

The degree of projectification in organizations, and its impact on strategic flexibility:

A quantitative study of the Norwegian economy

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This master's thesis is carried out as a part of the education at the University of Agder and is therefore approved as a part of this education. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.

Forewords and Acknowledgements

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Writing this thesis has really been a learning journey. We have had the opportunity to dig deep into a discipline that we both had a prominent interest for. Our master´s program has provided us with a lot of knowledge about strategy and organizational theories. This semester however, we have had the pleasure of applying all those theories and different approaches into one study – which has been extremely exciting (and exhausting...).

More about our learning journey, both regarding this thesis – and our master´s program, will follow in the attached reflection note, as can be seen in appendix I (Learning journey).

Abstract

In this study, we will explore the plausible relationship between the degree of projectification, and the strategic flexibility in the Norwegian economy. Working in a project-based form is increasing in most industries throughout the western world, and at the same time, strategic flexibility is becoming more and more important. We live in a world of rapid changes, where organizations have to be able to act fast in order to stay "alive". We know that projectification is an increasingly important phenomenon, and that the strategic flexibility of an organization might be the focus of the future - but what remains unanswered is if there is a connection between the two.

This is a descriptive study of the Norwegian economy, where we have obtained primary data from 1412 participating organizations, representing different industries and sizes. We have determined a measure of the degree of projectification in the Norwegian economy, as well as establish to which extent organizations consider themselves to have strategic flexibility. We have also been able to estimate the future growth rate of projectification for the next five years in the Norwegian economy. Through this research, we have further established that there is a significant relationship between our two variables, but that it is quite weak. Furthermore, we have found that there is a significant moderating effect to our relationship, by the industry type the organizations belongs to. We have however found that the size of the organization does not have a significant impact on the mentioned relationship, in the Norwegian economy.

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Part I

1. Introduction

This thesis aims to determine whether there is a relationship between the degree of projectification of an organization, and that organization's strategic flexibility. The study focuses on the Norwegian economy, but is not limited to any specific industries or types of companies. We wished to include the whole spectre of businesses in Norway, both those with a low, and those with a high degree of projectification. To be able to measure the alleged relationship between our two variables, we had to measure the degree of projectification, and the strategic flexibility of the participating organizations.

Nowadays the temporality in the work form is increasing in many industries (Bakker, 2010; DeFillippi, 2002), in "our globalized fast-paced economy" (Ekstedt, Lundin, Söderholm, & Wirdenius, 1999; March, 1995). In Norway today, the project-based work form is very widespread, and we can find it in both the private and public sectors (Karlsen, 2013, p. 17).

We know that "*with environmental changes becoming increasingly undefined, fast moving, and numerous, it is risky to rely upon conventional management approaches and strategies*" (Aaker & Mascarenhas, 1984, p. 81). Flexibility is, as well as projectification, an increasingly important phenomenon that has been well known for many years (Volberda, 1998).

PMI shows, in their report, that there were in fact 51 million people around the world engaged in projects in 2013, and they state that this is "*about the population of South Africa, or South Korea*" - which makes it hard to argue that this is not an important and common way of doing business (2014, p. 1).

Some of the reasons to why this is the case is according to Karlsen (2013) the fact that it makes it easier to deal with special and unique tasks, and it increases the flexibility of the organization, as well as an increase in the usage of competence and resources. Project-based work has, in fluctuating and complex environments, been found to be a source of reduced costs and control risk. This is due to the possibility of flexible use of specialized personnel (Christopherson & Storper, 1989; Faulkner & Anderson, 1987) which provides the opportunity to focus on the task assigned to these short-term specialized workers, instead of training, supervision and formal rules and hierarchy (DeFillippi & Arthur, 1998; Faulkner & Anderson, 1987).

Earlier on, managers often referred to their organizations as stable, uniform, and optimal - while nowadays, many of them talk about the factors of change, creativity and diversity. Thus, there has been a change in the mind-set of managers, towards an increasing focus on flexibility (Volberda, 1998).

Volberda (1998) also states that there is an increasing focus on flexibility – and that flexibility is a mean to be able to achieve and sustain a competitive advantage in today's economy. Morgan (1986) discusses the fact that organizations must adopt new ways of reacting to changes. He further states that flexibility has become more important, and that “*it becomes more important to do the right thing in a way that is timely and good enough, than to do the wrong thing well, or the right thing too late*” (Morgan, 1986, p. 35).

The project form of working might be seen as the solution to the need for flexibility. DeFillippi and Arthur (1998) discusses the fact that a project-based structure might provide more flexibility, since projects are temporary organizations – which are put together in the beginning, and dissolved at the end of a project. The question is if this can be empirically supported. Is there an increased flexibility in firms that use a high degree of project-based work, or are they no different from those with more traditional forms of work?

This type of study has never before, to our knowledge, been conducted in Norway. However, there has been one similar study, conducted by pr. Andreas Wald and a team of researchers, in Germany (Wald, Wagner, Schneider, & Schoper, 2015). Their study looked on the effect of advanced project management on flexibility and innovation capability. They found that the German economy had a degree of projectification of 34,7%. Our study is made partially to be able to compare the results in the German economy to those of the Norwegian economy. This study aims to find out if there is solid ground for the arguments of what an impact the organizational form has on a firm's flexibility.

We have chosen a quantitative approach to the study, and we wish to generalize on the behalf of the whole population of Norwegian businesses. Therefore, we have used a questionnaire as the main source of our collection of primary data - which was the preferred type of data, since there has not been any similar study carried out in Norway, on the organizational level. Our study is based on the one executed in Germany, by Wald, Spanuth, Schneider, Schoper (2014).

Many scholarly works state that with project-based work comes flexibility, but there seems to be little empirical proof of this statement. Our primary research question will therefore be;

“Does the degree of projectification have an impact on organizations' strategic flexibility?”

To be able to find an answer to this, we will have to measure the degree of projectification in our participating organizations, and to which extent they are strategically flexible. In order to do so, we have conducted telephone interviews with a number of organizations, as well as an online survey that was sent out to about 50 000 possible respondents.

We will also explore the possibility of moderating effects on this alleged relationship, by the contingency variable organization size, and the industry type which the organization belongs to. From the study conducted by Wald et al. (2015), we saw that there were large differences across industries, when it comes to the use of projects – therefore it was also natural to explore this aspect in the Norwegian economy.

In conclusion, this thesis aims to map out the degree of projectification, not only in the Norwegian economy as a whole – but also amongst industries and different company sizes. We also wish to determine the extent as to which organizations consider themselves to have strategic flexibility, throughout the different industries and company sizes. We will therefore further search to answer the following research question;

“Does the size or industry of the organization influence the relationship between projectification and strategic flexibility?”

This thesis is structured in six chapters, followed by our reference list and relevant appendices. In this chapter, we have discussed the relevance of this study, and in chapter 2 we will present the former research on the two topics – as well as our problem statement. In chapter 3, we will present our methods for collecting data and analyses. Chapter 4 represents our findings when it comes to our two variables, as well as the representation within our data sample. In chapter 5, we will present and discuss our results regarding the hypotheses. Lastly, in chapter 6, we will conclude based on our findings and results, and will discuss the limitations with this study, as well as our contribution to research and our recommendations for further research.

2. Theoretical framework

In this theoretical framework, we will map out a literature review regarding both projectification and strategic flexibility. In part 2.1, we will explain the concept projectification, and in part 2.2 we will describe strategic flexibility and different aspects of the concept.

2.1. Projectification

The project-based form of working is becoming more and more popular, and we can see it in most industries and types of businesses. It seems that managers are moving away from the traditional, bureaucratic mind set, and towards a temporary focus.

2.1.1. Basic theory

Johnson, Whittington, Scholes, Angwin, and Regnér (2010) argues that when people do what is desired, strategies happen. Hence, to be able to accomplish a satisfying strategy - organizations must organize themselves, by implementing structures and systems. For a strategic implementation to work in the best way possible, it has to be an interdependent relationship between an organization's strategy, structure and system. Johnson et al. (2010) defines the structure as the skeleton of the organization, and the system as its muscles. The strategy can from this perspective be seen as the brain of the organization. There are many strategic approaches, and project-based work can be seen as a way of structuring the organization, which can be reviewed as one of the five basic structural types (Galbraith, 2012). However, projectification can be seen as more than just a way of structuring an organization. In order to have a high degree of projectification, a strategic choice has to be made (Johnson et al., 2010).

2.1.2. The concept of projectification

Some type of project work or temporarily organizational forms has existed throughout all of our history. The Pyramids, the Great Wall of China, Greek and Roman amphitheatres, and the Suez Canal, are all symbols of endeavours of construction and civil engineering (Ekstedt et al., 1999; Rolf A. Lundin et al., 2015, pp. 20-25; Packendorff, 1995). However, as Rolf A. Lundin et al. (2015) further discusses, the project part of an industrial organization was not noteworthy until the 1930^s. Throughout the next two decades, the project-based work was used extensively in industries like construction, civil engineering, and defence. However, in the 1960^s, this form of work spread from these “project-oriented” industries, and into new types of industries, like power, oil and gas, computer, information, advertising, film, television and consultancy. This

is what Lundin (2015) described as a qualitative- and quantitative step forward towards the developing of projectification.

As time went by, and the industries were in constant change, the project as a form of work was evolving as well. However, already in 1965 Bennis claimed that *'the social structure of organizations of the future will have some unique characteristics. The key word will be "temporary"; there will be adaptive, rapidly changing temporary systems'* (1965, p. 34).

The literature concerning temporary organizations seems to be limited at first sight (Kenis, Janowicz-Panjaitan, & Cambré, 2009). This, however, is due to the fact that the research done, often covers the concept by using different approaches. There are temporary organizations, teams and systems, projects, and project teams - all covering similar aspects of the concept. There are also many different, but similar, definitions of what a project actually is. Christensen and Kreiner (1991), described a project with five characteristics;

- Clear objectives
- Limited access to resources
- Non-routine tasks (temporary organization)
- Determined starting- and ending time.
- Interdisciplinary work.

Even though the project form of work has existed for a long time, we see that it has become more common, and the interest in the project form of work has grown in the academic society (Bechky, 2006). 'The temporary organizational system' by Miles (1964) was the first scholarly work that referred to project-based work, and dates back to 1964. The development of interest in the field is illustrated in Figure 1, which is from the article by Bakker (2010, p. 467). We can assume that this growth in interest on the subject of temporary organizations is a reflection of an increase, both in focus and usage of this type of work.

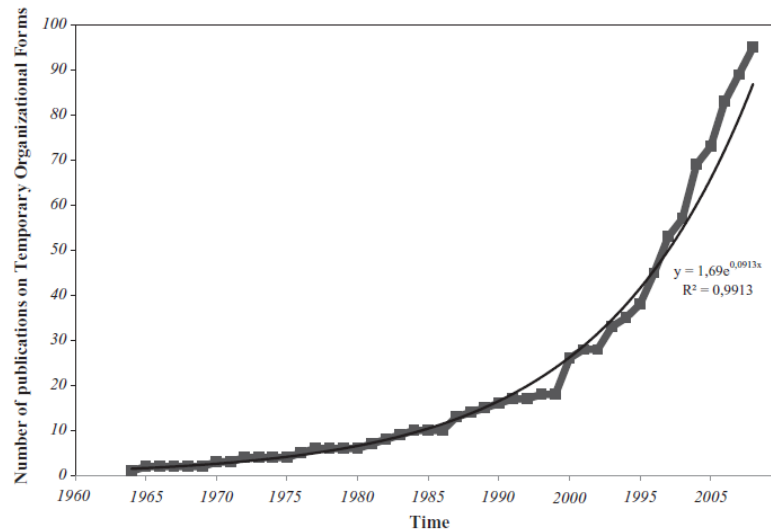


Figure 1 - Growth of literature on temporary organizational forms from 1960 to 2008.

(Bakker, 2010)

Since 2000, this field of studies has had a focus on organizations' need for the ability to be able to adapt to rapid changes. Several studies have also detected that the project-based work form appears to be more and more widespread (Flyvbjerg, Bruzelius, & Rothengatter, 2003; Miller & Hobbs, 2005; Miller & Lessard, 2000; Priemus, 2010).

As the number of studies increases, the number of definitions of a project is increasing accordingly. We will here highlight a few examples to illustrate the different views of what the proper definition of a project is;

'An set of diversely skilled people working together on a complex task over an limited period of time' (Goodman & Goodman, 1976, p. 494).

'Limited in duration and membership, in which people come together, interact, create something, and then disband' (Morley & Silver, 1977, p. 59).

'Temporary systems are structures of limited duration that operate within and between permanent organizations' (Keith, 1978, p. 195).

'A project is an endeavour to accomplish a specific objective through a unique set of interrelated tasks and the effective utilization of resources' (Gido & Clements, 2012).

There are evidently some differences, but also similarities in the ways that authors define a project. The differences are due to which aspects of the projects that is the focus of the author. Team involvement, the nature of the task, and character of the team involved are some of the most emphasized aspects of projects. Both Goodman and Goodman (1976) and Beckhy (2006) had a focus on the team involved in the projects. Beckhy defined a project as *‘bringing together a group of people who are unfamiliar with one another’s skills, but must work interdependently on complex tasks’* (Bechky, 2006, p. 3). Bechky’s definition also emphasize the nature of the task, and both her and Goodman and Goodman (1976) stated the task complexity as defining of the concept. Others, like Grabhner (2004) and Whitley (2006) pointed to the project's goal to achievement of one single task as crucial. Gido and Clements (2012) on the other hand characterized it as a mean to a specific objective, through several unique tasks. Whitley (2006) also focused on the form of the project, in which it is a separate legal and financial entity. The variety of ways to organize projects is also a common part of the definition, as we can see from the example of Keith (1978, p. 195), both in comparison to each other and to the permanent organization.

There are many different ways to define a project, but they are all within a certain frame. Kenis, Janowicz-Panjaitan and Cambré (2009, p. 58) indicate that this could be the reason to as to why Lundin and Söderlund (1995) developed the theoretical skeleton of temporary organizations, which demarcates the concept. Most definitions of temporary organizations can be incorporated within this skeleton, which consists of the following four components;

- *Limited time*
- *A task as a projects reason for existence (raison d`être).*
- *A team that works on the task within the time available*
- *Transition reflected in the ‘expectation that there should be a qualitative difference in the temporary organization “before” and “after”.*

(R. A Lundin & Söderholm, 1995, pp. 438-439)

Our research is based on the definition derived from the study conducted by Wald et al. (2015). As a preparation for their research study, they conducted a preliminary exploratory study - interviewing project management experts from different industries and company sizes. The aim was to identify a definition that could be used in all types of projects, across industries, and sizes of companies. As we can see, this definition also fits well within the skeleton of Lundin and Söderlund (1995);

“A project is an undertaking largely characterized by the uniqueness of the conditions in their entirety, i.e.

- *A specific target has been defined for the project.*
- *The project is limited in terms of time (start and end).*
- *The project requires specific resources (e. g. financial, staff, etc.).*
- *An independent process organization exists, which is defined as different from the standard organization in the company.*
- *The projects work on non-routine tasks.*
- *The project has a minimum duration of four weeks.*
- *The project has at least three participants.”*

(Wald et al., 2015)

Wald et al. (2015) further discussed that projects are *“focused on their increased flexibility but at the same time highly efficient and less dependent on hierarchical control and bureaucratic coordination”*(Wald et al., 2015, p. 19). It is important to adapt to a more globalized and rapidly changing environment. It was theorized that *“firms organize in response to uncertainty within both task and environment”* (as cited in Bechky, 2006, p. 4; Galbraith, 1973; March & Herbert, 1958; Thompson, 1967). When there is an increase in uncertainty, firms move away from formal organizational structures (rules, schedules, division of labour) and towards more interpersonal coordination mechanisms. Temporary organizations are typically depending on interpersonal means, instead of formal structures. This might be due to the fact that they often face a large amount of task and environmental uncertainty (Bechky, 2006). Those kinds of new organizational forms are often described in the context of the term ‘projectification’.

Midler (1995) first introduced the term in his study *“Projectification of the Firm: the Renault Case”*. He based his study on the case study performed in the firm Renault, where he followed phases of the development towards projectification of the firm. Throughout the first three phases, the project manager became more important and gained more power in the organization. The structure around the manager and cross-professional communication also became increasingly important, on all levels of the organization. Midler (1995) discusses two options in the fourth phase of projectification. The first option would be to continue the reinforcement of the project structure, which would mean that the departmental workforce would be moved into suiting projects when needed. Renault went with the second option, in which they balanced

out project- and department identities, and set up a complementary relationship between the two.

The terms and developments of projectification, as shown in Midler's Case study (1995), can be divided into two independent dimensions, a qualitative and a quantitative (Wald et al., 2015). These two dimensions can further be looked at in three levels, the firm-, the industry- and the economy level. The qualitative dimension focuses on how projectification influences the development in the organization. The quantitative dimension on the other hand, targets the organization's share of project work. In this approach, in order to get an increasing degree of projectification, it would need to be on the expense of the organization's "ordinary" work. The share of project work can in this quantitative dimension be presented as a ratio of projectification. If all firms in an industry has a high degree of project-based work, we can also say that the entire industry has a high degree of project-based work. This can also be applied to the economy level, if all industries in the economy were considered having high degrees of project-based work. As mentioned in the introduction, there is a lack of solid figures covering the degree of projectification. This is probably since most of the previous research on projectification have had a focus on the qualitative dimension. On the other hand, a high degree of projectification (quantitative dimension), is essential for the qualitative dimension's effects to be significant on any of the three levels. Wald et al. (2015) further discusses the fact that a high degree of projectification on any of the levels, will lead to an increase in flexibility and innovativeness, and a decrease in bureaucracy on that specific level. We wish to map out the quantitative dimension of projectification, and investigate if it actually has an impact on strategic flexibility. By collecting data from a reasonable number of organizations, we intend to transfer our measures to all of the three mentioned levels.

2.1.3. Measurement

There are scholars that point to an increase in the use of temporary and contingent employment (Belous, 1989; Davis-Blake & Uzzi, 1993). In Statistics Norway's survey about the living conditions in Norway from 2000 (Rønning, 2002), they discuss the aspect of project-based work in the Norwegian economy. However, this study has measured the share of project-work through the employees – and their view of how much time they spend working in projects. We wish to measure the degree of projectification on the organizational level, since this probably will give us more accurate measures of the actual degree of projectification in organizations.

Nevertheless, there is a lack of robust empirical findings on the actual degree of projectification in organizations.

This has been a challenge for professionals within the field of project management, as it makes it harder to justify the relevance of the subject. As they lack solid figures, it will be harder to debate the significance of project-based work against other alternative forms of work in an organization (Wald et al., 2015). The first study that aimed to measure the degree of projectification on an organizational level, throughout all industries in an economy, was done by Wald et al. (2015) in the German economy. Before this study there were only a few conducted, where they tried to explicitly measure the share of projectification in an economy by calculating the absolute or relative values of project-based work. Nevertheless, these previous studies were only focused on selected industries, or organization- and project types (Wald et al., 2015).

The first objective of the exploratory study done by Wald et al. (2015) was to develop a measurement of projectification that captures the degree of project-work in an economy as a whole, independent of industry, organization or project type. From this study, they detected that input-related measures are better suited for consistently measuring projectification. These types of measures are also best for ensuring measurement without any impact of context factors like type of project, industry, firm size or activity focus (Wald et al., 2015). Measuring the degree of projectification by using output would be the preferred choice, but it is a difficult and complicated approach - which makes it hard to distinguish between different project types (Wald et al., 2015).

Input-related measures concern the resources put into the project. These resources can all be reduced to monetary values, such as expenses for staff or materials. They can also simply be defined as the working hours spent on a project (Wald et al., 2015). When using working hours as a measurement, the organization does not have to take other factors, like different payroll systems, into consideration - and this is therefore the preferred choice of measurement of projectification. We will explain more about this when disclosing our methodology, in chapter 3.

Projectification is an increasing form of work, across industries. As we have shown in this chapter, the project-based work form was earlier used mostly in specific industries (like the filmmaking- and construction industries) - but nowadays, it is becoming a preferred choice for many organizations.

2.2. Flexibility

Dealing with uncertainties and rapid changes can be a challenge for many organizations. Being able to respond to changes in the environment, and adopt - to really seize opportunities, and overcome threats is a large part of the concept of flexibility. However, in order to explain the phenomenon, we start at an organizational level, with a strategic approach.

2.2.1. Basic theory

There are many strategic options when it comes to organizations, and the theoretical framework of strategic capabilities can be applied to the concept of flexibility. Strategic capabilities can be defined as the capabilities in an organization that serves the organization's long-term sustainability, and its competitive advantages (Amit & Schoemaker, 1993; Johnson et al., 2010). According to Amit and Schoemaker (1993), the concept of strategic capabilities are made up by two components; resources and competences. Amit and Schoemaker (1993) further explain this through the fact that resources can be defined as assets that the firm owns or in other ways control, and competences are how those assets are used and utilized.

Strategic capabilities often consist of either resources or competences, or a combination of the two. In Table 1, we can see the difference between the two components. As the table shows, both of them can be either physical, financial or human – and we can say that the resources are “*what we have*” and the competences are “*what we do well*” (Johnson et al., 2010, p. 70).

Strategic Capability		
Resources: what we have		Competences: what we do well
Machines, buildings, raw materials, products, patents, databases, computer systems	Physical	Ways of achieving utilisation of plant, efficiency, productivity, flexibility, marketing
Balance sheet, cash flow, suppliers of funds	Financial	Ability to raise funds and manage cash flows, debtors, creditors, etc.
Managers, employees, partners, suppliers, customers	Human	How people gain and use experience, skills, knowledge, build relationships, motivate others and innovate
Long-term survival and competitive advantage		

Table 1 Components of strategic capabilities
(Table 3.1 Johnson et al., 2010, p. 71)

The resources that an organization has available are without doubt crucial, but Johnson et al. (2010) states that it is equally important *how* the organization chooses to take advantage of these resources. An organization has to be aware of how to deploy and use their resources in an effective way, in order to fully exploit their potential. One key objective concerning the strategic capabilities, is that they should not be static – they must have the ability to change and adapt in order to ensure the organization's long-term goals. “Ordinary capabilities”, like those needed for efficient operations, allow companies to achieve success in a short-term perspective – but they are not sufficient to be able to sustain a long-term competitive advantage (Teece, Pisano, & Shuen, 1997). Such capabilities can easily become a “target” for competitors, who might imitate them. These kinds of capabilities might even become common and ordinary in the industry.

To address this issue, an organization should absorb the concept of dynamic capabilities, which was first introduced by Teece et al. (1997). He defined the concept as “*the firm’s ability to integrate, build and reconfigure internal and external competences to address rapidly changing environment* (Teece et al., 1997, p. 516). Teece et al. (1997) meant that for capabilities to be effective in a long-term perspective, they must have the ability to change – hence, they should be dynamic. Dynamic capabilities are dynamic through their ability to establish, broaden or adjust the organization’s current operational capabilities. Furthermore, Teece (2007) discusses three types of dynamic capabilities; sensing, seizing, and reconfiguring. Sensing comprehends the fact that organizations should always make sure to scan, search and examine new possibilities. When an organization has “sensed out” a new possibility, that possibility must be seized and, they have to endeavour it by adapting or developing new products, services and processes. Lastly, in order to be able to seize that possibility – organizations might have to reconfigure or renew the existing capabilities. We will illustrate this through an example. Apple recently introduced their smart watch – the Apple Watch. Apple are always scanning their environment for new opportunities, and saw one in the need people have to constantly being updated and online. This was seized into an even more inventive and mobile gadget than the iPhone, by making a smart watch. To make this happen, they needed to renew their technology in order to make it smaller, but at the same time have good enough hardware to meet the needs of the users.

If an organization sense, seize, and reconfigure in an efficient way, that organization will have a good starting point for sustaining dynamic capabilities. As mentioned, the key thing to stress is the fact that the capabilities must have the ability to adapt, change and respond to changes in the environment. Flexibility is a concept that fits very well into the perception of dynamic capabilities, and will be explained in the following parts of this chapter.

2.2.2. The flexibility concept

Businesses today exist in dynamic environments, with turbulence and rapid changes. It is difficult to predict the future, and the consequences of the actions taken to respond to changes. When it comes to staying “alive”, a flexible organization has an advantage, by being able to change itself in an expedient way (Krijnen, 1979).

Volberda argues that, amongst other factors, “*increasing the workforce flexibility*”, and “*replacing highly specialized machinery for flexible manufacturing systems*” has been the focus of many organizations in the end of the 20th century (1998, p. 1). Many professionals and experts have the opinion that there is a rise of a new type of firm, “the flexible firm” (Handy, 1995; Kanter, 1994; Pasmore, 1994; Peters, 1987). Handy (1995) also states that flexibility in fact is a necessity in all types of organizations. Volberda further discusses that conventional firms, with a bureaucratic focus, do not possess the sufficient capacity to be able to react and defend themselves towards rapid enhancements in competition. The flexible firm, however, has the ability to actively respond to such changes (Volberda, 1998).

In today’s economy, most organizations, in nearly all industries, must be able to react and adapt to environmental changes. They have to renew and adapt their organizational form in order to survive. The focus is moving away from the traditional, hierarchical ways of organizing firms - and “*managers and practitioners are heralding flexibility as the new hallmark of organizational excellence*” (Volberda, 1998, p. xi). The “new” organizational form consists of flatter hierarchies, renewal, employee focus, and decentralization of decision-making processes. Eriksson-Zetterquist, Kalling, and Styhre (2006) discussed the fact that in order to survive, organizations must be able to change, and that changeability should be more important than being rigid and bound to traditions. All kinds of organizations, under all circumstances, must be able to comprehend both actual and possible changes in the environment. (Eriksson-Zetterquist et al., 2006).

Ansoff (1965) meant that the concept of flexibility should be further divided into external and internal flexibility. External flexibility is according to Ansoff (1965) both a defensive approach, which consists of minimizing the effects of a catastrophe, and an offensive approach by exploring new areas of business – and seizing opportunities in them. Internal flexibility, on the other hand, he defines as being helpful when it comes to responding to a “catastrophe”. External flexibility seeks to influence unforeseen circumstances, while internal flexibility is more about reacting to them. To sum up, external flexibility is about influencing the environment, while internal flexibility comprises being able to react and reconcile to fast changes in the environment. In our case, it will be natural to look at the concept of internal flexibility, since we are talking about being able to respond and adapt to changes in the environment. Some examples of internal strategic flexibility are the disassembling of strategies, renewing products or services, and to implement or develop new technologies (Volberda, 1998).

The literature covering the concept of flexibility often explains it by using different approaches. Eppink (1978) and Volberda (1998) describes both organizational, operational, and strategic flexibility as different perspectives of the term flexibility. As Table 2 shows (Volberda, 1998), the different types of flexibility is also paired up with each of their own time frames, as well as the nature of the change. The operational type of flexibility is seen as short term, with a stable environment, and the organizational flexibility is “medium term”, and handles with changes in the direct environment. Lastly, the strategic flexibility has a long term perspective, and focuses on changes in the indirect environment of the organization. Strategic flexibility handles changes that can be recognized as rapid, dynamic and often very unfamiliar. The fact that they are of a rapid demeanour means that it is important to address, in order for it to not affect the company in a negative manner. According to Volberda (1998), these changes can be found in the indirect environment, and the strategic flexibility should be a tool to adapt to those changes.

	Criteria for classification		
	Level of decision-making process	Time frame	Nature of change
Types of flexibility	operational	short term	stable environment
	organizational	medium term	changes in direct environment
	strategic	long term	changes in indirect environment

Table 2 Criteria for classifying types of flexibility
(Table 4.3, Volberda, 1998, p. 94)

2.2.3. Strategic flexibility

Volberda (1998) further refers to strategic flexibility as the most radical type of flexibility. Moreover, it is supposed to be more qualitative – and implies adjustments in the nature of the organizational activities. The need for strategic flexibility comes to life in cases of unforeseen or unexpected changes, which must be responded to immediately. When discussing strategic flexibility, it is important to mention the fact that when an organization finds itself in new situations, it is crucial to create new activities. Organizations might have to improve their game plan, break down the existing strategy, reconfigure or renew products or services, and perhaps invent or implement new technologies (Harrigan, 1985; as cited in Volberda, 1998).

There have been many attempts to define strategic flexibility. Aaker and Mascarenhas (1984, p. 74) defined it as *“the ability of the organization to adapt to substantial, uncertain, and fast-occurring environmental changes that have a meaningful impact on the organization's performance.”* Another definition was made by Sanchez, who said that *“The term strategic flexibility has been widely used by strategy researchers to denote firm abilities to respond to various demands from dynamic competitive environments.”* (1995, p. 138)

However, there is a common denominator for most definitions of the concept. This is the fact that strategic flexibility involves the ability to adapt to, and respond to changes in the environment. Furthermore, Sanchez (1995) explained that the concept of strategic flexibility in product competition consists of two components, resource- and coordination flexibility. The idea is that strategic flexibility is jointly dependent on both of these components.

Resource flexibility involves the relationship between new product creation technologies and a firm's resources for developing, producing, distributing, and marketing its products (Sanchez, 1995). The perception is that new technology can be helpful in order to find new alternative uses, for already existing resources. Sanchez further explains this type of flexibility through three dimensions of resource use; alternative uses as to which a resource can be applied, low costs and difficulties of switching from one use of a resource to an alternative use, and low time required to switch to an alternative use of a resource (1995).

Sanchez explains coordination flexibility through that it “*Helps identify critical interdependencies between the flexibilities in a firm’s product creation resources and the firm’s ability to apply those resources effectively through new product strategies and organizational structures.*” (1995, p. 138).

This type of flexibility includes the following aspects;

- (1) Align the firm’s strategies to which market segments and which products they are offering.
- (2) Constructing the resource chains to better fit and reach the firm's targeted markets, with the proposed products. Chains of resources include the firm's developing, manufacturing, distributing, and marketing areas.
- (3) Use resources in ways that align the firm's organizational structures to their product strategies.

Wald et al. (2015) used a definition that builds on that of Sanchez, and this is the one that has been the basis of both their and our study. While Sanchez uses a product competition focused view in his article, and his definition of strategic flexibility, Wald et al. (2015) made the definition a bit more general. Since their study was carried out in different industries, which included those that does not necessarily fit into the “product competition” segment, their definition became more applicable to all types of companies, in all kinds of industries;

” *Strategic flexibility is the capability of a company to react to anticipated and/or unforeseen changes by adapting strategies and plans, and by reducing dependencies*” (Wald et.al., 2015; appendix 1). This is also the definition that we have based our study of the concept on.

One issue when discussing strategic flexibility as a variable is the means of measuring. How do we measure the strategic flexibility of an organization? It is probably hard to find a measurement that can be applied in all situations, and in this study, we choose to measure the strategic flexibility in the participating organizations by different statements, as we will explain more about in chapter 3.

Organizational literature has an increasing focus on flexibility, and the focus is directed towards how organizations should adapt and respond to rapidly changing environments (Dastmalchain & Blyton, 1998). Krijnen (1979) argues that in a changing environment, in which organizations struggle to predict the consequences of their activities – the flexible firm is able to survive. As

we know, change is becoming more common, and more rapid - across industries. To be able to cope with, and respond to those changes - organizations must be prepared.

There is no doubt that flexibility is an important phenomenon, and that it probably will be even more in the frontline of business strategies in the future. In the business world of today, we know that change happen often, fast, and sometimes unexpected. The flexible firm is well suited for these types of rapid changes. We might even go so far as to say that a flexible firm is a strategic and organizational genius.

2.3. Moderating variables

The size of an organization is one of the principal contingency variables, and also one of the focus points of contingency theory (Birkinshaw, Nobel, & Ridderstråle, 2002). Contingency theory further tells us that an appropriate organizational design is dependent on the organization's size. This means that the organizations effectiveness, efficiency, probability and viability is dependent on such contingency variables (Baligh, Burton, & Obel, 1996). Baligh et al. (1996) further reviews the organization size as a key contingency variable in the organization's design. Birkinshaw et al. (2002) used to the same measurement that we intend to use to measure the company size, number of employees. On the background of contingency theory, we will consequently test our alleged relationship for moderating effects by the organization size, differentiated by number of employees.

As shown in previous parts of this chapter, project-based work was earlier restricted to specific industries and types of businesses – but nowadays it is more widespread. Wald et al. (2015) also used the industry type as a differentiating factor in their study. As our study builds on the one of Wald et al. (2015), it is also natural for us to look into the industry type as a moderating variable. We will explore the possibility that the industry, which an organization belongs to, has a moderating effect on the potential relationship between the organization's projectification and strategic flexibility.

2.4. Problem statement

After the gathering of this preparatory information, we had to narrow down our research area, due to time and capacity restrictions. We will explain more about possible other approaches in our recommendation for further research, in chapter 6.

As shown in this literature review, there has been many attempts to define both projectification and strategic flexibility. The definition used for explaining projectification in this study is as mentioned; “A project is an undertaking largely characterized by the uniqueness of the conditions in their entirety, i.e.

- A specific target has been defined for the project.
- The project is limited in terms of time (start and end).
- The project requires specific resources (e. g. financial, staff, etc.).
- An independent process organization exists, which is defined as different from the standard organization in the company.
- The projects work on non-routine tasks.
- The project has a minimum duration of four weeks.
- The project has at least three participants.”

(Wald et al., 2015)

Further, strategic flexibility is in our study defined as “the capability of a company to react to anticipated and/or unforeseen changes by adapting strategies and plans, and by reducing dependencies.” (Wald et.al. 2015; appendix B).

We have also shown the increasing interest for both concepts (projectification and flexibility), and how strategically important they both can be. As organizations become more and more subjective to changes and new technology - both these concepts has shown to be convenient. However, when it comes to former research combining the two concepts described, there is not much to be found. Many scholars state that with more project-based work comes a greater flexibility. However, it seems that there has been little proof of this statement. We will, through our research study, attempt to find out if there in fact is a relationship between our independent variable, the degree of projectification in an organization (X), and our dependent variable, the organization’s strategic flexibility (Y). Our primary research question will therefore be “Does the degree of projectification have an impact on organizations' strategic flexibility?”

From this research question, we have derived our primary hypothesis, and the null hypothesis for this study;

H₁: The degree of projectification has a positive significant impact on a company's strategic flexibility.

H₀: There is no significant relationship between a firm's degree of projectification and its flexibility.

If ρ represent the correlation between projectification (X) and strategic flexibility (Y), our null hypothesis will statistically be expressed as:

$$H_0: \rho = 0$$

Our primary hypothesis states that we believe there are a positive correlation between the variables (X,Y), which is statistically expressed as:

$$H_1: \rho > 0$$

To be able to determine if there exists such a relationship, we must measure the degree of projectification in the Norwegian economy. In earlier studies, there has been a distinct qualitative focus on the concept, but as mentioned, we wish to keep a quantitative view. This measurement will be used as a mean to the aim of detecting if there is a relationship between our variables (X,Y). The research question regarding the degree of projectification is consequently; *“What is the degree of projectification in the Norwegian economy?”*

As shown in the previous parts, there has been an increase in the interest for project-based work in many industries. We wish to see if this actually is the case in the Norwegian industries, and if they expect the increase to continue in the future. This is reflected through our third research question *“Is there empirical support for the assumption that projectification is an increasing phenomenon?”* This research question is, as mentioned, not the primary focus of the study – but a necessity in order to investigate our hypotheses. There will therefore, consequently not be any hypotheses directly corresponded to this question.

As the purpose of our study is to explore the possibility that organizations' degree of projectification (X) have an impact on their strategic flexibility (Y), we must investigate the strategic flexibility amongst organizations in the Norwegian economy, and our next research question will consequently be; *“To which extent does strategic flexibility exist in organizations in the Norwegian economy?”*

Given that there is a relationship between our two variables (X,Y), we will also investigate the possibility that the organization's size (Z) or industry (W) has a moderating effect on the alleged relationship. The size (Z) of an organization as a moderating variable is grounded in contingency theory, as explained in the previous parts. The industry (W) as to which an organization belongs to, will also be used as a moderating variable in our analysis. This is due to the fact that we have seen differences across industries when it comes to the share of projectification, both in theory and in the German study made by Wald et al. (2015). The main research question derived from this theoretical perspective is *“Does the size or industry of the organization influence the relationship between projectification and strategic flexibility?”*, and to be able to answer this – we also had to investigate the following research questions; *“What is the degree of projectification amongst different industries/different organization sizes in the Norwegian economy?”* and *“To which extent does strategic flexibility exist among different industries/different organization sizes in the Norwegian economy?”* The hypotheses concerning our moderating variables will therefore be;

H₂: The size of an organization has a significant moderating effect on the relationship between projectification and strategic flexibility.

H₃: The industry in which an organization operates, has a significant moderating effect on the relationship between projectification and strategic flexibility.

As mentioned, what this study aims to do is to determine if there really is a relationship between the degree of projectification (X) and the of strategic flexibility (Y) in an organization. Is it actually the case that the more project-based work you have in your business - the more flexible you get? Our theoretical framework and our predictions has led us to the following hypotheses and research model (Figure 2);

H₁: The degree of projectification has a positive significant impact on a company's strategic flexibility.

H₀: There is no significant relationship between a firm's degree of projectification and its flexibility.

H₂: The size of an organization has a significant moderating effect on the relationship between projectification and strategic flexibility.

H₃: The industry in which an organization operates, has a significant moderating effect on the relationship between projectification and strategic flexibility.

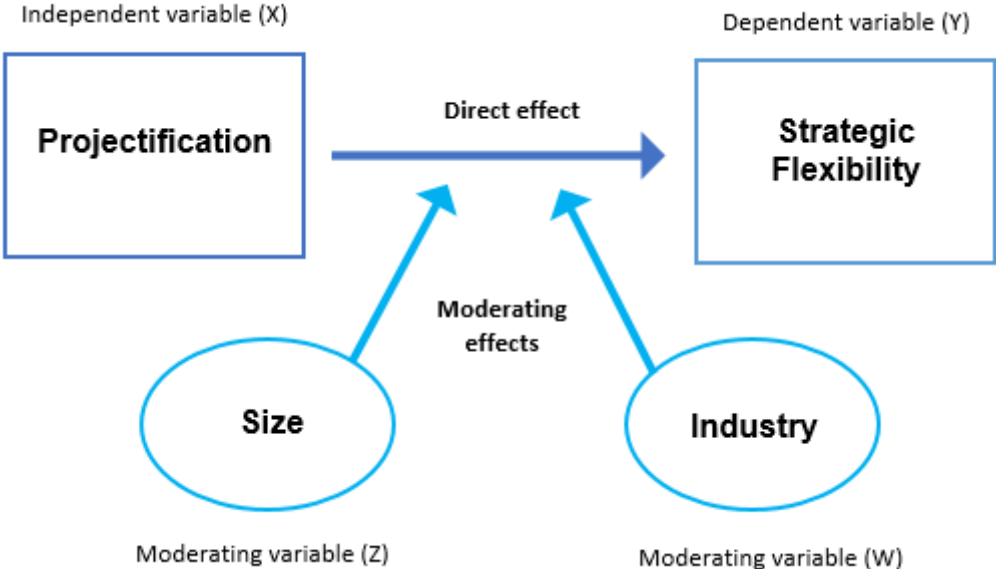


Figure 2 Research model

Part II

3. Data collection and methodology

In this chapter, we will present our methods for collection and analyses of the data. This study required primary data, and our data collection procedure consisted of two stages. The first, and intended method of data collection, was conducted through telephone interviews. Due to time constraints, we realized that there was not enough time to collect a sufficient sample size using this method. The solution was consequently to change the method of data collecting. We decided to use an electronic survey, in order to reach a larger amount of respondents within the time available. The questionnaire used in these two stages will be further explained in chapter 3.1.4, and is shown in appendix B.

The method chosen for our data analyses is a form of Structural Equation Modelling (SEM), which is a process of “*multivariate techniques that combine aspects of factor analysis and regression*” (Hair, 2014, p. xi). Through this method, we have the opportunity to look at relationships among our variables (X,Y), at the same time as we examine the relationship between our variables and the indicators that are measuring them. Instead of doing this in two steps, we can by using SEM, combine the two analyses. The method that we are using in our study, is the Partial Least Squares SEM (PLS-SEM), which according to Hair (2014) is becoming a key research method.

3.1. Methods of collecting data

Our data was primary, and obtained first- hand by us in collaboration with another master thesis group. The aim was to collect quantitative data, in order to measure the degree of projectification (X), strategic flexibility (Y), and the potential connection between the two variables.

As mentioned in the introduction, we wished to be able to compare our results to those from the German study of Wald et al. (2015). We had the opportunity to use the same questionnaire as the one used in that study, and our methodology was therefore evolved from this questionnaire and backwards. Part of the questionnaire aims to map out within which industry the respondents belong, and it was necessary to do some adaptation to fit the Norwegian economy. Compared to the German version, we therefore added two important industries in Norway, *fishery/forestry/agriculture*, and the *oil and gas* industry. Table 3 describes the

industrial classification in our study, according to industry codes from Statistics Norway (2009), and the full table is shown in appendix D.

Industry	Industrial Classification (industry code)
Manufacturing	10-33
Financial Services & Insurance	64 - 66
Public Sector / Education / Health Care	84 - 88
Other Services (excluding financial)	05, 07 - 09, 35, 36 - 39, 41 - 43, 68, 69 - 75, 77-78, 80 - 82, 90 - 93, 94 - 96, 97, 99
Retail, Transport, Hospitality, Tourism	45 - 47, 49 - 53, 55 - 56, 79
Information and Communication	58 - 63
Oil and Gas activity	06, 19
Fishery, Forestry, Agriculture	01-03

Table 3 Industry classification

As mentioned, we used two different methods of collecting our primary data, personally administrated telephone interviews, and an online survey. The online survey was created through SurveyXact, which is a convenient program for both creating and sending out such surveys. In the following chapters, we will explain the two methods of data collection used in this research study.

3.1.1. Telephone interviews

Our intended population was all companies in the Norwegian economy, both in the private- and the public sector. We decided to narrow our population down, due to the time constraint when collecting the data. The decision was to cut down the population to only a few industries, where the aim was to get representative sample for the chosen industries, within the time available. We used the table shown in appendix E, to select the industries that are considered most important for the Norwegian economy, according to the output by kind of main activity at basic value. Table 4 shows the five largest industries, after dividing in to suitable groups for our study (Statistics Norway, 2016a). As we can see, construction is the fourth largest industry in Norway. We however, choose to exclude this industry, since most of the work done here is in fact project-based (Wald et al., 2015). We were more interested to see the effects of project-work in the typical “traditional-work” industries. By excluding the construction industry, we were able to conduct our research towards an industry that is not associated with project-based work to the same extent as construction - namely the wholesale industry.

Output by kind of main activity at basic value*.	2014
Oil and gas extraction including service	777 529
Manufacturing	823 639
Education, health and social work, public administration and defence	807 908
Construction	467 972
Wholesale and retail trade, repair of motor vehicles	390 768
<i>*Current prices. NOK million.</i>	

Table 4 Overview of the largest industries in Norway by output of main activity

In order to get a representative sample from the chosen industries, we collected data from both small and large companies within each industry. The size of the companies was characterized by number of employees – where the small companies are the ones with less than 500 employees, and the large ones are the ones with 500 and more. This was the separation that was used in the German study by Wald et al. (2015), and since this was the basis of our study - we followed their approach when dividing the companies according to size. Our list of possible respondents was collected from Brønnøysundregisteret.

Further, we did a stratified random selection of the samples – where we divided the companies into different stratum according to industry and size. This way, we got two stratum in each industry (small and large), and a total of eight stratum – as shown in Table 5.

Oil and gas industry – small firms	Manufacturing – small firms	Public sector – small firms	Wholesale – small firms
Oil and gas industry – large firms	Manufacturing – large firms	Public sector – large firms	Wholesale - large firms

Table 5 Overview of the stratum of the data collection

We wished to collect a sample size that would allow us to generalize on the behalf of the four chosen industries. To determine the sample size, we used the table provided by Krejcie and Morgan (1970) (as cited in Sekaran & Bougie, 2013, p. 268), which is a practical and useful way to determine the right sample size. When the table, together with our population’s size, and the fact that we were a group of four interviewers, was taken into consideration - it was reasonable to aim to collect 400 respondents, 100 interviews each.

In this stage of our data collecting, we used personally administered interviews, by telephone. Those kinds of interviews have the advantage that the interviewer can clarify any doubts or misunderstandings. On the other hand, the explanation from the interviewer can introduce bias. Such interviews also take a lot of time and effort, and the time disadvantage regarding this form

of data collecting became a problem in our study. We were not able to collect the needed number of respondents within the time available. As we realized this, we decided to change our strategy for collecting a sufficient number of respondents - in order to ensure an acceptable sample size.

3.1.2. Online survey - SurveyXact

In order to get the sample size we needed, to ensure an opportunity to generalize to the population, we changed our strategy of data collecting. The new method included transferring the already existing questionnaire into an online survey program, SurveyXact. This gave us the opportunity to reach a larger sample, in less time. This was our key objective as to why we changed the method, as our sample size from stage one was too small. In the previous data collection sequence, we were narrowing down our population by industry. With the new method, this would no longer be necessary - as the base of the decision was due to time constraints. Now, we had the opportunity to be able to return to our ideal population, the Norwegian economy as a whole.

The source of our list of possible respondents was collected at the site of Proff Forvalt (2016). This is a site that delivers updated credit and market information in collaboration with among others *Brønnøysundregisteret*, which was our source of information in the previous data collecting sequence. In stage two, we chose this source instead of *Brønnøysundregisteret*, because of their opportunity to customize the lists - which made it easier to collect only the information we needed. Possible coverage errors will be due to processing of changes in *Brønnøysundregisteret*. There could however be an issue of "dead companies", as this site does not remove companies from their site before they are deleted in *Brønnøysundregisteret*. However, we consider those errors of coverage to have a minor effect on our sample.

As we in this stage were able to operate with a larger amount of participants, we decided to send the questionnaire out to all possible respondents in the population. Our source of distribution was e-mail addresses, which is not listed for all companies registered. Therefore, we filtered out all companies that had not provided their email addresses. As there is a possibility for an organization to do business in different industries and on different locations, there will also be different organizational numbers connecting to same companies. As we discovered that there would be cases where different locations and departments were listed with the same e-mail address, we had to do another filtration in order to filter out duplicated email

addresses. Further on, we also did a third filtration - filtering out the companies we had already been in contact with in the first stage. At the end of this filtration process, we were left with a total of 54 124 unique organizations.

From the table (shown in appendix F) provided by Krejcie and Morgan (1970); (as cited in Sekaran & Bougie, 2013, p. 268) we found that in order to get a confidence level of 95%, and a margin of error of 5% - we would need a sample size of at least 384 respondents. Our aim was however to attain as many respondents as possible, since we wanted to be able to get accurate measures. Therefore, we only considered the required sample size of 384 as an absolute minimum. The method we used in this stage of the data collection gave us the opportunity to send the survey to many possible respondents at the same time, as there was no limit as to how many e-mails we could send out - and the time constraint was minimal.

The electronic questionnaire used in SurveyXact has the advantage of high anonymity, fast delivery, and more convenience for the respondents. We needed a larger sample, and the fast delivery and convenience for the respondents would then be helpful. This was our main reason for applying this method in the second stage of our data collection. There is however the disadvantage that we are no longer able to clarify the questions for the respondents. In cases where this type of questionnaire is used, the response rate is also very often low (Sekaran & Bougie, 2013, p. 148). Furthermore, we have limited control over who is actually answering the questionnaire, and if this person is qualified or not - we simply have to choose to trust our respondents.

3.1.3. Awareness of nonresponse errors

In the execution of the sampling process, we had to be aware of the possibility of nonresponse errors. This can occur when the organizations from the sample that respond to the questionnaire is different than those that did not respond (Sekaran & Bougie, 2013, p. 247). It would have been a problem if the respondents that participated, differed from the ones that did not respond, on characteristics that are crucial for our study. A possible error discussed was the possibility that only respondents with a high degree of projectification would participate. From our first stage of data collecting, we experienced that companies that did not use project work were more hesitant to participate. To address this issue, we included our email address in the introduction to the survey - where the participants were able to send suggestions and questions. We got some emails from small companies, and companies with a low or no degree of project-based work,

where they asked if they were suited for this study. Through that, we got the opportunity to explain more about the fact that we wanted to get the whole spectre of the Norwegian economy, and in that way got them to participate in the study. By sorting out those misunderstandings, we were able to restrain the negative outcomes of this issue.

3.1.4. Questionnaire design

The questionnaire used in our study is the same as the one used in the study from Wald et al. (2015), with some slight modifications to fit the Norwegian economy. Since we started our study in the beginning of the year 2016, and many organizations did not have all accounting figures finished for the year 2015, we choose to ask for the relevant figures from the previous year, 2014. For simplicity reasons, the questionnaire is divided into five parts, A-E, and is shown in appendix B.

The first part establishes knowledge about the industry and the size of the organizations. Part B aims to map out the degree of projectification (X) in the organizations with both 7-point Likert scales and open-ended questions - asking for the respondents' estimations. Part C of the questionnaire plots some general information about the respondent and its organization. These questions were helpful when preparing the data for analysis, in order to consider unreasonable answers. The questions regarding the independent variable are relevant for both the collaborating group and us, but there are incorporated questions for both our and the other group's dependent variable, respectively strategic flexibility and innovation. Part D of the questionnaire covers the concept of innovation, and is therefore not relevant to discuss further in this thesis. The questions regarding strategic flexibility in our questionnaire are covered in part E, and are divided into one part that covers the resource flexibility, and one part regarding the coordination flexibility. To cover the concepts of resource- and coordination flexibility, the questionnaire uses different statements, which the respondents were asked to respond to on a 7-point Likert scale with the following alternatives;

- 1 = Strongly disagree
- 2 = Mostly disagree
- 3 = Somewhat disagree
- 4 = Neither agree nor disagree
- 5 = Somewhat agree
- 6 = Mostly agree
- 7 = Strongly agree

We will, based on this, be able to draw conclusions regarding our dependent variable, strategic flexibility (Y). Question 11, which aims to measure the project intensity in organizations, uses the same scale. However, the question regarding which different project types that is used (question 3) has different statements, where the respondents are asked to rate the statements from “Not used at all” to “Used very frequently” (see appendix B).

The university have appointed the Norwegian social science data services (NSD) as their data protection officials for research. Every research project conducted at the university therefore, as a legal requirement, has to be considered for notification through NSD’s standards. The researcher has the obligation to notify NSD if their project will collect or in any other way process personal data. In our study, there is not any form of personal data to be collected or disclosed - and notification should therefore not be necessary. This was ensured by taking the NSD notification test, where our result was “not subject for notification”. This result can be seen in appendix C. When using SurveyXact, we also had the opportunity to choose an anonymous survey, which we did - in order to further ensure the respondents anonymity.

3.2. Method of analysing data

In this part, we will show the adjustments that were made to our dataset in order to prepare it for analyses. The methods, measurements, and other choices made to get the results regarding our descriptive- and PLS-SEM results, will also be presented in the following parts.

3.2.1. Preparing the data for analyses

We started out with 1466 respondents obtained from SurveyXact, after removing those that were only partially completed. By looking through the dataset, we noticed that there were some questions that were clearly misunderstood by some respondents. Therefore, we had to go through and adjust the dataset, before we carried out the analysis. In questions 4 and 18 (as shown in appendix B), we had to change the ones that were obvious misunderstandings - they had given us their answers in NOK, and not Mill. NOK. We removed respondents that we were unsure about, e.g. where it was not obvious mistakes - but still abnormal answers. Those that had answered 0 in question 18, was labelled as missing values. All questions that required answers in percent, were controlled for percent figures over 100%. Respondents that had clearly misunderstood, were further removed from the dataset. We also did a control for outliers in SPSS , and decided to remove those that would introduce bias for the representation of our study, as recommended by Hinton, McMurray, and Brownlow (2014). Furthermore, we

scanned our dataset for suspicious response patterns, and removed a couple of respondents that had given the same answers on all questions. After this process of preparing the dataset for analysis, we were left with a total of 1392 respondents. The respondents from the first stage of the data collection was too few to be able to generalize to the whole population, therefore we decided to include them in our larger dataset from SurveyXact. We used the same questionnaire in both cases - and the first sample was too small to affect the larger sample in any way. When including those from the first stage of our data collection (20 interviews), we had a total sample size of 1412 respondents.

3.2.2. Method for descriptive analyses.

After preparing our dataset, we did some descriptive analyses - in order to get an overview of our respondents and their answers. Those analyses were done with the help of SPSS and Microsoft Excel. As mentioned earlier, we wish to determine the degree of projectification (X) in the quantitative dimension. With this in mind, we followed the three-step approach by Wald et al. (2015) to be able to get the desired measurement. The respondents in the research study reported the measurement on the company level.

From part B of the questionnaire, we will mainly focus on questions 8 and 11 - which measure the share of project work and the project intensity in the organizations. In the descriptive analyses, we will however show the degree of projectification (X) as a measure of question 8, since this is a more expedient presentation of the findings. This can be done, since questions 8 and 11 are intended to measure the same aspects, and we will further control if they show the same tendencies. To be able to compare the two questions, we had to make the 7-point Likert scale questions into readable figures. It was then natural to divide the answers into three categories; disagree, agree and neither agree nor disagree. The respondents chose between alternatives on a 7-point scale, where score 1 to 3 indicates that they disagree (to varying degrees), score 4 means that they do neither agree, nor disagree, and scores 5 to 7 indicates that they agree (to varying degrees). Therefore, we have consequently bulked up those scores that indicated disagree (1 to 3), and those that indicate agree (5 to 7).

Industry	Share of GDP
Manufacturing	7,77 %
Financial Services & Insurance	4,82 %
Public sector/Education/Healthcare	21,09 %
Other services (excluding financial)	24,43 %
Retail, transport, hospitality, tourism	14,39 %
Information & communication	3,88 %
Oil and gas activity	22,00 %
Fishery, Forestry & Agriculture	1,62 %
Total	100 %

Table 6 Share of GDP by industry

As will be shown in the descriptive analyses, we determined the degree of projectification (X) on the industry level. The share was calculated as an average value of the respondents in the industry. In order to get accurate and representative measures of the whole Norwegian economy - we weighted the total numbers with respect to each industry's share of the Gross Domestic Product (GDP), (Statistics Norway, 2016c). The shares of GDP are shown in Table 6 (the basis for this calculation is available in appendix G). This calculation of totals for the whole economy, is used in figures 9, 11, 15, 16, 18, 21, 22, 23 and 24, as well as table 12. Furthermore, we concluded on defining our organization's sizes somewhat different from what we originally intended. When looking at the statistics of Norwegian organizations (as shown in Table 10), we found that there are in fact very few organizations that would be considered as large in our first partitioning. Therefore, we decided to define small companies as those with up to a hundred employees, and the rest as large – contrary to the German study by Wald et al. (2015), where they used over and under 500 employees. The descriptive analyses are shown in chapter 4.

Furthermore, in order to analyse the hypothesized relationship between our variables (X,Y), we inserted the dataset into the program SmartPLS. In the following parts, we will explain the process of the PLS-SEM analysis in this program.

3.2.3. Specifying the structural- and measurement models for PLS-SEM

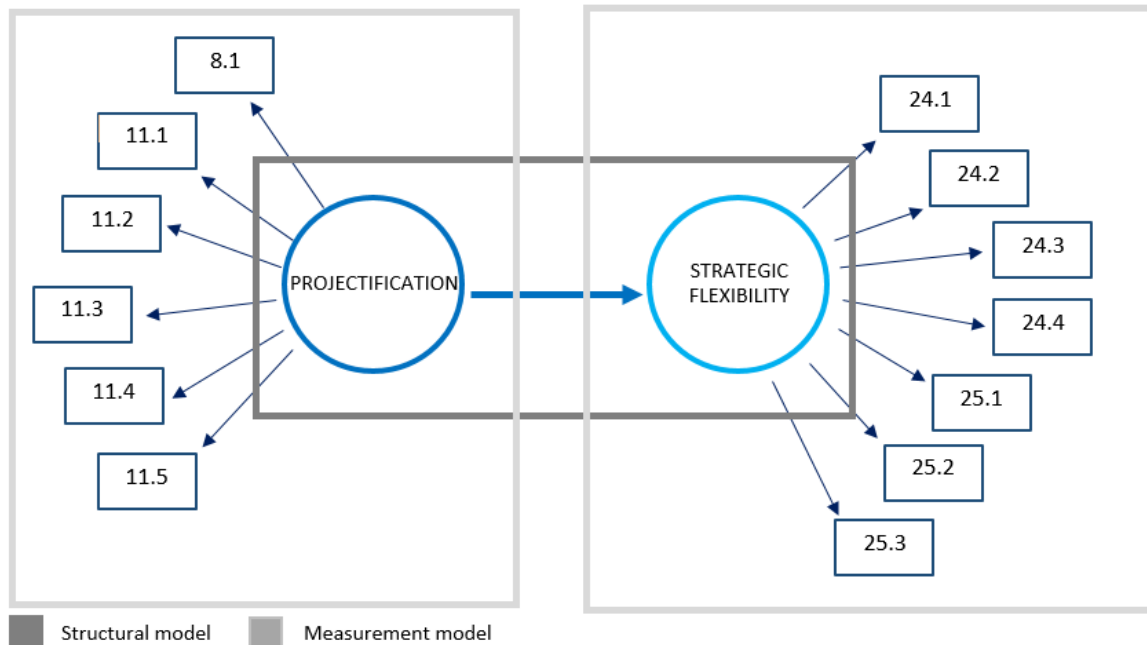


Figure 3 Structural- and measurement models

The first step of the PLS-SEM analysis is to specify the structural model. This is done by preparing a path model, which should illustrate the studied hypotheses, and at the same time present the relationships that we will consider in the analysis. This is illustrated by the dark grey frame in Figure 3, and it shows that our structural model represents the hypothesized relationship between our independent variable, projectification (X), and our dependent variable, strategic flexibility (Y).

In the second step of the PLS-SEM analysis, we will look into the measurement models, and specify the indicators. The measurement models illustrate the relationships between the variables, and their respective indicators. Each variable has their own measurement model, and in Figure 3, this is shown by the light grey frames. The measurement model regulates which indicators to use in order to specify the variables, but also the relationships between indicators and variables.

The model concerning the independent variable, projectification (X), consists of six indicators. They are attained from questions 8.1 and 11 (part B) in our questionnaire. Question 8.1 was measured as a share in percent, and question 11 consists of five statements, where each statement makes one indicator (see appendix B).

The measurement model concerning the dependent variable, strategic flexibility (Y), consist of seven indicators, these are from questions 24 and 25 (part E) in the questionnaire (shown in appendix B). Here, the four first indicators represent statements concerning resource flexibility, and the next three indicators represent statements about coordination flexibility.

A measurement model can be either formative or reflective. Both measurement models in our analysis are reflective, hence – all indicators connected to the same variable, overlap each other (as seen in Figures 4 and 5). This indicates that the variable causes the co-variation of the indicators (Hair, 2014). Moreover, and as already mentioned, the different indicators are to some extent overlapping each other, and the reflective measurement approach focuses on maximizing the overlapping between indicators, unlike the formative measurement model that seeks to minimize the overlapping.

3.2.4. Normality of the data

In the next step, the primary issue will be to examine our data distribution, by using two methods to test normality - skewness and kurtosis. Skewness is a measure used to establish whether our variables' distribution is symmetrical around its mean, while kurtosis is convenient to determine that the distribution is not too peaked or flat. Since PLS-SEM in a nonparametric statistical method, it does not require our data to be normally distributed (Hair, 2014). It is however important to make sure that the data is not too far from normal, which can provide issues concerning the parameters' significances. Hair (2014) explain that the sample is considered normally distributed when both skewness and kurtosis are zero, but that this situation is unlikely to occur. They further explain that a rule of thumb regarding skewness is that numbers over +1 or under -1 indicates a significantly skewed distribution. When it comes to kurtosis, they use the same general guidelines; a kurtosis over +1, or under -1 indicates respectively a too peaked, or too flat distribution.

When looking at the normality of our sample regarding the independent variable, projectification (X) - there seems to be some issues, nonetheless not major ones. The skewness lies within the acceptable frame of -1 and +1. Furthermore, the kurtosis regarding some of the statements in question 11, are somewhat high, see Table 7. However, as mentioned above, as long as the data is not too far from normally distributed, there will not appear any issues when using PLS-SEM. The skewness and kurtosis of our dependent variable, strategic flexibility (Y)

is shown in Table 8. All statements regarding the strategic flexibility appears to have a skewness and kurtosis between -1 and +1, which indicates that our sample is not much skewed, nor has a high kurtosis regarding our dependent variable. In conclusion, there are some issues regarding the normality of our sample, but not determinant in the method we are using – which does not require normality, as long as it is not too far from normal distributed – which we deem our sample not to be.

Independent variable – projectification (X)

	8.1	11.1	11.2	11.3	11.4	11.5
<i>N Valid</i>	1412	1412	1412	1412	1412	1412
<i>Skewness</i>	0,878	0,832	0,520	0,676	0,384	0,740
<i>Kurtosis</i>	-0,748	-0,618	-1,313	-1,057	-1,388	-0,808

Table 7 Normality of the independent variable (X)

Dependent variable – strategic flexibility (Y)

	24.1	24.2	24.3	24.4	25.1	25.2	25.3
<i>N Valid</i>	1412	1412	1412	1412	1412	1412	1412
<i>Skewness</i>	-0,358	-0,013	-0,083	-0,011	-0,413	-0,412	-0,235
<i>Kurtosis</i>	-0,866	-0,738	-0,795	-0,782	-0,530	-0,536	-0,654

Table 8 Normality of the dependent variable (Y)

3.2.5. PLS path model estimation

We will now show and discuss the PLS-SEM algorithm, as well as the considerations taken into account when executing it. To run the PLS algorithm, we needed to make sure that all the included indicators had no more than 5% missing values. We chose to use the mean replacement method in the missing value algorithm, as this was the default setting of the program. However, in our research, none of the indicators had any values missing, so this did not become an issue.

The PLS Algorithm estimates all the unknown elements in both the structural- and measurement model. The unknown elements are the relationships between the loadings and their variables, and between the different variables. The algorithm has a two-stage procedure. The first stage consists of calculating a score for every variable, and in the second stage, the algorithm calculates the loadings, the path coefficient, and the R^2 value. As weighted schemes for the inner weights estimation in the algorithm, we chose the path weighted scheme. The results differ little across the alternatives; consequently, we decided to choose the recommended option. This

is the option that is usable for generally all types of PLS models, and it is also the option with the highest R^2 for the dependent variable (Y). We will explain more about the R^2 value in chapter 5.1. The algorithm was set to stop at a stop criterion of 1.0E-5, or when it reached 300 iterations. The idea is to make sure that the algorithm stops at a reasonably low level of iterative changes in our variable scores. The 300 iterations were selected in order to ensure that convergence is accessed at the stop criterion (Hair, 2014). The results regarding the measurement models will be presented later in this chapter and the results regarding the structural model will be presented in chapter 5.

3.2.6. Evaluating the measurement models

In this stage of the PLS-SEM analysis, we will evaluate the results of the earlier computations of the measurement model. We will now present the reliability and validity of our measurement models. This includes looking at the convergent and discriminant validity of the indicators, and the accuracy (indicator- and consistency reliability) of the measures.

The first thing that is necessary to control for, after running the algorithm, is if the number of iterations we used was acceptable. Our calculated results showed that our algorithm converged after 4 iterations. This is a satisfying result, as we needed it to be less than our earlier stated maximum number of iterations of 300.

The internal consistency reliability, (also called composite reliability) is a mean to evaluate the consistency of the results across indicators, and those that belong to the same variable are similar in their scores. This reliability should, according to Hair (2014), be higher than 0,708, while it in exploratory studies is acceptable with numbers between 0,60 and 0,70. In our model, both variables had a high composite reliability. The independent variable, projectification (X) was at 0,930, and the dependent variable, strategic flexibility (Y) was at 0,938. This indicates that their indicators have high levels of internal consistency reliability. A measure over 0,9 indicates that the different indicators are actually measuring the same thing, but as this was the aim with the questions - it was expected in our study. Cronbach's alpha can also be used as a measurement of the internal consistency reliability, but is a more conservative measure. This, more traditional method, considers all indicators as equally reliable, and assumes that there are equal outer loadings on the variables. PLS-SEM however, considers all indicators by their individual reliability, and is therefore the preferred choice in our case.

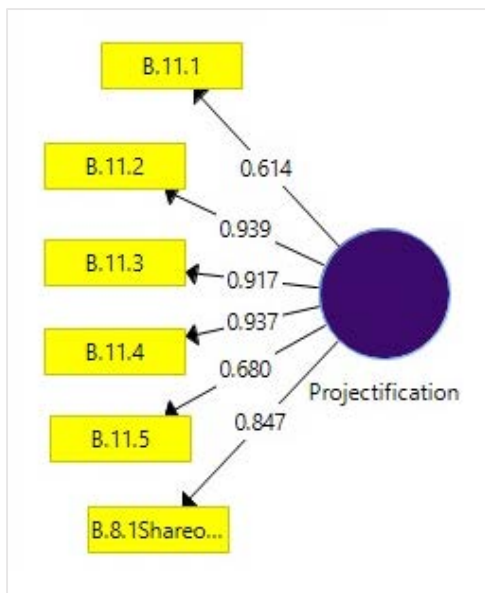


Figure 4 Measurement model of independent variable

Convergent validity is measured by the average variance extracted (AVE), and will show us if our indicators have a positive correlation with the alternative measures of the same variable. This measurement of convergent validity is the sum of the squared loadings, divided by the number of indicators, and should be 0,50 or higher. In this analysis, both variables have AVE values over 0,5, projectification (X) with 0,693, and strategic flexibility (Y) with 0,685. This means that, on average, the variable explains more than half of the variance of its indicators. Indicators belonging to the same variables converge or share a high proportion of variance.

The outer loadings are shown as numbers on the arrows between the variables and their indicators, in Figures 4 and 5. These are useful, in order to consider the indicator reliability in our models, and should all be over the threshold value of 0,708. This number is reasonable, in the context that the square of the indicators' outer loadings is the communality of the indicators. Further, as the aim is that the variables should explain a substantial amount of their indicators, this value of 0,708 ensures an explanation of over 50% ($0,708^2$). All the squared loading values can be found in Table 9.

We have two outer loadings in the measurement model of the independent variable, projectification (X), that are below this threshold. These are indicators B.11.1, with 0,614, and B.11.5, with 0,680 – as shown in Figure 4. In cases like this, when the outer loadings are below the threshold of 0,708, yet above 0,40, we should consider if these indicators should be removed. This should be done if deleting the indicators leads to an increase in composite reliability and AVE above the suggested threshold value (Hair, 2014). However, since we already had AVE values well above the suggested value of 0,5, in addition to a composite reliability at a high level, together with the fact that removing the indicators had no significant impact on the other indicators - we decided to include them in the analysis. From Figure 5, we can see that all indicators concerning the dependent variable, strategic flexibility (Y), are within the acceptable scores.

Lastly, we should evaluate the discriminant validity, to see how much the indicators represent only one of the variables, and to which extent the variables is truly distinct. The discriminant validity can be evaluated by using the cross loadings and the Fornell-Larcker criterion. The Fornell-Larcker method uses the square root of the AVE values of both variables, and compares it to the variable's correlation with other variables. In our model, the square root of AVE was 0,480 for projectification (X) and 0,469 for strategic flexibility (Y). The variable correlation is at 0,391, and this number is and should be lower than both our square roots of AVE. As

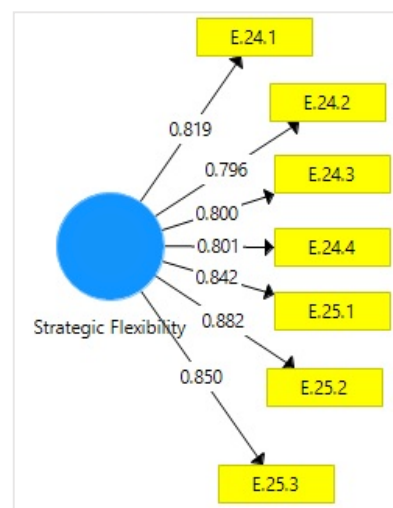


Figure 5 Measurement model of dependent variable

mentioned, the discriminant validity could also be studied by the cross loadings, and the indicator loadings should be higher than the cross loadings. When they are, it means that the indicators have a higher relevance for the variable it intended to measure than the other variable (Hair, 2014). As can be seen from row three and four in Table 9, this is fulfilled for all the indicators in our model, as all the loadings in column three are higher than the cross loadings, shown in column four. Both these methods show that we have discriminant validity for our variables in our measurement model.

Latent variable	Indicators	Loadings	Cross Loadings	Indicator Reliability	Comporite Reliability	AVE	Discriminant Validity
Projectification	B.11.1	0,614	0,251	0,377	0,930	0,695	Yes
	B.11.2	0,939	0,374	0,882			
	B.11.3	0,917	0,358	0,841			
	B.11.4	0,937	0,374	0,878			
	B.11.5	0,680	0,267	0,462			
B.8.1	0,847	0,306	0,717	0,938	0,685	Yes	
Strategic Flexibility	E.24.1	0,819	0,333				0,671
	E.24.2	0,796	0,294				0,634
	E.24.3	0,800	0,255				0,640
	E.24.4	0,801	0,251				0,642
	E.25.1	0,842	0,369				0,709
	E.25.2	0,882	0,361				0,778
E.25.3	0,85	0,364	0,723				

Table 9 Summary of the evaluation of the measurement models

In this part, we evaluated the measurement model and established that the internal consistency reliability, indicator reliability, convergent validity and discriminant validity all have satisfying results in our study. This is summarized in Table 9, and we have consequently established that our measurement models are both valid and reliable.

3.2.7. Further selections concerning the structural model

The structural model provides us with the path coefficients regarding the relationships in our model, and the coefficient of determination (R^2 value) of our dependent variable (Y). The results from the structural model evaluation will be presented in chapter 5.1.

This evaluation is based on the results of the PLS Algorithm (as explained earlier), the bootstrapping method and the blindfolding procedure. The bootstrapping procedure is a resampling technique, and is used to determine the models coefficients' statistical significance. We have two types of errors that are necessary to be aware of, regarding the possibility of making the wrong assumptions about our hypotheses. The first one is the type I error (alpha, α), which is the probability of rejecting the null hypothesis when it is actually true. Type II error (beta, β), is the second one, which is the probability of failing to reject the null hypothesis given that the alternative hypothesis is actually true. The probability of alpha errors is also known as the significance level, and is chosen by the researcher. The beta errors are inversely related to this probability. We followed the suggestions of Hair (2014) regarding the choices of the procedure. For the bootstrapping procedure, we used a subsample of 5000 and a significance level of 5%. This part was done as a percentile one-tailed bootstrapping, as we have a directional (positive) primary hypothesis. We also used the blindfolding procedure to find the predictive relevance of our model. Here, we used the default settings for omission distance of seven. These results will be presented in chapter 5.1.

Before looking at the results, a common step is to address collinearity issues in the structural model. The collinearity issues can be addressed by evaluating the collinearity statistics, also called Variance Inflation Factors (VIF). The collinearity statistics are done in order to detect collinearity between the independent variables. In our model, we have only one independent variable, and consequently this step is not necessary for our study.

3.2.8. Advanced PLS-SEM analyses

In this stage of the analysis, we will cover some more advanced topics of the PLS-SEM analysis, to be able to research the hypotheses H_2 and H_3 . We will look into our presumed moderating variables, industry (W) and company size (Z), by running a PLS-SEM Multi-group analysis (PLS-MGA) (Hair, 2014).

We wished to examine two types of categorical moderating effects (Z,W), and we therefore generated data groups in our sample. The dividing of groups was already done for both analyses, in our data collecting process. When it comes to the moderating variable, industry (W), the categories in question 1 (see appendix B) was used. When size (Z) was used as moderating variable, we divided the respondents into two groups, large and small firms. The size is based on the number of employees each respondent has. Here, we had to make a categorical division on the base of the answers from the questionnaire's question 2. How the sample was divided into large and small companies can be seen in chapter 3.2.2. In the multi-group analysis, we used the same settings for the PLS Algorithm, (chapter 3.2.6) and bootstrapping procedure (chapter 3.2.7), as used in the previous analysis of our model - for both of our moderating variables. This analysis gives us the absolute difference of the group specific path coefficient, and the results will be shown in chapter 5.2.

We have in this chapter shown the methodology in our research of both data- collecting and analysis, and we will in the following chapters show the results from our study.

Part III

4. Data representation and findings

In this chapter, we will show and discuss our findings from the descriptive-, and the PLS-SEM analyses. Some of these figures and tables are similar to the ones used in the study of Wald et al. (2015), as this study was made partially in order to compare the results of the Norwegian economy to those of the German economy. Part 4.1 aims to map out the representation within our sample, part 4.2 shows the descriptive results regarding our independent variable (X), and lastly in part 4.3 – we will present our descriptive results concerning our dependent variable (Y).

4.1. Representation within our sample

In this first part, we will display our distribution in our sample, through figures and tables. We will look into who the respondents in our sample are, e.g. what characteristics they have when it comes to size and industry. We will also discuss for instance how many employees they have on average, and which types of projects they use.

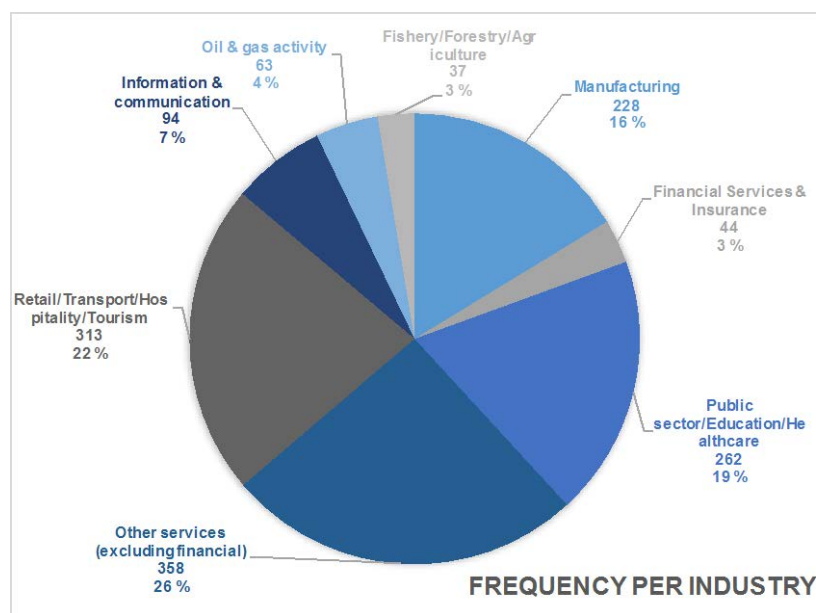


Figure 6 Frequency per industry

Figure 6 displays the frequency of respondents in our different industries. The overall number of organizations included in our study was 1412. Out of these, the *other services industry* is the one that constitutes the largest proportion, with its 355 respondents (25%). The *retail/transport/hospitality/tourism* industry is also highly represented, with 315 respondents (22%). The *financial services and insurance*, and the *fishery/forestry/agriculture* industries are lesser represented in our sample, with respectively 44 and 37 respondents. The largest parts of our

respondents are derived from the *other services* industry (26%), and the *retail/transport/hospitality/tourism* (22%) industries, together with the *public sector/education/healthcare* (19%). (From now on we will refer to the latter industry as “the public sector”, for simplicity reasons.)

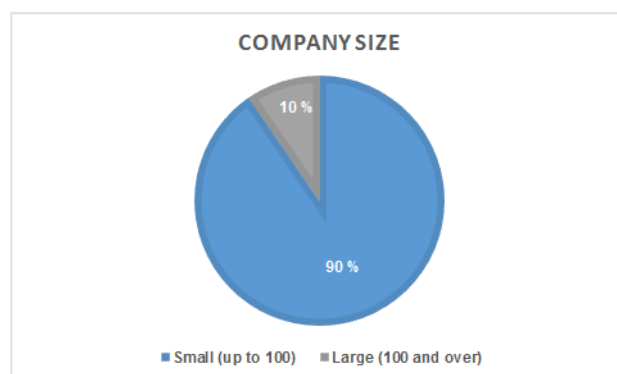


Figure 7 Company size

In this study, we have defined the small companies as those with up to (but not including) a hundred employees. The remaining companies, with more employees, are characterized as large. From Figure 7, we can see that our sample consists of mostly small companies (90%), with a share of 1277 respondents. The large companies constitute only 135 respondents (10% out of the total). This is however natural in a country like Norway, where there are many small organizations, and fewer big ones (Statistics Norway, 2016b).

By comparing the proportions in Figure 7 to those in Table 10, we can see how well our sample represents the population regarding size. From Table 10, we can see that the total number of organizations with a hundred or more employees in Norway is 3576, and with our sample of 135 respondents – that makes up a share of 3,78% of all the large companies in Norway. The

	2016	
	Number of establishments	Percent
All size groups	558959	100
No one employed	366444	65,6
1-4 employees	91273	16,3
5-9 employees	41159	7,4
10-19 employees	29614	5,3
20-49 employees	20712	3,7
50-99 employees	6181	1,1
100 - 249 employees	2790	0,5
250 employees and more	786	0,1
Source: Statistics Norway		

number of small establishments are significantly larger – with a total of 555 383 organizations. Out of this total, we got 1277 responding companies – which equals about 0,23%.

Table 10 Number of employees (Statistics Norway, 2016b)

Industry	Average number of employees
Public sector/Education/Health care	202
Oil & Gas activities	156
Information & Communication	84
Manufacturing	60
Other Services (excluding financial)	50
Retail/Transport/Hospitality/Tourism	23
Financial services & Insurance	22
Fishery/Forestry/Agriculture	13
Total	80

Table 11 Average number of employees by industry

The average number of employees in the *public sector*, and in the *oil and gas* industry is notably higher than in the other industries, with respectively 202 and 156. Those are, however, also the two industries with the largest proportions of large companies in our sample (with 25% and 16%), which can be an explanation to the high average number of employees. The *fishery/forestry/agriculture* industry has an average number of employees of only 13, which is the lowest in our study. The rest of the industries lies within the span of 20 to 90 employees on average - but the two highest pulls the overall average up to 80 employees. The *fishery/forestry/agriculture*, *other services*, and *retail/transport/hospitality/tourism* industries has the lowest proportion of large companies in our sample, with respectively 3%, 4%, and 4%.

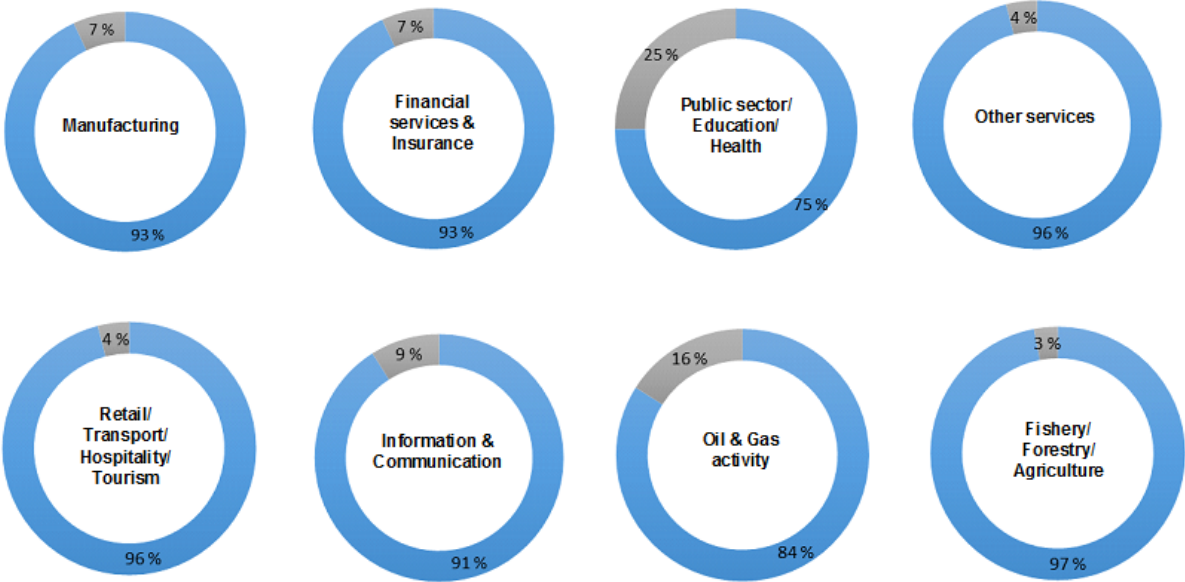


Figure 8 Division of company size by industry

We have now looked at the representation in our sample, regarding size and industry. In Figure 9, we display the usages of different projects within the different industries, and we will now present some of the most interesting parts about this model.

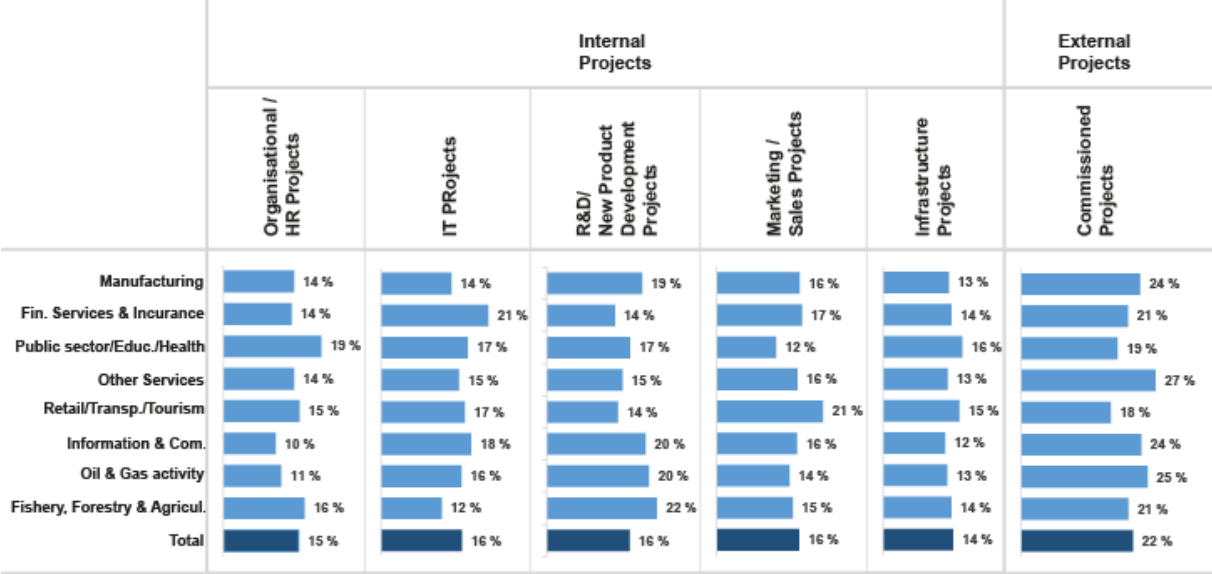


Figure 9 Project types differentiated by industry
The totals are weighted by each industry’s share of GDP.

Internal projects constitute 77,75% of the total amount of project-based work, while external projects are at 22,25%. Commissioned projects (external) is the project type most used within all industries, except for the *fishery/forestry/agriculture*, *retail/transport/hospitality/tourism* and *financial services and insurance* industries. *Fishery/forestry/agriculture* has a high degree of R&D (new product development) projects (22%), and commissioned projects are here the second most used, with 21%. Within the *retail/transport/hospitality/tourism* industry, the marketing- and sales projects is the highest category with 21%, and we can see that this is actually the highest degree of marketing- and sales projects, when comparing to all other industries. The *financial services and insurance* industry has an equal share of commissioned- and IT-projects, of 21%. The different internal projects are fairly equally used in the Norwegian economy as a whole (as shown as the total in Figure 9), with a difference of 2% between those most used and the one least used. When comparing the different industries, we can see that there are clearer contrasts between the various internal project types.

From Figure 10, we can see that IT-projects and commissioned projects are the most frequently used project types among large companies, both with 20%. Among the small companies, commissioned projects also stand out with a share of 23%. Infrastructure projects and

marketing- and sales projects are the two types of projects that is least used for respectively small and large companies. We can also see that there are not distinctive differences between the two groups. There are some differences when it comes to marketing- and sales projects, and IT-projects - but they are relatively small.

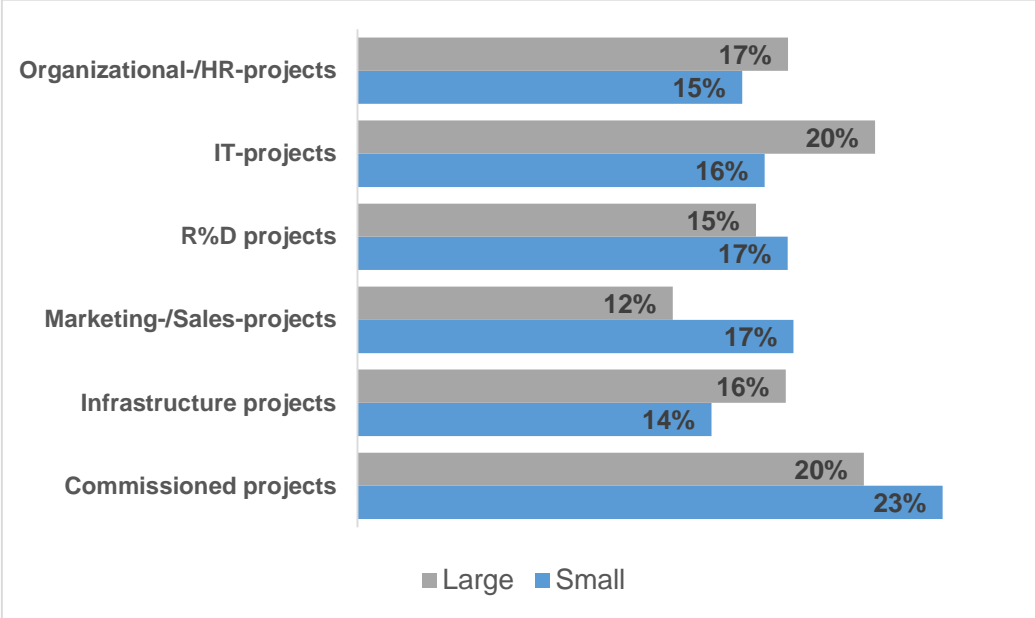


Figure 10 Project type differentiated by company size

In this part, we have presented the representation within our sample, with a focus on the industry and sizes of the organizations. We have shown how many respondents we had in each industry, and among small and large companies - as well as the proportion of small and large organizations within our industries. Further, we displayed the different project types used in the Norwegian economy, with a focus on both internal and external projects.

4.2. Independent variable – projectification

Next, we wish to highlight our results regarding our independent variable (X), projectification. This includes both the measurement of the degree of projectification in the Norwegian economy, and the development of projectification. All results will be shown in connection to both our moderating variables, size (Z) and industry (W), to better detect differences and trends in the results. The following research questions will be answered in this part;

- “What is the degree of projectification in the Norwegian economy?”
- “Is there empirical support for the assumption that projectification is an increasing phenomenon?”
- “What is the degree of projectification amongst different industries/different organization sizes in the Norwegian economy?”

4.2.1 The current degree of projectification

Our independent variable, projectification (X), was measured through two questions in the questionnaire, question 8 and 11 (see appendix B). The first was the share of project-based work to working hours in the organization, which is shown in Figures 11 and 13. These figures also show the measured proportion of company revenues generated by commissioned (external) projects. All additional figures referred to in the text can be found in appendix A. The second measure for our independent variable (X) is made up by different statements (from question 11), that are similar, and to some extent overlapping. The results from these statements are shown in Figures 12 and 14.

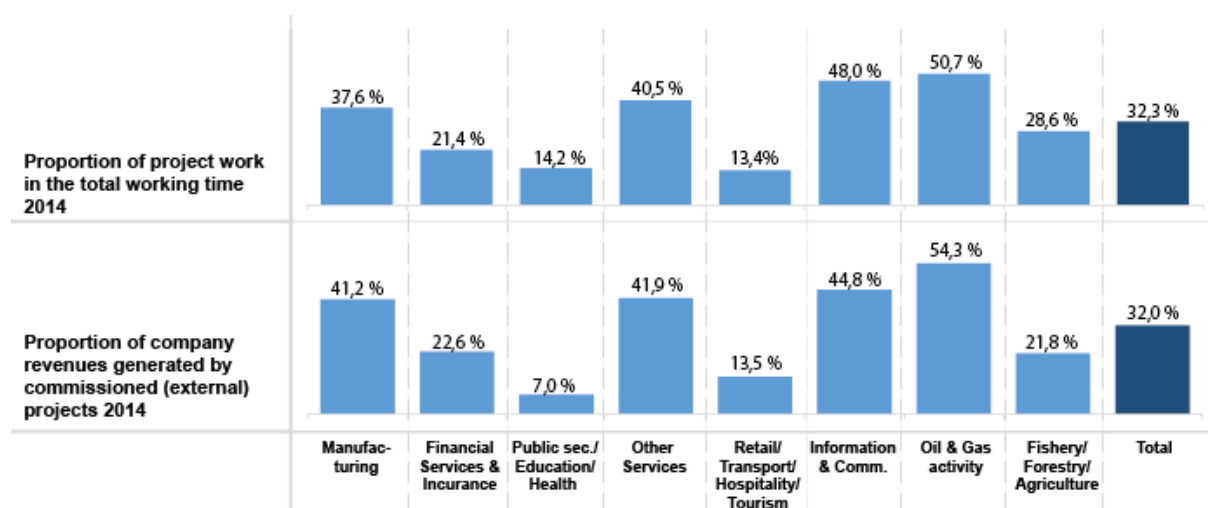


Figure 11 Share of project work and external generated revenues (industry)
The totals are weighted by each industry's share of GDP.

The first part of Figure 11 shows the average proportion of project-work to working hours in all industries. The share of project-based work to working hours in total in Norway in 2014 was 32,3%, as shown in the figure. This total is weighted by the proportion of industries to GDP, and includes both internal and external projects.

When looking at differences between the industries, the *oil and gas* industry stands out with a degree of project-based work of 50,7%, and a share of revenues generated by external projects of 54,3%, as can be seen by the lower part of Figure 11. This is relatively high, compared to the total average proportion of revenues generated by commissioned (external) projects, of 32% (which is also weighted by the proportion of economic industries to GDP). Further, we can see that the high proportion of revenues from commissioned projects in the *oil and gas* industry

coincides with the number from Figure 9, which shows that commissioned (external) projects are the project type that is most frequently used in this industry, with 25%. Overall, the *oil and gas* industry is also the one that stands out regarding their project budget, with an average of 26,03 mill. NOK. This is twice as high as the next industry (*financial services and insurance*, with 11,27 mill NOK), which can be seen in Figure 24, in appendix A. This is also reflected by Figure 21, in appendix A, where we can see that the *oil and gas* industry is the one with the highest proportion of project-related costs, both when it comes to personnel- (47,3%) and other costs regarding projects (41,0%).

From Table 11 and Figure 8, we can further see that the *oil and gas* industry also has one of the highest average number of employees (156), and a high proportion of large companies (16%). The only one that has a higher proportion of large companies and average number of employees is the *public sector*, with respectively 25% and 202. Furthermore, these two industries also have the highest proportion of average employees working on a project, of respectively 10,16 employees in the *oil and gas* industry, and 7,58 in the *public sector*, as can be seen in Figure 23, in appendix A. Even though these two industries are very similar when it comes to the number of employees, and how many employees that are used in each project – they differ quite a lot when it comes to the proportion of project-based work. The *public sector* has a very low proportion of project-work to working hours, of 14,23%, compared to the *oil and gas* industry (50,71%).

The second highest proportion of project-work, after the *oil and gas* industry, is within the *information and communication* industry, with 48%. We can see the same tendency here, as in the *oil and gas* industry, due to the fact that this industry also has a high share of revenues generated by external projects (with 44,8%, as shown in Figure 11). We can also see that this industry has a large proportion of personnel costs related to projects, with 41,33%. Further on, as mentioned above, the two industries with the highest average number of employees are also the ones with the highest average number of employees working on a project.

From this, it is natural to assume that this trend would continue in the third largest industry – *information and communication*. This industry is the third largest both when it comes to the proportion of large companies (9%), and the average number of employees (84). However, they have an average number of employees working in a project of only 4,12, as is shown in Figure

23, in appendix A. This is nonetheless a larger proportion of their workforce, when we compare to the *public sector*. As already mentioned, the *public sector* has an average of 202 employees and an average number of employees on a project of 7,58. This means that 3,7% of the employees work in each project in the *public sector*. In the *information and communication* industry, this share is 4,9% and from this we can see that they deploy a larger share of their available workforce in each project.

The *other services* industry also stands out, with a proportion of project-based work of 40,5%, as shown in Figure 11. We consider this to be the case since this “bundle industry” includes construction (as shown in Table 3). As the questionnaire was first intended to be used towards only four industries (the reason for not selecting construction is explained in chapter 3.1.1), we failed to include the construction industry as an alternative in the second stage of the data collection – which introduced bias to our study. We know that the construction industry operates with a high degree of external projects, which possibly could be the reason as to why this “bundle industry” has the highest degree of external projects in our sample, with 27%. It would further be reasonable to assume that this group has a large proportion of company revenues generated from commissioned projects (41,9%), due to the same reason. This “bundle industry” has relatively high scores on many of our figures in appendix A, we will however not discuss this industry further due to the mentioned bias in our study. We will explain more about this issue in chapter 6.3.

The degree of projectification in the Norwegian *manufacturing* industry is 37,6%. This industry places itself in the middle range of most of our figures, but it has in fact the second highest proportion of project-related costs (without personnel) of 29,57%, as can be seen in Figure 21, in appendix A. From the same figure, we can see that the *manufacturing* industry has quite a low difference between the proportion of personnel costs and other costs related to projects, compared to the other industries. It is also worth mentioning that this also is the industry with the third highest average project budget, with 6,41 mill. NOK (Figure 24, in appendix A).

As mentioned above, the *oil and gas* industry is the evidently highest regarding the average project budget (26,03 mill NOK), and the second largest is the *financial services and insurance* industry, with 11,27 mill. NOK. The latter industry has a relatively low share of project-based work, with 21,4%, which means that they spend few working hours, but a lot of money on

projects (as shown in Figure 11 above, and Figure 24 in appendix A). From Figure 21 in appendix A, we can see that a large share of their project related costs are represented by personnel costs (22,11%).

The *fishery/forestry/agriculture* industry does not stand out compared to the other industries, when it comes to their share of project work, with 28,6%. From Figure 22 and Figure 24, in appendix A, we can see that this industry has long-lasting projects, with low budgets. They have in fact the longest average duration of a project (10,29 months), and the lowest average project budget (1,74 mill. NOK). From the same figure, we can also see that they have relatively few people on average working on a project, with only 3,70 employees. However, when taking into account that the average number of employees in this industry is only 13, we can see that a large share of their employees are actually deployed in project-related work.

Lastly, we have the *retail/transport/hospitality/tourism* industry, which has the lowest degree of projectification in our study (13,4%). The most frequently used project type in the *retail/transport/hospitality/tourism* industry is the marketing- and sales projects, and we can see that this industry actually has the highest proportion of this project type, with 21% (Figure 9). With the type of business conducted in this industry, it is to be expected that they have a large proportion of these types of projects. Further, we can see from Figure 11, that this industry has a low proportion of its revenues generated by commissioned (external) projects, with 13,5%, which places them in the bottom range among the industries– together with the *public sector* (7,02%). Furthermore, we can see that these two industries are quite similar when it comes to project-related costs, as shown in Figure 21 in appendix A. They both have a low proportion of both personnel- and other costs related to projects, *retail/transport/hospitality/tourism* with respectively 11,50% and 9,13%, and the *public sector* with 11,16% and 8,64%.

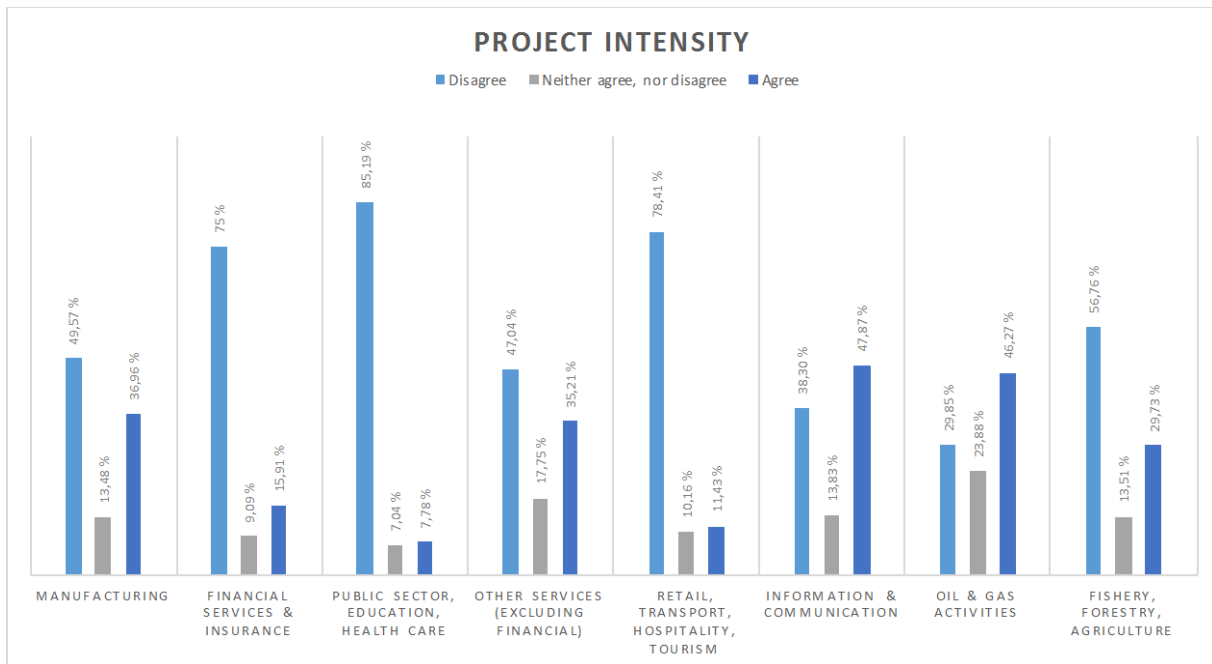


Figure 12 Project intensity by industry

We would also like to show a presentation of the responses on the statements in question 11 regarding the project intensity. This question is intended to involve the same aspects as question 8, as described in the evaluation of the measurement models in part 3.2.6. From Figure 11, we learned that the industries with the highest degree of projectification were the *oil and gas*, and the *information and communication* industries. From Figure 12, we see that this is coherent with our results involving project intensity, as these two industries are those with the highest proportion of respondents agreeing to the statements. On the other hand, we earlier found that the two industries with the lowest degree of projectification were the *public sector* and the *retail/transport/hospitality/tourism* industry (see Figure 11). These industries have the highest proportions of respondents disagreeing to the statements, which indicates that the two questions in fact are coherent – as intended (and shown in chapter 3.2.6).

As can be seen from our research questions, we do not only wish to show the nuances amongst industries, but also between company sizes. Figure 13 does not include a total weighted by GDP, which explains the fact that both small and large companies have a lower average proportion of project-based work than the total average in Figure 11. The difference between the small and the large companies is quite low when it comes to the proportion of project-based work in the total working time. Small companies have however a slightly higher degree of project-based work, with 29,4%, compared to the larger companies with 25,5%. From Figure 25 in appendix A, however, we can see that there are large differences when it comes to the

average project budget, and the average number of employees in a project. Large companies have an average project budget of 19,98 mill. NOK, while small companies has only 3,70 mill. NOK. When we look at the number of employees working in a project, we see that the large companies have an average of 12,86 employees, and the small companies has 3,74 employees on average. There are also some differences when it comes to the average duration of a project, as we can see that large companies have an average duration of projects of 10,85 months, while small companies have an average of 6,85 months.

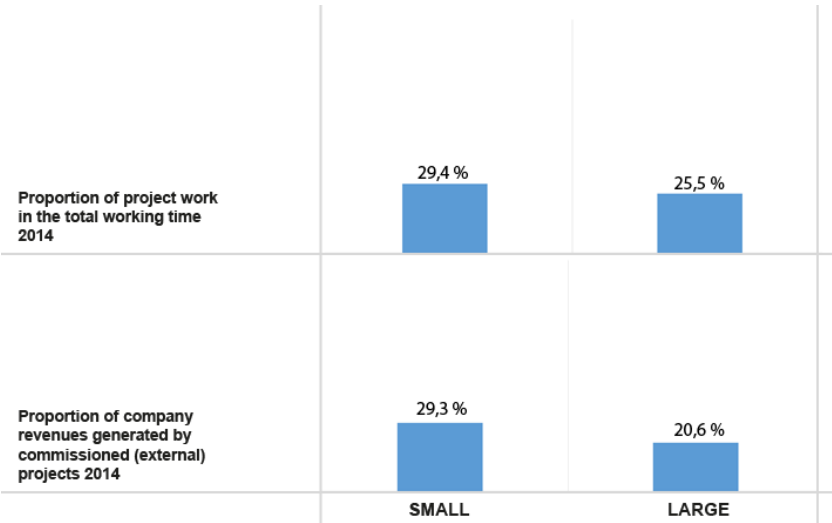


Figure 13 Share of project work and external generated revenues (size)

The project intensity, displayed in Figure 14, shows that also for the moderating variable size there are coherent results between question 8 and 11, from the questionnaire. The large companies have the highest proportion of respondents disagreeing with the statements, and were also those that had the lowest degree of projectification out of the two. To sum up, we can say that the small companies have more projects, but their projects have a smaller budget, less employees and are shorter on average.

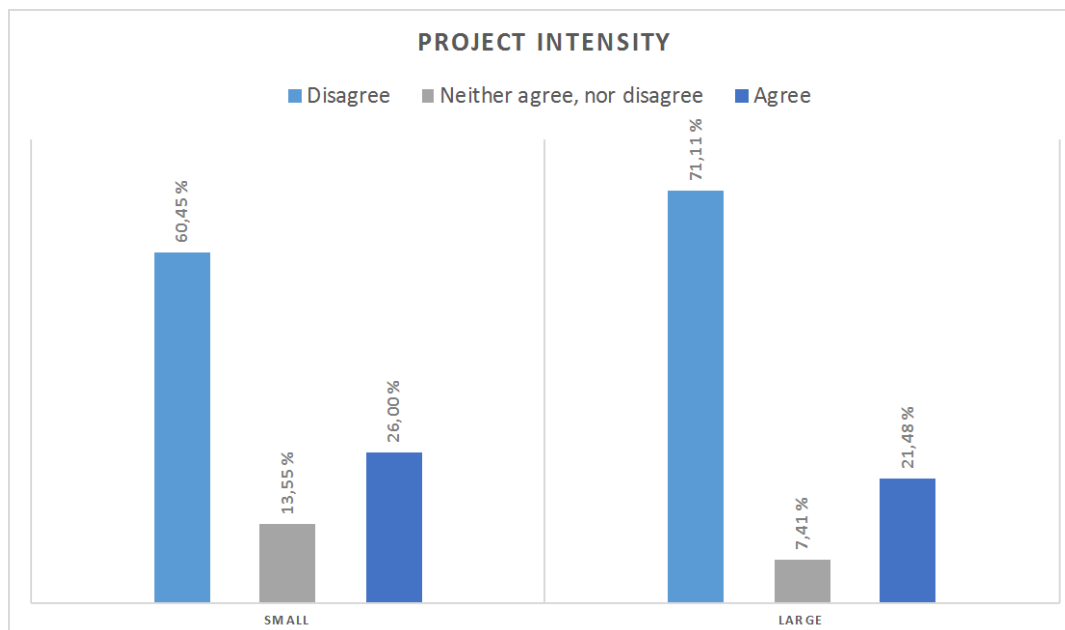


Figure 14 Project intensity by size

From the derivation above, we can answer our first research questions; “*What is the degree of projectification in the Norwegian economy?*” and “*What is the degree of projectification amongst different industries/different organization sizes in the Norwegian economy?*” Overall, the total average degree of projectification in the Norwegian economy is 32,3%, but we can see that there is a large spread of the degree of projectification between industries, with a variety from 13,42% to 50,71%. The variety between large and small companies are on the other hand not that large, from 25,5% to 29,4%.

4.2.2 The development of projectification from 2010 to 2020

Furthermore, it will be preferable to look into the development of projectification amongst industries and different sized companies in the Norwegian economy. We asked our respondents to estimate the share of project-based work, by working hours, at three different time perspectives; now (2014), five years ago (2010), and in the future (2020).

From our descriptive analyses, we can see that there in fact has been an increase in the share of project-based work with respect to working hours from 2010 to 2014, in all industries. The total growth of projectification in the Norwegian economy in this period is 19,4%, as can be seen in Table 12. Furthermore, all industries are expecting the growth of hours spent on project-based work to decline in the future years, compared to the last five years. However, they are all still

expecting a growth, except for the *fishery/forestry/agriculture* industry, which is expecting the proportion of project-based work to decline by 4,1% in the five following years. When looking at differences between the industries in Table 12, we can see that the industries with the two lowest degrees of projectification in the Norwegian economy are also the two that expects the highest increase in the future, the *public sector*, and the *retail/transport/hospitality/tourism* industry. On the other hand, the industry with the largest degree of projectification in Norway, *oil and gas*, has presented a reticent forecast - with an expected increase of only 0,6% from 2014 to 2020. Part of the reason as to why they are reticent, could be the industry's difficult and challenging situation in the year of the conducted study, 2016. The global oil price is now very low in comparison to what it has been (Finansdepartement, 2016), and as this industry has a very high proportion of both projectification and its revenues generated by commissioned projects, it is natural to assume that this reduction will also affect the project part of the organizations. This has led to large losses and readjustments of especially the workforce of this industry. It is natural to assume that a negative view in this industry, as it has a high portion of the Norwegian GDP, will have ripple effect throughout the rest of the Norwegian economy.

Economic sector	Pro- portion of GDP	Proportion of working hours by projects			Increase	
		2010	2014	2020	2010 to 2014	2014 to 2020
		Manufacturing	7,8 %	31,9 %	37,6 %	38,6 %
Financial Services & Insurance	4,8 %	16,3 %	21,4 %	23,3 %	31,3 %	8,7 %
Public Sector / Education / Health Care	21,1 %	11,1 %	14,2 %	16,2 %	28,2 %	14,0 %
Other Services (excluding financial)	24,4 %	34,0 %	40,5 %	42,1 %	19,1 %	4,0 %
Retail, Transport, Hospitality, Tourism	14,4 %	9,0 %	13,4 %	16,0 %	48,8 %	19,2 %
Information and Communication	3,9 %	35,1 %	48,0 %	50,7 %	37,0 %	5,6 %
Oil and Gas Activity	22,0 %	45,8 %	50,7 %	51,0 %	10,7 %	0,6 %
Fishery, Forestry, Agriculture	1,6 %	22,6 %	28,6 %	27,4 %	26,7 %	-4,1 %
Norwegian as a whole	100,0 %	27,0 %	32,3 %	33,8 %	19,4 %	4,6 %

Table 12 Industry: Proportion of project work

**The numbers from 2020 are a forecast, estimated by the participating respondents in our study.*

(The totals are weighted by each industry's share of GDP.)

When we looked at the degree of projectification, we saw that the difference between large and small companies was quite low. The differences, however seem to be more distinct when we look at the development of projectification. From Table 13, we can see that both small and large companies have had a growth in the proportion of project-based work since 2010. We can also see that both groups are expecting the growth to continue in the following years, but at a slower

pace. The difference between large and small companies has however been, and seems to continue being stable between 2% and 4%.

Further, we can see from the same table that the small companies had a high increase of project related work from 2010 to 2014, but the increase is expected to slow down in the future. For the large companies, the increasing development is also expected to slow down in the future, but they have a more evenly spread out growth over the ten years. The total growth from 2010 to 2020 is expected to be respectively 32,71% for large companies, and 31,12% for small companies.

Company size	Proportion of working hours by projects			increase	
	2010	2014	2020	2010 to 2014	2014 to 2020
Large companies	21,4 %	25,5 %	28,4 %	19,4 %	11,1 %
Small companies	23,7 %	29,4 %	31,1 %	24,0 %	5,6 %

Table 13 Size: Proportion of project work
**The numbers from 2020 are a forecast, estimated by the participating respondents in our study.*

Now, we have shown some of the differences in development of projectification within different categories in our two moderating variables, size and industry. Figure 15 looks further into the development of the total degree of projectification, and shows the annual growth rates and estimated degrees of projectification for each year, based on these rates. From our collected measures, we have found the annual growth rate from 2010 to 2014, and this shows that the degree of projectification has increased considerably over the last years, with an annual growth rate of 4,58%. When looking in to the future, an increase is expected, but the annual growth rate forecasted by our respondents from 2014 to 2020 is only 0,76%. This shows the same tendencies as the measures in Tables 12 and 13, where all the different industries and sizes have a higher increase from 2010 to 2014, than they expect to have in the period between 2014 and 2020. This figure indicates that the increase of project work in the Norwegian economy is coming to an end, or at least is slowing down.

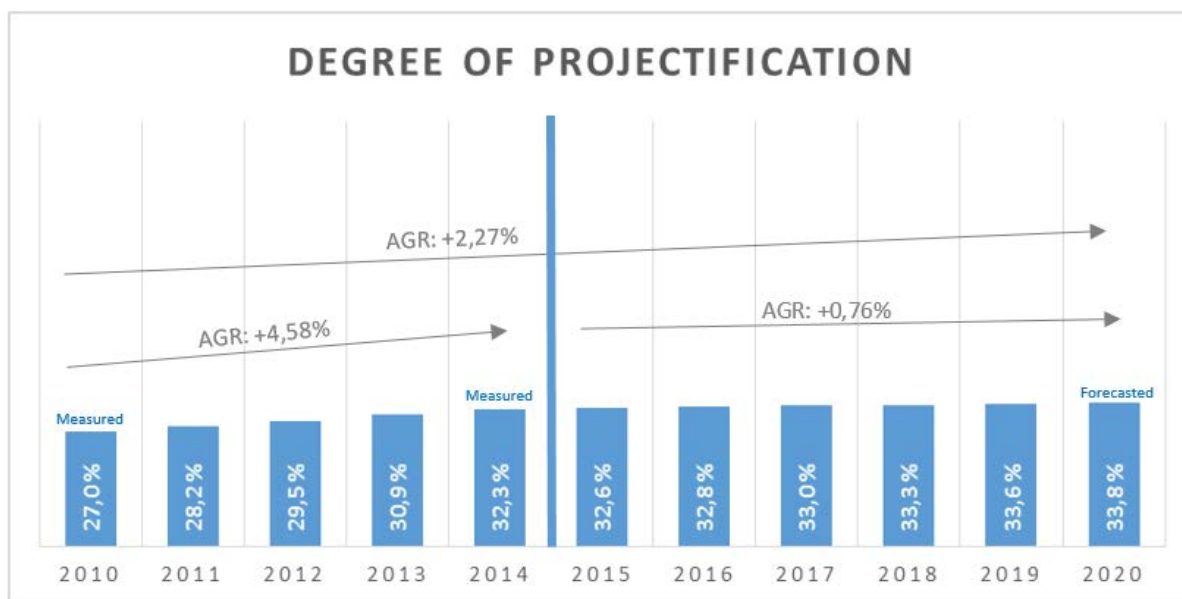


Figure 15 Forecasted growth of projectification
The totals are weighted by each industry's share of GDP.

We now have the ability to summarize and draw a conclusion on the behalf of yet another research question *“Is there empirical support for the assumption that projectification is an increasing phenomenon?”* We have shown that we now have empirical support for this assumption, though it seems that the growth will not be as strong in the future, as it has been previously. This is a tendency across most industries in the Norwegian economy, and both company sizes.

4.3 Dependent variable – strategic flexibility

This part consists of the results that only concerns our dependent variable (Y), strategic flexibility. We will show the measurement found for this variable, collected from various indicators. All results will be shown in connection to both our moderating variables, size (Z) and industry (W), to better detect differences and trends in the measures. The following research questions will be answered in this part;

- “To which extent does strategic flexibility exist in organizations in the Norwegian economy?”*
- “To which extent does strategic flexibility exist among different industries/different organization sizes in the Norwegian economy?”*

Our dependent variable (Y), strategic flexibility, is as mentioned above, divided into resource- and coordination flexibility. We have two questions in the questionnaire covering these two aspects. There are four statements covering the concept of resource flexibility, and three covering coordination flexibility (see appendix B).

From Figures 26, 27, 28 and 29 in appendix A, we can see the proportion of average answers of 1 to 7, divided by industry and size. Since these statements all measure the same concept, respectively resource- and coordination flexibility, we have found the average scores for each respondent, and then found the proportion of respondents to every score (1 to 7) in each industry, and both small and large organizations. However, to be able to see the differences across industries and sizes, we will present the measures of strategic flexibility as three categories, as explained in chapter 3.2.2. This can be seen in Figures 16, 17, 18 and 19. From the mentioned figures, we can see that there are in fact some differences, especially between industries.

4.3.1 Resource flexibility

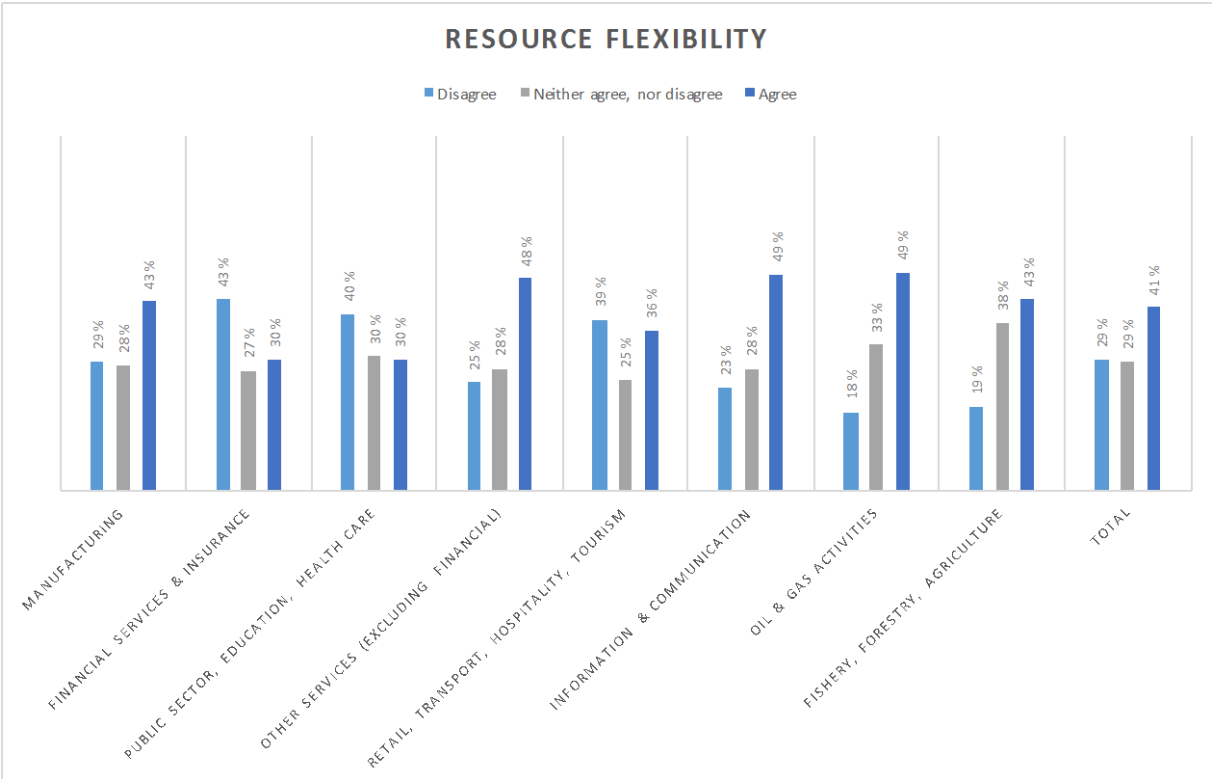


Figure 16 Resource flexibility by industry
The totals are weighted by each industry’s share of GDP.

From Figure 16, we can see that the *financial services and insurance* industry, the *public sector*, and the *retail/transport/hospitality/tourism* industry have higher scores on average on the “disagree” alternatives. There is a larger proportion of respondents in these industries that do not agree with the statements regarding their organization’s resource flexibility, than those that do agree. The industries that have the highest proportion of agreeing organizations, is the *other services, information and communication*, and the *oil and gas* industries. These three industries also have the lowest average of respondents that answered “disagree” on the statements regarding resource flexibility, together with the *fishery/forestry/agriculture* industry.

The nuances of the two questions, with each score (from 1 to 7), can be seen in appendix A. When it comes to resource flexibility, we can see from Figure 26 in appendix A, that the *other services* industry stands out with a large proportion of “strongly disagree”, with 18%. We also notice the *public sector*, which has a share of “strongly disagree” of 11%. The total in Figure 16 is weighted by share of GDP, and shows that 41% of the organizations in the Norwegian economy consider themselves to have resource flexibility.

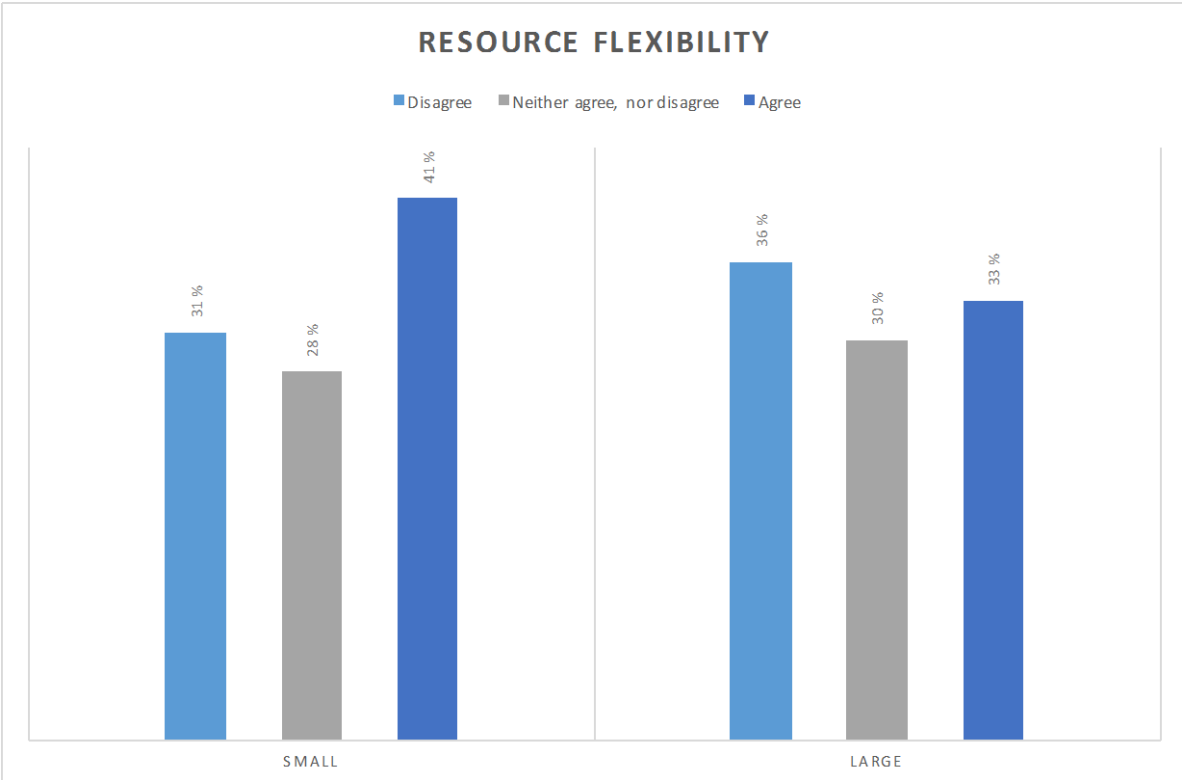


Figure 17 Resource flexibility by size

When exploring the resource flexibility of organizations, and taking their size into consideration, we found that there were not as evidential differences as we found when we

divided the respondents by their industry. As is shown by Figure 17, small companies have a larger proportion of agreeing respondents (41%) than large companies (33%), when it comes to the resource flexibility statements. What is also noteworthy here, is that the largest proportion of respondents among the large companies, disagree to the statements regarding resource flexibility, with 36%.

4.3.2 Coordination flexibility

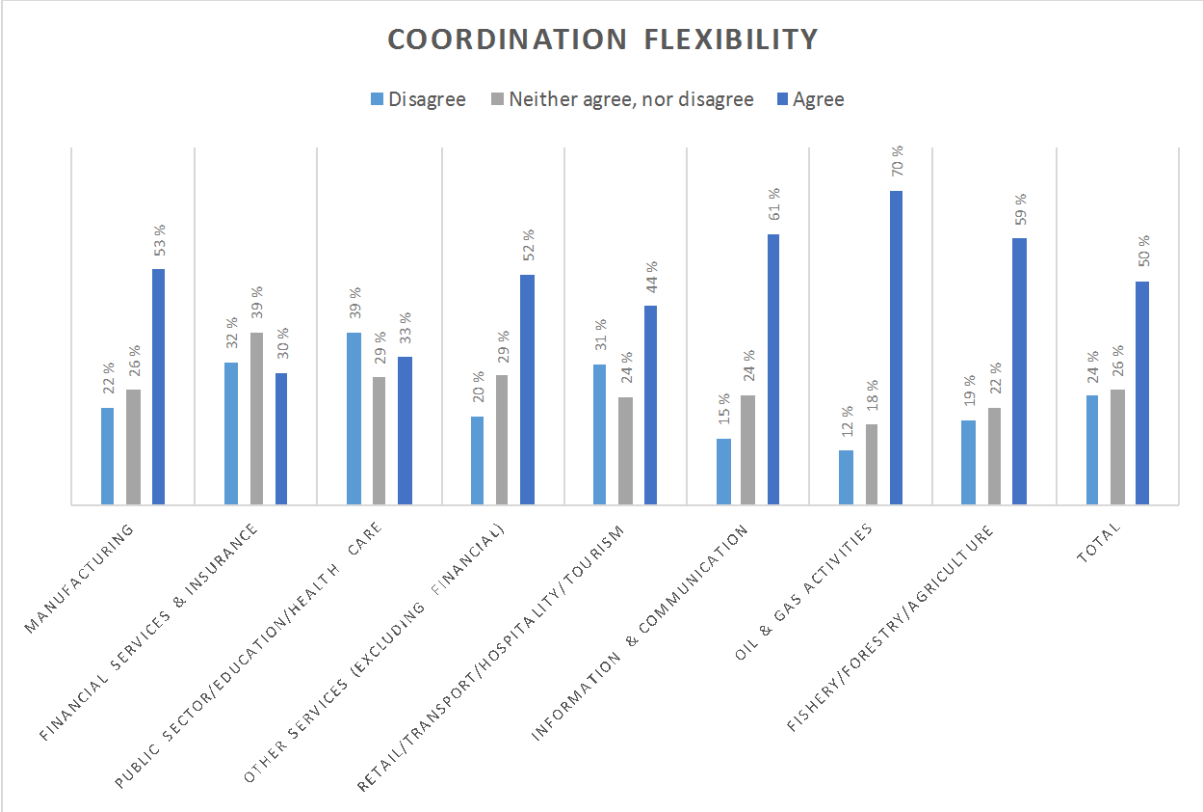


Figure 18 Coordination flexibility by industry
The totals are weighted by each industry’s share of GDP.

From Figure 18, we can see that there are larger differences of the responses when it comes to coordination flexibility in comparison to resource flexibility. This is also reflected in the GDP weighted total, as this shows that out of the organizations in the Norwegian economy, 50% consider themselves to have coordination flexibility, while 24% do not. We can see that the *oil and gas* industry, as well as the *information and communication* and the *fishery/forestry/agriculture* industries stands out. The *oil and gas* industry has in fact a proportion of 70% of its respondents answering that they agree to the statements regarding coordination flexibility. Second up is the *information and communication* industry, with its 61%, and the follower up is the *fishery/forestry/agriculture* industry with 59%. On the other

side, the *public sector* stands out with the highest proportion of disagreeing respondents, with 39%. From the nuances shown in Figure 28 in appendix A, we can see that the industry with the highest proportion of “strongly agree” when it comes to coordination flexibility is the *information and communication* industry, with 11%, and that the *financial services and insurance* industry has the largest share of respondents that answered “strongly disagree” (16%).

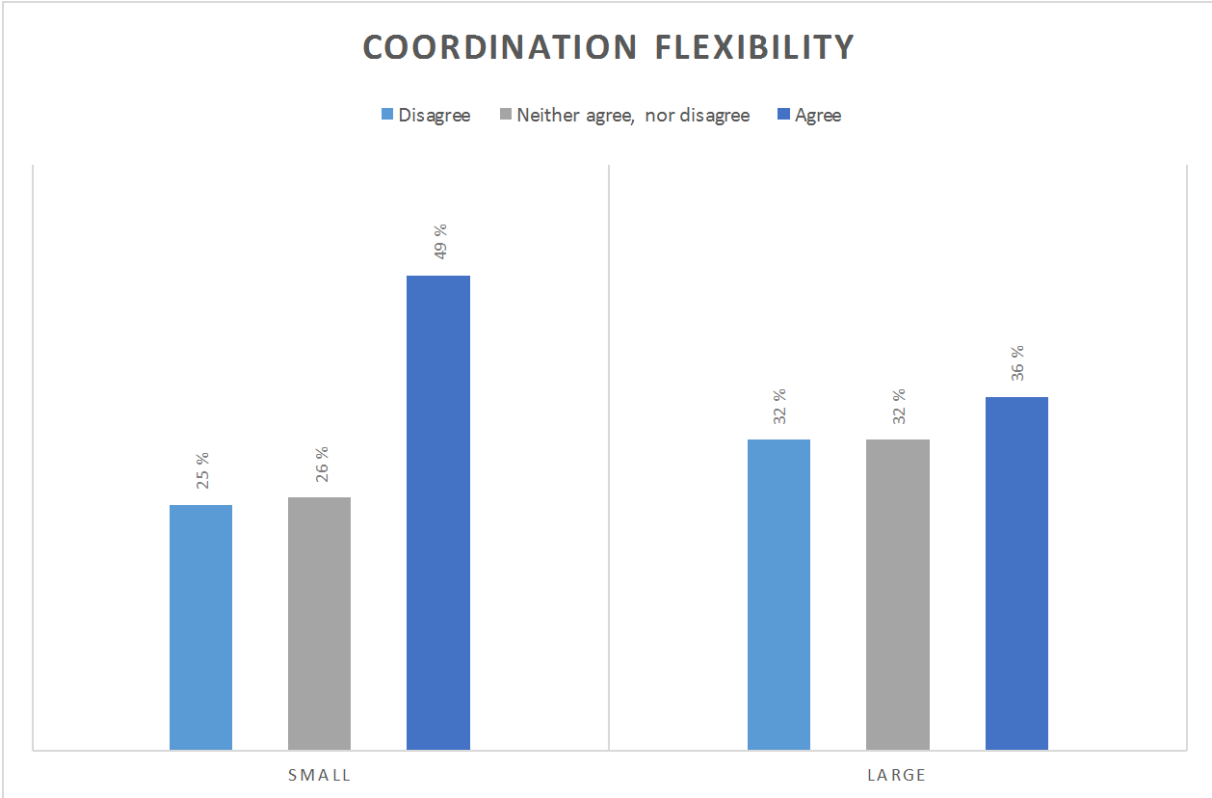


Figure 19 Coordination flexibility by size

As shown by Figure 19, the difference between small and large organizations, becomes more apparent when we look at the coordination flexibility. Here, we can see an even more distinct difference between answers when it comes to the small companies, as 49% of the organizations have agreed, and only 25% have disagreed to the statements. However, when it comes to the large organizations there is clearly a fairly equal distribution between the three categories.

From the findings presented in this chapter, we have found answers to the following research question: “*To which extent does strategic flexibility exist in organizations in the Norwegian economy?*” As 41% of the organizations considered themselves to have resource flexibility and

50% to have coordination flexibility, we have found proof that support our assumptions about strategic flexibility being a widespread phenomenon in the Norwegian economy.

As shown above, there are some differences between large and small organizations when it comes to both aspects of strategic flexibility, especially regarding coordination flexibility. However, these differences seem quite small when we compare to those between industries. Therefore, it is reasonable to assume that the size of an organization does not have a great impact on the organization's strategic flexibility. It seems however, that the industry type might have an impact on the strategic flexibility of organizations in the Norwegian economy. When it comes to our research question covering the aspect of strategic flexibility; *“To which extent does strategic flexibility exist among different industries/different organization sizes in the Norwegian economy?”*, we have found the measures we need – both across industries and organization sizes.

5. Results regarding our hypothesized relationships

This chapter contains the results of the analyses done in SmartPLS. We will present the results for one hypothesis at the time.

5.1. PLS-SEM results regarding the primary hypothesis

Figure 20 shows some key results from the PLS Algorithm concerning our primary hypothesis, H_1 , regarding the relationship between projectification (X) and strategic flexibility (Y). Here, we have our structural model's path coefficient, and also the R^2 value of the dependent variable (Y).

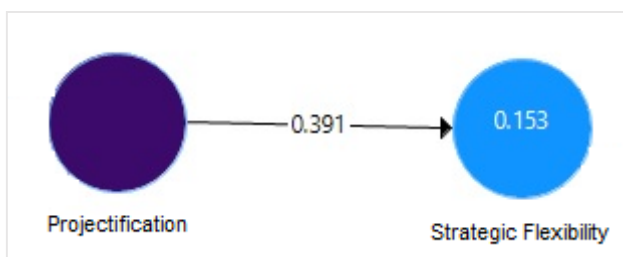


Figure 20 The structural model

The R^2 value is also called the coefficient of determination, and measures the proportion of the independent variable's predicting effect on the dependent variable. It is a measurement between 0 and 1, and a high R^2 value indicates that we have high

predictive accuracy. In this model, we have a R^2 value of 0,153, and as a rule of thumb (Hair, 2014) this is considered as weak. This means that our independent variable, projectification (X), has a weak predicting effect on the dependent variable, strategic flexibility (Y).

The path coefficient represents our hypothesized relationship between the variables. The measurement is between - 1 and +1, and a value close to +1 indicates a strong positive relationship, while a value close to zero is considered weak (Hair, 2014). In this model, we have a path coefficient of 0,391, which indicates a positive relationship between the variables. We consider this relationship moderate (nor weak or strong), and the next step is then to determine whether the relationship is significant. From the bootstrapping procedure, we found that we have a t-value of 17,792. This value should be compared with the critical value (shown in the table in appendix H). We ran our procedure with a significance level of 5% (as shown in chapter 3.2.5), which gives a critical value of 1,645. Our path coefficient is consequently significant, since the t-value is higher than the critical value (Hair, 2014). The error probability is equal to the significance level of 5%.

The predictive relevance of the significant relationship is also important to address. Here, we look at the size of the path coefficient, in comparison to its significance. We have a predictive

relevance (Q^2) for this model of 0,102, which was found through the blindfolding procedure. Since this number is larger than zero, we can tell that the independent variable, projectification (X) has a predictive relevance for the dependent variable, strategic flexibility (Y). As we have only one independent variable in this particular model, the structural models effect sizes f^2 and q^2 , will not be possible to consider further (Hair, 2014).

Our hypothesized relationship was;

H₁: The degree of projectification has a positive significant impact on a company’s strategic flexibility.

H₀: There is no significant relationship between a firm’s degree of projectification and its flexibility.

We have found that there is in fact a relationship between our independent (X) and our dependent (Y) variable. It is a weak, but positive significant relationship, and with predictive relevance. This means that we can say that the degree of projectification (X) has a small, but significant impact on the strategic flexibility (Y) of an organization in the Norwegian economy. On the base of this, we have found proof that support our hypothesis H₁, and then naturally the null hypotheses H₀ is rejected at a significance level of 5%.

5.2 PLS-MGA results regarding the moderating effects

This part presents the analysis done in order to further explore the hypotheses H₂ and H₃. To investigate the possibility of moderating effects in SmartPLS, the multi-group modelling and the analysis PLS-MGA is used. We will first present the results from the analysis with organization size as the moderating variable, followed by industry as the moderating variable.

5.2.1. Size as moderating variable

Size	Path Coefficient	R2 value
Under 100 employees	0,399	0,159
100 or more employees	0,353	0,125

Table 14 Results of the structural model after multi-group modelling (size)

	Small	
	Path Co.	p-value
Large	0,046	0,747

Table 15 The significance of the differences between organization sizes

Our first multi-group analysis was done by grouping the sample into small and large organizations, to see if there would be any moderating effects on the relationship between our variables, projectification (X) and strategic flexibility (Y). Table 14 shows that the predictive effect (R²) is weak for both small and large companies, with R² values of respectively 0,159 and 0,125. However, the small companies have a slightly higher R² value, and the large companies a lower R² value – compared to the total value of 0,153. The same tendency can be seen through the path coefficient.

Furthermore, it is important to look at the results from the multi-group analysis PLS-MGA. The multi-group analysis shows us a path coefficient difference of 0,046 between our two groups, which indicates that the absolute difference between the group specific path model estimations is low. These p-values are the PLS-MGA probabilities, and shows whether the group specific differences are significant. The PLS-MGA probability, or p-value, is 0,747 in our study. A significant difference can be found when the p-value in the PLS-MGA analysis is under 0,05, or over 0,95. This indicates that the difference between the group specific categories, large and small organizations, is not significant in our study.

5.2.2. Industry as moderating variable

Industry	Path Coefficient	R2 value
Manufacturing	0,378	0,143
Financial services and Insurance	0,484	0,235
Public sector/Education/Health	0,287	0,082
Other services	0,359	0,129
Retail/Transport/Hospitality/Tourism	0,333	0,111
Information and Communication	0,512	0,263
Oil and Gas activity	0,419	0,175
Fishery/Forestry/Agriculture	0,557	0,310
Total	0,391	0,153

Table 16 Results of the structural model after multi-group modelling (industry)

We further conducted yet another PLS-MGA analysis, in order to find out if the industry type (W) could have a moderating effect on the relationship between our dependent (Y) and independent (X) variables. From Table 16, we can see that there is a spread in R² values, which means a spread in the predictive effect. However, even after the multi-grouping procedure, most of them are also here considered weak. Only two groups exceed the limit to be considered as moderate, which is 0,25 (Hair, 2014). These two categories are the *fishery/forestry/agriculture* and the *information and communication* industries. From the table, it is interesting to see that

these industries also have higher path coefficients than the total path coefficient for our sample. This is also the case for the *financial services and insurance*, and *oil and gas* industries. This indicates that for these industries, the degree of projectification (X) has a higher impact on the strategic flexibility (Y) of the firm. The *public sector* clearly stands out with the lowest scores on both R² value and path coefficient - which are both very weak.

In Table 17, we have shown the differences and the p-values between all industries, and the results from running the multi-group analysis, PLS-MGA. The first column shows the absolute difference between the group specific path model estimations. The next step is to look at the significance of the differences between the categories, which is shown in the second column.

	Manufacturing		Financial services and Insurance		Public sector/Education/Health		Other services		Retail/Transport/Hospitality/Tourism		Information and Communication		Oil and Gas activity	
	Path Co.	p-value	Path Co.	p-value	Path Co.	p-value	Path Co.	p-value	Path Co.	p-value	Path Co.	p-value	Path Co.	p-value
Manufacturing														
Financial services and Insurance	0,106	0,840												
Public sector/Education/Health	0,091	0,101	0,197	0,029										
Other services	0,019	0,395	0,126	0,113	0,072	0,862								
Retail/Transport/Hospitality/Tourism	0,045	0,256	0,151	0,070	0,046	0,770	0,026	0,340						
Information and Communication	0,134	0,947	0,028	0,594	0,225	0,998	0,154	0,975	0,180	0,990				
Oil and Gas activity	0,041	0,674	0,066	0,286	0,132	0,936	0,060	0,756	0,086	0,846	0,094	0,164		
Fishery/Forestry/Agriculture	0,179	0,977	0,072	0,735	0,27	0,998	0,198	0,989	0,224	0,995	0,044	0,691	0,138	0,917

Table 17 The significance of the differences between industries

From the same table, we can see that there are some patterns regarding which differences in path coefficient that are significant. The *information and communication* and the *fishery/forestry/agriculture* industries are both significantly different to the *other services*, and *retail/transport/hospitality/tourism* industries, as well as the *public sector* (with values over 0,95). The *fishery/forestry/agriculture* is also significantly different from *manufacturing*, while the difference between the *information and communication* industry, and the *manufacturing* industry is only close to significant, with a value of 0,947. The last difference that can be found significant is between the *financial services and insurance* industry, and the *public sector*. These three industries, (*information and communication*, *fishery/forestry/agriculture* and *financial services and insurance*) are also industries that have path coefficients that are higher than the total score, as mentioned earlier. The *oil and gas* industry also has a path coefficient above the total, and is the one industry that is not significantly different from any other industry.

From this, we know that the industries *fishery/forestry/agriculture* and *information and communication* stands out, and that in these industries, the degree of projectification (X) has a

larger impact on the organizations' strategic flexibility (Y). These two industries have the highest R^2 values, with 0,263 for *information and communication*, and 0,310 for *fishery/forestry/agriculture*. We can see that they both are significantly different from the four mentioned industries with the lowest R^2 values in our study. These are all also below the total R^2 value in our study, of 0,153. They are followed by the *financial services and insurance* industry, which also is in the situation that more of the organizations strategic flexibility (Y) can be explained by their degree of projectification (X). This industry is however only significantly different from the industry with the lowest score, the *public sector*. The *oil and gas* industry is on a middle ground, where it has higher scores than the total, but it is not significantly different from any of the other industries.

We have now presented results that will give us indications to be able to make decisions about our moderating hypotheses;

H₂: The size of an organization has a significant moderating effect on the relationship between projectification and flexibility.

H₃: The industry in which an organization operates, has a significant moderating effect on the relationship between projectification and flexibility.

We found no significance in the difference in the analysis regarding the moderating variable size, and therefore hypothesis H₂ is rejected at a significance level of 5%.

On the other hand, between industries we found several significant differences, as explained above. Based on this, we can say that the industry that an organization belongs to, has a moderating effect on the relationship between our independent variable, projectification (X), and our dependent variable, strategic flexibility (Y). Consequently, we have found proof that supports our hypothesis H₃, at a significance level of 5%.

6. Concluding remarks

We will now discuss and conclude on our results, in the light of the theoretical framework presented in chapter 2. In the first part, we will shortly summarize what we have done in this study, and will further compare our results to those of the German study, conducted by Wald et al. (2015). Further, we will tie our main findings to the theoretical framework presented, and state our concluding remarks. Lastly, we will discuss our contribution to the research, the limitations of our study and our recommendations for further implications and research.

6.1 Discussion of our results

In this thesis, we have discussed the assumed relationship between projectification (X) and strategic flexibility (Y) in organizations, in the Norwegian economy as a whole.

The aim of our study was to find out if the degree of projectification (X) of an organization in fact has a positive impact on the strategic flexibility (Y) of the organization. We wished to be able to generalize, and speak of the whole Norwegian economy. As we were not able to identify a current measure of the degree of projectification on an organizational level in the Norwegian economy, we wished to ascertain such a measure. We also aspired to find out if there could be any other circumstances in, or around, the organizations that could affect the alleged relationship. We chose to focus on size and industry, and explored the possibility of either of them having a moderating effect in our hypothesized relationship. This brought us to the following hypotheses:

H₁: The degree of projectification has a positive significant impact on a company's strategic flexibility.

H₀: There is no significant relationship between a firm's degree of projectification and its flexibility.

H₂: The size of an organization has a significant moderating effect on the relationship between projectification and strategic flexibility.

H₃: The industry in which an organization operates, has a significant moderating effect on the relationship between projectification and strategic flexibility.

We conducted a descriptive study, where we collected primary data by conducting interviews, as well as carrying out an online-survey. From the data collected, we had the possibility of doing both descriptive analyses, and a PLS-SEM analysis. By obtaining descriptive statistics, we got an overview of the representation within our sample - including a concrete measure of the degree of projectification in the Norwegian economy. The PLS-analysis gave us knowledge about the relationships both between our dependent (Y) and independent (X) variables, and the correlations between the variables and the indicators measuring them. Since our study was made in part to be able to compare the results of the Norwegian economy, to those of the German economy – we will now present our comparisons between the two economies.

We found that the degree of projectification in the Norwegian economy is 32,3%. This means that the Norwegian economy is slightly behind the German economy, which has a forecasted degree of projectification in 2014 of 35,8% (estimated through the study conducted in 2013), (Wald et al., 2015). There has however been a distinct increase in the degree of projectification over the past years in the Norwegian economy. This coincides with the statement by Bechky (2006), that the project-form of work has become more common, and when she pointed to the fact that many scholars (Belous, 1989; Davis-Blake & Uzzi, 1993) referred to an increase in the use of temporary and contingent employment.

Furthermore, the Norwegian economy has according to our research, had an annual growth rate of projectification from 2010 to 2014, of 4,58% - which is slightly higher than the annual growth rate in the German economy over the same years (4,3%). Nonetheless, the organizations in the Norwegian economy is a bit more reticent when it comes to forecasting the future. From 2014 to 2020, we have an estimated annual growth rate of projectification of only 0,76%, which is notably below the German forecast (2,9%). This might, however, be due to the fact that the Norwegian economy is in the middle of dealing with an extreme fall in the global oil price, which affects many industries in several parts of Norway (Finansdepartement, 2016).

A number of scholars have highlighted the prevalence in today's use of project related work (Flyvbjerg et al., 2003; Miller & Hobbs, 2005; Miller & Lessard, 2000; Priemus, 2010). Karlsen (2013) meant that the organization's use of project work's possible impact on the organization's flexibility could be an explanation, as the project is known for its possibilities regarding dealing with unique and special tasks. Tasks like this comes more frequently in today's globalized fast-

paced economy, and we have shown that there is clearly a widespread use of projects across industries in the Norwegian economy. For instance, the *oil and gas* industry in Norway has a degree of projectification of 50,7%, while the *retail/transport/hospitality/tourism* industry has only 13,4% on average. Since the latter industry has the lowest average share of projectification in our sample, and yet has some degree of projectification - we can uphold the fact that all industries has some proportion of project-related work in the Norwegian economy.

When we look at the differences between industries, the two countries also seem quite similar. The most obvious differences are identified in the *retail/transport/hospitality/tourism* industry. In Norway, we have found this to be the industry with the lowest degree of project related work (13,42%). However, in Germany, this industry was the one that had the highest degree of project-related work with 42,0% (Wald et al., 2015). It is difficult to tell why, but this could indicate that in Norway this industry is not as far advanced as in Germany. When we look at the forecasts of the future development of the degree of projectification, we can however see that the *retail/transport/hospitality/tourism* industry is the one that has the highest expected growth in the Norwegian economy (19,2%).

We also have a difference of over 10% between the different economies, regarding the *information and communication* industry, but here the results of our study has the larger share. It is also worth mentioning that this industry, together with the *oil and gas* industry, both have a higher degree of projectification in the Norwegian economy (respectively 48,0% and 50,7%), than the one with the highest degree in the German economy – which is the *retail/transport/catering* industry, with 42,0%. (Wald et al., 2015). When we look at the different economies, it is however important to notice that the *oil and gas* industry is a very important industry in Norway (Statistics Norway, 2016a), whereas it is more or less non-existing in Germany (Wald et al., 2015).

As Birkinshaw et al. (2002) discussed, there are differences across industries, when it comes to technology development, intellectual property regime and other policy differences, which can be elements of the reason to the differences in the degree of projectification across industries, since this type of work might be more suitable in certain selections of businesses.

As mentioned, we also wished to explore the possibility of the organization's size as a moderating variable, on the basis of contingency theory (Baligh et al., 1996). However, it seems that the size of an organization does not have that much of an impact on the degree of projectification. This might be due to the fact that Norway is a small country, and the average number of employees is quite low even in many of the organizations considered to be large. Hence, there are not distinct differences between organizations in Norway when it comes to their size. Our assumptions made about the size of an organization as a moderating variable proved to not be supported in the Norwegian economy, which was somewhat surprising for us. The contingency theory discussed in chapter 2.3, might not be as present in the Norwegian economy, and it might be that the effect would be greater in an economy with a larger spread amongst organization sizes. There might still be a significant effect when exploring organizations with thousands of employees. This, however, will have to be researched further.

Volberda (1998) among others, has argued that there also has been an increase in the focus of flexibility, and we have shown in our study that there is a large widespread of strategic flexibility in the Norwegian economy. In fact, 41% of the organizations consider themselves to have resource flexibility, and as many as 50% consider themselves to have coordination flexibility. There is however, a large spread in the way organizations see themselves - 29% disagrees on having resource flexibility, and 24% disagree on having coordination flexibility.

Across industries, there are some differences in the extent to which the organizations consider themselves flexible. The *oil and gas* industry, together with the *information and communication* industry, has the highest shares of respondents that consider themselves to have resource flexibility, both with 49%. These industries also clearly consider themselves to have coordination flexibility, with respectively 70% and 61% of their respondents agreeing to those statements.

Considering the situation that the Norwegian economy is currently in, especially the *oil and gas* industry, this seems very reasonable. This industry is at present time going through considerable changes, and they are probably in an especially flexible state of mind these days. They have much of their focus on adjusting and adapting to changes in the environment, which is per definition being strategically flexible. They might have such a high flexibility in order to cope with the rapid changes in the environment, which was addressed as early as in 1979 (Krijnen).

It is further reasonable to assume that the *public sector* is a relatively “stable” industry, and it is therefore natural to expect that they might not have the same need for flexibility as other industries. We have shown that they are the industry with the highest share of respondents disagreeing to our statements about coordination flexibility, and among the highest industries disagreeing to the statements about resource flexibility. In other words, they do not consider themselves very flexible. From the definition of strategic flexibility, we know that it discloses the ability to adapt to rapidly changing environments - and the *public sector* might not have this issue to the same extent as other industries, as they are in a relatively stable environment. It is further natural to see this industry as somewhat traditional, and therefore we can assume that reconfiguring and re-strategizing might not be their main focus.

The proportion of the independent variable's (X) effect on the dependent variable (Y) is 0,153, which is considered as weak. The path coefficient in our study is 0,391, which represents the hypothesized relationship between our variables. The relationship is positive, and considered as neither strong, nor weak. We have however established that this relationship is significant at a 5% significance level, and that there is a predictive relevance in the relationship. This coincides with the statement from 2013 made by Karlsen (2013), which was that one of the reasons as to why the project-based work form is so widespread, might be due to its impact on flexibility. This assumption is proven somewhat true by our study, but probably not to the extent that many scholars argues. We have shown that the degree of projectification can explain a small part of the strategic flexibility in an organization in the Norwegian economy.

6.2 Our contribution to research

From the theoretical framework, and our assumptions about our two variables - we came up with our hypothesized relationship. Through our study, we have found some interesting results. We have actually been able to contribute to the research with a measure of the degree of projectification on an organizational level in the Norwegian economy, which has not been done prior to our study. We have also been able to confirm the fact that projectification is an increasing phenomenon in the Norwegian economy, even though it seems that the increase will decelerate gradually. Further, we have been able to confirm the fact that there are differences across industries - both when it comes to projectification and the different project types used.

We have shown that some industries have a higher share of external projects, and some have a focus on internal projects. When it comes to the monetary aspects of projects, we have contributed with proof that shows that there is a large amount of money put into projects in Norway each year, and that many organizations have a large amount of their costs tied to projects. Further on, we can conclude that there are large differences when it comes to the monetary aspects of projects, across industries. The somewhat unexpected findings in our study regarding the size of the organizations, reveals that there are no distinct differences when it comes to projectification between small and large organizations. We can however, see that there are some differences when it comes to strategic flexibility and the size of an organization.

Both Bechky (2006) and Bakker (2010) discussed the increasing number of publications made about temporary organizations, and we further suggested that this could indicate an increase in both the interest and usage of this type of work. This assumption is supported by our study, through the development of projectification showed in our results. We have been able to establish an estimation of the degree of projectification in the Norwegian economy both today and five years ago. We have also gotten a forecast for the year 2020, made by our respondents. From this forecast, we were able to estimate the total degree of projectification in the Norwegian economy - by weighting to the shares of GDP. In conclusion, we have found empirical support of our assumptions that the degree of projectification is increasing in the Norwegian economy.

Through this research, we have highlighted the fact that projectification no longer exists exclusively in the “traditional” project-based industries, but is widespread - across industries in the Norwegian economy. We have shown that the degree of projectification across industries varies, but is still to some extent existing in all of our industries.

As this study did not aim to map out the development of strategic flexibility, nor forecast the future regarding this variable, consequently, we are not able to conclude on whether the strategic flexibility of organizations will be the focus of the future. We can however say that the organizations in the Norwegian economy overall consider themselves to have a relatively high degree of both resource and coordination flexibility. We can also see that this varies across industries - but that there in fact is a relatively large part of all organizations that consider themselves strategically flexible.

From our theoretical framework, we found that there had not been many studies exploring the relationship between our independent and dependent variable. Nonetheless, there have been many scholars stating that the increase in flexibility might be one of the reasons as to why the project-based work is so widespread. For instance, DeFillippi and Arthur (1998) discussed that this form of work might be the solution to the need for flexibility, but we lacked yet to find any empirical proof of this.

Despite of contingency theory, we have found that there is no significant moderating effect by size on the relationship between our independent and our dependent variable. There seems, nonetheless, to be a difference in strategic flexibility across organization sizes. However, we have found several significant factors when it comes to the industry type as a moderating variable. There are large differences in both the degree of projectification, and the strategic flexibility across industries in the Norwegian economy. The industry type also has a significant moderating effect on the relationship between our variables, at a 5% significance level.

The primary aim of this study was to explore the alleged relationship between projectification and strategic flexibility in organizations in the Norwegian economy. This assumption can be supported by our empirical results, yet to a limited extent. We have shown that there in fact is a significant positive relationship between the degree of projectification of an organization, and its ability to be strategically flexible. However, this relationship is weak - and further research will have to be conducted in order to be able to say that projectification alone is a determining factor in order to become more flexible.

6.3. Limitations of our study

In the first stage of our data collection, we only looked at four of the largest industries in Norway. This would of course have been a limitation to the study, but as we later on included every industry – we avoided this issue. Many respondents choose not to participate, because of the fact that they did not understand, or did not consider themselves as knowledgeable enough to answer our questions. If we had more time, we would definitely adjust our questionnaire to be more suitable towards an online survey – or more preferable, do all interviews by telephone. Some of the questions are quite complex, and some respondents clearly misunderstood them. However, since we had a sample size that was more than

sufficient, we could address this issue by simply removing those respondents from consideration.

Another issue with the study was the fact that the respondents were supposed to give us their best estimate of for instance the share of project-based work in their organization. Those estimates might have been good estimates, but in some cases, they might also have been just guesses. We had no way of controlling for this issue in our study. When carrying out an online-based survey, we have little control over who is actually answering our questions, and if they are in fact qualified to do so, therefore we simply had to trust that the “right” person was filling out the survey, and making those estimates.

Furthermore, the fact that we asked the respondents to answer some questions in millions of NOK, made some of them unsure as to if they were actually suited for our study. They thought that the study was only meant for large companies, with high turnover and net income. This was clarified to some respondents, who took the time to send us an email and ask about this fact – and they decided to participate after we explained that we wanted all sizes of companies. We explained that we wanted to capture the whole spectre of businesses in the Norwegian economy – both small and large, and with a low (or no) and a high degree of projectification. In order to see if there in fact is a relationship between our two variables, we would also need data from those with a low degree of projectification.

Further, a large share of the suggestions and comments we received by email came from the *public sector*. The overall consensus was that some questions was not suitable for this kind of organizations. The questionnaire perhaps should have been adjusted to suit the *public sector* in a better way, but then again – it would be difficult to compare that industry to the private sector. Another limitation with our research study was the fact that we did not adjust the questionnaire enough when changing the method of collection data. In the first stage of data collection, we deliberately excluded the construction industry, (as explained in part 3.1.1), but when we choose to include all industries in our population, we should have added a category in question 1 (see appendix B), that was labelled “construction”. The effect of the fact that we did not do this, is that all of the companies that belongs to the construction industry, had to choose another alternative. Rationally, it is natural to assume that most of them choose the “*other services*” category, and that this is the reason to as why this industry

has such a high degree of projectification. The last limitation with our study that is worth mentioning, is the fact that there may be other factors that play a role in the relationship between projectification and strategic flexibility, but due to time limitations we were not able to investigate all possibilities.

6.4 Suggestions for further research

We have found that there in fact is a relationship between our two variables, but it is however weak. From our results, we cannot say that in order to be more flexible, an organization should have a larger proportion of project-based work – but we can say that it might make the organization more flexible. To confirm this, we recommend further studies to explore the possibilities of case studies, and more in depth interviews. Perhaps there is a more suitable measurement for the strategic flexibility of an organization? It might also be expedient to explore the possibility of projectification having an impact on the other aspects of flexibility, as described in chapter 2.2.

For future research purposes, we recommend to expand the horizon of our study, and explore other possible variables. From our data sample, we can see that it might have been interesting to look into the possibilities of other moderating effects, like the different project types, the success rate of projects, and the organizations' economic situation, by their turnover or net income. These are all figures that we have collected, but due to time and capacity restrictions when executing this study, we simply had to limit ourselves. Furthermore, from our data sample we can see that most industries, and both large and small organizations on average has a higher proportion of respondents that agree to the statements regarding coordination flexibility, than the ones concerning resource flexibility. It might therefore be interesting to see if the effects of projectification are stronger on one of the parts of the concept of strategic flexibility. In conclusion, possible hypotheses for future research might be;

- Different project types have a significant moderating effect on the relationship between projectification and strategic flexibility.
- The success rate of projects has a significant moderating effect on the relationship between projectification and strategic flexibility.

- The economic situation of an organization has a significant moderating effect on the relationship between projectification and strategic flexibility.
- The degree of projectification has a positive significant impact on an organization's resource flexibility.
- The degree of projectification has a positive significant impact on an organization's coordination flexibility.

Part IV

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Appendices

Appendix A: Additional figures

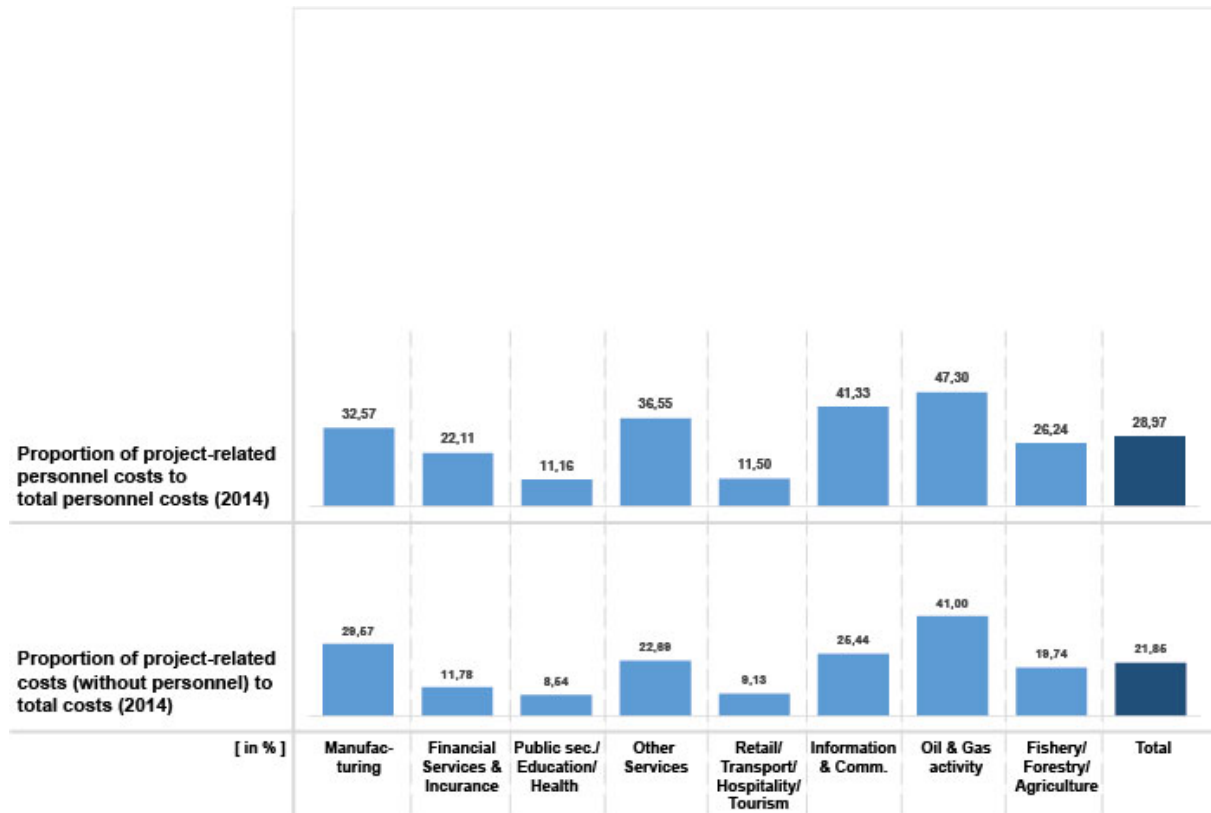


Figure 21 Project-related costs
The totals are weighted by each industry's share of GDP.

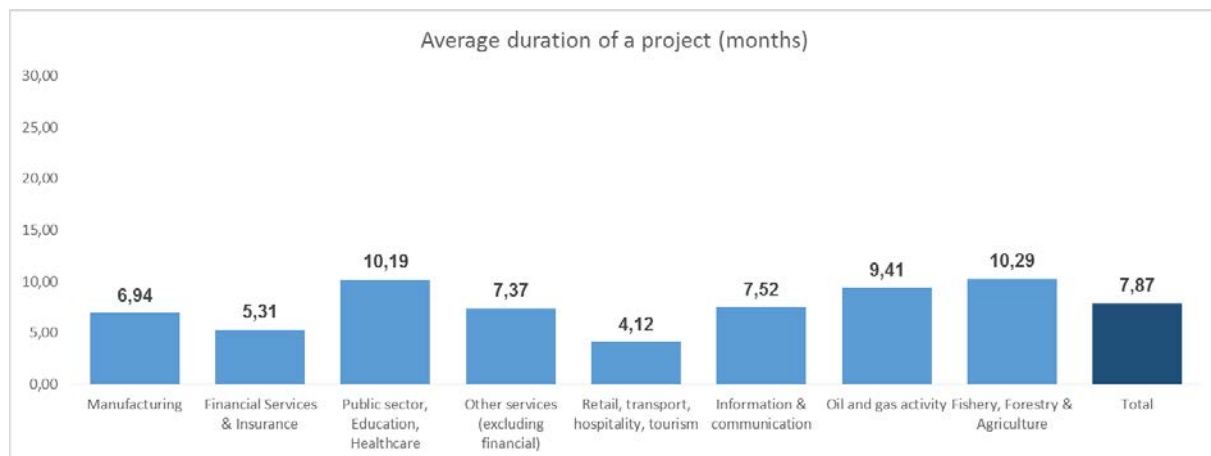


Figure 22 Average duration of a project (industry)
The total is weighted by each industry's share of GDP.

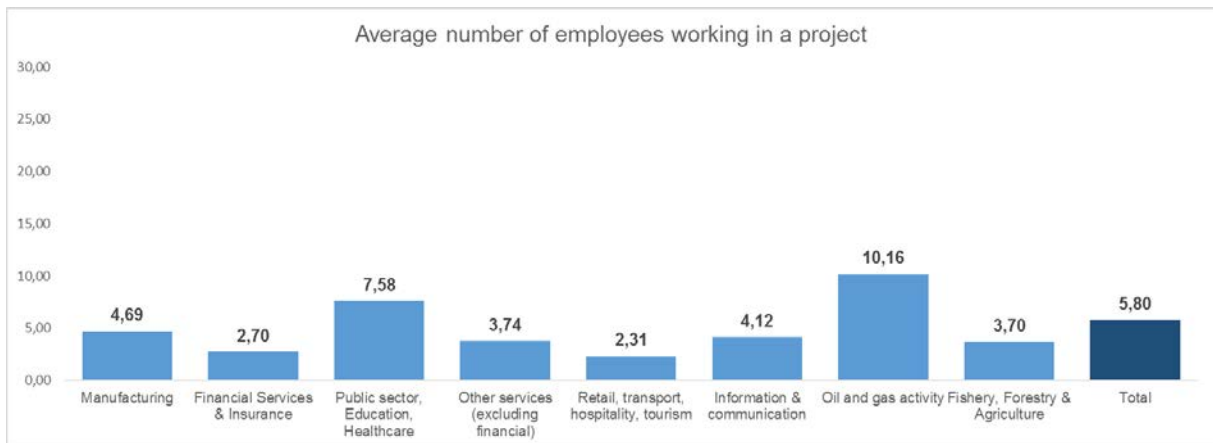


Figure 23 Average number of employees in a project (industry)
The total is weighted by each industry's share of GDP.

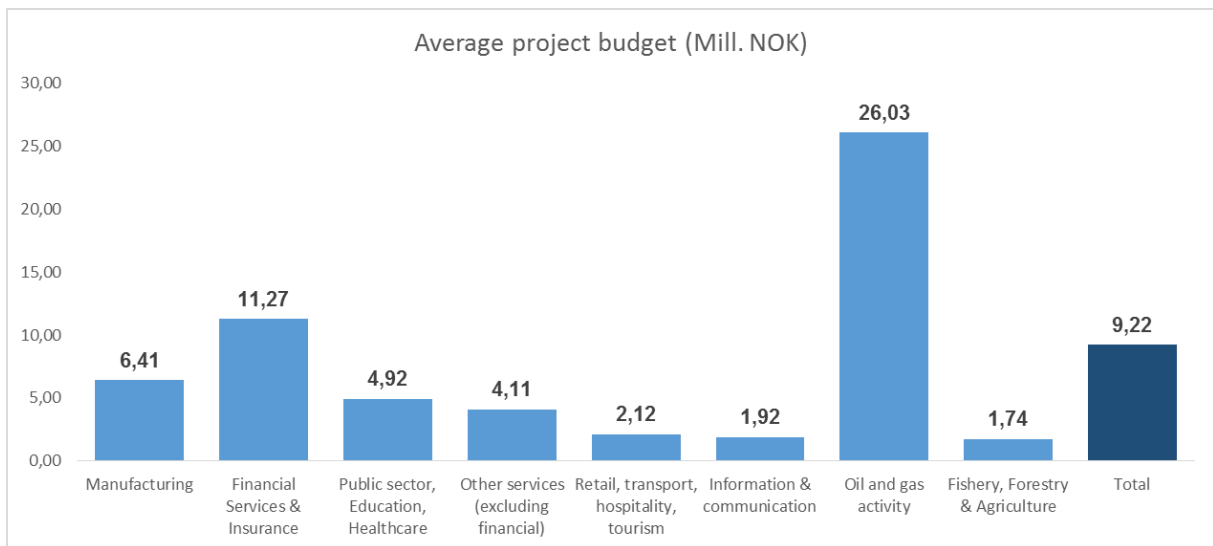


Figure 24 Average project budget (industry)
The total is weighted by each industry's share of GDP.

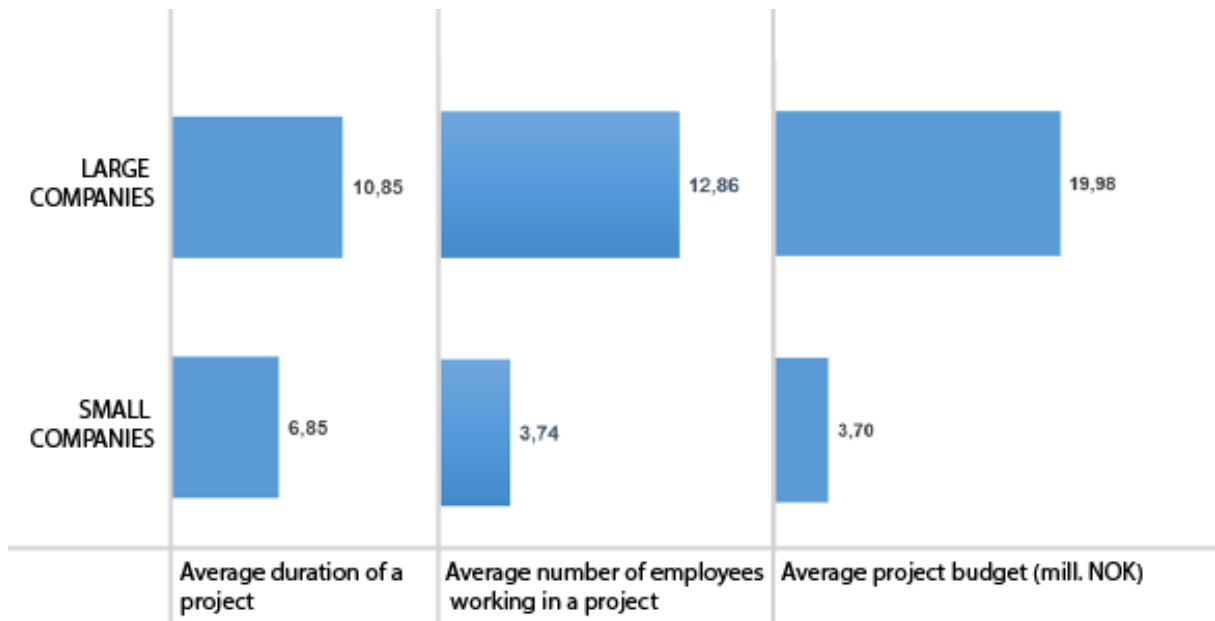


Figure 25 Average duration, employees in a project, and project budget (size)

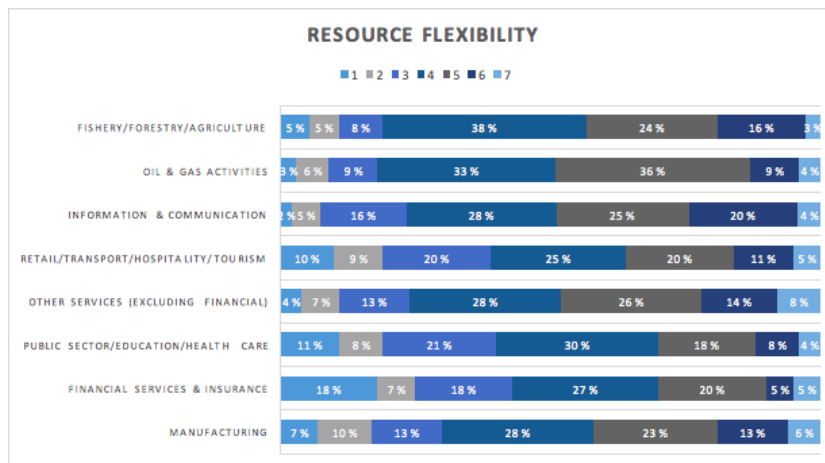


Figure 26 Resource flexibility extensive (industry)



Figure 27 Resource flexibility extensive (size)

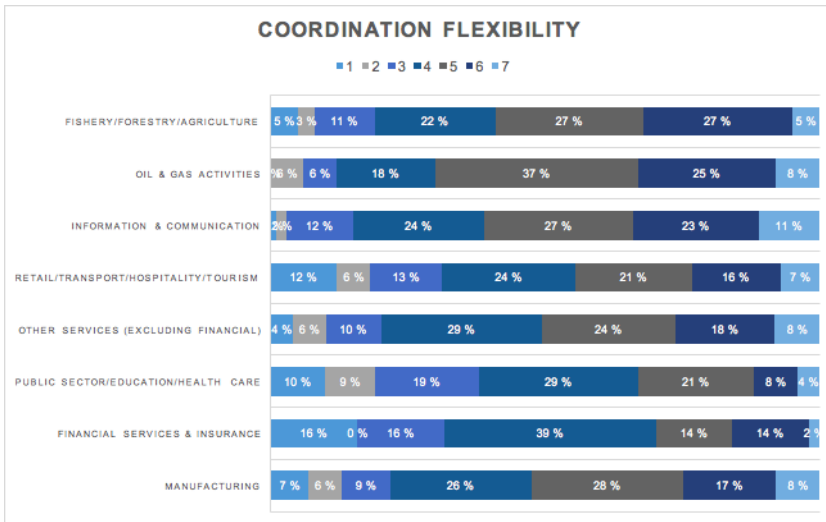


Figure 28 Coordination flexibility extensive (industry)

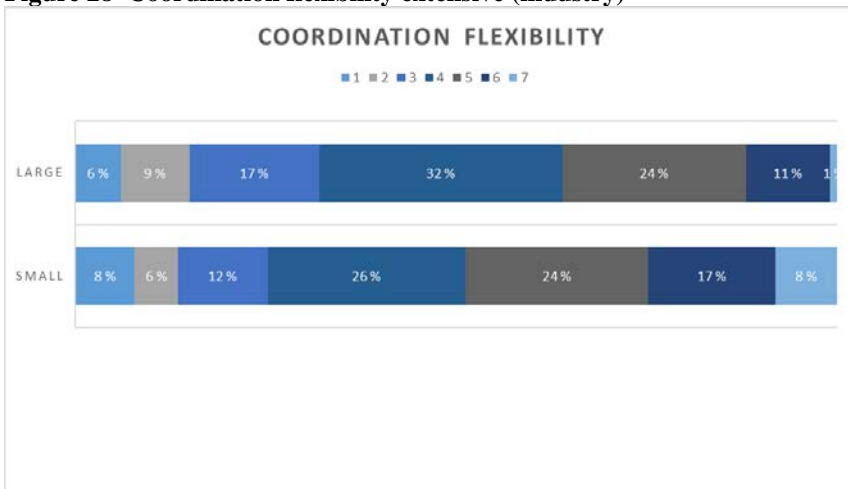


Figure 29 Coordination flexibility extensive (size)

Appendix B: Questionnaire

„Measuring Projectification in the Norwegian Economy “

Aims and Scope of the Study

- ! The share of project work is constantly increasing. However, there are no exact figures on the degree of projectification in the Norwegian economy.
- ! This study is carried out by a team of researchers of the School of Business and Law, University of Agder. The aim is to measure the degree of projectification on the level of companies, industries, and the entire economy.
- ! In addition to this, we will ask you a few questions on the innovativeness of firms and on strategic flexibility in the sense of adaptability to changes in the environment.

Duration

We will guide you through our questionnaire. The total duration of the interview is approximately **15-20 minutes**.

Confidentiality

We treat all personal and company data as private and strictly confidential. The data will only be used for scientific purposes. Your responses will not be identified with you personally, nor will anyone be able to determine which company you work for.

Contact

Our research team is happy to answer any question you may have.

- ! Scientific Director: Andreas Wald (Professor) andreas.wald@uio.no
- ! Coordinator: Torbjørn Bjorvatn (PhD Research Fellow) torbjorn.bjorvatn@uia.no
- ! Interviewer: Aiste Grønvold (Master Student) aistep08@student.uia.com
- ! Interviewer: Jenny Skeibrok (Master Student) jennys11@student.uia.no
- ! Interviewer: Frida Linnea Svensson (Master Student) fridas11@student.uia.no
- ! Interviewer: Maria Magdalena Aguilar Velasco (Master Student) marima14@student.uia.no

Thank you very much for your participation!

A. General: Industry / Firm size

1. When looking at your companies' main activities, to which industry do you belong?

- | | |
|--|---|
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Financial Services & Insurance |
| <input type="checkbox"/> Public Sector / Education / Health Care | <input type="checkbox"/> Other Services (excluding financial) |
| <input type="checkbox"/> Retail, Transport, Hospitality, Tourism | <input type="checkbox"/> Information and Communication |
| <input type="checkbox"/> Oil and Gas activity | <input type="checkbox"/> Fishery, Forestry, Agriculture |

2. How many people are employed by you firm? (Please indicate full-time equivalent (FTE) if possible)

Number of employees (FTE)

B. Project work

All of our following questions depart from the following definition of a project. A project is an undertaking largely characterized by the uniqueness of the conditions in their entirety, i. e.

- A **specific target** has been defined for the project.
- The project **is limited in terms of time** (start and end).
- The project requires **specific resources** (e. g. financial, staff, ...).
- An **independent process organization** exists, which is defined as different from the standard organization in the company.
- The projects work on **non-routine tasks**.
- The project has a **minimum duration of four weeks**.
- The project has at least **three participants**.

[B.1 Project landscape]

The following questions refer to the project-landscape in your company. We kindly ask you to estimate the project-landscape for your **entire company**. Please **do not** indicate the project landscape for individual departments/organizational units (e.g. manufacturing, R&D) but try to estimate the activities on the level of the **entire organization**. In particular, this may include parts of the organization with **a lot** of project work, but also parts or the organization where **only few** projects are carried out.

3. To which extent does your company use the following **project types**?

	Not used at all						Used Very frequently
Internal: Organizational- / HR-projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal: IT-Projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal: R&D projects / new product development projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal: Marketing projects / sales projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not used at all						Used Very frequently
Internal: Infrastructure projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External: Commissioned projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other, please specify: _____

4. What is the average **volume** of projects in your company (number of employees and project budget)?

	Average number of employees working in a project
	Million NOK project budget (average project budget)

5. Average duration of projects?

	Months
--	--------

6. Does your company have a centralized project organization?

Yes No // Filter: If no, continue with question 8 //

7. If yes, do you have a **Project Management Office (PMO)**?

Yes No

[B.2 SHARE OF PROJECT WORK]

8. What is the share of project work (in %) to total working hours in your **entire company**, i.e. how much of the total working time is spend in projects? What was this share five years ago (2010) and how will it be in five years from now (2020)? (Please give an estimate!)

As of today (2014)	Five years ago, i.e. (2010)	Future development (2020)	
			Share of project work (in %) to total working hours of all employees in the entire company.

9. What is the share of the following, **project-related expenses** to total expenses in your entire company (in 2014)? (Please provide an estimate!)

	Proportion of project-related personnel costs to total personnel costs in your company (in %)
	Proportion of project-related costs (without personnel) to total costs in your company (in %)

10. What was the proportion of company **revenues** generated by (external) commissioned projects (2014)?

Share of revenues to revenues generated by (external) commissioned projects (in %)

[B.3 PROJECT INTENSITY]

11. The following statements refer to **the intensity of project work** in your company. To what extent do the following questions apply for the overall organization?

	<i>Strongly disagree</i>	<i>Strongly agree</i>
Our firm is characterized by a high level of temporariness	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Most of the activities in our firm are conducted within projects	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Most of the work in our firm is invested into projects	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Much of the work done in our firm is attributable to TOs	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Temporary work has in general a high importance in our firm	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

[B.4 PROJECT SUCCESS]

12. How many projects create, in general, adequate results in terms of:

	<i>none</i>	<i>all</i>
... Time	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
... Costs / Budget	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
... Quality	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
... Stakeholder satisfaction	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
In general	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

[B.5 PERFORMANCE]

13. When compared to the industry average, how did your company perform over the last three years regarding the following indicators?

	<i>Much worse</i>	<i>Much better</i>
Customer satisfaction / reputation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
EBIT (earnings before interest, taxes, depreciation, and amortization)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Return (profit) on sales	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Market share	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Development of new products and/or services	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

	<i>Much worse</i>	<i>Much better</i>
Expenses for R&D	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

C. General settings/personal information

14. For which **department/unit** do you work?

- Management board
 Controlling
 Project Management Office (PMO)
 Other: _____

15. What is your **position** in the company?

- Member of the management board
 Head of department
 Team leader
 Employee of a department
 Assistant to the board
 Other: _____

16. How **old** is your company?

Years

17. For the year 2014, what is the share of expenses on total turnover, you company invests in innovation activities?
(Please give an estimate - as precise as possible!)

Share of expenses for innovation activities on total turnover (in %)

18. Please indicate the following company data for the year 2014:

Mio. NOK total turnover
 Mio. NOK net income for the year

D. Innovativeness

Innovativeness includes all processes in an organization that enable the company to successfully develop innovations and to introduce innovations on the market.

[D.1 INTERNAL KNOWLEDGE GENERATION AND INNOVATION]

19. To what extent do the following statements on **internal knowledge generation** apply to your company?

	<i>Strongly disagree</i>	<i>Strongly agree</i>
We are good at acquiring new knowledge for our product and service innovations	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
We are experienced in continuously extending our intra-company know-how	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
We manage well to build up expertise in new areas of interest	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
We learn a lot from our in-house research and development activities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

[D.2 EXTERNAL KNOWLEDGE GENERATION AND INNOVATION]

20. We continue with a few statements on **external learning** in organizations. To what extent do these statements apply to your company?

	<i>Strongly disagree</i>	<i>Strongly agree</i>
We see our customers as partners, who are getting integrated in our product development processes	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
We collaborate with our customers to better understand their current and future product / service requirements	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
We collect from our customers ideas / feedback to improve and optimize our existing products and services	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Throughout the (close) collaboration with our customers, we gain important information for our product and service innovations	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

[D.3 MANAGEMENT OF INNOVATION PROCESSES]

21. Please indicate to what extent the following statements on the **management of innovation processes** apply to your company?

	<i>Strongly disagree</i>	<i>Strongly agree</i>
For every innovation project we create operational processes with clearly defined tasks	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
In our firm, innovation processes are systematically controlled by an operational process management	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
The operational tasks and objectives in an innovation process are clearly defined and communicated to all participants	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

	<i>Strongly disagree</i>	<i>Strongly agree</i>
In our firm, the individual operational activities in an innovation process are coordinated using a performance- as well as goal-oriented approach	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

[D.4 INNOVATION CULTURE]

22. In the following you will find several statements on the **innovation culture** in organizations. To what extent do these statements apply to your company?

	<i>Strongly disagree</i>	<i>Strongly agree</i>
Our firm is characterized by a high degree of willingness to change	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
We are willing to take some risk in pursuit of new ideas and innovations	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Entrepreneurs (people with new ideas) are experiencing a great motivation and support within our firm	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
The values and standards in our firm promote innovation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

[D.5 INNOVATIONS SUCCESS]

23. Please indicate how **successful your innovations** are on average. Please consider the period over the last three years and compare your company to its competitors:

	<i>Strongly disagree</i>	<i>Strongly agree</i>
Over the last three years, our company had a high number of innovations when compared to our most important competitors	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Compared to our most important competitors, our company has constantly introduced innovations on the market over the last three years	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Over the last three years, our company usually introduced innovations earlier to the market than our competitors	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

E. Strategic flexibility

Strategic flexibility is the capability of a company to react to anticipated and/or unforeseen changes by adapting strategies and plans, and by reducing dependencies.

[E.1 RESSOURCE FLEXIBILITY]

24. In the following you will find several statements on the **flexibility of resources** of a company (e.g. employees, machinery, production facilities, etc.) To what extent do these statements apply to your company?

	<i>Strongly disagree</i>	<i>Strongly agree</i>
There is a large range of alternative uses to which a resource can be applied	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
It is easy to find new areas for deploying our resources	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
The costs and difficulty of switching from one use of a resource to an alternative use are low	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
The time required to switch to an alternative resource is low	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

[E.2 COORDINATION CAPABILITY]

25. In the following you will find several statements on the **coordination capability** of organizations. To what extent do these statements apply to your company?

	<i>Strongly disagree</i>	<i>Strongly agree</i>
High degree of flexibility to re-define existing strategies	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
High degree of flexibility to redeploy resources effectively	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
High degree of flexibility to reconfigure (value) chains of resources	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

Appendix C: Notification test NSD

Norsk samfunnsvitenskapelig datatjeneste AS
NORWEGIAN SOCIAL SCIENCE DATA SERVICES



Harald Hårfagres gate 29
N 5007 Bergen
Norway
Tel: +47-55 58 21 17
Fax: +47-55 58 96 50
nsd@nsd.uib.no
www.nsd.uib.no
Org.nr. 985 321 884

RESULT OF NOTIFICATION TEST: NOT SUBJECT TO NOTIFICATION

You have indicated that neither directly or indirectly identifiable personal data will be registered in the project.

If no personal data is to be registered, the project will not be subject to notification, and you do not have to submit a notification form.

Please note that this is a guidance based on information that you have given in the notification test and not a formal confirmation.

For your information: In order for a project not to be subject to notification, we presuppose that all information processed using electronic equipment in the project remains anonymous.

Anonymous information is defined as information that cannot identify individuals in the data set in any of the following ways:

- directly, through uniquely identifiable characteristic (such as name, social security number, email address, etc.)
- indirectly, through a combination of background variables (such as residence/institution, gender, age, etc.)
- through a list of names referring to an encryption formula or code, or
- through recognizable faces on photographs or video recordings.

Furthermore, we presuppose that names/consent forms are not linked to sensitive personal data.

Kind regards,

NSD Data Protection

Avdelingskontorer / District Offices

OSLO: NSD, Universitetet i Oslo, Postboks 1055 Blindern, 0316 Oslo. Tel: +47-22 85 52 11. nsd@uio.no
TRONDHEIM: NSD, Norges teknisk-naturvitenskapelige universitet, 7491 Trondheim. Tel: +47-73 59 19 07. kyrre.svarva@svt.ntnu.no
TROMSØ: NSD, SVF, Universitetet i Tromsø, 9037 Tromsø. Tel: +47-77 64 43 36. nsdmaa@svtuit.no

Appendix D: Industrial classification

Standard Industrial Classification (SIC2007)

- [-] **A** Agriculture, forestry and fishing
 - [+] 01 Crop and animal production, hunting and related service activities
 - [+] 02 Forestry and logging
 - [+] 03 Fishing and aquaculture
- [-] **B** Mining and quarrying
 - [+] 05 Mining of coal and lignite
 - [+] 06 Extraction of crude petroleum and natural gas
 - [+] 07 Mining of metal ores
 - [+] 08 Other mining and quarrying
 - [+] 09 Mining support service activities
- [-] **C** Manufacturing
 - [+] 10 Manufacture of food products
 - [+] 11 Manufacture of beverages
 - [+] 12 Manufacture of tobacco products
 - [+] 13 Manufacture of textiles
 - [+] 14 Manufacture of wearing apparel
 - [+] 15 Manufacture of leather and related products
 - [+] 16 Manufacture of wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials, except furniture
 - [+] 17 Manufacture of paper and paper products
 - [+] 18 Printing and reproduction of recorded media
 - [+] 19 Manufacture of coke and refined petroleum products
 - [+] 20 Manufacture of chemicals and chemical products
 - [+] 21 Manufacture of basic pharmaceutical products and pharmaceutical preparations
 - [+] 22 Manufacture of rubber and plastic products
 - [+] 23 Manufacture of non-metallic mineral products
 - [+] 24 Manufacture of basic metals
 - [+] 25 Manufacture of fabricated metal products, except machinery and equipment
 - [+] 26 Manufacture of computer, electronic and optical products
 - [+] 27 Manufacture of electrical equipment
 - [+] 28 Manufacture of machinery and equipment n.e.c.
 - [+] 29 Manufacture of motor vehicles, trailers and semi-trailers
 - [+] 30 Manufacture of other transport equipment
 - [+] 31 Manufacture of furniture
 - [+] 32 Other manufacturing
 - [+] 33 Repair and installation of machinery and equipment
- [-] **D** Electricity, gas, steam and air conditioning supply
 - [+] 35 Electricity, gas, steam and air conditioning supply
- [-] **E** Water supply; sewerage, waste management and remediation activities
 - [+] 36 Water collection, treatment and supply
 - [+] 37 Sewerage
- [+] 38 Waste collection, treatment and disposal activities, materials recovery
- [+] 39 Remediation activities and other waste management services
- [-] **F** Construction
 - [+] 41 Construction of buildings
 - [+] 42 Civil engineering
 - [+] 43 Specialised construction activities
- [-] **G** Wholesale and retail trade; repair of motor vehicles and motorcycles
 - [+] 45 Wholesale and retail trade and repair of motor vehicles and motorcycles
 - [+] 46 Wholesale trade, except of motor vehicles and motorcycles
 - [+] 47 Retail trade, except of motor vehicles and motorcycles
- [-] **H** Transportation and storage
 - [+] 49 Land transport and transport via pipelines
 - [+] 50 Water transport
 - [+] 51 Air transport
 - [+] 52 Warehousing and support activities for transportation
 - [+] 53 Postal and courier activities
- [-] **I** Accommodation and food service activities
 - [+] 55 Accommodation
 - [+] 56 Food and beverage service activities
- [-] **J** Information and communication
 - [+] 58 Publishing activities
 - [+] 59 Motion picture, video and television programme production, sound recording and music publishing activities
 - [+] 60 Programming and broadcasting activities
 - [+] 61 Telecommunications
 - [+] 62 Computer programming; consultancy and related activities
 - [+] 63 Information service activities
- [-] **K** Financial and insurance activities
 - [+] 64 Financial service activities, except insurance and pension funding
 - [+] 65 Insurance, reinsurance and pension funding, except compulsory social security
 - [+] 66 Activities auxiliary to financial services and insurance activities
- [-] **L** Real estate activities
 - [+] 68 Real estate activities
- [-] **M** Professional, scientific and technical activities
 - [+] 69 Legal and accounting activities
 - [+] 70 Activities of head offices; management consultancy activities
 - [+] 71 Architectural and engineering activities; technical testing and analysis
 - [+] 72 Scientific research and development
 - [+] 73 Advertising and market research
 - [+] 74 Other professional, scientific and technical activities
 - [+] 75 Veterinary activities

- [-] N Administrative and support service activities
 - [+] 77 Rental and leasing activities
 - [+] 78 Employment activities
 - [+] 79 Travel agency, tour operator and other reservation service and related activities
 - [+] 80 Security and investigation activities
 - [+] 81 Services to buildings and landscape activities
 - [+] 82 Office administrative, office support and other business support activities
- [-] O Public administration and defence; compulsory social security
 - [+] 84 Public administration and defence; compulsory social security
- [-] P Education
 - [+] 85 Education
- [-] Q Human health and social work activities
 - [+] 86 Human health activities
 - [+] 87 Residential care activities
 - [+] 88 Social work activities without accommodation
- [-] R Arts, entertainment and recreation
 - [+] 90 Creative, arts and entertainment activities
 - [+] 91 Libraries, archives, museums and other cultural activities
 - [+] 92 Gambling and betting activities
 - [+] 93 Sports activities and amusement and recreation activities
- [-] S Other service activities
 - [+] 94 Activities of membership organisations
 - [+] 95 Repair of computers and personal and household goods
 - [+] 96 Other personal service activities
- [-] T Activities of household as employers; undifferentiated goods- and services-producing activities of households for own account
 - [+] 97 Activities of households as employers of domestic personnel
- [-] U Activities of extraterritorial organisations and bodies
 - [+] 99 Activities of extraterritorial organisations and bodies

Appendix E: Output by kind of main activity 2014

Output by kind of main activity at basic values. Current prices. NOK million	
	2014
Total industry	5233258
Agriculture and forestry	43402
Fishing and aquaculture	63838
Mining and quarrying	16067
Oil and gas extraction including services	777529
Oil and gas extraction	635491
Service activities incidental to oil and gas	142038
Manufacturing	823639
Manufacture of food products, beverages and tobacco products	183181
Manufacture of textiles, wearing apparel and leather products	6524
Manufacture of wood and wood products, except furniture	25334
Manufacture of paper and paper products	10131
Printing and reproduction of recorded media	9804
Refined petroleum, chemical and pharmaceutical products	140478
Manufacturing of basic chemicals etc	31382
Manufacture of rubber and plastic products, and other non-metallic mineral products	39121
Manufacture of basic metals	59338
Manufacturing of machinery and other equipment n.e.c	197211
Building of ships, oil-, platforms, modules and other transport equipment	90315
Manufacture of furniture	13357
Repair and installation of machinery and equipment	48847
Electricity, gas and steam	71261
Water supply, sewerage, waste	44214
Construction	467972
Wholesale and retail trade, repair of motor vehicles	390768
Transport via pipelines	19794
Ocean transport	117632
Transport activities excl. ocean transport	256998
Postal and courier activities	16142
Accommodation and food service activities	79525
Information and communication	223924
Financial and insurance activities	210869
Real estate activities	127976
Imputed rents of owner-occupied dwellings	174780
Professional, scientific and technical activities	243781
Administrative and support service activities	150946
Public administration and defence	270674
Education	170839
Health and social work	366395
Arts, entertainment and other service activities	104294

Source: Statistics Norway

Appendix F: Sample size

TABLE 13.3

Sample size for a given population size

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	175	2000	322
55	48	320	181	2200	327
60	52	340	191	2400	331
65	56	360	196	2600	335
70	59	380	205	2800	338
75	63	400	210	3000	341
80	66	420	217	3500	346
85	70	440	226	4000	351
90	73	460	242	4500	354
95	76	480	248	5000	357
100	80	500	260	6000	361
110	86	550	265	7000	364
120	92	600	274	8000	367
130	97	650	278	9000	368
140	103	700	169	10000	370
150	108	750	186	15000	375
160	113	800	201	20000	377
170	118	850	214	30000	379
180	123	900	234	40000	380
190	127	950	254	50000	381
200	132	1000	269	75000	382
210	136	1100	285	100000	384

Appendix G: GDP market values

Value added by kind of main activity at basic values. Current prices.

NOK million¹

	2014
Gross domestic product, market values²	3154104
Total industry	2822080
Agriculture and forestry	20102
Fishing and aquaculture	25564
Mining and quarrying	5587
Oil and gas extraction including services	620990
Oil and gas extraction	568459
Service activities incidental to oil and gas	52531
Manufacturing	219214
Manufacture of food products, beverages and tobacco products	40916
Manufacture of textiles, wearing apparel and leather products	2762
Manufacture of wood and wood products, except furniture	7323
Manufacture of paper and paper products	2310
Printing and reproduction of recorded media	4134
Refined petroleum, chemical and pharmaceutical products	22312
Manufacture of basic chemicals ect.	7619
Manufacture of rubber and plastic products, and other non-metallic mineral products	12526
Manufacture of basic metals	10471
Manufacture of machinery and other equipment n.e.c	66614
Building of ships, oil - platforms, modules and other transport equipment	25102
Manufacture of furniture	5599
Repair and installation of machinery and equipment	19145
Electricity, gas and steam	55416
Water supply, sewerage, waste	16580
Construction	161941
Wholesale and retail trade, repair of motor vehicles	198216
Transport via pipelines	17773
Ocean transport	43004
Transport activities excl. ocean transport	99728
Postal and courier activities	10135
Accommodation and food service activities	37156
Information and communication	109552
Financial and insurance activities	136069
Real estate activities	79713
Imputed rents of owner-occupied dwellings	113286
Professional, scientific and technical activities	130290
Administrative and support service activities	73116
Public administration and defence	168054
Education	137669
Health and social work	289405
Arts, entertainment and other service activities	53520

Appendix H: t-distribution

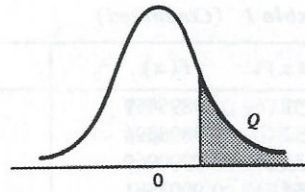


Table II
Upper Percentage Points of the *t* Distribution

<i>v</i>	$Q = 0.4$ $2Q = 0.8$	0.25 0.5	0.1 0.2	0.05 0.1	0.025 0.05	0.01 0.02	0.005 0.01	0.001 0.002
1	0.325	1.000	3.078	6.314	12.706	31.821	63.657	318.31
2	0.289	0.816	1.886	2.920	4.303	6.965	9.925	22.326
3	0.277	0.765	1.638	2.353	3.182	4.541	5.841	10.213
4	0.271	0.741	1.533	2.132	2.776	3.747	4.604	7.173
5	0.267	0.727	1.476	2.015	2.571	3.365	4.032	5.893
6	0.265	0.718	1.440	1.943	2.447	3.143	3.707	5.208
7	0.263	0.711	1.415	1.895	2.365	2.998	3.499	4.785
8	0.262	0.706	1.397	1.860	2.306	2.896	3.355	4.501
9	0.261	0.703	1.383	1.833	2.262	2.821	3.250	4.297
10	0.260	0.700	1.372	1.812	2.228	2.764	3.169	4.144
11	0.260	0.697	1.363	1.796	2.201	2.718	3.106	4.025
12	0.259	0.695	1.356	1.782	2.179	2.681	3.055	3.930
13	0.259	0.694	1.350	1.771	2.160	2.650	3.012	3.852
14	0.258	0.692	1.345	1.761	2.145	2.624	2.977	3.787
15	0.258	0.691	1.341	1.753	2.131	2.602	2.947	3.733
16	0.258	0.690	1.337	1.746	2.120	2.583	2.921	3.686
17	0.257	0.689	1.333	1.740	2.110	2.567	2.898	3.646
18	0.257	0.688	1.330	1.734	2.101	2.552	2.878	3.610
19	0.257	0.688	1.328	1.729	2.093	2.539	2.861	3.579
20	0.257	0.687	1.325	1.725	2.086	2.528	2.845	3.552
21	0.257	0.686	1.323	1.721	2.080	2.518	2.831	3.527
22	0.256	0.686	1.321	1.717	2.074	2.508	2.819	3.505
23	0.256	0.685	1.319	1.714	2.069	2.500	2.807	3.485
24	0.256	0.685	1.318	1.711	2.064	2.492	2.797	3.467
25	0.256	0.684	1.316	1.708	2.060	2.485	2.787	3.450
26	0.256	0.684	1.315	1.706	2.056	2.479	2.779	3.435
27	0.256	0.684	1.314	1.703	2.052	2.473	2.771	3.421
28	0.256	0.683	1.313	1.701	2.048	2.467	2.763	3.408
29	0.256	0.683	1.311	1.699	2.045	2.462	2.756	3.396
30	0.256	0.683	1.310	1.697	2.042	2.457	2.750	3.385
40	0.255	0.681	1.303	1.684	2.021	2.423	2.704	3.307
60	0.254	0.679	1.296	1.671	2.000	2.390	2.660	3.232
120	0.254	0.677	1.289	1.658	1.980	2.358	2.617	3.160
∞	0.253	0.674	1.282	1.645	1.960	2.326	2.576	3.090

This table is condensed from Table 12 of the *Biometrika Tables for Statisticians*, Vol. 1 (1st ed.), edited by E. S. Pearson and H. O. Hartley. Reproduced with the kind permission of E. S. Pearson and the trustees of *Biometrika*.

Appendix I: Learning journey

This appendix will show our reflections on both our master programme and this thesis, in connection to the themes internationalisation, innovation and responsibility. These themes are viewed as important core areas of reflection by the School of Business and Law, at the University of Agder.

We have conducted a descriptive research study of the Norwegian economy as a whole. The aim was to explore if there is a relationship between the degree of projectification and the strategic flexibility in organizations in Norway. To be able to establish this, we had to measure the degree of projectification, and to which extent organizations consider themselves to have strategic flexibility. We did a two-parted data collection of primary data, consisting of telephone interviews and an online survey. A similar study was carried out in the German economy in 2013 by Wald et. al (2015) prior to ours, and our study was done in part to be able to compare the results of the two economies. Therefore, we used the same questionnaire in our study, with some modifications to better fit the Norwegian economy. Through the data collection, we were left with a total of 1412 unique respondents – complete and suited for analyses. The methodology used for analysing our data was primary PLS-SEM, which is a program that let us do both factor analysis and multiple regression in the same stage.

Through our study, we found that the Norwegian economy has a degree of projectification of 32,3%. We also have found evidence that an organization's degree of projectification has an impact on the strategic flexibility of the organization. However, this impact is not as crucial as the theoretical framework of the concepts suggests. The thesis further determines that the size of an organization does not have a moderating effect on the relationship between projectification and strategic flexibility. However, we did find evidence that supports our assumption that the type of industry an organization is located in can influence to what degree an increased use of projects would make the organization more strategically flexibility.

In this thesis, we have shown that the use of project work has been an increasing phenomenon, that has spread throughout the world and into most types of industries. In 2013, the Project Management Institute, which is the world's leading membership association for the project professionals, stated that there are 51 million people around the world engaged in projects (which equals about ten times the population of Norway).

International trends are becoming more important as the world becomes more globalized. The changes of today are rapid, and happen fast – which leads to a need for an organization to be more flexible in order to survive. The question is then how the organization can achieve an increased strategic flexibility in the best possible way.

Norway is a small country with a lot of its economy depending on the state of one industry, oil and gas. High activity in this industry, as well as good prices in the market, are important when it comes to the income for the state of Norway, and the Norwegian economy – as this industry generates 22% of the gross domestic product (as measured in 2014). However, over the past years, the international oil price has been declining. This has led to struggles for organizations in the oil and gas industry, through for instance large downsizings. It has also led to repercussions towards the other industries in the geographical areas that are most affected in Norway.

As this thesis has discussed the development of projectification over a ten-year period, from 2010 to 2020, we have been able to see how these recessions affect the forecasted measurements from the organizations. The reason as to why we can consider the forecasted measures affected, is because of our comparison with the German economy. In 2013 the German study got a forecasted annual growth rate of 2,9%, from 2014 to 2019. In our study we have determined a forecasted annual growth rate of only 0,76%, for the period 2015 to 2020.

When it comes to innovation, and needs in the market for new services or products – it is difficult for us to conclude on anything based on this thesis. We have looked at the degree of projectification and the strategic flexibility of organizations, and as our population was all companies in the Norwegian economy – it will be difficult to draw conclusions regarding innovation. However, we have thought about the need for strategic flexibility – which is often seen in today's inventive and future oriented organizations. There seems in fact to be an increasing focus on strategic flexibility. Organizations need to be able to respond to rapid changes in the environment surrounding them. New technology, and new innovations are emerging – and companies need to evolve accordingly. From the theoretical framework in this thesis, and through many of our courses in our master's programme – we have learned that flexibility is important in organizations throughout the world. Bureaucratic, and hierarchical organizations are replaced– and more inventive, flexible organizations seem to be the future.

However – there seems to be a gap in terms of the fact that many organizations still has very standardized operations and employee policies. We wished to investigate whether an increase in project-based work could fill this gap. Are more project-oriented organizations also more flexible? We can see that in the Norwegian economy, project-based work is widespread, and used (to varying extent) in all industries – and so is strategic flexibility. However, there is only a small part of the strategic flexibility in organizations that can be explained through the degree of project-based work.

Projects are characterized as time limited, and as the use of projects increases, so does consequently also the use of temporary employment. There are many positive aspects related to an increased use of projects, but the use of temporary employment can also be related to ethical challenges. Is the need for a more flexible organization a good enough reason to expose the employees' uncertainty regarding their employment and economic situation? Managers of highly project-oriented organizations should probably have a focus on these issues, to be able to really seize the opportunities related to project-based work. From a managerial perspective, employees are becoming an increasingly important part of the organization – as the business society of today has a focus of knowledge. Though this, the employees of an organization are often its most valuable assets, and are also crucial for attaining competitive advantages.

There is also the social aspect of project-based work to consider. Project teams are often put together at the start, and dissolved at the end of a project. This means that the employees in a project-oriented organization might not benefit to the same extent from the advantages of having colleagues, as they probably would have in many “traditional” workplaces. Further, there can also be an issue when it comes to the satisfaction and wellbeing among the employees. Project-based work often includes many working hours in distinct periods of time, which can possibly decrease the satisfaction among employees. Lastly, there might also be an increase in the stress-level among the employees when working in a project, connected to finishing the projects in time, as they have a pre-determined ending date.

Throughout this master's programme, and this thesis – we have gained a massive amount of knowledge that we are excited about applying to practice. In our elective courses, we had the opportunity to specialize in theory about project-organizing and project-management – which led to the topic of this thesis. This thesis has been a long, but very interesting process, containing

a steep learning curve – and we are excited about our results. Even though we did not find a relationship as strong as we hoped, we still found proof that supported our primary hypothesis.