is a grounded structural model that collects both the structural and dynamic qualities of project complexity from a managerial perspective into one. An important factor that most practitioners agree does impact the projects complexity which is not clear through the MODeST model is the interaction between the different complexity elements (Maylor, et al., 2008).
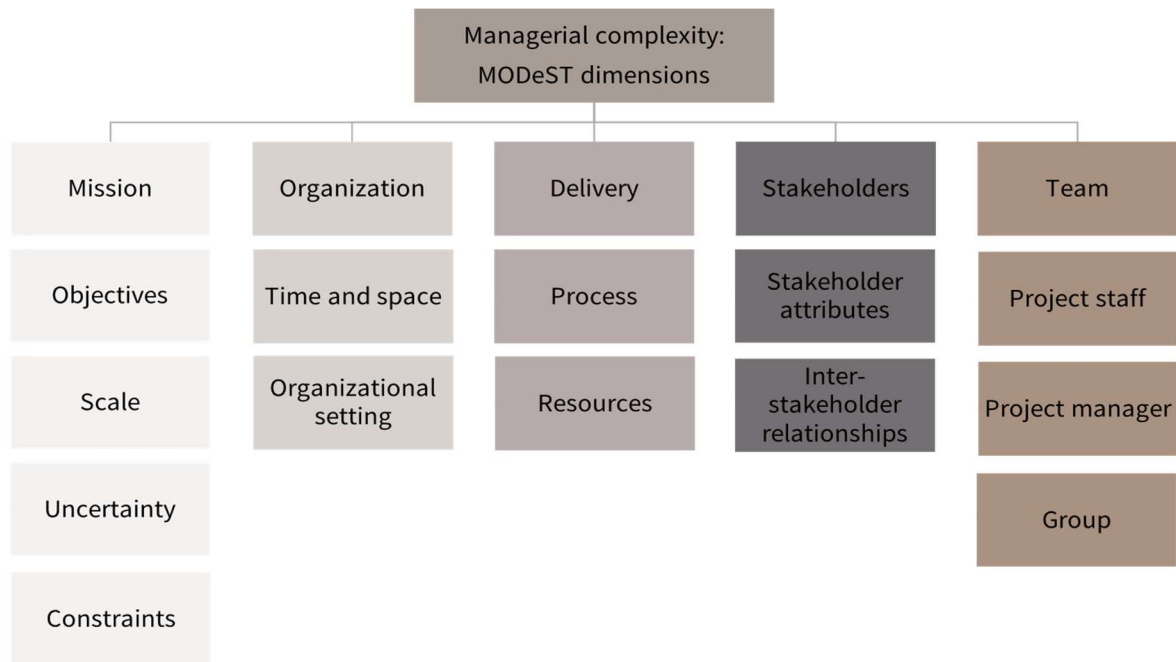
Figure 2 Dimensions of perceived managerial complexity (Maylor, et al., 2008)

Maylor, et al. (2008) point out that complexity in projects have both a structural and a dynamic dimension. The structural dimension gives a static view on the project's situation, while the dynamic is related to the factors that can change over time. For instance, how often, when, changes etc. In table 4 below some examples of both structural and dynamic elements can be found.

Table 4 Examples of MODeST structural and dynamic complexity elements (Maylor, et al., 2008)

	Structural Dimension	Dynamic Dimension
Mission	Are the requirements clear?	How frequently do the requirements change?
Organization	Is there a mismatch between matrix structure of a project and department structure of organization?	Is there ongoing organizational restructuring that impacts the project?
Delivery	How well does the project team understand the project management methodology?	Is a new project management methodology being introduced?
Stakeholders	How many stakeholders are there?	Are the stakeholders changing?
Team	Are the team members motivated?	Is the level of motivation of team members changing?

Being able to recognize, assess and address sources of complexity in a project will help project managers and organizations to develop appropriate strategies and allocation of resources to successfully navigate and handle complexity (Maylor, et al., 2008; Mikkelsen, 2020).

2.1.4 Organization of projects

How an organization is structured will have a big impact on how projects are executed and supported (Kerzner, 2022). It affects factors such as the culture, availability of resources, how knowledge is formed and shared, amongst others. Project management has both a human and a technical dimension, that can either be promoted or inhabited by these (Cooke-Davies & Arzymanow, 2003).

Lester (2021) states that there are three main types of project organizations: functional, matrix and project or taskforce. The matrix organization can be seen as a hybrid between the two others, where there are parallel structures similar to the functional organization, but project managers' responsibilities cut laterally across several of these (Teplitz, 2004).

2.1.4.1 Functional organization

In the functional organization, departments are specialized and expert in their own function. These functions usually represent a significant part of the organization (Teplitz, 2004). This type of organization is usually only applied for mass production, or small one-off type of projects (Lester, 2021). The goal of a functional organization is usually to gather all the competency related to a specific part of the organizations task in the same unit (Jacobsen & Thorsvik, 2020).

2.1.4.2 Matrix organization

Suitable for project-driven companies (Kerzner, 2022), and likely the most common project organization, is the matrix organization. In a matrix organization you will have horizontal connections in addition to the normal vertical ones in a hierarchy (Jacobsen & Thorsvik, 2020), and the project team members report to the project manager, as well as their line manager. Coincidently or not, the first research work on matrix organizations appeared around the same time as PMI was developed during the 1960s (Garel, 2013). This organizational form seeks to utilize the existing functional organization without disrupting the day-to-day operation (Lester, 2021).

While Kerzner (2022) highlights that project team members should be full-time on one project at a time to ensure loyalty, Lester (2021) calls attention to the benefit of employing the resources at several projects when possible. By doing this, you can reduce the number of hours spent on the project, as well as efficiently managing the organizations resources. This emphasizes the flexibility and ability to solve tasks that are distinctively different within projects with the same base-organization, made possible by the design of the matrix organization (Teplitz, 2004).

Within the framework of a matrix organization, one could also argue that different members of the project team, based on their criticality for the project, would be more or less suitable for sharing between different projects. Since projects are unique and often one-offs, the effort needed for managing and controlling them are greater than normal day-to-day operations (Clegg, et al., 2021).

2.1.4.3 Taskforce organization

A project or taskforce organization can be seen as the optimal choice from the project managers view (Lester, 2021). With this organizational form all functions of the project are usually allocated and put under the responsibility of the project manager. The challenge can be that this means the project manager will need to handle all issues, also related to staffing, finances and political aspects. According to Teplitz (2004) this creates many "mini-organizations" within the organization. One could assume that to justify such an organizational structure the projects would have to be of a significant size.

2.1.5 Multi-organizational projects

Multi-organizational projects occurs when two or more organizations collaborate during the execution of a project, forming a multi-organizational project team, for some or all of the project's tasks (Clegg, et al., 2021; Leufkens & Noorderhaven, 2011). These types of collaborations can both be temporary, or more of a long-lived or permanent part of the organizations business (Clegg, et al., 2021). In reality this means that most projects executed today will be multi-organizational to some degree.

These types of projects are often chosen when solving complex and dynamic problems, and provides an opportunity to harvest the necessary competence, facilities, culture or other mechanisms needed to do so (Clegg, et al., 2021; Aarseth, et al., 2015). Although providing such opportunities, they are not free from challenges. Clegg et al. (2021) state that these can be divided into two main groups; cooperation and coordination.

2.1.5.1 Challenges in multi-organizational projects

One factor making cooperation difficult is that the temporary nature of projects may displace the participants commitment to their own short-term gains, rather than the collective long-term gains (Clegg, et al., 2021; Leufkens & Noorderhaven, 2011). Since each party in multi-organizational projects are an independent company with their own interests and goals (Leufkens & Noorderhaven,

2011), it's important to build a clear foundation based on trust and common interests centred around the project goals (Clegg, et al., 2021).

Leufkens & Noorderhaven (2011) highlights three factors that are likely to affect cooperation in multi-organizational projects:

- The explicit and implicit guidance that individuals participating in the project receive from their respective organizations
- The observed behaviours of others within the main project
- Positive or negative personal experiences with the participating organizations

Further to this, Clegg et al. (2021) emphasizes the impact of whether the cooperation is intended to be long- or short-term. Organizations seeking to establish long-term relationships often reduce the likelihood of opportunistic behaviour, hence reducing sub-optimalization and improving cooperation.

It's also worth noting that the level of dependency between the organizations is likely to affect the cooperation. Organizations less dependent on the main projects organization and outcome are more likely to maximize self-interest than those highly dependent on the cooperation (Leufkens & Noorderhaven, 2011).

Clear, non-ambiguous contracts are a formal tool that can be used to promote good cooperation (Clegg, et al., 2021). They govern what interests and decisions should be prioritized (Leufkens & Noorderhaven, 2011), describes guidelines for the expected quality and size of deliverables (Levering, et al., 2013), in addition to distributing and managing uncertainty in multi-organizational projects (Clegg, et al., 2021).

However, since contracts often are non-exhaustive, another important tool for improving cooperation is trust between the parties (Clegg, et al., 2021). According to Levering, et al. (2013) contracts within multi-organizational projects are often flexible, primarily due to existing relationships and trust between the parties. Trust is built on values, norms and shared experiences (Swärd, 2016), and takes time to build but can be torn down in seconds (Jacobsen & Thorsvik, 2020). When two or more parties successfully cooperates over time, a subconscious mutual expectation that the parties want what is best for each other forms (Swärd, 2016). This is important in multi-organizational projects because having foundation built on trust often reduces the reduces the need for control and increases the likelihood of positive interaction and knowledge sharing (Clegg, et al., 2021).

The second group of challenges that Clegg et al. (2021) mentions are those related to coordination. The coordination challenges reside in the divisions of roles, where the primary organization acts as

the leader (Levering, et al., 2013). Different management systems, cultures and routines becoming entangled into one project can be very risky and will require a higher degree of coordination to work together (Clegg, et al., 2021).

There are several mechanisms that can be used to integrate resources and activities into a joint contribution to the main project, some of them being: plans and rules, objectives, roles, routines and proximity to the activities or deliverables (Clegg, et al., 2021).

The goal of such mechanisms should be to reduce uncertainty by providing predictability, and a common understanding amongst the participating organizations of the goal they are working towards (Clegg, et al., 2021; Leufkens & Noorderhaven, 2011).

2.1.6 Project commitment

Commitment is a term that most managers and organizational workers have heard of but like with many other terms within the organizational literature, it is difficult to describe and there is not one agreed definition. A proposed definition by Burgess & Turner (2000) is commitment as *"typically conceived as an individual's psychological bond, including a sense of job involvement, loyalty, and belief in the values of the organization"*. In a project setting, this entails that the individuals working on the project internalize the values and goals of the project, on the basis of finding meaning and a sense of autonomy in their work.

This type of internalizations should be to the degree where there is a strong correlation between the individual's values, goals and norms to the project's (Burgess & Turner, 2000).

Further detailed and supported by Koch & Schermuly (2021), describing commitment as the individual's attitude towards the project, reflected in a combination of affect, cognition and readiness for action on the project's behalf.

According to Burgess & Turner (2000) there are seven key features identified for high commitment situations:

1. **Individuals join of their own free will** – more likely to be truly committed if they believe they had a choice about joining and did so without external coercion
2. **The role of uncertainty** – when a situation is ambiguous or unclear, one is more likely to commit to existing ideas or actions
3. **Start small and build up** – small inconsequential requests to begin a momentum of compliance that slowly undermines the status quo and builds a new commitment
4. **Joining requires an individual effort** – the effort creates a separation between those truly committed and those who just want a job
5. **Public acts of commitment** – people want to be seen as consistent and will avoid looking inconsistent even if it's not in their best interest
6. **Active involvement** – self-reinforcing cycles of attitudes and behaviours that evolve over time and strengthen each other
7. **Clear messages and clear lines of communication** – simple and clear messages

Another way of viewing the seven key features can also be that when individuals experiences opportunities for responsibility, challenging tasks and decision-autonomy, bringing them a sense of self-determination and feeling competent, they will be more likely to feel committed and reciprocate their appreciation for such opportunities (Koch & Schermuly, 2021).

Commitment is an important factor for both dynamic business environments and projects (Burgess & Turner, 2000; Koch & Schermuly, 2021). Highly committed individuals bring energy, passion and excitement to their workplace, and can be seen as particularly important for management of projects due to their temporary nature (Burgess & Turner, 2000). The elements that a highly committed individual brings will help getting the project team working as soon as possible, which often is a task that requires a great deal of effort.

Not to be confused with compliance, a committed person feels responsible and will try to change the rules if they don't serve achieving the vision they are committed to, not only conforming to the boundaries set by others. The resilience and competitive advantage offered by commitment is not possible to reproduce via coercion or material rewards (Burgess & Turner, 2000).

2.2 Project models

The intentional development of project management that started in the 1950s included the development of systems and techniques (Morris, et al., 2012), and as a result of these towards the end of the 1950s they became rationalized through the formation of standardized tools, practices and roles (Garel, 2013). In order to lower the level of abstraction related to project management and execution, the standardization further developed into more specific guidance on how to manage a project (Reiff & Schlegel, 2022), hereto referred to as project models[1].

Project models are the framework for project management, outlining all relevant procedures and processes throughout the project's life cycle (Lester, 2021). They consist of methods and procedures, that according to Lester (2021) should be standardized within an organization to ensure consistency and proper execution.

Without a project model, organizations tend to instead apply ad-hoc processes, often with weak and less than optimal outcomes (Andersen, et al., 2016).

One of the early companies to implement a project model, known as PROPS, was Ericsson in 1989. At that time, they were the biggest telecom supplier, running several cross-functional and cross-national projects simultaneously (Eskerod & Riis, 2009). With PROPS they aimed to align the company on how to allocate scarce resources, identify necessary roles in different processes, define decision criteria and other issues that commonly arise in their projects (Mulder, 1997). Mulder (1997) states that their implementation of PROPS gave them shorter lead-times, time to market and time to consumer as some of the positive outcomes of Ericsson's implementation of a project model.

Lester's (2021) statement that a project model should involve "all relevant procedures and processes" can seem a bit rigid and hard to actually realize, and to give more balance to the description one can look to Eskerod and Riis (2009) who emphasizes the importance of singling out the repetitive and easily defined tasks for standardization, while still leaving it up to the project managers to develop the project specific procedures and documents.

---

[1] The concept of project models is referred to in a multitude of different ways in the literature. Project methodology, project execution strategies/models, project management approach, project framework, to mention some. The thesis bases its discussion on gathering these under the term "project model".

2.2.1 Different types of project models

Different levels of rigidity and flexibility will likely be suitable for different kinds of industries and projects, as pointed out by Kerzner (2022) when dividing between rigid and agile project models. As a result of all the different organizations, businesses, markets and others using projects as a way of executing their work, in combination with the ever-evolving view on how to best manage people and organizations, many different types of project models have emerged over the years.

In the literature, different practitioners use different terms to separate between what this thesis will discuss as rigid versus agile project models. Many chose to use the term traditional or waterfall rather than rigid, and some use flexible instead of agile.

2.2.1.1 Rigid project models

In rigid project models, the first phases of the project involve determining the scope, time and cost of the project (Reiff & Schlegel, 2022). This can be done through thorough analysis, settling designs, and strict contracts in the initiation of the project. Should changes occur during the project they are handled carefully, however, one of the main traits of rigid project models is that they strive to avoid changes during the project's execution phase (Reiff & Schlegel, 2022).

This way of approaching projects will potentially give higher quality and predictability, but at the same time it may hinder customer involvement that for some types of projects are a necessity.

2.2.1.2 Agile project models

Projects that work in highly dynamic fields or markets may need an approach that allows for more adaptation along the way (Clegg, et al., 2021), and that embraces uncertainty (Reiff & Schlegel, 2022). Lester (2021) even goes as far as stating that project management in essence is management of change.

In agile project models, the policies and procedures found in more rigid forms, is replaced with guidelines, forms, checklists, and templates (Kerzner, 2022). In effect giving the project manager more freedom and flexibility to use the project model in a way that best suits the specific project and/or customer. This is supported by the findings of Eskerod and Riis (2009) where one of the prerequisites for creating value through project models is giving project managers templates, but leaving it up to project team to develop and adjust them to suit the specific project and/or customer needs.

IT projects have been using agile methods for a long time, and the models and principles have gradually been adapted by other industries and types of projects (Clegg, et al., 2021).

In addition to the above reasons for wanting to adopt a more agile project management model, Kerzner (2022) states that when organizations become more mature in their project management, they might recognize the need for a more agile approach. This might be due to increased maturity leading to an increased ability to practice continuous improvement of project management practices.

A drawback of agile models is that they provide limited space for defining the projects expected results up front (Clegg, et al., 2021).

Both Kerzner (2022) and Clegg et al (2021) proposes specific factors an organization can evaluate for deciding whether a rigid or agile approach is best suited, as seen in tables 5 and 6 below.

Table 5 Factors for determining between a rigid or agile project model (Kerzner, 2022)

Factor	Rigid	Agile
Project size	Large projects with several teams that may be geographically dispersed	Small project teams are either centrally located or co-located
Requirements	Statement of work is well-defined and understood	The scope is only partially known and expected to change over the life of the project
Impact of time and cost	The customer or business owner does not want any changes to the budget or schedule. However, there is a well-structured change control process in place for scope enhancements and to obtain additional funding	The budget and schedule are generally fixed and changes in scope are mate to possibly maintain the budgets and schedules
Coordination and integration	Based on the size and complexity of the project, there is a heavy emphasis on coordination and integration	Coordination and integration requirements are light
Resources	Heavy emphasis is placed on capacity planning efforts and resource optimization	The length and size of the project may make resource optimization efforts easy to comply
Outsourcing	Perhaps a large portion of the project is outsourced and requires significant coordination	Minimal outsourcing, if at all
Reporting requirement	Reporting requirements are rigid, complex, and require significant coordination	Reporting requirements are frequent and usually in short meetings

Table 6 Factors for determining between a rigid or agile project model (Clegg, et al., 2021)

Factor	Rigid	Agile
Approach	Predictable process and could be planned	Adaptable, continuing development
Organizational structure	Bureaucratic, mechanical	Flexible, organic
Management and control	Managing, formal and top-down	Flexible, autonomous leadership
Communication	Formal, procedures	Informal, frequent
Project model	Sequential, life cycle model	Evolutionary, iterative
Focus on customer and user	Important	Essential

The reality in most organizations is that their project models is not extremely rigid or extremely agile, but rather a hybrid adaptation (Kerzner, 2022). Reiff & Schlegel (2022) says that the aim of a hybrid project model is to bring together the best of both worlds, hoping to achieve flexibility without disrupting the static elements such as planning too much. Most hybrid models are based on agile approaches (Kerzner, 2022). One could think that in todays markets the need for flexibility becomes more and more evident, as uncertainty is high, and the necessary information often is not available of even fully developed.

Olsson (2008) raises the need to distinguish between internal and external flexibility in projects. Internal flexibility relates to how the targets of the project should be met, while external flexibility points to what these targets actually are. In complex projects with a lot of uncertainty and changes one could think that external flexibility is most prominent, while often leading to the need for internal flexibility to adapt.

2.2.1.3 Examples of different project models

Below examples of a rigid, a hybrid and an agile project model will be detailed to further the understanding of what project models can be.

Rigid: Waterfall model

Probably one of the most well-known project models is the waterfall model (Kerzner, 2022; Reiff & Schlegel, 2022). As can be seen from the name, the model builds on the assumption that projects follow a fairly linear, sequential process to the finish line (Clegg, et al., 2021). You have to build the wall before you can paint it. In line with rigid project models, Kerzner (2022) highlights that the approach is suitable when the products requirements are well defined and do not need major customization or continuous development. To be able to make detailed plans for execution it must be possible to identify all projects elements in advance, and they should be able to be executed coherently (Clegg, et al., 2021).

You want to be able to complete one task before moving on to the next (Clegg, et al., 2021), often visualized in the form of Gantt chars or similar (Kerzner, 2022).

According to Kerzner (2022) the predictability and control this gives, means this type of project models can be successful in large, long-term projects.

A potential negative side of waterfall models is that they require massive and often costly amounts of documentation (Kerzner, 2022). Changes can also sometimes be hard to get approved and implemented, in the worst case leading to the project's deliverables becoming irrelevant or unsuitable at the time of delivery (Rolstadås, et al., 2020).

Figure 3 Phases of a waterfall project model (Clegg, et al., 2021)

Hybrid: Milestone model

A milestone project model is a more flexible variant of the waterfall model (Clegg, et al., 2021). It is still considered important to identify the project requirements before initiation, yet it also allows for iterations and changes along the way. The milestones give an overall structure to the project, while maintaining the ability to be flexible and handle uncertainty throughout the course of the project (Clegg, et al., 2021).

The phases as seen in the waterfall model is not as strictly separated, and insights and decisions from previous phases can be incorporated into the coming ones (Clegg, et al., 2021).

One could also see this as the project learning through the insights and experiences it has gained, and then adjusting to implement those lessons along the way. This is in line with Koskinen's (2012) definition of learning as being an adjustment to external stimuli.

Agile: Lean

A lean project model applies the concepts of lean manufacturing, construction and thinking onto project management (Kerzner, 2022). Compared to more rigid models, lean models accept that uncertainty and change are elemental factors in projects, and that one should rather learn to deal with them than trying to avoid it (Clegg, et al., 2021). The focus is on eliminating waste from activities, while simultaneously delivering more value for the customer, but also society and the environment (Chu, et al., 2021). Kerzner (2022) mention that this can make deliverables in a project more cost-effective for the customer.

The source of lean is said to come from Toyota and their focus on continuous improvement (Clegg, et al., 2021), where they defined four principles to work by:

1. Defining customer-based value to separate value added from waste
2. Front load the product development process to explore alternative solutions while there is still maximum design space
3. Creating flow
4. Utilizing rigorous standardization to reduce variation and create flexibility and predictable outcomes

From these principles one can see that the need to clearly define the projects requirements is still very much present. However, the model gives the freedom to do so during the course of the project, instead of needing to have everything clearly defined upfront. Rolstadås et al. (2020) defines this as

gradually detailing plans and goals; starting with overviews and then detailing these just before execution.

The overall goal of the lean project model is to improve profitability by reducing the load on resources and increasing the added value (Chu, et al., 2021; Clegg, et al., 2021).

2.2.2 Potential pitfalls for project models

To understand what makes a good project model, it can sometimes be easier to point out what makes a bad one. Kerzner (2022) has defined some specific faults that can potentially make a project model fail:

- If they are too abstract and high-level
- Don't contain enough narratives to support the model
- Not being functional and addressing the crucial areas
- They look impressive, but lack real integration into the business
- The use of nonstandard project conventions and terminology
- Facilitate resource cannibalism without addressing the problem
- Lack performance metrics
- Are too immaculate and take too long to complete

In addition to the above, it is also important to make sure that the model fits with the projects the organization intend to execute (Eskerod & Riis, 2009).

Lastly, Maylor et al. (2008) points out that most project models are not good at dealing with variations in the context of the project. One could imagine that this might be a difficult task for a project model to account for, especially if such changes or variations in the context are major.

2.2.3 Potential benefits from having a common project model

The purpose of a project model is to give structure and standardize best practice for all phases of a project, in turn creating a uniform way of doing projects in an organization (Rolstadås, et al., 2020). This helps to make projects more predictable, as well as setting a basis for how to handle different phases, risks, and scenarios. Kerzner (2022) highlights that a good project model will define the level of detail, use of templates and standardized methods for reporting, planning, scheduling, and control for the project. Additionally, roles, responsibilities and authority should be clearly defined (Andersen, et al., 2016).

Some established organizations within project management such as APM, PMI, ISO and OSG have developed their own project models that they recommend as guidelines for organizations to develop their own specific models. These mainly differ in the priority certain activities or phases get, and the sequencing thereafter (Lester, 2021). The choice of what specific model to implement in the organization should be based on what has proved to be best practices for the particular types of project(s) that the organization expects to handle (Eskerod & Riis, 2009).

Projects will have a more or less situational character, but through identifying the general and/or repetitive elements that are recurrent in every project one can form the basis and need for a project model (Eskerod & Riis, 2009).

Some of the potential benefits raised by Eskerod & Riis (2009) are:

- Better communication
- More efficient use/better utilization of resources
- Higher customer satisfaction
- Easier knowledge sharing
- Cost reduction
- Easier task solving
- Avoidance of beginner mistakes

Like previously mentioned projects and their environments are getting more complex, and the need for good and structured management of them increase accordingly (Andersen, et al., 2016).

Similar to Eskerod & Riis (2009), *Neste Steg* (2015) points out project models as giving all the stakeholders in a project a common language, telling them how and when to communicate, defining who shall be involved in which processes and when, and defining clear premises and goals. The results are thought to be better cooperation, increased margins, better results and less errors (*Neste Steg*, 2015).

2.2.4 Project management office

Many project-driven organizations have established their own project management office (PMO) (Rolstadås, et al., 2020), with the goal of improving project management practices and efficiency through adopting appropriate methodologies (Andersen, et al., 2016).

A PMO is its own organizational body or entity, assigned various responsibilities related to coordinating project execution and management (Rolstadås, et al., 2020; Monteiro, et al., 2016). The PMO can have different levels of responsibility and direct involvement in the projects (Monteiro, et al., 2016), also when it comes to training and development of project managers and teams in the organization (Rolstadås, et al., 2020; Andersen, et al., 2016).

Rolstadås et al (2020) names the most important functions of a PMO as:

- Status reporting to management
- Development and implementation of project models
- Benchmarking project's performance
- Training and development of project team members
- Portfolio management
- Advising senior management

The concept of having a PMO can be traced back to the mid-1990s (Rolstadås, et al., 2020) and has recently gained more traction based on a desire to gain better control of project risks, tools, techniques, performance and to facilitate increased knowledge sharing and implementation of best practice (Andersen, et al., 2016).

2.3   Change in organizations

Change is a highly relevant topic in today's organizations, where customer demands, external factors, and the competitive forces are increasingly dynamic. In order to stay relevant and adapt to the increased demands for efficiency and adaptability, organizations have to be equipped to manage change in a proper way (Fjeldstad & Lunnan, 2015). In organizations, change can affect a number of different components. According to Jacobsen and Thorsvik (2020) these components include the organizations tasks, technology, targets, structure, culture, demography, and/or processes. A change in i.e., the organizations project model or execution, would include several of these components.

Organizations can experience both proactive and reactive changes, where the difference between them can be seen as fundamental in relation to how the need for change is experienced within the organization. In a proactive change, the organization will implement necessary actions before their environment forces them to (Kaufmann & Kaufmann, 2015). As an example, this could be that the management expects an increase in future production and wants to streamline processes to prepare for it. The challenge with proactive change can be that the employees don't necessarily see the same need for change as management. Reactive change is most common, where the organization needs to change to adapt to something which has already happened (Kaufmann & Kaufmann, 2015). Some factors that can create the need for change is shown in figure 5.

In both smaller and bigger changes in an organization, there will be one or more change agents. A change agent is someone with the motivation, resources and knowledge to stimulate, facilitate and coordinate the change process (Amundsen & Kongsvik, 2016). Change agent will continuously analyse both internal and external factors, for instance internally big cultural differences between employees or externally economic trends (Kaufmann & Kaufmann, 2015). A change agent can be management, customers or external parties etc.

Figure 4 Factors that can create the need for change processes in an organization (Jacobsen & Thorsvik, 2020)

Most major organizational change processes are usually initiated by the senior management in an organization, but anyone can in reality initiate a change process (Yukl, 2015).

2.3.1 Change management

Change management[2] is about including people, create a common understanding of challenges and possibilities, create necessary arenas, and having the fundamental abilities to create, lead and participate in change processes (Klev & Levin, 2021).

As a manager, working with change can be challenging. One would need to be equipped to recognize and handle the different reactions and expectations that are evident in a change process (Kaufmann & Kaufmann, 2015).

2.3.1.1 Historical development of change management

As a reaction to the increasing amount of changes in both organizations' environments, technology and sociopolitical processes, a new management field known as change management emerged (Klev & Levin, 2021). The field of change management dates back to the middle of the 20th century when researchers began studying organizational behaviour and management practices (Cameron & Green, 2015). The need for effective change management is ever increasing, as both organizations and markets gets more complex and faces a dynamic business-environment.

One early and influential voice in the field of change management was Kurt Lewin, who developed a three-stage model for change in the 1950s. Cameron and Green (2015) discuss that Lewin's model emphasizes the importance of careful planning, communication and employee participation during the change process, summarized in the three steps as shown below in figure 6.

UNFREEZE	MOVE	REFREEZE
▪ Examine status quo ▪ Increase driving forces for change ▪ Decrease resisting forces for change	▪ Take action ▪ Make changes ▪ Involve people	▪ Make change permanent ▪ Establish new way of things ▪ Reward desired outcomes
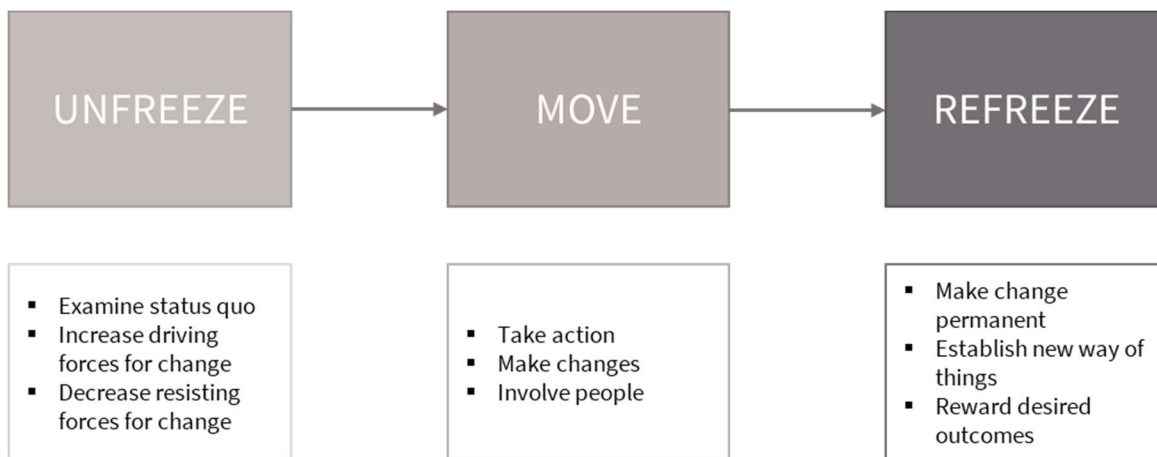
Figure 5 Lewin's three-step model for change (Cameron and Green 2015)

---

[2] Unless explicitly stated otherwise, change management in the thesis refers to change management in an organizational manner, not in projects related to scope changes.

According to Clegg et al. (2016) Lewin's model became a template for future research and development within change management, likely due to it effectively summarizing the most important components of each step. However, other perspectives on change such as processual theories find Lewin's model to be too simple to explain the complex phenomena of change (Clegg, et al., 2016).

As the need for systematic approaches to change became more apparent, numerous models and frameworks were developed (Paton & McCalman, 2016). One of the more prominent contributors to the field of organizational change in the later years have been John P. Kotter, Klev and Levin (2021) even assumes him to be the most cited author in recent years. Kotter's most famous works are "Leading change" (1996) and "The heart of change" (2002) that following the need for a more systematic approach to change seeks to give a practical recipe for successful change (Klev & Levin, 2021).

Change processes are often seen as events rather than processes (Kotter, 2007). These processes involve a number of defined stages, each with their own required actions and potential pitfalls to be aware of. Kotter's (2007) eight stages for successful change efforts can be found in table 7.

Table 7 Kotter's (2007) eight stages for successful change

Stage	Actions Needed	Pitfalls
Establish a sense of urgency	▪ Examine market and competitive realities for potential crises and untapped opportunities ▪ Convince at least 75% of your managers that the status quo is more dangerous than the unknown	▪ Underestimating the difficulty of driving people from their comfort zones ▪ Becoming paralyzed by risks
Form a powerful guiding coalition[3]	▪ Assemble a group with shared commitment and enough power to lead the change effort ▪ Encourage them to work as a team outside the normal hierarchy	▪ No prior experience in teamwork at the top ▪ Delegating team leadership to an HR, quality, or strategic planning executive rather than a senior line manager
Create a vision	▪ Create a vision to direct the change effort ▪ Develop strategies for realizing that vision	▪ Presenting a vision that's too complicated or vague to be communicated in five minutes
Communicate the vision	▪ Use every vehicle possible to communicate the new vision and strategies for achieving it ▪ Teach new behaviours by the example of the guiding coalition	▪ Undercommunicating the vision ▪ Behaving in ways antithetical to the vision

---

[3] Kotter's use of "guiding coalition" is in the thesis treated as the newer term of "change agents".

Empower others to act on the vision	▪ Remove or alter systems or structures undermining the vision ▪ Encourage risk taking and nontraditional ideas, activities, and actions	▪ Failing to remove powerful individuals who resist the change effort
Plan for and create short term wins	▪ Define and engineer visible performance improvements ▪ Recognize and reward employees contributing to those improvements	▪ Leaving short-term successes up to chance ▪ Failing to score successes early enough (12-24 months into the change effort)
Consolidate improvements and produce more change	▪ Use increased credibility from early wins to change systems, structures, and policies undermining the vision ▪ Hire, promote, and develop employees who can implement the vision ▪ Reinvigorate the change process with new projects and change agents	▪ Declaring victory too soon – with the first performance improvement ▪ Allowing resistors to convince the "troops" that the war has been won
Institutionalize new approaches	▪ Articulate connections between new behaviours and corporate success ▪ Create leadership development and succession plans consistent with the new approach	▪ Not creating new social norms and shared values consistent with changes ▪ Promoting people into leadership positions who don't personify the new approach

2.3.1.2 Modern approaches to change management

Building from the same principles and empirically proven factors that is found in Lewin's model and Kotter's stages, Klev & Levin (2021) re-define the three phases of change as:

1. Initiation – establishing a clear definition of the problem to reflect what is the purpose and direction from the change effort
2. Execution of change – laying the foundation for continuous and long-term learning
3. Continuous cycle of learning – collective reflection to uncover new insight as the basis for future change efforts

Their emphasis of learning and development in the change processes can be seen in relation to Kotter's (2007) seventh stage focusing on producing more change from the change efforts. The feedback on changes should be collected and analysed to track the development, and potentially uncover further development areas for the organization (Yukl, 2015).

In addition, terms such as power, involvement and resistance to change has been further studied and conceptualized.

2.3.1.3   Power and change

Power in general terms can be seen as the ability to make others agree with your interests, even when they in reality disagree (Jacobsen & Thorsvik, 2020). Klev & Levin (2021) proposes the idea that the ultimate form of power is when you can not only make others act against their perceived interest but rather when you can shape how they perceive their interests.

In organizations, more specifically looking at organizational change, power comes into play because you are seeking to systematically put a large group under pressure to change their behaviour to fit with the collective interests of the organization.

Changes in an organization will more than likely also affect the patterns for power and influence (Amundsen & Kongsvik, 2016), making it likely that different interests and influences can surface during such processes. This can for instance be through a change in the necessary expertise, reduction or closure of certain departments or divisions, or a shift in the hierarchical influence a specific position has (Yukl, 2015).

2.3.1.4   Involvement in change

When working with change in an organization, it is important that the changes actually reflect what is sensible for the organizations day-to-day operations. A way to ensure this is through involvement from those that will actually put the changes into effect. It's very important that this involvement is "real" and not just a symbolic one. Klev & Levin (2021) states that if done in an improper manner, involvement where the decision has already been taken beforehand can in the worst-case lead to increased resistance to the initiated change effort.

Involvement in change processes is a means to diminish alienation and a tool for taking advantage of all relevant and available information, while simultaneously increasing employees' commitment to the change effort (Klev & Levin, 2021). When taking part in investigating a problem and defining the solutions to solve it, it is easier for employees to both understand and feel a sense of loyalty to the changes. Further to this, the solutions that are crafted by those that know the field and challenges tend to be better than those based on a top-down view.

It can, however, be difficult to create the proper arenas for such involvement of employees, and it is up to the managers to understand who should participate and ideally use existing arenas to do so (Klev & Levin, 2021). Should one be successful in creating those arenas, another potential benefit of employee involvement is that potential resistance or scepticism towards the intended changes will be highlighted at an early stage, rather than when costs have occurred and implementation is the next step (Klev & Levin, 2021).

Another dimension, as raised by Amundsen & Kongsvik (2016), is that there needs to be coherence between the type of involvement and the organizations readiness and the employees' maturity for participation. They go on to define 5 levels of maturity:

1. **Conforming** – Passive participation
2. **Contributing** – Improvement of existing elements
3. **Challenging** – Actively trying to change parts of existing elements
4. **Collaborating** – Seeking to collaborate with others that wants to change
5. **Creating** – Creating new elements or systems

The quality of the involvement and participation will be linked to how competent the employees are in relation to change and participation (Amundsen & Kongsvik, 2016).

Employees' experience of involvement is closely related to how communication surrounding the change effort is done (Amundsen & Kongsvik, 2016). This is in line with both Kotter (2007), Yukl (2015) and Jacobsen & Thorsvik (2020), who all emphasize the importance of both communicating the status of change processes and also the concrete outcomes of them.

Klev & Levin (2021) point out that implementation of changes is often found to be the most difficult and costly part of a change effort. If employees have already been involved and feel committed to the change, the implementation part is thought to be much easier.

2.3.1.5 Resistance to change

The term resistance to change has often in earlier literature on change been glanced over, simplified to the extent that "all humans are inherently averse to change" (Klev & Levin, 2021). While both Klev & Levin (2021) and Amundsen & Kongsvik (2016) contest this, and states that resistance is more likely a consequence of lacking motivation and readiness for change in an organization. Klev & Leving (2021) also highlights that this experienced resistance can be a result of learned passivity, based on previous experiences with change in the organization. Paradoxically, it is likely that almost anyone you ask in an organization will be able to point out something they would like to change.

Further to this, two of Maslow's fundamental needs are highlighted; the need for development and the need for growth and development (Amundsen & Kongsvik, 2016). How an individual weighs the two will differ, and thus will their openness and willingness to see the need for change in their work environment.

Jacobsen & Thorsvik (2020) points out some specific potential sources for resistance towards change among employees:

- Fear of the unknown
- Breach of psychological contracts (implicit expectations)
- Loss of identity
- Symbolic order changes
- Power and influence changes
- Requirement for renewal
- Double work (for a period)
- Social connections are broken
- Potential for personal loss
- External parties seek stability

In compliment to the above, and in line with what's stated by Amundsen & Kongsvik (2016), Yukl (2015)[4] has also listed the following factors based on the employees' previous experiences with change in the organization:

- Lack of trust towards those proposing the change
- Changes are seen as unnecessary
- Lack of belief in the organizations ability to change
- Fear of failure

A combination of the above is resistance as a reaction to solutions that are seen as not fit for purpose. These are often a sign that the employees see that the change is not targeting the "right" challenges, or that it is based on false or incorrect assumptions (Klev & Levin, 2021).

Lastly, it is important to note that resistance to change often comes from the employees' values and feelings of commitment (Yukl, 2015), and that it can become a source of support and participation if correctly handled.

---

[4] Yukl (2015) lists an extensive amount of potential sources for resistance, only the ones not already covered by Thorsvik & Jacobsen (2020) is listed in the thesis.

2.4 Implementing new project models

Eskerod & Riis (2009) points to their findings indicating that a project model can be the most significant element in a project-based organizations value creation. From this, one could think that it would be in many organizations interests to implement a suitable project model.

When deciding to implement or change and existing project model in an organization, the change agents must be able to combine knowledge from both change management and project models. Some steps for successful development of a project model in an organization is:

- Identification of the most common motivators for change in project management
- Analysis and strategizing of how to overcome resistance to change
- Application of change management principles of involvement and how to develop suitable change efforts to ensure that the project model will fulfil the organizations and its projects needs, and be sustained in the long run (Kerzner, 2022)
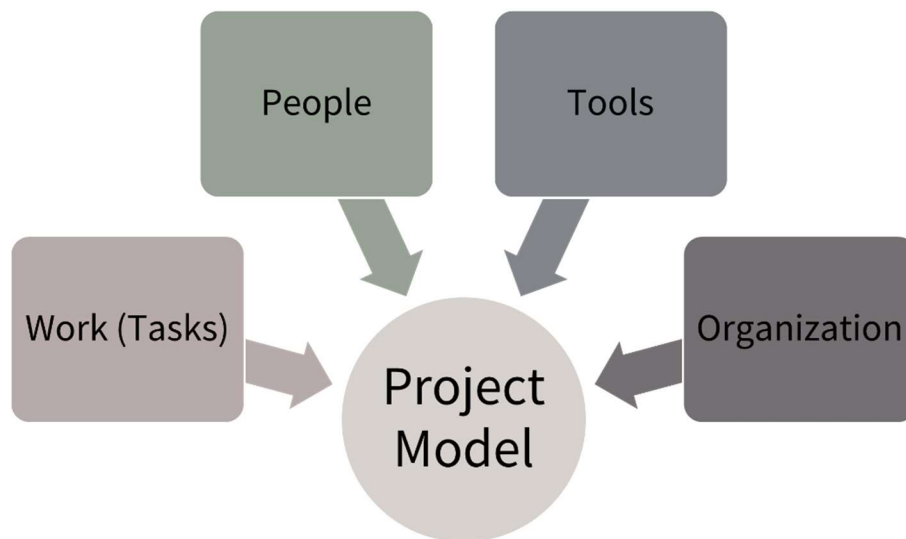
Figure 6 Project model inputs (Kerzner, 2022)

A simplified summary of the different inputs to a project model can be found in figure 6.

Both Eskerod & Riis (2009) and Kerzner (2022) emphasizes the importance of support from senior and functional management when implementing new project models. This helps to overcome the challenge of getting the non-project parts of the organization to work for and not against the projects (Eskerod & Riis, 2009). To be successful in the implementation, the benefits and desired outcomes must be clearly communicated and agreed (Kerzner, 2022).

Necessary training to support the new model is also an important factor when implementing new models (Kerzner, 2022; Emblemsvåg, 2014).

Eskerod & Riis (2009) define four important elements when creating and implementing project models:

1. An internal, common project model
2. Common project management training
3. Common project management exams or certifications
4. Activities enhancing knowledge sharing between projects and project managers

In line with the principles for good change processes, they also found that close involvement of the project managers and project teams in developing the models was an important factor for success. This can be thought to be in relation with the assumption that learning and development processes in project-based organizations are facilitated by communication among the project team members (Koskinen, 2012).

3 METHOD

This chapter will describe the chosen method and design for the thesis. Following that, a description of the selection of respondents and data collection methods, and a discussion of validity and reliability will be given. The chapter then concludes with the chosen analysis method and limitations.

When choosing a method and design, one must consider whether a quantitative or a qualitative approach is best suited. This choice can often be seen as a pragmatic one, and it's the thesis' objective and research questions that should be the deciding factor (Ringdal, 2016). The choice should reflect the essence of what one is looking to extract from the research. Since this thesis' objective starts with "How" it gives an indication that a qualitative approach will be favourable (Tjora, 2018). With the topic of the thesis built on how project managers are experiencing their situation and the changes, an in-depth understanding of the topic is necessary for proper analysis and discussion, further supporting the choice of a qualitative approach. With that in mind, a case study design with individual in-depth interviews as the method has been chosen.

3.1 Qualitative approach

Simplified, one can describe the difference between quantitative and qualitative approach as quantitative methods seeking to create an overview and an explanation of a phenomena, while qualitative methods are aimed at gaining insight and understanding (Tjora, 2018).

3.2 Research design

The research design is the researcher's map or strategy for how a study should be executed (Ringdal, 2016). Some common designs for a qualitative approach are case studies, biographical, phenomenological, empirical and ethnographic research (Ringdal, 2016). The different designs have qualities that makes them suitable for specific purposes. This thesis, with one specific organizational unit and a research objective aimed at organizational structures and change, is designed as a unique case study.

Ringdal (2016) defines a case as a unit exposed to intense examination. Choosing one singular unit/case gives a natural limitation to the thesis' size and scope (Tjora, 2018).

3.3 Data collection

The main bulk of the data collection comes from the primary data collected by the individual in-depth interviews. To supplement this, secondary data from reports and internal documents describing and related to project management have also been reviewed and analysed. An overview of the data collected can be found in table 8 underneath.

Table 8 Overview of primary and secondary data

Primary Data	Secondary Data
11 In-depth Interviews	Internal documents related to project execution (presented in table 12)
	Business presentation PowerPoint

3.3.1 Literature review

The literature review has been done using wide searches on search engines such as Oria, Web of Science, Scopus, and Google Scholar. Some examples of used search words are project models, project methodology, complexity, project management, matrix design, project management methodology, project management review, change, organizational change, implementing new project models. Instead of specifying the searches too much, the focus has been on getting results in the same range and keeping a relative open mind as to what articles, papers, books, might be interesting to look into in relation to the relevant topics.

Sources in relation to shipbuilding, construction or other similar businesses has been preferred, but on many topics, there were not enough data to only use those sources.

Some of the papers had related topics and might touch briefly on the elements that the thesis focuses on but not go into detail on it. In those instances, the reference list for the paper was also used to look for potential sources of information.

Another method used for finding relevant papers was to search through the index of Project Management Journal, International Journal of Project Management, and Journal of Ship Production and Design for the last 10 years.

Lastly, the guidance counsellor has given tips of relevant authors and specific works to look into.

3.3.2 Individual in–depth interviews

The in-depth interviews will be semi-structured with the intent of having a relatively free conversation between researcher and respondent on the topics that the researcher have defined in the interview guide (Tjora, 2018). To get the respondent to share from their knowledge and reflections on the topics, it's important to create a comfortable situation for them. To accommodate this, the interviews have as far as possible been held in the respondent's office with pre-scheduled time set aside for the interview.

There is no conclusive answer to how many respondents you need when performing in-depth interviews. However, one should seek to achieve saturation of the topics that are being discussed, which according to Tjora (2018) is when there are no new elements or information being uncovered after the interviews. In table 9 below an overview of the respondents, their ID (that will be referenced in the analysis), methods and duration is presented.

Table 9 Respondents ID with data collection method and duration

ID	Position	Method	Duration
R1	Project Manager	In-depth Interview	1:12:57
R2	Project Manager	In-depth Interview	59:06
R3	Project Manager	In-depth Interview	1:12:21
R4	Project Manager	In-depth Interview	1:05:53
R5	Project Manager	In-depth Interview	1:14:15
R6	Project Manager	In-depth Interview	1:09:19
R7	Project Manager	In-depth Interview (Teams)	1:21:20
R8	Project Manager	In-depth Interview	1:40:32
R9	Project Manager	In-depth Interview	1:44:13
R10	Project Manager	In-depth Interview	46:54
R11	Project Manager	In-depth Interview	54:56

3.3.2.1 Development of interview guide

In interviews that will be compared to each other, one should seek to have a clear structure (Ringdal, 2016). This can be achieved by the use of an interview guide which lists the questions related to the topics of the interview without excluding digressions or new questions during the interview. For this thesis the interview guide starts off with some warm-up questions before going deeper into the

topics of discussion. It mainly consists of open questions, giving the respondents freedom to answer the questions at their own interpretation. To make the analysis easier the questions are closely related to relevant theories.

3.3.3   Respondent selection strategy

The empirical part of the thesis is based on 11 in-depth interviews. The respondents have been strategically chosen based on their positions. Since the thesis focuses on project management within the organization, the directly related positions to the definition and execution of this field have been the target group for data collection. This to ensure that the respondents are knowledgeable about the topics of the interview guide.

Even though they hold the same or similar position, the respondent selection differs in the type of projects they have typically worked on, their years of experience and the geographical location they have worked in. The respondent selection consists of both highly experienced project managers with 20+ years of experience, as well as newer ones with about 2 years in the business. This is seen as a good basis to get a broad perspective of the situation, seen from different points of views.

One potential flaw with pre-selecting the respondents is that you cannot keep interviewing until you reach saturation. However, this has been a necessary limitation due to the limited time span of the thesis and the number of potential respondents to choose from. In the interviews for this thesis, it seems like one have achieved saturation for some questions, while for other topics opinions and statements that would be interesting to further investigate have been uncovered.

3.4   Data analysis

To analyse the empirical data that was collected Aksel Tjora's stepwise-deductive-inductive method have been used, from this point on referred to as SDI. According to Tjora (2018) the goal of SDI is to create a structured and systematic form of qualitative research. In SDI you work in stages, where the upwards stages seek to be inductive and adding data from theory, while the downwards steps have a deductive control function checking the empirical data against theories (Tjora, 2018).

The method of collecting the raw empirical data have already been described in the previous chapters, taking us to the third step of the SDI model; "Coding". Tjora (2018) recommends using an inductive empirical coding to reduce the impact of anticipation and subjective thoughts that the

researcher has regarding the theories that the material should fit into. The focus during coding have been to gather what the respondent is actually saying, rather than the theme they are discussing.

To systematic group the codes Nvivo have been used. In addition to the initial coding, the code groups have been reviewed and sometimes further detailed where codes were found to be too general. Nvivo has the possibility to generate reports to get a summary of the percentage of the material the codes consist of, who had the most to say on which codes etc. These types of insights can be used during results and analysis to for say something about the consensus of the statement among the respondents.

After coding I chose to do the code test and the grouping of codes simultaneously. For the code test Tjora (2018) presents the following questions that the codes should be tested against:

1. Could you have made the code *before* coding?
    a. If yes: a priori (unnecessary) coding – make another code!
    b. If no: potentially good empirical code – go on to question 2!
2. What does *only* the code tell you?
    a. Thematizes the data, unnecessary sorting code – make another code!
    b. Reflects actual content – good coding!
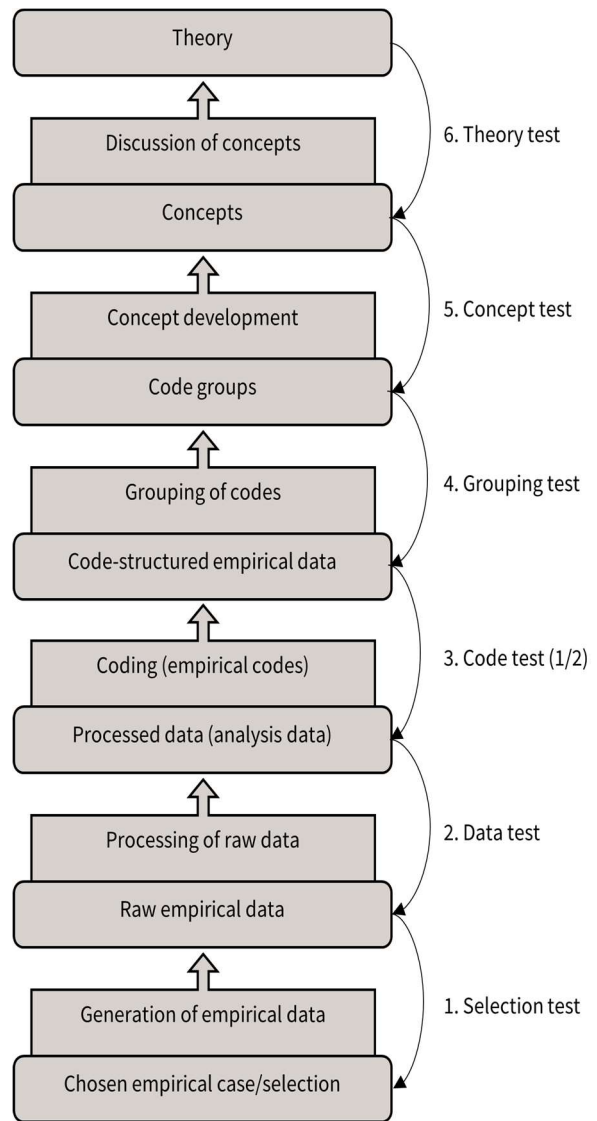
Figure 7 Steps of the SDI method (Tjora, 2018)

Creating code groups was done through gathering codes related to similar topics, as well as creating a group called "Other" where codes outside the scope of the thesis was collected. After performing the code test and grouping them, there was 530 codes divided between 29 code groups (including "Other").

To further strengthen the theoretical connections of the code groups they were split into six main groups: change, organizational elements, project complexity, project management and project models. An overview of the code groups and main groups can be found in table 10.

Table 10 Code groups and main groups

Code Group	Main Group
Change management	**Change**
Communication surrounding organizational change	
Effects of implemented changes	
Involvement in change	
Resistance to change	
Organizational culture	**Organizational elements**
Organizations involvement in projects	
Resources in the organization	
Support for project managers	
Basis for projects	**Project complexity**
Communication in projects	
Complexity drivers	
Differences between projects	
Multi-organizational collaboration	
Relationship between the organization and the projects	
Commitment in projects	**Project management**
Coordination of project goals	
Early project management efforts	
Expectations to project managers	
Project organization	
Risk management	
Decision making in the projects	**Project models**
Definition of project model	
Different approaches to project execution	
Processes in the projects	
Project management training	
Project model elements	
Project success factors	

Examples of how the transcripts went from that to quote, to code, to code group and lastly main group can be found in table 11.

Table 11 Examples of coding method

Quote	Code	Code Group	Main Group
Our culture has been our strength, and I hope we're going back there… It has changed in recent years due to the new way of organizing things and it is no longer serving as an advantage	The culture has changed after the changes	Effects of implemented changes	Change
Especially the fact that we build across borders, and almost all our ships are unique projects. We have tons of different entities and suppliers and need to split them between different locations. It makes it much harder than if we did everything ourselves in one location…	Split between different entities and locations increases complexity	Complexity drivers	Project complexity
It has been a bit… ambiguous, for some time now, who is actually running the show and who you are supposed to report to. Previously it was the yard director, but they are now more like a production unit and not really involved in the projects anymore	Unclear who the project manager shall report to	Organization of projects	Organizational elements

3.5   Validity and reliability

Validity and reliability are important factors in research methodology, relevant for evaluating the quality of the collected data.

Validity refers to the degree to which one have accurately measured what one claim to have measured (Ringdal, 2016). This means that the thesis' data are accurate and meaningful, and that the drawn conclusions are justifiable. When discussing validity in qualitative studies one must evaluate both the researcher and the respondents to ensure that the data accurately represents the phenomenon being studied (Tjora, 2018).

Reliability, on the other hand, refers to the consistency and dependability of the data (Ringdal, 2016). Ringdal (2016) states that researchers must reflect on how the collection of data have been done, and constantly be aware of possible sources for errors.

To preserve the validity and reliability of the thesis the researcher has been mindful of one's own potential biases and prejudices, and not letting this affect how the data is collected and interpreted. Further to support this approach, the research has been done using an interview guide with questions closely linked to theories, transcription of the interviews, and thereon coding in a structured way to maintain the integrity of the empirical material.

However, there will still be potential sources of errors, such as the respondents' interpreting the questions differently or being affected by their latest projects or surroundings, as well as their personal relationship to the researcher.

In relation to validity and reliability, a third term should also be discussed. Generalizability speaks to whether or not the findings from the analysis can become general principles or methods (Ringdal, 2016), but in qualitative research transferability is often a preferred replacement term (Tjora, 2018). Transferability refers to the extent which the findings can be transferred to other, similar, contexts or settings. Tjora (2018) highlights providing a detailed description of the research's context, methods and data as measures that can be implemented to increase the transferability of findings.

3.6 Ethical considerations

During work with the thesis, there has been several ethical considerations to make.

The most prominent one has been how to maintain the respondents' anonymity while still properly explain and present the collected data in a representative manner. Respondents should never face the possibility of being identified when under the presumption of being anonymous, as this in the worst case could have negative consequences for them if they express opinions or thoughts that can be seen as negative for the organization or other stakeholders. Information not directly relevant for the thesis, such as age, gender, exact position, has been removed in an effort to further maintain this anonymity. The full transcripts from the interviews have also not been included, and when choosing which quotes to use the researcher has been mindful to do so without making it clear from who they could have come from.

Further to this, considerations of how to inform the respondents adequately about the thesis' subjects and topics for them to make an informed decision of whether they want to participate or not has been made. These and related topics have been handled through the ethical approval application which is made to Sikt.

3.6.1 Application for ethical approval

In Norway, all research handling personal data shall be applied and approved by Sikt[5] before starting data collection. When applying to Sikt, the researcher must give information about the thesis and intended interview guide, as well as listing:

- Why the data collection is necessary
- General information about the intended respondents
- How the data will be collected and stored
- Who will have access to the data
- What will be done with the data after completing work with the thesis

This was done for the thesis before contacting any respondents, both Sikt's assessment and the information letter sent to respondents can be found in the attachments.

---

[5] Previously known as the Norwegian Center for Data Security.

3.7 Limitations

While using a qualitative approach gives the necessary tools to explain phenomena and experiences, it also will mean that the research to an extent will be coloured by the researcher's subjectivity. It's close to impossible for the researcher not to be affected by one's own opinions and experiences when collecting and processing the data. Another potential weakness of the qualitative approach is that the size of the selection of respondents naturally is limited by the time frame for the thesis work.

The use of case studies will also be a limitation, since one cannot guarantee that the case is representative for other similar cases.

When talking to respondents there is a possibility that they will present their own or the organizations situation in an overly positive or negative light. When asking questions closely related to theory, there might also be the possibility that they know more about the topic than they express, just that they are familiar with it under other terms. Their interpretation the questions can also be wrong, giving false answers without intent. Since the case organization has projects with a relatively long timeframe, there might also be the possibility that some respondents have not been working with the specific topics for quite some time, limiting their answers by their memory.

Ideally for the thesis, collecting data from several more respondent groups would have been the best to ensure a diversified look at the research questions. Also, to increase the validity of the thesis' findings.

Having a longitudinal time design might also have been ideal for the thesis, getting the opportunity to follow one or more projects from start to finish. Or even experimenting with different approaches and results.

4 RESULTS

In this chapter results from the data collection will be presented, through the structure of the main groups from the coding; change, organizational elements, project management and project models.

Tjora (2018) believes that a thesis' credibility can be increased by marking the quotes with which respondent they stem from. To show if some respondents are more heavily quoted than others. To accommodate this, while still maintaining their anonymity, the quotes are marked with the respondents ID from table 9.

Lastly, the results from a desk survey into the organizations documented project model elements will be presented.

4.1 Respondents thoughts on change

When asked about change and how it has been practiced in the organization, many respondents express feeling excluded and distanced from the change efforts. They do not feel included in the decision process or implementation of changes.

Additionally, the lack of clear communication about the rationale for the changes and their evaluation/results further exacerbates the issue. Both negative and positive consequences are brought up, such as a shift towards a more line-focused organization and improvements in planning.

4.1.1 Change management, involvement and communication surrounding changes

One of the respondents states *"What do you need when changing? You need commitment, and to do that they need to be involved and have the possibility to partake in the discussion"* (R2), acknowledging the importance of involvement and commitment in changes. Yet, other respondents state that this is not how it's being practiced in the organization *"those that are affected by the changes never gets involved"* (R10), *"It's strange that they don't involve any of those that will actually be implementing the changes"* (R7), *"It feels like it's a lot of top-down"* (R3).

Employees express that the steps that are taken by management to involve them in the changes doesn't seem real, *"Everything has already been decided when we find out about it"* (R4) and *"We didn't feel like we could affect anything, it was already decided beforehand"* (R8). There is also doubt in whether the changes are of the sufficient quality that they should, *"I'm not sure if it's as well*

worked over as it should be" (R4)(R5)(R11). One of the respondents even hint to feeling resigned *"We can disagree but there is no point to fighting it"* (R8).

There seems to be a lot of frustration and a lack of understanding for the changes that have been implemented *"I have no idea what their goals are"* (R11), *"I have no idea what they are doing"* (R4). Two of the respondents also points to the fact that implementation of a new project process became harder because people didn't understand the point of it *"There was a lot of noise, because they didn't take the time to properly explain why, and create an understanding as to why the changes where necessary"* (R7) and *"It took a lot of time in the beginning, because they didn't clearly communicate why we were supposed to do it, but now looking back I see the value from it"* (R6).

Lack of understanding for the reasoning behind the changes is not only among the employees according to one of the respondents *"Often times the change isn't even agreed between the management"* (R10). And one could think that this might be one of the reasons why the vision isn't more clearly communicated, as is also expressed by the respondents *"I would have liked if they communicated it more clearly, what is the vision etc."* (R6).

Communication in the organization seems to have room for improvement, one respondent states *"I get feedback all the time that communication has been too sparse, both regarding trivial matters but also more important things"* (R2) while another acknowledges that this is a known challenge *"Too little communication is typically something everyone complains about"* (R8). However, a separation is done between the communication in the organization and in the projects *"In the projects I feel it's relatively good, but on an organizational level we definitely have some room for improvement"* (R2). In contrast with these, one of the respondents feels like things are moving in the right direction *"Communication has improved in recent years"* (R5).

Further to this, several bring up a lack of communication surrounding the results of the changes, one respondent expressing this as: *"I have no idea what those people are doing, or what types of mandates they have… there has been some external companies involved as well, but we don't get any information about what they are actually doing… or achieving for that matter"* (R11).

4.1.2 Effects of implemented changes and resistance

There are several negative effects from the changes that is brought up by the respondents *"One of the worst effects is possibly that we have become much more line-focused, rather than project-focused as an organization"* (R3), *"I feel like the competency that once was our strength is slowly disappearing, the people that actually executes and delivers the projects have been pushed to the side"* (R4) and *"People lack direction, and a lot feel like they have lost their place in the organization after the changes"* (R3) are some examples of this.

The amount of changes is also something brought up by respondents *"There are more change processes being initiated than contracts signed"* (R3), indicating that there might be too many initiatives being implemented. Another respondent phrases it as change for the sake of change, speculating that this might have negative consequences *"Sometimes it feels like they are making changes just to make changes… without giving the process or the consequences any thought"* (R11).

Potentially as a result of the above, a lot of long-term employees has left the organization in recent years. One respondent says, *"I don't think we do anything particularly well anymore"* (R3), clearly pointing to the fact that things used to be better before the changes.

However, some see positive effects as well, mostly related to how planning is now being done *"One thing which is good is what we have achieved within planning"* (R1), *"We've been able to overcome some of the differences between the entities, but we still have a way to go there"* (R2), *"Our competency seems to become wider"* (R8), *"Within planning we see major advantages from the new way of doing it"* (R7).

There is little evidence among the respondents that implemented changes gets evaluated *"I think there has been some evaluations, by external consultants I think"* (R10), *"As far as I know, there is no evaluation of the changes"* (R8), *"They might get evaluated, but not to my knowledge"* (R6). If evaluations are being done, they are not shared with the group of respondents.

4.2 Respondents thoughts on organizational elements

Discussing the organizational elements, resources, project teams and the overall structural setup of the organization are topics that gets highlighted. Respondents express that there is a lot of expertise and competency within the organization, which is considered crucial for their project teams and success in projects.

The organizational elements are thought to have become more ambiguous, especially related to resource ownership and the company culture.

Despite perceived challenges, a collective desire to improve the organization and get back to a more suitable organizational structure is clearly expressed.

4.2.1 Resources and project teams in the organization

The respondents agree that there are a lot of skilled people in the organization *"One very good thing is that there is a lot of knowledge and competency within the organization"* (R8), *"We have a lot of highly skilled people, some pulling very heavy loads, and participating with knowledge across disciplines based on experience"* (R2), *"I think our project managers are very skilled"* (R6), and it's recognized that this is essential for the organizations continued success. Many of the respondents points to the fact that there has been a lot of turn over in recent years, and that keeping a core competency in the organization is important for the types of projects they specialize in *"Need to make sure there is enough competency left to properly execute our projects"* (R2).

Further to this, the importance of having a good project team is highlighted *"If you have a good core team, you can deliver a good project"* (R10). Respondents points out that this has become more difficult in recent years *"You don't own the resources in the project"* (R10) and *"Now the line organization is supposed to own the resources, making it much more difficult and ambiguous to know who is in the project and who you can count on"* (R11).

Respondents describe the shift as individuals becoming more distant, and the focus no longer being on the physical product that is to be delivered *"the culture in engineering has changed after the re-organization, and not the better, now there is much more conflict and people often don't know what's happening and doesn't feel like they are actually a part of the projects"* (R10), *"The product is no longer the focal point, now it's more important to stick to the budget"* (R4).

4.2.2 Organizational structure

There is some concern as to whether the current structure is the most suitable for the organization, culture and efficiency is especially emphasized *"If we are to become the best at project execution, then our organizational structure is too complicated"* (R1), *"As a group, we have a potential for improvement in becoming more project-focused and getting a strong project organization"* (R2), *"The culture in our design department has changed, now they are more like a subcontractor to the project"* (R10). For many this is related to the recent restructuring *"To go from being project-oriented to becoming line-managed is, in my opinion, the wrong way to go. With our types of projects we need a strong project-organization to handle the level of complexity"* (R3), *"I don't know the how it's supposed to make us more efficient, looks like it's doing the opposite from my point of view"* (R4).

The experienced increase in formalization and complexity of the project organization is viewed as negative, both with regards to peoples closeness and commitment to the projects, and the extra need for functions that serve no direct value in the projects *"The current organization of projects requires more of a formal project organization, where you have functions controlling other functions"* (R1), *"How are we supposed to be competitive when we keep adding extra costs that serve no value other than for people to get more controlling functions in the projects? It's against its purpose"* (R6), *"Having to deal with the line manager rather than the people that are actually going to be involved in the project makes it so that people lose commitment, and it makes it more difficult for us as project managers"* (R6).

Although the general consensus is that the current structure is not the best, there is still a push and will in the organization amongst individuals to make things better *"There is a lot of will to make things happen, just on a individual basis rather than an organizational"* (R6), *"People who still remember how good we used to be are continuing to fight for us to get back to that place, at least for now"* (R5).

4.2.3 Support for the project managers

When asked about what support the project managers have the respondents' answers vary a lot. Some feel like they are alone *"Mostly I've been doing it alone"* (R8), others look to the project team *"It depends what the need is, but usually it would be the project team"* (R11), a mentor or someone that is considered to be knowledgeable can be an alternative *"It's incredibly important to have someone to discuss with, preferably someone that can be like a mentor"* (R10), and the management seems to be both considered an option *"Hmm, maybe the yard director… or the management"* (R4) or not really of use at all *"Further up in the organization there really isn't much support to find"* (R7).

4.3 Respondents thoughts on project complexity

When talking about project complexity, respondents universally describe the organizations projects as highly complex. Several complexity drivers are identified, such as project flexibility, high number of stakeholders, a short planning and execution timeframe and the multi-organizational aspect.

Respondents often feel that projects are too loosely defined at the initiation stage, making it challenging to set clear goals and plans.

In addition, the projects are described as prototypes and one-offs rather than copies, often challenging the existing rules and regulations. These types of projects seem to further add to the level of perceived complexity in the organization's projects.

4.3.1 Complexity drivers

When asked how the respondents would describe a project typical for the organization, everyone pointed out that they are complex, two respondents even stating that there are no typical projects in the organization *"I've never had a typical project"* (R5) and *"there is no such thing as a "typical project" in our organization, it's organized chaos"* (R6).

Looking at the reasons for the experienced complexity, many point to the flexibility in the projects, lots of stakeholders and a relatively short timeframe for planning and execution *"Our projects typically have a lot of simultaneous activities, with the added difficulty of having many internal companies and suppliers that are supposed to collaborate"* (R2), *"There is a lot of suppliers in our projects, and often third-party stakeholders such as class, so it makes communication and coordination challenging"* (R6), *"It's a lot of interfaces, coordination, and disciplines, not to mention high values. Complex."* (R1) and *"Our projects are very unique, built in several countries with tons of suppliers"* (R3).

Looking at the flexibility aspect this is something which many of the respondents highlights in a positive manner, something they're almost proud of and sees as a competitive advantage *"We have a strong ability to adapt to customers' requests"* (R5) and *"We are good at adapting to our client I think, implementing requests and such, better than our competitors I think"* (R2). However, some also points out the potential negative side of it *"Often times we take on too many requests and changes in the project"* (R10). It is also by some clients seen as something to avoid *"Some clients want a lot of changes while others want to minimize them because they know it's a risk"* (R11).

Some respondents feel that they are the ones that needs to handle these change requests, not the organization as a whole *"I handle a lot of changes and complexity in the projects, as well as advanced tasks"* (R8) and *"It's usually me who handles the requests for changes in a project"* (R4).

The short timeframe of the projects is experienced to increase the risk in the projects *"There is always a lack of time, creating the risk that one might not be able to see or react to everything one should"* (R2) and *"Our projects usually have a very short time from signing to realization"* (R3). It also seems to create uncertainty as to the quality of work that is being performed at different stages *"There is a lot of uncertainty related to the quality of preceding work"* (R3).

While still being a short timeframe for the amount of working hours that the projects entail, the overall lifespan of the projects are long and can also lead to a more difficult execution *"The lifespan of our projects is relatively long, making them even more complex"* (R9), *"Projects that span over several years, and countries…"* (R1).

4.3.2 Multi-organizational projects

Since the organizations projects are multiorganizational, this also creates challenges from the project managers point of view *"It would be simpler if you had your "hand on the wheel" the entire project, but the reality is we need to rely quite a bit on others, especially before the project comes to Norway"* (R4).

Having the hand-over between phases seems to be cause for concern for some, as well as making sure everyone has the same level of dedication to the projects *"The sub-optimalization we see is a sign that there is not enough "one project"-thinking going on"* (R2), *"The level of commitment to the project is not equal between the entities, it seems very local to me"* (R1).

4.3.3 Early project management efforts

Although recognized as important *"Having enough resources in the early phases of the project is really important"* (R1), several mention the not having enough resources in the earlier phases of the project as a reason for increased complexity, leaving challenges and risks unattended for too long *"I think a lot of the complexity can be related to there not being sufficient resources allocated in the early phases"* (R7) and *"The projects are definitely complex, and I think a lot of it stems from not having enough resources to face the challenges early enough"* (R6).

It can also seem that this is something that follows throughout the project, as there is not an experience of decreased risk until the very end of the projects lifecycle *"Theoretically the risk should reduce the further into the project you get, but we who work in shipbuilding know that this is not true until after sea trials[6]"* (R4).

The fact that not all risks can be mitigated is recognized *"There will always be some risks that we are not able to fully mitigate but having the focus on identifying them as early as possible will at least have a positive impact on how big the consequences might be"* (R2), simultaneously pointing out that identifying them earlier is an advantage.

4.3.4 Ambiguous project definitions and prototypes

Lastly, the respondents don't feel that the projects are well defined and clear when they are initiated *"Typically you get an illusion of a project, and then it's your job to make it into a reality"* (R10), highlighting that this makes it more difficult to set clear goals and plans for the projects and its team members *"It makes it difficult to set the start line, and define the way over the finish line"* (R8).

Many of the respondents contribute this to the projects being prototypes *"And then it's usually a prototype, and a new client"* (R8), *"…which is a prototype, a groundbreaking delivery"* (R3) and *"It's like we're doing product development at the same time as building the projects"* (R3). They state that the types of projects the organization does can not be seen as copies *"If you're able to make a copy that's one thing… but prototypes like we do is immensely complex"* (R1), *"It's one-offs and pilot projects, you can never get the lessons from previous projects"* (R7).

These prototypes also seem to not always be regulated by existing rules and directions *"A lot of the time the projects challenge existing rules, regulations and norms, making it so that we develop them as we go"* (R9).

---

[6] Sea trials are usually completed about 1 month prior to delivery of the project.

4.4 Respondents thoughts on project management

From the perspective of project management, the criticality of project commitment is repeatedly brought up by most respondents in relation to project success. However, a common sentiment amongst respondents is that commitment has decreased in recent years, leading to a loss of the team-feeling and sense of belonging within the organization and its projects.

Respondents also bring up the ambiguity surrounding the expectations and requirements for project managers. The role seems to often be influenced by individual preferences and backgrounds, leading to an inconsistent approach towards clients, stakeholders and project team members. Such ambiguity also seems to surround the project goals, leading to sub-optimalization and conflicts.

When the project manager is initiated into the projects is also brought up, with respondents expressing a clear preference for doing this as early as possible to ensure proper commitment and quality control before initiation.

4.4.1 Project commitment

The importance of commitment in projects are highlighted by several of the respondents *"Commitment to the projects and the work we do is one of the most important things we have, unfortunately I've seen it starting to disappear"* (R5), *"If you lose commitment… then you've lost the most important thing we have"* (R3) and *"People who feel a strong sense of commitment can move mountains, those without it can't even move their car…"* (R3). Some also elaborate that this importance is due to the type of projects the organization has: *"If we are going to be able to deliver projects at the complexity level that is required in our organization commitment is an absolute must"* (R3), while others point to the effect it has on quality of work *"I strongly believe that committed employees deliver better results"* (R11).

However, most respondents agree that the level of commitment has dropped in recent years *"You don't get the same sense of belonging and commitment that we used to have. Those are both important success factors in projects"* (R11), *"One of our strengths previously was the team-feeling in the projects, I feel this is gone now"* (R4) and *"A sense of belonging and commitment is something we should work on, one team…"* (R7).

One respondent speculates if the dropping levels of commitment can be related to the amount of guidance the organization has *"Everyone tries their best, which I think is impressive given how little feedback and direction there has been, they do what they can"* (R7), another seems to agree and highlights that it's difficult to know what is expected due to this *"It's hard to know if what you're doing is right or not since we don't really get any feedback on it"* (R5).

4.4.2 Definition of the project managers role

This is also reflected in how respondents experience the requirements for project managers in their organization, most seem to agree that these are not clearly defined *"What is expected from project managers is quite ambiguous, more based on what your boss likes, ours for instance is very systematic and likes things to be by the book"* (R8), *"That is not clear to me, the boss says what he likes and… we have some monthly meetings and stuff"* (R3). Several bring up that they think that the management has a clear thought on how they would like things done but that it's not formalized in any way.

Further to this, some respondents have the impression that this can be due to a lack of time to prioritize those types of tasks *"Well, I guess it's our management who is supposed to set the standard for how things should be done but I think they have too many other things to do so they are not really present"* (R4).

There are also individual differences as to how project managers chose to take on their role, some speculate if this is due to what background they have *"I see that there is a clear difference in how project managers with different backgrounds handle their projects"* (R2), others points to the level of experience as a possible explanation *"It's very individual, you run the project according to the experience you have"* (R3).

Even if the respondents are not clear on how this is to be done, the common understanding is that the project manager is responsible for achieving the projects goals and keeping a certain level of control *"Steering the project, doing what is necessary to reach the goals we've defined"* (R5), *"there is an expectation that you have control of your project, so that's what I'm working to do"* (R4), *"You're responsible for the entire project and its deliveries"* (R3), something they seem committed to doing.

4.4.3 Project goals and sub-optimalization

Another point which is raised both in relation to the dropping commitment and the ambiguity of the project managers role is that the goals are not clearly defined *"I guess there are certain expectations, but not really defined targets or goals"* (R11), with some also stating that this can affect the relationship between different departments and entities *"If the goals are not properly formulated, it will lead to sub-optimalization. It's too many times that entities or suppliers focus on their short-term gain rather than the big picture"* (R1).

4.4.4 Initiation of the project manager in the projects

Most respondents agree that it's important to initiate the project manager into the project as early as possible *"it's a goal to get the project manager into the project in the pre-contractual phase"* (R1), *"It's very useful for the project manager to be involved at that stage [early phase/before contract signing] because then you know what is actually behind the agreements and documents"* (R3). Increased commitment and understanding of the underlying agreements for the projects are two things that are seen as positive by being initiated early.

But this is not how some respondents believe things are being done *"that [after contract signing] is often when the project organization comes in and the commitment starts"* (R8), *"My understanding is that you [the project manager] often are initiated after contract signing, and then there is no one to do quality control, and later that becomes the projects problem"* (R7).

4.5 Respondents thoughts on project models

Uncertainty about specific tools and processes is universally expressed by the respondents when questioned about the project model elements of the organization, with many struggling to provide concrete details. There is also a disparity in how the existing tools are perceived, some seeing them as helpful and others as a liability.

The challenges from this are expressed as difficulties in measuring results, learning from past mistakes and a lack of clarity in project execution.

Respondents also express concerns about the low level of project management training, as well as a desire for a clearer and more well-defined project model.

4.5.1 Project model elements

When describing existing elements of a project model in the organization, most respondents struggle to be specific, and in general seem very unsure as to what is the "current" set of tools that are expected to be used, *"We don't have anything specific that we use"* (R9) *"In theory we have phase-end review but I'm not sure if they are used everywhere"* (R6), *"Our management seems to have a clear view of how a project should be executed but I don't think it's written down anywhere"* (R8). An example is one of the respondents who points to a type of model, but then immediately follow up with that it's not even in use *"There are some role descriptions and some sort of a project model in our management system that's not really in use"* (R1).

Those that are able to mention tools are also unsure if these are actually being used *"but if it's used or not… I don't know. It should be though"* (R9). Several also seem to have the impression that it's up to each individual project/project manager if they wish to use them or not *"I don't think we actively use what we have, it's usually up to the project manager to decide if this is done or not"* (R8).

The tools also seem to not be equally embraced by the different members of the organization, respondents describing it as *"Some see it as tools, others as a liability"* (R10), *"It depends on the project team members, very individual"* (R3) and *"But there is still potential in getting this properly integrated into all the projects"* (R2).

4.5.2 Training of and for project managers

When asked how project managers are trained in the organization, most respondents agree that this is done through mentoring *"You learn from our predecessors, walk the ranks"* (R9), but at the same time highlights that each project manager finds their own way of doing things over time and based on their individual experience *"More experienced project managers usually have a way they like to do things, while newer ones needs to find their path through trial and error"* (R3), *"I don't think any of the project managers execute their projects in the same way"* (R5).

There seems to recently have been some initiatives to make the training more structured *"I'm hoping that the courses and lessons we are doing now might help us become more aligned"* (R2), but only a few of the respondents bring this up when asked.

4.5.3 Definition of project success

There doesn't seem to be a clear way of measuring what makes a project successful in the organization, but the respondents have some opinion of what it means to them *"The most important is that everyone gets a piece of the cake and feels good in the end"* (R5), *"Number one is that the client should want to return to us in the future, that is something I hold in high regard" (R11)* and *"That the client is somewhat happy, and would want to return for future projects"* (R4). Client satisfaction is seen as very important by several respondents.

The acknowledgement of the organizations needs to be profitable is there, however, client satisfaction still seems to be even higher on the prioritization list *"In my world there is no use in making money like crazy if the other party is left with the feeling that these are the most despicable people I've ever dealt with and never want to see us again. So it's definitely a balance to it"* (R4).

One respondent further emphasizes, that it's not only the client that should be satisfied and want to return, but also the individuals working in the project organization *"Some "softer" values are also important to remember, such as that the people working in the projects should want to continue working in the organization afterward, not getting demotivated or burned out"* (R11).

Being able to clearly define the goals of the project, and having good communication is also highlighted *"To have a successful project you need good communication and coordination, to be proactive and make sure the project gets of to a good start"* (R2), *"Being able to set clear goals that motivates everyone to work together and avoid sub-optimalization is a really difficult task, but maybe one of the most important ones of a project"* (R1). This is seen as important both to motivate the project team, ensure equal commitment from stakeholders and lay a good foundation for the project.

4.5.4 Challenges from missing project processes and tools

Several challenges related to the seemingly missing project model is highlighted by the respondents, some see challenges with not knowing what they should measure their results against *"It's difficult to evaluate if something has been done good or not, because we don't really have any metrics that we measure"* (R6), while others see that they have done mistakes in the past that could have been avoided *"You learn something from one process to another, sometimes when I look back I wonder what I was doing… But you have to act on what experience you have at the time"* (R3), *"It's a lot of trial and error, no defined way for how to execute a project in our organization"* (R7). Challenges with the organization demanding resources to work on several projects are also highlighted *"If things where better coordinated and defined it would be easier for resources to work on several projects"* (R8).

One respondent puts it quite bluntly, *"We have a bipolar and fragmented project model"* (R1), while another exemplifies the implication it has towards customers through a story: *"Someone many years ago were building 12 ships with us, with 3 different project managers. They said that one was "Mr. No", the second was "Mr. Yes" and the third was "Mr. Maybe". So, some direction on how to do thing probably would be good"* (R4).

4.5.5 Initiatives towards defining a project model

There is complete consensus amongst the respondents that a clear project model would be a positive addition to the organization *"We don't have anything, but I get the impression that it's wanted"* (R9), *"I personally don't need it but it would hurt to have it a little more formalized"* (R6), *"And I was a bit surprised, like "What? Is this something I'm supposed to know about?" Because it's not stated anywhere. It would have been nice to have something to guide us"* (R3).

Respondents express a want and a need to structure the projects better *"Having clear divisions between the phases, and a breakdown of the project that makes it possible to follow it up properly"* (R3), *"I think we have room for improvement, get a better system for identifying challenges early and learning from them between our projects and entities"* (R2) and *"Something we are especially bad at might be to have control during the course of the project, spread the risk and responsibility so you get more commitment from each involved party"* (R7). There seems to be frustration related to the loss of efficiency and opportunities *"like it is now you always have to be reactive, never having the opportunity to be proactive, and that is much more expensive"* (R3) and *"Ideally, we want to execute the projects as efficiently as possible, while still keeping costs down and maintaining the proper quality"* (R2).

One respondent points out that the absence of a clear project model could also be costing the organization time and money: *"it's too much assumption, due to the fact that there are no clear guidelines for how things should be done… one guy said to me that "assumption is the mother of all fuck ups", and that makes sense because it usually ends up costing us a lot of time and money"* (R10). Further to this, another also highlights that the assumptions and ambiguity can lead to conflicts: *"some of the conflicts often are related to the fact that there is too much assumption and too little clarity"* (R11).

Some don't agree with the previous statement that there is an internal push to streamline project management *"There doesn't seem to be any drive to get it into one track"* (R1), seeking a process owner for such an initiative.

4.5.6 Learning and sharing between projects

There is a lack of places for project managers to meet and share experiences, and possibly also help develop a framework for a project model in the organization *"We don't spend the time to sit down together and define <u>how</u> project management should be executed"* (R3), *"There are no arenas for us to share thoughts and knowledge across projects"* (R5). They point out that the organization needs to facilitate such arenas *"There is a lot of willingness to make something happen, but on an individual level rather than an organizational one"* (R4).

4.6 Desk survey of internal documents

As a supplement to the interviews with the respondents, the organizations internal documents related to elements of a project model has also been reviewed. These are available on the organization's intranet for all employees. Many respondents did mention some of these, especially the project reporting model. The project monthly reviews and pre-contractual procedure were never mentioned. From what the respondents state, there are clear inconsistencies in how, if and when they are used. The documents are listed and described with contents and purpose in table 12.

Table 12 Internal project model tools and their purpose

What	Contents	Purpose
Project execution strategy	Framework for early definition of: - Key project information - Project organization - Planning and reporting strategy and requirements - Cost and risk analysis - Strategies for different phases, entities, and disciplines	Starting the strategy work immediately after signing a new contract, and through this document do so in a well-organized and semi standardized way. The goal is to reduce uncertainty and have better coordinated projects from beginning to end.
Project reporting model	Project reports for finance, changes, variation orders, risks and ordered versus booked hours	Overview of the project status in terms of finances and hours
Project monthly reviews	Milestone overview, list of deliverables for each phase with status, review plan and milestone standard	A tool for planning and performing project reviews, with the purpose of monitoring the maturity of the deliverables and risks in the project
Project risk management	Requirements and guidelines for risk management	Increase the attention towards potential threats and opportunities in the project, and provide a common platform for identification and handling of risks
Pre-contractual procedure	Definition of the pre-contractual activity scope, project team, roles and responsibilities	A procedure to ensure that the necessary and correct activities have been performed in the pre-contractual phase of the project, in order to ensure that the next phase can continue with alignment to the building strategy

5 DISCUSSION

This chapter connects and compares the empirical data found in the results chapter to the literature review chapter, presenting the discussions by the same structure and order as the literature review chapter.

5.1 Discussions on project management

In discussing project management within the organization, comparisons towards literature on early project management efforts, project complexity, project commitment, project management training and organizational elements impacting project management are made.

5.1.1 Positive views on early project management efforts

In line with the positive effects of early project management efforts that the literature describes, the respondents also see this as an advantage. Facing challenges early, defining plans and goals and getting a commitment from the project team are all brought up as benefits, in line with those described by Kaufmann & Kock (2022).

However, when describing how things are actually done the respondents answers are not so positive, and it can be an indication that the missing structure surrounding project execution makes it more difficult to facilitate for resource allocation and activities in an advantageous manner.

5.1.2 Unclear goals and plans for the projects

When the project managers get assigned a project, there seems to be a very limited amount of clear goals and definitions in the project. To the project managers frustration, this affects their ability to define a clear path for the project team, as well as identifying challenges, opportunities and setting the schedule at an early stage in the project. In line with what Kaufmann & Kock (2022) states, this might also be affecting the margins of the projects.

The low degree of project management training might also be a contributing factor, as indicated by Kaufmann & Kock (2022) and Emblemsvåg (2014).

5.1.3   Reasons for project complexity

The factors used to describe the organizations projects as complex are in line with those defined by Jepson et al. (2017), Kaufmann & Kock (2022) and Rolstadås & Schifloe (2017). The projects are large, unique and interdependent of each other, containing a large number of activities and stakeholders. Goals seems to be loosely defined, and the level of novelty and uncertainty high. It's interesting to note that many see the latter as flexibility, viewing it in a positive manner for the organization's competitiveness.

Although the projects are described as very complex, there is little evidence that this is related to the organizations perceived capabilities, as indicated by Aarseth et al. (2015). The main focus seems to be on the number of interfaces and stakeholders, enforced by the fact that there is not too much of a clear framework to work within. On another note, one could speculate that the lack of training for project managers can for some be a contributing factor to complexity as a perception of personal capabilities, rather than the organization as a whole.

A complexity driver that can also be seen in relation to the organizations structure is the lack of support both from management and other team members. This is likely to cause a bigger divide between the projects and the line-organization, as well as increasing the perceived complexity of the projects.

One can see that Klakegg et al.'s (2010) statement that the causes and effects of complexity is not always obvious is in line with what the organization has experienced. In addition, the high pace both of the projects and the amount of changes as an additional contributor to project complexity is evident.

5.1.4   Correlations between project complexity and project commitment

Project commitment is highly valued and can be thought to have a correlation to the high level of complexity. There are correlations between several factors that heighten complexity and those identified by Burgess & Turner (2000) for high commitment situations. Some examples of comparisons can be seen in table 13.

Table 13 Correlation between complexity and high commitment factors

Increasing complexity	Key features for high commitment
Uncertainty and lack of clear goals	The role of uncertainty
High level of novelty of the technology in the project	Start small and build up, building commitment to new solutions
Interaction between project team members, high pace	Active involvement

In relation to the complexity factor of uncertainty and lack of clear goals, it can be interesting to also make a comparison with the commitment factor of needing an individual effort to join. Being that the projects are unclear and that the path to the finish line is not clearly defined, it's likely that it requires a bigger individual effort for the project team members to familiarize themselves with the workings of the project, as well as staying informed and onboard during the course of the project's lifespan.

One could speculate if the fact that the organization mainly operates within highly complex projects is why there is such an emphasis amongst the respondents on the importance of commitment in the project teams.

5.1.5   The importance of project commitment

Without a fault, project commitment is highlighted as one of, if not the, most important factor that the project managers need in their projects. Their descriptions correspond well with most of the descriptions given by Burgess & Turner (2000) and Kock & Schermuly (2021). The biggest deviation might be in Burgess & Turner's (2000) 7th factor; *clear messages and clear lines of communication*. This does not seem to be present in the organization or its projects, and one could think if it might be a contributor to the dropping levels of commitment they have seen in later years, as is also brought up by some respondents.

The importance of commitment in complex projects is clear, both from the literature and the respondents. Getting enough resources committed to the project early to get the team up and running as soon as possible, internalizing the goals to work towards reaching them even in very uncertain environments and not being too bound be set rules and regulations when working on high novelty products are all factors in line with literature that the respondents has pointed out.

5.1.6   Effects from the organizational structure

Structurally, the organization is set up as a matrix organization, in line with what Kerzner (2022) describes as the most common for project-driven companies. Several respondents point to a common challenge in matrix organizations; they don't "own" the resources working in their projects. As stated by Lester (2021), the project managers dream would be a taskforce organization where they have full control over the project's resources. A lack in commitment and motivation can be seen towards the project. Lester (2021) has highlighted the benefit of dividing resources between several projects, when possible, but in the organization the experience leans more towards Kerzner (2022) who emphasize that they should be dedicated to one project at a time.

The organization has a lot of competent employees, which can be an important competitive advantage. However, there have been a lot of turn-over in recent years, indicating that something is not as it should.

One thing that can cause challenges for the organization is that the recent re-structuring seems to be more in line with a functional design, where departments are specialized in their own function. As pointed out by Lester (2021), this form is more suitable for mass production, not for the complex large-scale projects that the organization specializes in. While projects are the organizations core business, with a more functional structure employees might feel a loss of commitment to the projects and the product. Further to this, the division between reporting both to their functional manager and the project manager might be emphasized.

Another thing that is brought up that might contribute to an increased turn-over is the lack of feedback and direction for the employees, combined with a heavy workload.

According to Maylor et al. (2008) the experienced mismatch between the organizations structure and the projects will contribute to increasing complexity, both from a structural and a dynamic dimension. Being aware of these challenges might be helpful to the project managers, but from an organizational perspective it will continue to create challenges.

5.1.7   Potential for improvement in multi-organizational projects

As is typical for complex and dynamic projects according to Clegg et al. (2021) and Leufkens & Noorderhaven (2011), the organization operates with multi-organizational projects. There seems to be a certain consistency in the organizations participating in the collaboration.

The typical groups of challenges that the organization faces with this is in line with the main groups as defined by Clegg et al. (2021); cooperation and coordination. When it comes to cooperation, we see the inconsistency in commitment between the different organizations, as well as a distrust the quality of the delivered work. It's likely that this comes from the factors as described by Leufkens & Noorderhaven (2011), focusing on the level of guidance and framework, previous history and how one sees others act.

When looking at coordination, the challenges seem to be smaller, and more easily solvable. The feeling some project managers experience with not being in control during the entire project can likely be solved by implementing a more defined management system, and as highlighted by *Neste Steg* (2015) creating a common language, lines of communication and definitions of who should be involved when in the projects.

5.2   Discussions on project models

In line with what is described by relevant theories, the organizations struggle with the absence of a clearly defined project model is discussed, resulting in ad-hoc processes and resource allocation issues.

The need for a combination of flexibility and structure makes for a complex situation, and the current elements might be too rigid. Suitable types of project models are discussed, as well as the organizations challenge with properly measuring project success.

5.2.1   Absence of a clearly defined project model

The lack of a properly defined and implemented project model is quite obvious among the respondents. This is clear both when giving description of their role, the project teams roles and the available tools and methods for project management in the organization. Not to mention, the lack of proper allocation of scarce resources as highlighted by Eskerod & Riis (2009).

However, some elements of a project model do exist, but unfortunately, they don't seem to have been accepted as the standardized way of doing things. The respondents mostly point to them with a lack of understanding and more of a nonchalant attitude, and almost no one references the tools from their internal project tools as seen in table 12. Very much in line with what Andersen et al. (2016) describes with the emergence of ad-hoc processes and individual solutions as an answer to the lack of a project model, this is what the respondents describes as happening within the organization.

The attitude towards the available tools can also be seen as a failure to lower the level of abstraction sufficiently for them to be properly implemented in the organization. Reiff & Schlegel (2022) emphasizes this as one of the main tasks of a project model.

Further to the above, the elements that are described can seem to be too rigid for the organizations projects and might be an indication that it's not suitable for the projects the organization intends to execute, as pointed out by Eskerod & Riis (2009).

5.2.2 Suitable types of project models

The organizations projects are described as very complex, and flexibility is something highly valued among the project managers. There are many challenges with properly defining the exact plans and scope early in the projects, all factors that point away from having a very rigid project model according to Reiff & Schlegel (2022). Being able to handle changes in an efficient manner is important, and having guidelines, checklists, templates and forms as described by Kerzner (2022) and Eskerod & Riis (2009) might seem like a more suitable fit for the organization.

Although this might seem straight forward with an agile approach being the solution, there are some conflicting components.

The project size, need for coordination between different stakeholders and integration, scarce resources, length of the projects lifespan and level of outsourcing all points towards a rigid approach. While, in addition to the above mentioned, the uncertainty in exact scope, number of changes and reporting requirements leans towards an agile approach. As highlighted by Kerzner (2022) most organizations have a project model which is in-between rigid and agile, a hybrid seeking to bring together the best of both worlds.

5.2.3 Difficulties in measuring project success

Since there are no clear parameters, it's difficult for the project managers to properly evaluate whether their projects are successful or not. Having the standardized best practices as included in a project model is likely to help this situation, also making the highly complex projects more predictable as mentioned by Kerzner (2022).

Even though the organizations projects are described as very unique, often being prototypes and groundbreaking, one can see that there are a lot of repetitive elements that in accordance with Eskerod & Riis (2009) could be used as the basis for forming a common project model.

With such a model in place, one could potentially tackle the perceived difficulties with using resources more efficiently, learning between projects and project managers and having a more consistent appearance towards clients and stakeholders.

5.3 Discussions on change

The organization does not seem to have a good history when it comes to change efforts. Mostly in line with what is described in the literature, there is a lot of negative experiences and resistance towards change that gets discussed.

5.3.1 Experiences with change in the organization

The changes have been initiated by the management, which is in line with Yukl's (2015) findings. However, it can seem like the changes are not completely rooted in the management either, pointing to very poor communication and perhaps a very high-level decision point. Another possibility is one of Kotter's (2007) pitfalls, that there are people in leadership positions who don't personify the new changes and actively resists them through negative talk. Further to this speculation, one could think that this might be motivated through fear of losing power or other personal values through the effects of the implemented changes.

The missing involvement of the employees during the changes has led to resistance and a lack of commitment to the implemented change efforts. Descriptions show that the effort that has been made to involve employees is not seen as real. This is line with the effects Klev & Levin (2021) describes, showing that the employees do not understand or feel that he changes are fit for purpose or necessary. It can also be linked to Kotter's (2007) eight stages, where it seems like the sense of urgency and following steps has not been rooted in the organization. A lack of communicating the vision is also specifically highlighted.

As it can be difficult to create proper arenas to facilitate involvement of employees, one could think that this might have been what has stopped the organization from doing so, since it is expressed that they are aware that involvement is important when implementing change. However, it can also be that the change agents are not of this opinion.

Looking at how power comes in to play in change processes, there are signs that some might have felt passivized by the changes and has chosen to give in although they don't agree.

One can still see that there has been resistance during implementation of the changes, that can have led to the changes still not completely being accepted as the new normal. Potentially, had involvement been done in a different way, the organization could have gained benefits from this in simpler implementation as described by Klev & Levin (2021).

The expressed scepticism towards the changes can also indicate that the changes are not experienced to be well developed and to have taken all relevant information into account, as

described by Klev & Levin (2021). They might also have been an attempt of proactive change, indicated by the fact that the respondents don't seem to see the clear needs for the changes, as well as a missing clear vision. Several of the resistance factors listed by Jacobsen & Thorsvik (2020) can also be found in the respondents' descriptions.

The finding indicates that there is a lack of evaluating the implemented changes, and together with the expressed experience that some changes seem to be for the sake of change, this could potentially mean that the employees don't trust the organization to be able to properly implement and execute change efforts, in line with Klev & Levin's (2021) description of learned passivity.

5.4   Discussions on implementing new project models

When discussing implementation of a project model, a lot of the foundational elements seems to be in place for successful implementation. However, a need for a structured and well-defined process is evident, also implementing good change management practices.

5.4.1   Internal push for creating a common project model

There is a clear willingness in the organization, seemingly both from the project managers and the top management. This is a good foundation, as both Eskerod & Riis (2009) and Kerzner (2022) agree that this is a very important factor when wanting to implement a new project model in an organization. As it's described that the organization in later years have become more functional, rather than project oriented, it can be seen as even more important as a step in onboarding the non-project part of the organization to the new model.

However, the steps for properly and successfully implementing new project models are quite time consuming, and many of the respondents express that they don't feel the proper focus and dedication of time is present from the management. To manage this, dedicated change agents might be an option for the organization. As pointed out by Kerzner (2022), such change agents must be able to combine both knowledge from good change management and how project models should be defined.

5.4.2 Steps towards successful implementation

The elements highlighted as important for successful implementation by Eskerod & Riis (2009) are something that the organization already has done to some degree, but seemingly not in a guided and goal-oriented effort. One could think of this as an advantage because the elements already exist, and can hopefully be adjusted to be better fit for purpose. An example is the activities for knowledge sharing between projects and project managers, which there clearly is a will to do, but they are lacking in the proper arenas to do so.

Further to this, the project managers seem open to contributing to defining a proper model, and streamlining project management in the organization, an important step in successful learning and development processes according to Koskinen (2021).

The fact that there is already a project management office in place is also am advantage. At the moment it does not seem to fulfil its potential, but at least the organizational elements are in place. In line with what Rolstadås et al. (2020) states as a PMO's purpose, it could be used to develop and implement project models, as well as benchmarking projects performance and facilitating training of project team members, all items brought up by the respondents as currently having room for improvement.

6 CONCLUSION

Working with the thesis, the complex and dynamic nature of projects and project management within the shipbuilding industry has been explored, seeking to address questions regarding the presence, significance, and potential implementation of project models in such an environment.

Based on this, the chapter will present the conclusions to the research questions from the introduction chapter.

6.1 What components of a project model can be identified in the case-organization, and are they effective?

Through the interviews and a desk survey of the existing documents, the researcher has tried to define the existing elements of a project model in the organization and their impact.

In researching for this question, it was discovered that the case-organization lacked a well-defined and properly implemented project model. Although elements of a project model existed within the organization, they were not effectively embraced and seen as a standard practice. The absence of such a model was emphasized by unclear project goals and plans, making it difficult for project managers to set a clear path for their project teams.

The components that were found was role descriptions, a reporting template, loosely defined procedures for project plans and documents on phase reviews and risk management. However, due to them not being accepted and properly grounded in the organization, the elements that do exist does not seem to be consistently used, and hence not very effective.

Exactly why the components are not embraced is not clear, but there are some indications that the level of abstraction is too high, and that the elements might be too rigid for the projects that the organization typically executes.

As flexibility and a lot of changes during a project's lifespan was highlighted as important, a more pragmatic and agile project model should be implemented to balance the organization's need for flexibility in their already complex projects.

6.2 How can project models contribute to management of complex projects?

Several potential positive impacts of a project model to managing complex projects are discovered, such as enhancing early project management efforts, effective resource allocation, and providing more predictability for clients, stakeholders and project team members. A more well-structured project model could also contribute to defining goals, plans and clear lines of communication in the project, in turn securing commitment from the project team and stakeholders. Especially in the context of multi-organizational project this is important.

The current lack of clarity in project goals and plans, combined with a low degree of project management training, is contributing to the perceived complexity of projects.

An interesting point to note is that it to some degree seems like the organization has replaced the benefits a project model would give with having highly committed project teams. However, as the commitment in the organization is thought to be declining in recent years, this might be an even bigger incentive to properly define and implement a common project model.

6.3 What factors should an organization consider when implementing a new project model?

Effective implementation of a new project model demands a deep commitment from the organization, starting from top managers and dedicated change agents. The need for change needs to be grounded in the organization, and it's important to facilitate for real involvement from relevant employees and groups.

It's likely that the organization will face some challenges related to learned passivity from previous, to some degree, unsuccessful change efforts.

An internal push for creating a common project model is essential, but it should be accompanied by a structured and goal-oriented effort. The willingness of project managers to contribute and streamline project management processes indicates their readiness for change and adapting to new practices.

6.4 Recommendations

The findings of this thesis offer valuable insights for both academia and industry. In practice, organizations operating in environments characterized by complexity, high project novelty, and multi-organizational collaborations must recognize the need for a well-structured project model. Such models should balance flexibility with the ability to define goals and plans, fostering commitment and enhancing project success.

Further research can delve into the specific components and structure of a project model that suits organizations operating in dynamic environments, addressing the balance between rigidity and adaptability.

Investigation into exploring the role of project models in different industries, including the extent to which they impact project success and value creation, could also be highly relevant.

Findings that are not heavily researched, such as the potential connection between commitment and complexity could also make for interesting topics for further investigation.

7 REFERENCES

Aarseth, W., Rolstadås, A. & Klev, R., 2015. *Lederskap i Prosjekter.* Bergen: Fagbokforlaget.

Amundsen, O. & Kongsvik, T., 2016. *Endringskynisme.* 2nd ed. Oslo: Gyldendal Akademiske.

Andersen, B., Kvalheim, E. V. & Volden, G. H., 2016. *Prosjektmodeller og prosjekteierstyring i statlige virksomheter,* Trondheim: Concept-programmet.

Burgess, R. & Turner, S., 2000. Seven key features for creating and sustaining commitment. *International Journal of Project Management,* Volume 18, pp. 225-233.

Cameron, E. & Green, M., 2015. *Making sence of change management: A complete guide to the models, tools, and techniques of organizational change.* s.l.:Kogan Page Publishers.

Carayannis, E. G., Kwak, Y. H. & Anbari, F. T., 2005. *The Story of Managing Projects - An Interdisiplinary Approach.* s.l.:Praeger Publishers.

Chu, N., Nie, X., Xu, J. & Li, K., 2021. A systematic approach of lean supply chain management in shipbuilding. *SN Applied Sciences,* Volume 3.

Clegg, S., Kornberger, M. & Pitsis, T., 2016. *Managing & Organizations: An Introduction to Theory and Practice.* 4th ed. London: SAGE Publications Ltd.

Clegg, S. R., Skyttermoen, T. & Vaagaasar, A. L., 2021. *Project Management: A Value Creation Approach.* s.l.:SAGE Publications Ltd.

Cooke-Davies, T. J. & Arzymanow, A., 2003. The maturity of project management in different industries: An investigation into variations between project management models. *International Journal of Project Management,* Volume 21, pp. 471-478.

Emblemsvåg, J., 2014. Lean Project Planning in Shipbuilding. *Journal of Ship Production and Design,* Volume 30, pp. 79-88.

Eskerod, P. & Riis, E., 2009. Project Management Models as Value Creators. *Project Management Journal,* March, Volume 40, pp. 4-18.

Fjeldstad, Ø. D. & Lunnan, R., 2015. *Strategi.* Bergen: Fagbokforlaget Vigmostad & Bjørke AS.

Garel, G., 2013. A history of project management models: From pre-models to the standard models. *International Journal of Project Management,* Volume 31, pp. 663-669.

Jacobsen, D. I. & Thorsvik, J., 2020. *Hvordan Organisasjoner Fungerer.* 5th ed. s.l.:Fagbokforlaget Vigmostad & Bjørke AS.

Jepson, J. M., Kirytopoulos, K. & London, K., 2017. Exploring project managers' perception of stress when working in increasingly complex construction projects. *Construction Economics and Building,* September, 17(3), pp. 47-67.

Kaufmann, A. & Kaufmann, G., 2015. *Psykologi i organisasjon og ledelse.* 5th ed. Bergen: Fagbokforlaget.

Kaufmann, C. & Kock, A., 2022. Does project management matter? The relationship between project management effort, complexity, and profitability. *International Journal of Project Management,* Volume 40, pp. 624-633.

Kerzner, H., 2022. *Project Management - A Systems Approach to Planning, Scheduling and Controlling.* Hoboken, New Jersey: John Wiley & Sons Inc.

Klakegg, O. J. et al., 2010. *Early Warning Signs in Complex Projects.* Pennsylvania: Project Management Instute, Inc..

Klev, R. & Levin, M., 2021. *Forandring som praksis - endring og utvikling som samskapt læring.* 3rd ed. s.l.:Fagbokforlaget.

Koch, J. & Schermuly, C. C., 2021. Who is attracted and why? How agile project management influences employee's attraction and commitment. *International Journal of Managing Projects in Business,* 14(3), pp. 699-720.

Koskinen, K. U., 2012. Organizational Learning in Project-Based Companies: A Process Thinking Approach. *Project Management Journal,* Volume 43, pp. 40-49.

Kotter, J. P., 2007. Leading Change - Why transformation efforts fail. *Harvard Business Review,* January.

Lester, A., 2021. *Project Management, Planning and Controll.* 8th ed. s.l.:Butterworth-Heinemann.

Leufkens, A. S. & Noorderhaven, N. G., 2011. Learning to collaborate in multi-organizational projects. *International Journal of Project Management,* Volume 29, pp. 432-441.

Levering, R., Ligthart, R., Noorderhaven, N. & Oerlemans, L., 2013. Contnuity and change in interorganizational project practices: The Dutch shipbuilding industry, 1950-2010. *International Journal of Project Management,* Volume 31, pp. 735-747.

Lyneis, J. M., Cooper, K. G. & Els, S. A., 2001. Strategic management of complex projects: a case study using system dynamics. *System Dynamics Review,* Volume 17, pp. 237-260.

Maylor, H., Vidgen, R. & Carver, S., 2008. Managerial Complexity in Project-Based Operations: A Grounded Model and Its Implications for Practice. *Project Management Journal,* Volume 39, pp. 15-26.

Mikkelsen, M. F., 2020. The complex project complexity - Identification of five ideal research types. *Journal of Modern Project Management,* 07(22), pp. 1-24.

Monteiro, A., Santos, V. & Varajão, J., 2016. Project Management Office Models - a review. *Procedia Computer Science,* Volume 100, pp. 1085-1094.

Morris, P. W. G., Pinto, J. K. & Söderlund, J., 2012. *The Oxford Handbook of Project Management.* Oxford, UK: Oxford University Press.

Mulder, L., 1997. The importance of a common project management method in the corporate environment. *R&D Management,* 27(3), pp. 189-196.

Müller, R., Drouin, N. & Sankaran, S., 2019. Modeling Organizational Project Management. *Project Management Journal,* Volume 50, pp. 499-513.

Nwajei, U. O. K., Bølviken, T. & Hellström, M. M., 2022. Overcoming the principal-agent problem: The need for alignment of tools and methods in collaborative project delivery. *International Journal of Project Management,* Volume 40, pp. 750-762.

Olsson, N., 2008. External and internal flexibility - aligning projects with the business strategy and executing projects efficiently. *International Journal of Project Organisation and Management,* Volume 1, pp. 47-64.

Paton, R. & McCalman, J., 2016. *Change Management: A guide to effective implementation.* s.l.:SAGE Publications Ltd..

PMI, 2022. *What is project management?.* [Online]
Available at: https://www.pmi.org/about/learn-about-pmi/what-is-project-management
[Accessed October 2022].

Reiff, J. & Schlegel, D., 2022. Hybrid project management - a systematic literature review. *International Journal of Information Systems and Project Management,* Volume 10, pp. 45-63.

Ringdal, K., 2016. *Enhet og Mangfold.* s.l.:Fagbokforlaget.

Rolstadås, A., Johansen, A., Olsson, N. & Langlo, J. A., 2020. *Praktisk Prosjektledelse - Fra Idé til gevinst.* s.l.:Fagbokforlaget.

Rolstadås, A. & Schifloe, P. M., 2017. Modeling project complexity. *International Journal of Managing Projects in Business,* Volume 10, pp. 295-314.

Seymour, T. & Hussein, S., 2014. The History of Project Management. *International Journal of Management & Information Systems,* 18(4), pp. 233-240.

Steg, N., 2015. *Veileder for fasenormen "Neste Steg". Et felles rammeverk for norske byggeprosesser,* s.l.: Bygg21.

Sterman, J. D., 1992. System Dynamics Modeling for Project Management. *MIT Sloan School of Management.*

Swärd, A., 2016. Trust, reciprocity, and actions: The development of trust in temporary inter-organizational relationships. *Organization Studies,* 37(12), pp. 1841-1860.

Tekic, A., Zerjav, V. & Tekic, Z., 2022. Evolution of project studies through the lens of engaged scholarship: A longitudinal bibliometric analysis. *International Journal of Project Management,* Volume 40, pp. 531-546.

Teplitz, C. J., 2004. Making Optimal Use of the Matrix Organization. In: *Field Guide to Project Management.* Hoboken, New Jersey: John Wiley & Sons, Inc., pp. 272-287.

Tjora, A., 2018. *Kvalitative forskningsmetoder i praksis.* s.l.:Gyldendal Akademisk.

Yukl, G., 2015. Å lede organisasjonsendringer. In: *Perspektiver på ledelse.* Oslo: Gyldendal Akademiske, pp. 221-262.

8 Attachments

I Interview guide

General

1) How long have you been working in the organization?

   a) In your current position?

2) Can you describe your day-to-day tasks?
3) Have you been working with project management outside of your current organization?

Projects in the organization

4) How would you describe a typical project in the organization?
   a) *If difficult, complex, uncertainty, or similar is mentioned follow-up with questions of what the respondent thinks is the reason for this*
   b) *If not mentioned, ask if these are elements that the respondent can identify in their recent projects*
5) How is it expected that projects should be executed?
6) Are there any models, tools or methods used for project management?
   a) *If no,* is this something you think would be useful?
   b) *If yes,* do you think these are useful?
   c) *If not given:* Can you describe these?
   d) Are these in line with the actual project execution?
   e) Can they be adapted to different types of projects?
7) Are the projects split into phases?
   a) Is it clear where one phase ends and another starts? If so, why/why not?
   b) Are there any activities performed to mark the end of one phase and the beginning of the next?
8) When is the project manager usually initiated into the project?
9) How does the organization manage risk in projects?
10) How does the organization manage changes in projects?
11) What would you say defines a successful project?
    a) Which factors are measured to determine success?
12) Do you think that all the project managers in the organization execute their projects in a relatively similar way? Why/why not?
13) Who sets the standard for how projects should be executed?

a) Are these clear?

b) Suitable for the different types of projects?

14) Are there things that you think are especially good or especially bad in the way projects are executed in the organization?

15) Where would you find support if for instance you are faced with a difficult dilemma in one of your projects and needed someone to consult?

16) How are the different stakeholders managed the projects?

17) Is there any training provided for PMs in the organization?

Organization of Projects

18) Are the different departments, entities and locations equally committed to the projects? a) Why/why not?

b) Would you say this affects the project execution?

Changes in the organization

Short introduction to explain the context is changes in the organization, not in the projects.

19) Have there recently been, and are there currently changes being implemented in the organization?

 a) Can you describe some of these changes?
 b) Is it clear which needs initiated the changes?
 c) Have these changes impacted your work directly? 20) How are changes communicated?

21) Are implemented changes evaluated in some way?

22) Who decides which changes are being implemented?

a) Who participates in determining the scope of the changes?

23) What effects do you see from the changes and the way they are being implemented?

II Assessment from Sikt

Sikt

Assessment of processing of personal data

Reference number
936861

Assessment type
Automatic ❓

Date
09.09.2023

Title
Project Management and Execution

Institution responsible for the project
Norges teknisk-naturvitenskapelige universitet / Fakultet for ingeniørvitenskap / Institutt for maskinteknikk og produksjon

Project leader
Nils Olsson

Student
Silje Ulvestad

Project period
12.09.2022 - 10.11.2023

Categories of personal data
General

Legal basis
Consent (General Data Protection Regulation art. 6 nr. 1 a)

The processing of personal data is lawful, so long as it is carried out as stated in the notification form. The legal basis is valid until 10.11.2023.

Notification Form ↗

Basis for automatic assessment

The notification form has received an automatic assessment. This means that the assessment has been automatically generated based on the information registered in the notification form. Only processing of personal data with low risk for data subjects receive an automatic assessment. Key criteria are:

- Data subjects are over the age of 15
- Processing does not include special categories of personal data;
  - Racial or ethnic origin
  - Political, religious or philosophical beliefs
  - Trade union membership
  - Genetic data
  - Biometric data to uniquely identify an individual
  - Health data
  - Sex life or sexual orientation
- Processing does not include personal data about criminal convictions and offences
- Personal data shall not be processed outside the EU/EEA, and no one located outside the EU/EEA shall have access to the personal data
- Data subjects will receive information in advance about the processing of their personal data.

Information provided to data subjects (samples) must include

- The identity and contact details of the data controller
- Contact details of the data protection officer (if relevant)
- The purpose for processing personal data
- The scientific purpose of the project
- The legal basis for processing personal data
- What type of personal data will be processed and how it will be collected, or from where it will be obtained
- Who will have access to the personal data (categories of recipients)
- How long the personal data will be processed

- The right to withdraw consent and other rights

We recommend using our [template for the information letter](#).

Information security

You must process the personal data in accordance with the storage guide and information security guidelines of the data controller. The institution is responsible for ensuring that the conditions of Article 5(1)(d) accuracy and 5(1)(f) integrity and confidentiality, as well as Article 32 security, are met.

III Information letter to respondents

Are you interested in taking part in the research project

"Project Management and Execution"?

Purpose of the project

My name is Silje Ulvestad, and I'm currently studying for my master's degree in project management with the Norwegian University of Science and Technology, alongside my day-to-day work.

My thesis will be focused on project management practices, and you are hereby invited to participate in this research project where the main purpose is

- to evaluate the project execution
- look into how changes are currently being implemented and received
- uncover potential areas for improvement in the above mentioned, grounded in best practices from relevant literature and empirical evidence

The personal data collected for the research project will only be used for the master's thesis and will be anonymized.

Who is responsible for the research project?

Silje Ulvestad is responsible for the research project.

Why are you being asked to participate?

The reason you are being asked to participate is based on your position, and your insight into project management and execution.

What does participation involve for you?

If you would like to participate, I would like to interview you. An interview is a conversation where I will ask you questions related to the above-mentioned topics. The questions will be about project management, project execution, change, success factors, value chain, amongst others.

It's expected that the interview will take approximately 1-1,5 hours, and the interview will be recorded.

Participation is voluntary

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data

We will only use your personal data for the purpose(s) specified here and we will process your personal data in accordance with data protection legislation (the GDPR). The interview will only be accessed by Silje Ulvestad and guidance counsellor Nils Olsson.

The interviews will be digitally recorded and stored locally. The interviews will be anonymised continuously.

The participants will not be recognizable in the thesis and will only be referred to as respondents.

What will happen to your personal data at the end of the research project?

The planned end date of the project is 1st of September 2023, and the data will be deleted once the thesis has been completed and approved.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

We will process your personal data based on your consent. Based on an agreement with Norwegian University of Science and Technology, Data Protection Services has assessed that the processing of personal data in this project meets requirements in data protection legislation.

Where can I find out more?

If you have questions about the project, or want to exercise your rights, contact:

- Silje Ulvestad – 464 27 569 – sculvest@stud.ntnu.no
- Nils Olsson – 977 13 628 – nils.olsson@ntnu.no
- Our Data Protection Officer: Thomas Helgesen – thomas.helgesen@ntnu.no

If you have questions about how data protection has been assessed in this project, contact:

- Data Protection Services, by email: (personverntjenester@sikt.no) or by telephone: +47 53 21 15 00.

Yours sincerely,

Nils Olsson   Silje Ulvestad

(Researcher/supervisor)

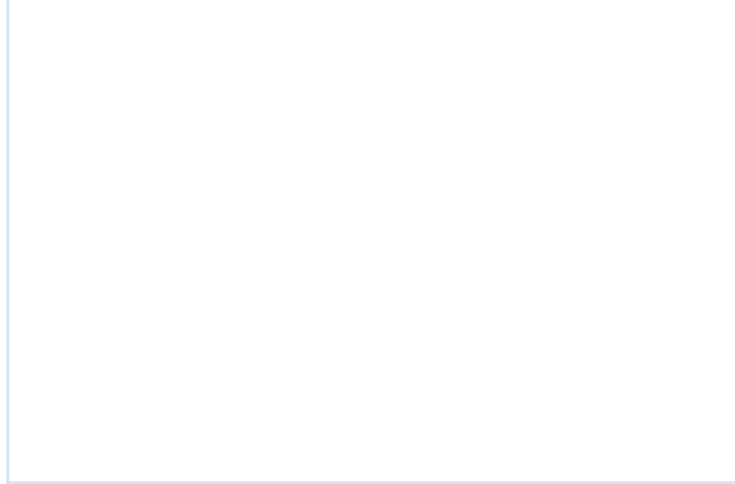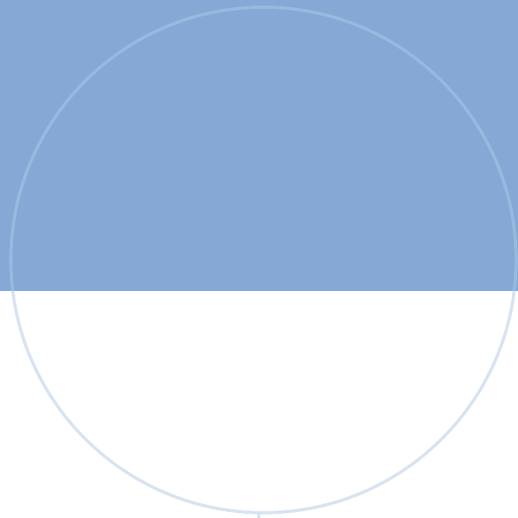
Consent form

I have received and understood information about the project "Project Management and Execution" and have been given the opportunity to ask questions. I give consent:

☐ to participate in interview

I give consent for my personal data to be processed until the end of the project.

(Signed by participant, date)