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Andrea Blindheim Slyngstad *Vatne, 3rd of June, 2017*

Abstract

This study examines the backsourcing process in detail. Previous research regarding backsourcing has mainly focused on the process *before* the decision to backsource has been made. Research regarding what happens *after* the decision has been made and the contract with the external supplier has been terminated, is rather limited. This is the starting point for this study. The research question is thus to examine how companies conduct the backsourcing process and identify different internal challenges that may occur during this process.

A qualitative case study was used to describe the backsourcing process. The study involved one unique case of a supplier of maritime equipment in Møre & Romsdal. The case study included in-depth interviews with a selected number of employees and stakeholders. The interviews revealed important drivers, activities and challenges related to the backsourcing process. In addition, the interviews with the stakeholders revealed how the decision to backsource affected the case company's competitive advantages from an external perspective.

Based on the interviews, a framework as for how companies can conduct the backsourcing process was identified, consisting of four phases comprised with different objectives and activities. Moreover, three main challenges related to the backsourcing process was identified, namely limitations in capacity, re-building knowledge, and adapting the backsourced product to the production site. The findings indicate that all three challenges occurred during the third phase of the backsourcing process, which implies that phase three is a critical phase in the backsourcing process and imply that managers should pay particular attention to this phase.

The main contribution of this research is the development of a stepwise model as for how companies can backsource. In addition to filling a gap in the existing literature, the framework can also be used as an analytic tool that might help managers in dealing with the backsourcing process, and the decisions and challenges related to this process.

Keywords: Backsourcing, Manufacturing Industry, Sourcing Process

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Definitions and clarification of concepts

Backsourcing – involves a '*recall of activities back in-house that previously have been (globally) outsourced*' (Nujen, Halse, & Solli-Sæther, 2011, p. 3).

ETO – Engineer-to-order. A production strategy that is customer order-driven (Olhager, 2012).

Insourcing – involves keeping work within the organization (Oshri, Kotlarsky, & Willcocks, 2011)

Maritime cluster in Møre & Romsdal – The maritime cluster in Møre & Romsdal is a world leading cluster *'in design, construction, equipment and operation of advanced special vessels for the global ocean industry'* (GCE, u.d.)

Outsourcing – involves transferring all or parts of an organizational activity to an external vendor (Barthélemy, 2003).

Reshoring – reshoring, or in this case, manufacturing reshoring involves '*a company decision to bring production or sourcing back to their home country*' (Fratocchi et al., 2016, p. 99).

SCM – Supply chain management. Involves planning and controlling the whole process from the raw material production to the delivery of the product to the end-customer (Harrison, Van Hoek, & Skipworth, 2014).

Supply network – '*is a way of describing the way in which buyers and suppliers are linked together to serve the end-customer'* (Harrison et al., 2014, p. 12).

Products and terms related to IP Huse

Exploration & Production (E&P) – Exploration & Production is a product area IP Huse operates within. The product area is mainly related to the exploration and recovery of oil/gas. Products within this category are supplied to FPSO's, spar buoys, installation vessels, cable layers etc. (IPHuse, u.d.-a).

Engineering – Engineering in IP Huse involves making calculations, sketches and product specifications for the manufacturing- and procurement departments.

Guide rollers for chains – Chain rollers are used to guide the chain to the chain wheel in order to get a proper angle of contact. Chain guides are used to guide the chain directly to the chain roller (RollsRoyce, u.d.). See Appendix 1 Picture no. 7 for illustration of the product.

Manufacturing – Manufacturing in IP Huse involves using sketches from the engineering department to produce the physical product.

Procurement – Procurement in IP Huse involves purchasing raw material for the production department based on the specifications from the engineering department, and, if needed, potentially outsource parts of production to external suppliers.

Secondary winches – Secondary winches are suitable to store large lengths of steel- or synthetic rope and has a pulling capacity up to 200 tons (IPHuse, u.d.-e). See Appendix 1 Picture no. 8 for illustration of the product.

Spooling gear – Spooling gear is '*used to secure safe operation and spooling of rope on to the drums*' (IPHuse, u.d.-f). See Appendix 1 Picture no. 1, 4 and 9 for illustration of the product.

Supply & Service (S&S) – Supply & Service is a product area IP Huse operates within. The product area is mainly related to anchor handling and supply. Products within this product category are supplied to towing vessels, anchor handling vessels etc. (IPHuse, u.d.-g) .

Winches – A winch is a mechanical device that is used to pull wires. There are many different types of winches. Appendix 1 Picture no 2, 5, and 8 illustrates different types of winches that IP Huse produces.

1 Introduction

The purpose of this study is to explore the backsourcing phenomenon through a case study of a local supplier of maritime equipment. Although backsourcing is not a new phenomenon, academic research on the phenomenon is rather limited. However, as outsourcing contracts fail to deliver the objectives they set out to achieve, some firms decide to bring the previously outsourced activity back in-house, which steadily increases the relevance of the phenomenon (Lacity & Willcocks, 2000; Nujen et al., 2011; Solli-Sæther & Gottschalk, 2015).

In the following sections, I will introduce the background for this thesis and the research question. Furthermore, I will discuss the context of this thesis and the relevance of the chosen topic. Moreover, a brief description of the methodological approach in this thesis will be presented. Finally, an outline of the remaining chapters of the thesis is presented.

1.2 Background

Since the 1990s, outsourcing has evolved into becoming a common business practice for Norwegian companies (Lacity & Willcocks, 2000; Solli-Sæther & Gottschalk, 2007; Solli-Sæther & Karlsen, 2016). The growing amount of companies that decide to outsource activities, stress that competition have become fierce and companies are forced to seek other options in order to maintain or strengthen their competitiveness. A survey from 2007 indicates that more than half of the largest companies in Norway have outsourced one or several activities to other countries, in particular to low-cost countries such as Asia and Eastern Europe (Solli-Sæther & Gottschalk, 2007; Solli-Sæther & Karlsen, 2016). Research suggest that companies outsource activities in order to strengthen their competitive advantage, reduce production- and labor costs, to access qualified personnel and resources, and/or to increase their capacity, respectively (Solli-Sæther & Gottschalk, 2007; Solli-Sæther & Karlsen, 2016).

Many companies, however, experience that their outsourcing contracts fail to deliver the objectives they set out to achieve, and as a consequence of this, some firms decide to bring the previously outsourced activity back in-house (Lacity & Willcocks, 2000; Nujen et al., 2011; Solli-Sæther & Gottschalk, 2015). This process is termed *backsourcing* and denotes a recall of activities back in-house that previously have been outsourced to external suppliers

(Nujen et al., 2011; Oshri et al., 2011). In recent years, there are several examples of backsourcing in the Norwegian industry:

- One of Norway's largest shipbuilding companies, Kleven Verft, has backsourced parts of their production from Poland to Ulsteinvik, partly because of new, available technology (Stenvaagnes, 2013).

- A local subcontractor to the furniture industry, L.P. Riksheim Treindustri AS, has backsourced activities related to the processing of wood from Lithuania to Sykkylven (Engås, 2017).

- A Norwegian offshore-supplier, Kværner, has backsourced parts of their production from Dubai and China to Norway through cost reductions and investment in automation (Stensvold, 2016)

- A world leading supplier of winches, IP Huse, has backsourced parts of their production from countries such as Czech Republic and Russia, partly because of new technology (Stensvold, 2016).

The relevance of backsourcing is steadily increasing. Backsourcing has become particularly relevant for Norwegian manufacturing companies, where high production- and labor costs has resulted in a high number of production outsourcing and offshoring to low-cost countries such as Eastern Europe and China (Gottschalk, 2013; Stenvaagnes, 2013). In recent years have access to new technology, such as robotics, reduced the production- and labor costs in Norway. As a result of this, the incentives for outsourcing production are reduced and the attractiveness of having in-house production has increased (Behrentz, 2014; Engås, 2017; Finstad, 2015; Kleven, 2012; Mauren, 2012; Stensvold, 2016; Stenvaagnes, 2013).

Although the relevance of backsourcing is increasing, the academic research regarding the topic is limited. Available research has primarily focused on defining the phenomenon and identifying the drivers or motivations for backsourcing (Bhagwatwar, Hackney, & Desouza, 2011; Kotlarsky & Bognar, 2012; Solli-Sæther & Gottschalk, 2015; Veltri, Saunders, & Kavan, 2008). In addition, some previous studies have investigated internal challenges related to the backsourcing process where the emphasis have been on the challenge of re-integrating

knowledge (Bhagwatwar et al., 2011; Nujen et al., 2011). Nonetheless, Solli-Sæther and Karlsen (2016) emphasizes that backsourcing is a demanding process, where the focal company must handle organizational adjustments, changing governance structures, and develop new skills and capacity, among other factors. Thus, there is limited research available regarding other internal challenges related to the backsourcing process. Furthermore, although some studies have described the process of backsourcing, such as Kotlarsky and Bognar (2012), there is a clear absence of theoretical models or recommendations as for *how* companies can conduct the backsourcing process. This study aims at filling these gaps in the literature by developing a stepwise model as for how companies can conduct the process and identify internal challenges related to the backsourcing phenomenon. Thus, the formulated research question can be presented.

1.2 Research question

The primary objective of this paper is to establish a framework as for how companies can conduct the backsourcing process. The secondary objective is to identify internal challenges that occur during the backsourcing process. Specifically, one research question arises:

How do companies conduct the backsourcing process and what internal consequences does this decision have for a company?

In order to answer the research question are four sub-questions specified. These questions are perceived as vital in developing an in-depth understanding of the backsourcing process. The theoretical framework, analysis and discussion in this thesis are based on these four sub-questions.

1. *What are the drivers for backsourcing activities from abroad?*
2. *What are the steps companies go through when backsourcing activities from abroad?*
3. *What internal challenges have occurred as a result of the backsourcing process?*
4. *What consequences does the decision to backsource have for a company's competitive advantage?*

The purpose of the research question and sub-questions is to develop a better understanding of the drivers, process, and internal challenges involved in the backsourcing process. A better understanding of these factors can, in turn, help managers to more efficiently address these decisions and dilemmas when backsourcing activities from external suppliers. In addition, as requested by the case company, the thesis will investigate the impact of backsourcing on the company's competitive advantage. Figure 2 illustrates the research question and sub-question and the link between them.

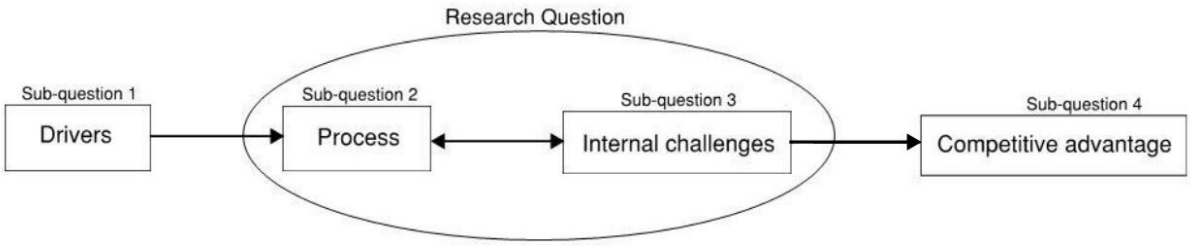

Figure 1: Research Question and Sub-Questions

1.3 Context

The maritime industry in Møre & Romsdal is a particularly interesting context for this thesis. This cluster has attracted ship-owners from all over the world to build their vessels in this area due to the extensive knowledge, innovative solutions, and interaction between the members of the cluster (Rørhus, 2010). Over the years, several companies within this cluster have backsourced parts of their production from external suppliers (Kleven, 2012; Segrov, 2013; Stensvold, 2016; Stenvaagnes, 2013). Kleven Verft, who is one of the largest shipbuilding organizations in Norway, has since 2012 backsourced their production to Norway with the purpose of rebuilding internal capabilities (Mauren, 2012; Nujen et al., 2011). Over the years, Kleven Verft has become a prime example of the backsourcing phenomenon in Norway and is a frequently used example of backsourcing in newspaper articles (Kleven, 2012; Mauren, 2012; Segrov, 2013). Kleven Verft is, however, not the only company within the maritime cluster in Møre & Romsdal that has backsourced activities from external suppliers during the last decade. Another interesting company in the maritime cluster that has backsourced production is IP Huse (Behrentz, 2014; Stensvold, 2016).

IP Huse is '*a world leader in designing and building larges winches for anchor handling vessel*s' (IPHuse, u.d.-c). The company has an impressive market share 90-95% of the world

market for winches to anchor handling vessels, as well as 60-65% of the market for mooring equipment for rigs, and has grown to become a cornerstone in designing and manufacturing winches for the largest anchor handling vessels around the world (IPHuse, u.d.-b). As many others, IP Huse decided to outsource parts of their production during the recovery in the offshore-market in 2007-2010 with the purpose of increasing their capacity so that they would be able to handle all incoming orders and thus maintain their market share (Stensvold, 2016). Today, the company faces a completely different situation whereas a deep recession in the offshore-market has significantly reduced order incomes and the long-term prospect for the offshore market is dark. As a response to this recession, IP Huse's decided to backsource parts of the production with the purpose of increasing their in-house capacity utilization. In addition, new technology allowed the firm to further increase their in-house capacity and reduce hourly production and labor costs through automation and robotics (Stensvold, 2016).

The primary reason for studying IP Huse is that as the company already has backsourced several products, I would be able to study the whole backsourcing process in detail; from the drivers and motivations for backsourcing, to the different phases they went through when backsourcing, to the internal challenges that occurred during this process, and to investigate the effect of the decision to backsource on their competitive advantage. Another reason for studying IP Huse is the company's unique position in the market, its strong company culture and history. These factors add up to a unique and interesting case that is both relevant and applicable for other manufacturing companies, especially those operating in the offshore-market who face a similar market situation as IP Huse.

1.4 Relevance of topic

In recent years, the topic of backsourcing has received growing interest by researchers. Although academic research on backsourcing is still limited. The available academic contributions aim at defining the phenomenon and pinning down the underlying motivations, or drivers, for backsourcing (Bhagwatwar et al., 2011; Nujen et al., 2011; Veltri et al., 2008). In particular, extant literature focusing on IS backsourcing has identified three main motivations backsourcing, namely changes in the external and internal environment, and/or dissatisfaction with the outsourcing contract/supplier (Bhagwatwar et al., 2011; Veltri et al., 2008). Other researchers have focused on the difficulty of re-integrating knowledge as an internal challenge related to the backsourcing process (Bhagwatwar et al., 2011; Nujen et al.,

2011). However, this is just one of several internal challenges that may occur when backsourcing activities. The theoretical foundation regarding internal challenges is, therefore, somewhat limited. Furthermore, there are no theoretical models or recommendations as for *how* companies can conduct the backsourcing process. While there is a well-established theoretical foundation for the drivers or motivations for backsourcing, there is a clear absence of studies regarding backsourcing, especially related to the process of backsourcing and internal challenges related to the process. This study therefore aims at filling these gaps in the literature. Thus, the theoretical relevance of this study is high as these topics have not been thoroughly addressed in existing academic research.

In addition to the theoretical relevance, this study also has managerial relevance. There is an increasing attention to backsourcing in media and the topic has been on the agenda in several newspapers during the last 5 years. Examples of this are Behrentz (2014); Engås (2017); Finstad (2015); Kleven (2012); Mauren (2012); Olsen (2016); Segrov (2013); Solli-Sæther and Karlsen (2016); Stensvold (2016); (Stenvaagnes, 2013); Støre (2015); Sund (2016). The articles emphasize that backsourcing is an emerging trend among Norwegian manufacturing companies. High production- and labor costs have dominated the market for industrial production in Norway for years, which has resulted in the high numbers of production outsourcing or offshoring to low-cost countries such as Eastern Europe and China (Gottschalk, 2013). The access to robotics and automation has reduced the labor costs and is perceived as a main driver for manufacturing backsourcing as it ultimately reduces the incentives for outsourcing production to low-cost countries (Behrentz, 2014; Engås, 2017; Finstad, 2015; Kleven, 2012; Mauren, 2012; Stensvold, 2016; Stenvaagnes, 2013). Thus, we see an emerging trend among Norwegian manufacturing companies to backsource activities from low-cost countries (Stensvold, 2016). Kleven Verft, for instance, has been a leading example the backsourcing-trend in Norwegian newspapers (Kleven, 2012; Mauren, 2012; Segrov, 2013; Stenvaagnes, 2013) and through backsourcing production, the company '*achieved greater flexibility and at the same time enhanced their ability to retain production and embedded tacit knowledge in Norway, while still achieving operational advantages*' (Nujen et al., 2011, p. 5). It is no doubt that backsourcing is a highly relevant issue for manufacturing companies these days, and the managerial implications of this study is expected to of great relevance.

1.5 Methodological approach

This thesis applies a qualitative method in the form of a single case study with 11 semi-structured interviews with key respondents. As there was a limited theoretical framework to follow in order to answer the sub-questions, in particular the questions related to the backsourcing process and internal challenges, the emphasis of this study became to establish a better understanding of the drivers, process and internal challenges related to the backsourcing process. A case study was therefore adopted in this study as case studies are particularly useful when the purpose of a study is to develop an in-depth understanding of a '*contemporary phenomenon set within its real-world context'* (Yin, 2012, p. 4).

1.4 Outline of the thesis

The thesis consists of 7 chapters. The following chapters are described briefly.

Chapter 2 presents the theoretical background and framework in this thesis, and is structured based on the sub-questions. This includes; a clarifying sourcing-concepts; Drivers or motives for insourcing, outsourcing and backsourcing; The process of outsourcing and backsourcing; Internal challenges related to the backsourcing process; Backsourcing's influence on competitive advantage.

Chapter 3 presents the methodology approach in this thesis, and presents and discuss the research design and method, data collection method, data reduction, and validity and reliability.

Chapter 4 is devoted to the case company. The chapter presents the company's history; organization, products and markets; supply network; and the case company's background and drivers for outsourcing and backsourcing.

Chapter 5 presents the data analysis in this thesis. In this chapter, the findings from the interviews are presented and analyzed. The structure of this chapter is based on the sub-questions, thus divided into four main parts, namely (1) drivers for backsourcing, (2) the backsourcing process, (3) internal challenges related to the backsourcing, and (4) backsourcing's impact on a firm's competitive advantage.

Chapter 6 discusses the findings from the data analysis in terms of the theoretical framework presented in Chapter 2. The structure of this chapter is also based on the sub-questions, hence divided into four parts.

Chapter 7 presents the study's conclusions and implications. The chapter is divided into three main parts; the first part presents conclusions to the sub-questions; the second part presents a conclusion to the research question; and the third part presents limitations of the study, managerial and theoretical implications, as well as recommendations for future research.

2 Theoretical background and framework

Backsourcing is a part of a larger set of sourcing decisions, as illustrated in Figure 2. Sourcing, as defined by Oshri et al. (2011, p. 2), is '*the act through which work is contracted or delegated to an external or internal entity that could be physically located anywhere*'. It encompasses various insourcing and outsourcing arrangements, whereas the first sourcing decision a firm face is the make-or-buy decision, as illustrated in Figure 2. If a company decides to *buy* from external suppliers, it will, at some point, reach a re-evaluation point where it must decide whether to continue outsourcing with the current supplier, find a new supplier, or backsource (Veltri et al., 2008).

This chapter follows the structure of Figure 2. The chapter reviews literature related to the figure, forming the theoretical framework for this thesis. The chapter starts with a clarification of concepts related to the sourcing process. This will be followed by a description of the drivers or motivations for insourcing, outsourcing and backsourcing. The chapter then presents the process for insourcing, outsourcing, and backsourcing. After this presentation, the focus of the chapter is narrowed in to backsourcing, where internal challenges related to the backsourcing process is described, followed by a description of backsourcing and its impact on a firm's competitive advantage(s). In the end, the theoretical framework is summarized into a table.

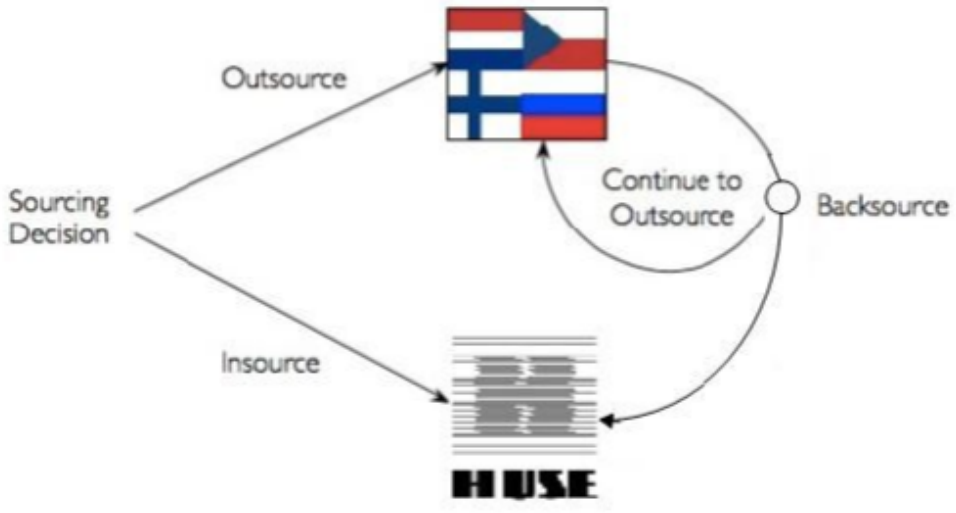

Figure 2: The Sourcing Process - adapted by Veltri et al. (2008)

2.1 Clarification of concepts

This section will briefly define what different sourcing-terms means and clarify the distinction between the different terms. Several sourcing-terms are often misinterpreted as the same concept; therefore, it is necessary with a clarification of the different terms before embarking on the theoretical framework for this thesis.

2.1.1 Insourcing

Insourcing can be defined as '*internal sourcing of business activities*' (Schniederjans, Schniederjans, & Schniederjans, 2015, p. 3) and involves keeping work within the organization (Oshri et al., 2011). The decision to keep activities within the organization comes with several benefits, such as control over production activities and quality, and is a normal starting point for most companies (Schniederjans et al., 2015; Stensvold, 2016). Nevertheless, as a firm grows and matures, it may struggle to compete with companies that outsource as they might achieve reduced costs or access to other resources and skills through outsourcing activities (Schniederjans et al., 2015).

2.1.2 Outsourcing and offshore outsourcing

Outsourcing is a phenomenon that originates from the 1950s, but it was first in the early 1990s that outsourcing really started to increase in popularity (Hätönen & Eriksson, 2009). The term outsourcing can be defined as '*turning over all or part of an organizational activity to an outside vendor'* (Barthélemy, 2003, p. 87) or as '*the transfer of the production of goods or services that had been performed internally to an external party*' (Ellram & Billington, 2001, p. 16). Although these definitions have slightly different perspectives on the phenomenon, they both indicate that outsourcing entails the transfer of ownership of an activity to an external party (Hätönen & Eriksson, 2009).

Offshore outsourcing is another concept that gained popularity in the 1990s, and is one of the most discussed topics today (Hätönen & Eriksson, 2009). Offshore outsourcing can be defined as a '*situation in which there exists simultaneous transfer of ownership and location of an activity*' (Hätönen & Eriksson, 2009, p. 147). In other words, it involves moving activities across national borders. Offshoring may be done in two ways: (1) through using external resources (outsourcing), or (2) through the relocation of internal production activities (FDI) (Hätönen & Eriksson, 2009). The distinction between these two ways of offshoring is

related to the ownership-rights of an activity, and this two-folded nature of the concept is the reason why the term is often misunderstood (Hätönen & Eriksson, 2009).

In this study, the case company outsourced parts of their production to external suppliers, thus the term outsourcing is applied.

2.1.3 Backsourcing

Backsourcing can, according to an IT perspective, be defined as '*a business practice in which a company takes back in-house assets, activities, and skills that are art of its information systems operations and were previously outsourced to one or more outside IS providers*' (Veltri et al., 2008, p. 51). In a manufacturing perspective, backsourcing involves a '*recall of activities back in-house that previously have been (globally) outsourced*' (Nujen et al., 2011, p. 3). Although these definitions have slightly different perspectives, they both capture the essence of backsourcing, which is a return of functions or activities back into the original organization.

The term "backsourcing" differs from the term "reshoring" or "backshoring" as the goal of backsourcing is to rebuild competences and capabilities internally in the organization, whereas reshoring/backshoring involves moving activities back to the organization's country of origin, but does not necessarily imply that the organization take the activity back in-house (Ancarani, Di Mauro, Fratocchi, Orzes, & Sartor, 2015; Lacity, Willcocks, & Rottman, 2008; Nujen et al., 2011).

In this study, the case company decided to bring activities back in-house, thus the term backsourcing is applied.

2.2 Drivers for different sourcing arrangements

This section describes the different drivers or motivations for insourcing, outsourcing and backsourcing.

2.2.1 Drivers for insourcing

Insourcing is often perceived as a normal starting point for most companies and comes with several benefits, such as control over production activities, capabilities, and product/service quality (Schniederjans et al., 2015; Stensvold, 2016). Furthermore, the internal sourcing of activities allows the focal firm to be more flexible in its business activities and less exposed for risks than firms that outsource activities (Schniederjans et al., 2015). Insourcing may also have a positive effect on employees as outsourcing may threathen employees' morale and feeling of job security (Schniederjans et al., 2015).

2.2.2 Drivers for outsourcing

Outsourcing is the opposite of insourcing and involves transferring ownership of an activity to an external supplier. The decision to outsource was previously motivated first and foremost by cost reduction reasons (Solli-Sæther & Gottschalk, 2007). More recent studies indicate that there are several other motivations, or drivers, for outsourcing activities (Solli-Sæther & Gottschalk, 2007). This may be access to outside technology and resources, lower lead time, access to new markets, and improved service quality. Studies also indicate that outsourcing allows the focal firm to focus on core competencies (Schniederjans et al., 2015; Solli-Sæther & Gottschalk, 2007). This is further supported by Hätönen and Eriksson (2009), who suggests that the motives for outsourcing has gradually evolved since the 1980s until today. In the 1980s to the 1990s the prime motive for outsourcing was to reduce costs, while from the 1990s to the early 2000, the prime motive had matured to reducing costs, enhancing capabilities, and improving processes. From early 2000 and onwards, the prime motive for outsourcing is organizational transformation (Hätönen & Eriksson, 2009).

2.2.3 Drivers for backsourcing

Backsourcing entails a recall of activities back in-house that previously have been outsourced to external suppliers. A growing number of companies have brought their outsourced activities back in-house, for instance IP Huse and Kleven Verft (Kleven, 2012; Nujen et al.,

2011; Stensvold, 2016). In general, the decision to backsource is motivated by several drivers. Veltri et al. (2008) identified three major reasons for IS-backsourcing, namely outsourcing contract problems, opportunities arising from internal organizational changes, and opportunities arising from external environmental changes. Contract problems include higher than expected costs, poor service quality, loss of control over outsourced services, and/or know-how mismatch. Internally generated opportunities may be motivated by change in executive management or changes in business strategy. Externally generated opportunities occur as a result of external business changes in the environment, such as changes in the external market or changes in the society (Veltri et al., 2008).

Despite reshoring and backsourcing are two different sourcing strategies, the drivers for reshoring is perceived as relevant for backsourcing as both strategies involve a moving of activities back to the country of origin. The drivers for reshoring is therefore included in this paper.

Wiesmann, Snoei, Hilletofth, and Eriksson (2017) literature review on the drivers and barriers to reshoring identified five different sets of dynamics (drivers and barriers) associated with reshoring. Some of which are depicted in Table 1.

Category	**Drivers**
Global competitive dynamics	- Changes in the global economy - Instability in exchange rates - Eroding comparative advantages
Host country	- Inadequate quality - Theft of intellectual property and weak patent enforcement - Diminishing growth opportunities
Home country	- Political incentives - Access to qualified personnel - Increased degree of automation - Strengthen brand through made in “XX”
Supply chain	- Innovation, research and development suffers due to the distance to manufacturing - High coordination costs - Importance of and issues with delivery performance (speed and dependability)
Firm-specific	- Over-estimation of cost savings during the offshoring decision - Wrong estimation of benefits and risks in the offshoring decision - Overhasty offshoring decisions (bandwagon effect)

Table 1: Drivers for Reshoring (Wiesmann et al., 2017)

Additionally, Fratocchi et al. (2016) identified a theory-based framework for the motivations of reshoring for manufacturing firms. The underpinning motivations of reshoring is perceived as relevant in this context as the article's emphasis is on manufacturing firms. Their findings are depicted in Figure 3.

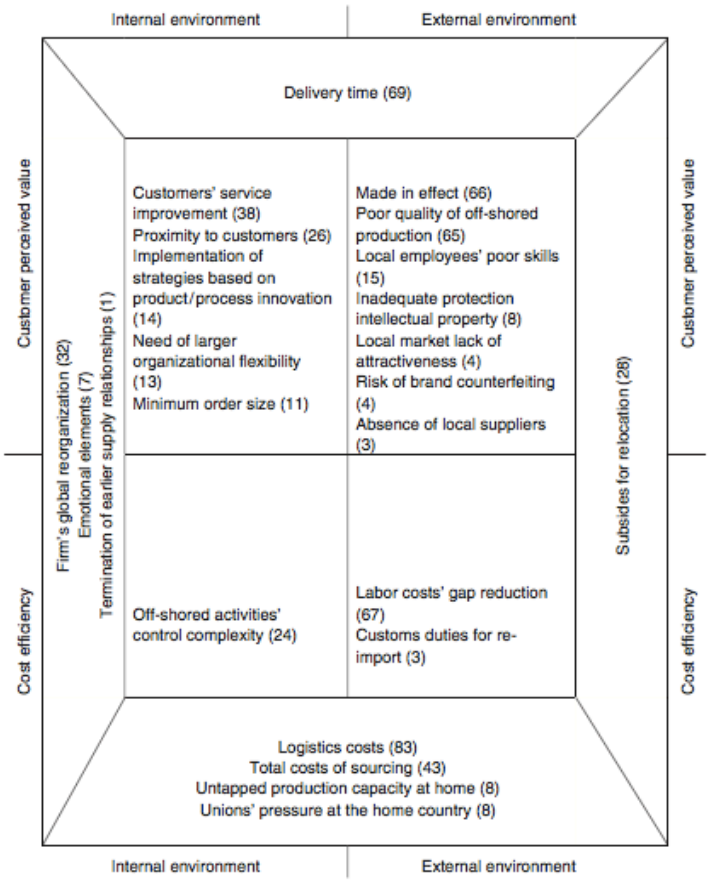

Figure 3: Motivations for Reshoring (Fratocchi et al., 2016)

2.3 The process of outsourcing and backsourcing

This section describes the process of outsourcing and backsourcing. The process of insourcing will not be discussed in this section, as it does not involve any stepwise process. It merely involves keeping work within the organization.

2.3.1 Outsourcing process

There are several studies available regarding the outsourcing process. Lacity and Willcocks (2000) studied IT outsourcing relationships and identified six relationship phases companies go through when outsourcing activities to external suppliers. The overall goal and objective

varies in the different phases, and the activities are designed to underpin the different goals and objectives in the different phases (Lacity & Willcocks, 2000). Their framework for outsourcing is depicted in Figure 4.

	Scoping Phase	Evaluation Phase	Negotiation Phase	Transition Phase	Middle Phase	Mature Phase
Activities:	• Identify core IT capabilities • Identify IT activities for potential outsourcing using business, economic, and technical criteria	• Measure baseline services • Measure baseline costs • Create RFP • Develop evaluation criteria • Invite external and internal bids	• Conduct due diligence to verify RFP baseline claims • Negotiate service-level agreements • Create responsibility matrixes • Price work units • Negotiate terms for employee transfer • Negotiate mechanisms for contractual change, including benchmarking, book accounting, non-exclusivity clauses, and pricing schedules	• Distribute contract to IT users • Interpret the contract • Establish post-contract management infrastructure and processes • Implement consolidation, rationalization, and standardization • Validate service scope, costs, levels, and responsibilities for baseline services • Manage additional service requests • Foster realistic expectations of supplier performance • Publicly promote the contract	• Benchmark performance to (theoretically) reset prices • Realign the contract to reflect changes in technology and business • Involve the supplier in more value-added areas	• Recalibrate investment criteria to reflect shorter time horizon for recouping investments • Determine if the relationship will be terminated or extended
Objective:	Identify flexible IT organization, including IT activities for potential outsourcing	Select best and final offer	Sign contract(s)	Establish operational performance	Achieve value-added above operational performance	No lapses in operational performance during final transition

Figure 4: The Outsourcing Process (Lacity & Willcocks, 2000)

The model is divided into six phases:

- *Phase 1* is the initial phase where the objective is to identify the company's core activities and potential activities for outsourcing.
- *Phase 2* involves developing a baseline for costs and services, inviting external and internal bids, and selecting the best offer.
- *Phase 3* involves signing contracts with external suppliers. This is a comprehensive process where much time is spent on planning, evaluating and negotiating contracts.
- *Phase 4* is the transition phase where the overall goal is to establish operational performance. This transition may last from 18 months to more than 2 years on large contracts, and involves establishing and implementing infrastructure and processes with the supplier, as well as publicly promote the contract/cooperation.
- *Phase 5* involves activities that improves the established contract beyond the baseline.
- *Phase 6* involves determining and planning the fate of the contract. This involves securing the operational performance of the company, even if the relationship with the supplier is not renewed. In general, a company can decide among three options when the contract with the supplier has expired: (1) extend the contract, (2) switch supplier(s), or (3) bring the activity back in-house (Lacity & Willcocks, 2000).

2.3.2 Backsourcing process

As there are no available theoretical recommendations as for how companies can conduct the backsourcing process, the theoretical foundation for this thesis is rather limited.

It is expected that the process of backsourcing is a somewhat reversed model of the outsourcing process, thus the theoretical framework for outsourcing can provide useful insights into the development of a stepwise model as for how companies can conduct the backsourcing process.

In this study, Lacity and Willcocks (2000) model for outsourcing, as described in the previous section, is used as a theoretical framework for developing a model for backsourcing. Although their model was originally developed for the IT-industry, the objectives and activities may still relevant and applicable for other industries, such as the manufacturing industry.

Furthermore, in order to develop a stepwise model of the backsourcing process, the thesis follows Gottschalk & Solli-Sæther (2010) study. Their study identified a systematic way of developing stage models, which is used as a theoretical framework for the proposed model in Chapter 5.

2.4 Internal challenges related to backsourcing

There are several challenges related to the process of bringing an activity back in-house. Not only is backsourcing a demanding process, but after the activity has been brought back, the company must handle different challenges related to organizational adjustments, changing government structures, and the development of new skills and capacity (Solli-Sæther & Karlsen, 2016). Although research regarding the internal challenges related to the backsourcing process is rather limited, one important and interesting challenge has been identified and discussed in previous studies, namely the re-integration of knowledge (Bhagwatwar et al., 2011; Nujen et al., 2011).

Knowledge is a critical resource of firms and economies (Lam, 2000). When companies outsource activities to external suppliers, there is a sort of “knowledge exchange”. This knowledge exchange involves both the transfer of explicit knowledge about the business

domain, as well as implicit knowledge about how different activities are performed in an organization (Bhagwatwar et al., 2011). Backsourcing, in comparison, involves a re-integration of knowledge and is a complex process (Nujen et al., 2011). The success of this re-integration depends on the firm's ability to identify and understand what types of knowledge needed to be re-integrated (Nujen et al., 2011). Nujen et al. (2011) is particularly interesting and relevant for this thesis as the case company in their study was a Norwegian shipbuilding company. The findings from their study is thus expected to be highly relevant for this study. Nujen et al. (2011) identified several critical success factors (CSF) for knowledge re-integration when bringing manufacturing activities back in-house, one of which is to keep specific know-how and tacit knowledge that is a part the organization's core competence within the organization's boundaries (Nujen et al., 2011). Moreover, a platform for in-house organizational knowledge was a vital criterion for the success of the backsourcing in the case company (Nujen et al., 2011). Another CSF is the time aspect, meaning that the less time an activity had been outsourced, the easier it would be to backsource the activity, as the chances for important knowledge to still exist in the organization seems to be greater (Nujen et al., 2011).

2.5 Backsourcing's influence on competitive advantage

Despite the lack of available research regarding the relationship between backsourcing and competitive advantage, a theoretical foundation for evaluating a company's competitive advantage can still be presented.

One important theory regarding firm's competitive advantages is the resource-based theory. The main principle in this theory is that a company's survival depends on the accumulation of unique, organizational resources that creates an advantage over competitors (Insinga & Werle, 2000). Firm resources can be divided into three categories; tangible, intangible, and human resources, and includes all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. that are controlled by a firm (Barney, 1991). A resource alone does not create value, rather, it must be utilized and combined in order to create firm-specific capabilities. These capabilities, in turn, can be combined into more complex capabilities (Barney, 2011). When these capabilities create a long-term competitive advantage for a company, they are referred to as *core competencies* (Barney, 2011; Ellram & Billington, 2001; Hilmer & Quinn, 1993). However, in order for a capability/resource to be a core

competence it must be (1) valuable, (2) rare, (3) hard to imitate, and (4) organizationally supported (Barney, 1991). Hilmer and Quinn (1993) suggest that core competencies comprise a set of corporate skills that can create unique value for customers and should therefore be closely protected (Ellram & Billington, 2001). These core competencies are created through a long-term process of continuous improvement and enhancement (Ellram & Billington, 2001; Prahalad & Hamel, 1990). Theory therefore suggests that companies should build on their core competencies and leverage these competencies, whereas activities in which the company has no unique capabilities, should, in comparison, be considered as candidates for outsourcing (Ellram & Billington, 2001).

By linking competitive advantages and core competencies to backsourcing, it is obvious that it is of vital importance that the firm do not outsource important skills or knowledge, activities that the focal firm performs better than others, or elements that are important to customers in the long run (Ellram & Billington, 2001). Of course, core competences may adapt and evolve into new capabilities, and the market is expected to be a major influence in relation to this development. Activities that are brought back in-house should therefore constitute, or at least support, a part of the focal company's core competencies.

2.6 Summarizing model

The purpose of this chapter was to build a theoretical background and framework for the proposed research question and sub-questions in this study. The key findings from the chapter are summarized in Table 2, which is divided into four parts based on the sub-questions stated in Chapter 1. These key findings constitute the foundation for the interview guide that is presented in Chapter 3.

Sub-questions	Topic	Key findings
Drivers for sourcing	*Insourcing*	Motivations for insourcing, as suggested by Schniederjans et al. (2015), includes: - Control over operations, quality and capabilities - Flexibility in operations - Less risk exposed
	Outsourcing	Hätönen and Eriksson (2009); Schniederjans et al. (2015); Solli-Sæther and Gottschalk (2007) suggests that the decision to outsource is motivated by: - Access to outside technology and resources - Reduced costs - Access new markets - Reduced lead time - Improve service quality - Allows the firm to focus on core competencies
	Backsourcing	Veltri et al. (2008) identified 3 major motivations/drivers for backsourcing: - Contract problems - Internally generated opportunities - Externally generated opportunities
		Fratocchi et al. (2016); Wiesmann et al. (2017) identified several drivers for manufacturing reshoring, among others are: - Changes in the global economy - Instability in exchange rates, inadequate quality - Increased degree of automation in the home country - Inadequate focus on innovation, research and development due to the distance to manufacturing - Over-estimation of cost savings during the offshore decision.
The sourcing process	*Insourcing*	Continue as before, no step-wise process.
	Outsourcing	Six phases companies go through when outsourcing activities to outside vendors, as suggested by Lacity and Willcocks (2000).
	Backsourcing	N/A
Internal challenges with backsourcing	*Knowledge re-integration*	The success of the re-integration of knowledge depends on some critical success factors, as suggested by Nujen et al. (2011): - Keep specific know-how and tacit knowledge that is part of the firm's core competencies within the organization's boundaries - Build a platform for in-house organizational knowledge - The time aspect (how long time since the activity was outsourced.
	Other challenges	N/A
Backsourcing and competitive advantage	*Resource-based view and core competencies*	A firm's survival depends on the accumulation of unique organizational resources that creates an advantage over competitors, which may be tangible, intangible, or human resources. In order for a capability/resource to be a core competence it must be (1) valuable, (2) rare, (3) hard to imitate, and (4) organizationally supported. It is important that companies build on their core competencies and leverage these (Barney, 1991; Ellram & Billington, 2001; Hilmer & Quinn, 1993; Prahalad & Hamel, 1990). For backsourcing, this involves keeping important skills or knowledge in-house, activities that the focal firm performs better than others, or elements that are important to customers in the long run in-house, and continuously strive to improve and enhance these competencies.

Table 2: Summary of the Thesis' Theoretical Framework

3 Methodology

The following chapter provides an overview of the techniques and procedures involved in obtaining and analyzing data in this thesis. Since there have been limited research looking at the backsourcing phenomenon, this study employs a qualitative, case study method. By using a case study, I was able to develop an in-depth understanding of the phenomenon of interest. To develop the methodology of this study, I followed the research process suggested by Jacobsen (2015), as illustrated in Figure 5. Thus, the first section of this chapter will start by discussing the chosen research design and method. Thereafter, the data collection process will be described and discussed. Finally, the validity and reliability of the study is discussed.

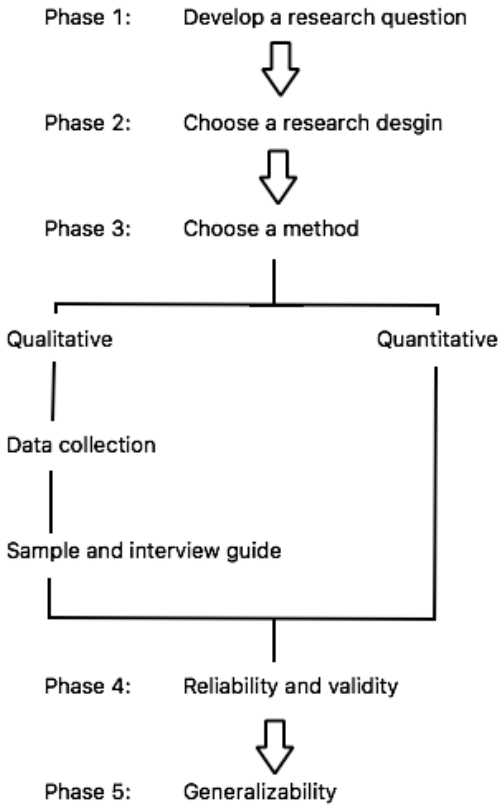

Figure 5: The Research Process – adapted by Jacobsen (2015)

3.1 Research design and method

That are several issues that needs to be addressed in a research project, including the development of a research design and method. This chapter will start by discussing the chosen research design. Thereafter, the research method of this study is presented. Finally, the chosen research method, a case study, is discussed.

3.1.1 Research design

The research design is an overall plan as for how the study should be conducted (Ghauri & Grønhaug, 2010). According to de Vaus (2001, p. 9) is the function of a research design to '*ensure that the evidence obtained enables us to answer the initial question as unambiguously as possible'*. Most research can be divided into three different categories: exploratory research, descriptive research and causal research (Ghauri & Grønhaug, 2010). This thesis uses a descriptive research design, as it seeks to *describe* how companies can conduct the backsourcing process and identify different internal challenges that may occur during this process. As the research question is structured and well-understood, a descriptive research design is perceived as suitable for this thesis. Furthermore, a descriptive research design is particularly useful in answering questions such as who, what, where, how and when, which further supports the decision to follow a descriptive research design as the research question and sub-questions in this thesis are 'what' and 'how'-questions (Ghauri & Grønhaug, 2010; Wilson, 2012).

Another important concern in research is to be clear about how to approach research and build theories (Ghauri & Grønhaug, 2010; Saunders, Lewis, & Thornhill, 2009). There are two alternative ways of doing this, namely inductive and deductive reasoning, where inductive reasoning is a theory building approach and deductive reasoning is a theory testing approach (de Vaus, 2001). Since there is a lack of available research regarding the backsourcing process and internal challenges, and this study aims at filling these gaps in the literature, this thesis follows an inductive approach to research. Furthermore, subjective meanings are important to achieve a holistic picture of the backsourcing process and due to the limited theoretical framework regarding the backsourcing phenomenon, it is natural to follow a bottom-up approach where we move from specific observations to a more general theory. An inductive approach is therefore perceived as most suitable in this case.

3.1.2 Research method

Once a research design has been selected, the next step is to decide on a method for collecting data. There are two approaches for collecting data, namely qualitative methods and quantitative methods. Quantitative research operates with numerical data and often involves testing and verifying hypothesis through statistical analysis (Ghauri & Grønhaug, 2010; Jacobsen, 2015; Saunders et al., 2009). Qualitative research, in comparison, operates with non-numerical data and is particularly appropriate at developing in-depth understanding of a phenomenon or topic (Jacobsen, 2015; Saunders et al., 2009). This study uses a qualitative approach to examine the backsourcing process and the internal challenges related to this process. As the purpose of this paper is to examine the backsourcing process and the internal challenges related to this process, a qualitative method was chosen as this method is particularly useful in studies that require in-depth insights into a phenomenon (Ghauri & Grønhaug, 2010). Moreover, qualitative methods are useful when we want to uncover and understand a phenomenon in which there is little prior knowledge, which is particularly relevant in this study (Ghauri & Grønhaug, 2010). Furthermore, a qualitative method holds several other characteristics such as flexibility, closeness to the data, and observations in natural settings that are perceived as important in order to answer the proposed research question in this study (Jacobsen, 2015).

Another important choice in developing a research method is to consider the different ways of approaching and interpreting research. In this thesis, an interpretivist approach is adopted. An interpretivist approach is '*concerned with individual interpretations, meanings and experiences of the subjective world'* (Lee & Lings, 2013, p. 67). An interpretivist approach is adopted in this research with the intention of understanding the backsourcing-phenomenon through the meanings and experiences of the respondents. Interpretive approaches are concerned with understanding the social reality from the perspectives of the participants, thus an inductive orientation is essential as it tries to generate new theory from the data and not impose existing theory on the data (Lee & Lings, 2013). In addition, the inductive nature of interpretive approaches generally use qualitative data as their main source of data, which is consistent with the previous choices made in this thesis.

3.1.3 Choice of research method: Case study

Based on the research design and method, a qualitative research method with a case study is adopted in this thesis to examine the backsourcing-phenomenon. A case study is particularly useful when the objective of a study is to develop an in-depth understanding of a '*contemporary phenomenon set within its real-world context*' (Yin, 2012, p. 4). Moreover, case studies are particularly applicable in answering descriptive questions (Yin, 2012), which in this case is "*How do companies conduct the backsourcing process and what internal consequences does this decision have for a company?".* The unique strength of case studies is that it is not limited to a single source of data, rather, it can incorporate several different types of evidence, such as observations, interviews, documents, and artifacts (Yin, 2012). Thus, this study has benefited from multiple sources of evidence, which allows the researcher to check the consistency of the findings based on different sources, also referred to as triangulation.

There are two important features to consider when designing a case study. The first concern in designing a case study is to define the case of interest (Yin, 2012). In this research, I have examined the backsourcing process through the study of IP Huse. IP Huse is therefore perceived as the main unit of analysis in this study. The company's unique market position as a world leading supplier of winches for anchor handling vessels, its strong company culture and history makes this a unique case that is both relevant and applicable for other manufacturing companies. The company also represent an important type of industry that has started to take back activities from external vendors due to external environmental changes such as changes in demand and access to new technology.

A second step in designing case studies is to select one out of four types of case study designs (Yin, 2012). As this study is concerned with why and how the case company conducted the backsourcing process, the thesis follows a holistic case design (Yin, 2012). In addition, as the study is limited to one organization, or case, the study is perceived as a single case study (Yin, 2012). The design is chosen as it provides the researcher with an opportunity to observe and analyze a phenomenon that few have considered before, and is particularly suitable when following an inductive, qualitative research approach (Ghauri & Grønhaug, 2010; Saunders et al., 2009).

3.2 Case Study Data Collection

In order to answer the proposed research problem, there has to be some sort of data collection. As previously mentioned is one of the benefits of case studies that it can incorporate several types of evidence, such as observations, interviews, documents, and artifacts. In this study, interviews were the main source of evidence. However, other types of evidence were also collected in this thesis, for instance through direct observations and documents (secondary sources). The following sections will present the data collection process in this thesis.

3.2.1 Semi-Structured Interviews

Interviewing is probably the most popular technique in qualitative research and is a '*purposeful discussion between two or more people*' (Jacobsen, 2015; Saunders et al., 2009, p. 318). Interviews are particularly useful when (1) few units are studied, (2) when we are interested in the respondent's personal opinion, and (3) when we are interested in the respondent's interpretation and/or understanding of a phenomenon (Jacobsen, 2015). Thus, interviews are perceived as particularly suitable in this study as it focuses on one case and the purpose is to understand the backsourcing-phenomenon.

Interviews may be perceived as a continuum of different forms of interviews based on the level of formality and structure (Saunders et al., 2009). Structured interviews are at one extreme while unstructured and informal interviews are at the other extreme. In this case, a semi-structured interview was adopted as it has a medium degree of structure where the researcher will have a list of themes of questions to be covered, but there is some degree of flexibility in the interview that, for instance, allows the researcher to ask follow-up questions and/or participate in discussions that were not expected in advance (Saunders et al., 2009). Open-ended questions were used in order to encourage the respondents to define and describe the phenomenon in their own words (Yin, 2012). Saunders et al. (2009, p. 337) states that '*…An open question is designed to encourage the interviewee to provide an extensive and developmental answer, and may be used to reveal attitudes or obtain facts. It encourages the interview to reply as they wish*'. Open-ended questions were particularly important when identifying a model for the backsourcing-process, as there were no previous studies to compare the answers with.

Sample

An important preliminary work in interviews is to develop an understanding of what information is need to answer the research question (and sub-questions), and to identify respondents that would be able to provide this information and that is willing to share the needed information (Ghauri & Grønhaug, 2010). To gain an in-depth understanding of the backsourcing process, were 4 representatives from IP Huse interviewed, namely the owner & CEO, the Manager Project Department, the Manager Production Department, and a Supervisor Production Department. These respondents hold key positions in the company and had active roles during IP Huse's backsourcing process, which according to Yin (2012) gives the insights even further value.

Additionally, 4 interviews with external respondents were conducted. Two of the external respondents were customers of IP Huse, while the other respondents were, to a certain degree, independent. The purpose of these interviews was to uncover backsourcing's impact on IP Huse's competitive advantage as seen from different perspectives. These respondents also had key positions in their respective firms and organizations, which also increased the value of the findings.

Table 3 depicts the total sample of this thesis and consists of 9 respondents and 11 interviews in total. These interviews were conducted between 18th of January to 19th of April. Table 3 presents information regarding the position of the respondents, the length and form of the interviews, the time and date, and the interviews' topics. As we can see of the table, the topics were adapted to each of the respondents and is based on the stated research problem and sub-questions. In addition, each of the interviews are referred to with an ID-code. This ID-code will be applied when information retrieved from the interviews is used in following chapters.

ID-code	Position	Company	Length and form	Time and date	Topic
R1	Manager Project Department	IP Huse	4-hour introduction meeting	18. January 2017, 09:00-13:00	Master thesis discussion and tour
R2	Manager Project Department	IP Huse	1 hour and 10 minutes' interview, semi-structured	03. March 2017, 12:10-13:20	Drivers for backsourcing The backsourcing process Internal challenges Backsourcing and competitive advantage
R3	Vice President – Technology and Development	Farstad Shipping ASA	40 minutes' interview, semi-structured	17. March 2017, 08:25-09:15	Backsourcing and competitive advantage from a customer's perspective
R4	Owner and CEO	IP Huse	40 minutes' telephone interview, semi-structured	24. March 2017, 09:10-09:50	Drivers for backsourcing The backsourcing process Internal challenges Backsourcing and competitive advantage
R5	Manager Production Department	IP Huse	20 minutes' interview, semi-structured	31. March 2017, 09:10-09:30	The backsourcing process Internal challenges
R6	Manager Project Department	IP Huse	1 hour and 35 minutes' meeting	31. March 2017, 09:30-11:05	Master thesis discussion
R7	Production employee	IP Huse	Informal meeting	31. March 2017	IP Huse in general
R8	Board leader & CEO	NHO & Sykkylven Stål AS	35 minutes' telephone interview, semi-structured	05. April 2017, 14:10-14:45	Backsourcing and competitive advantage from an independent perspective
R9	Teacher	Haram VGS	1-hour interview, semi-structured	06. April 2017, 10:00-11:00	Backsourcing and competitive advantage from future employee's perspective (apprentices)
R10	Supervisor Production	IP Huse	10 minutes' telephone interview, semi-structured	07. April 2017, 10:20-10:30	The backsourcing process Internal challenges
R11	Project Sourcing Manager	Rolls Royce: Deck Machinery Offshore & Motion Control	30 minutes' interview, semi-structured	19. April 2017, 10:15-10:45	Backsourcing and competitive advantage from a partner's perspective

Table 3: Overview of the Interviews

Interview-guide

Another important preliminary work before conducting the interviews is to analyze the research problem and sub-questions in order to understand what information is needed from the interviews. Based on the research problem and sub-questions, I developed an interview guide. The interview guide was divided into four parts, namely the drivers for backsourcing, the backsourcing process, internal challenges related to backsourcing, and backsourcing and competitive advantage. These four parts are based on the summarizing model in chapter 2.6 and the following sub-questions that were stated in chapter 1;

1. What are the drivers for backsourcing activities from abroad?
1. What are the steps companies go through when backsourcing activities from abroad?
2. What internal challenges have occurred as a result of the backsourcing process?
3. What consequences does the decision to backsource have for the company's competitive advantage?

An example of the interview guide is depicted in Table 4. The initial interview with the Manager Project Department in IP Huse contained all of the four topics in the table, as well as the opening and closing questions. The purpose of doing this was to gain some underlying understanding of the four topics and to test the interview guide in relation to the proposed research problem and sub-questions. After this interview, the interview guide was further developed and adapted to each of the different respondents. The interview guide followed the overall topics stated in the table below, but some of the interviews contained additional questions that was adapted to the role and knowledge of the respondent. For instance, when interviewing an end-customer of IP Huse, it was relevant to ask "To what extent will proximity to suppliers affect your choice of supplier?" while this question would not be relevant for the teacher representing apprentices. Thus, the questions were adapted to the role and knowledge of the respondent.

Interview guide
General questions
1. Can you give a brief presentation of yourself and your position? 2. Can you describe the company's vision, goal and size?
Drivers for outsourcing and backsourcing
1. Can you tell me about the circumstances related to IP Huse's outsourcing? 2. Can you tell me about the circumstances related to IP Huse's backsourcing? 2.1 What was the background and drivers for backsourcing? 2.2 What products have been backsourced?
The backsourcing process
1. Can you describe the process of moving production back in-house? 2. Can you mention some critical success factors related to the process of moving production back in-house?
Internal challenges related to the backsourcing
1. Were there any internal challenges that occurred during the backsourcing process? 2. How did you re-integrate or re-build knowledge related to the backsourced products?
Backsourcing and IP Huse's competitive advantage
1. What is, according to your experience, IP Huse's competitive advantage(s)? 2. According to your experience, to what extent will IP Huse's decision to backsource parts of their production affect their competitive advantage and position in the market?
Closing questions
1. Is there anything else you want to add that we haven't been through already?

Table 4: Example of an Interview Guide

3.2.2 Direct observations

Direct observations were, in addition to the interviews, a source of evidence in this study. These observations included an informal meeting with an employee from IP Huse and observations on IP Huse's site. The informal meeting with a production-employee was done to confirm, or disconfirm, the information provided by the respondents regarding work environment, management, and the backsourcing process. The informal meeting confirmed the information provided by the respondents, which further increased the validity of some of the interviews. In addition, two guided tours with the Manager Project Department was done during the company visits. The tours allowed the researcher to observe the work environment, the products, and the production site. Seeing some of the backsourced products and production equipment, for instance, was important in order to understand the drivers for backsourcing.

3.2.3 Documents (secondary data)

Secondary data is information collected by others for a different purpose (Ghauri & Grønhaug, 2010). This includes books, journal articles, websites, catalogues and so on (Ghauri & Grønhaug, 2010). In this study, secondary data sources such as newspapers, websites, and journal articles were used in a preliminary study of the backsourcing-phenomenon. A search on the databases Oria and Google Scholar, for instance, gave an indication of the breadth of the chosen topic. In addition, available journal articles regarding the topic helped specifying and concretizing the research problem and sub-questions. Journal articles was also used as a theoretical framework for the thesis' interview guide. Moreover, the secondary data was also used to compare the results from the interviews.

3.3 Data reduction

As this is a qualitative study with 11 interviews, a data reduction was necessary in order to reduce the collected data. Data reduction refers to *'...the process of selecting, focusing, simplifying, abstracting, and transforming the data that appear in written-up field notes or transcriptions*' (Miles & Huberman, 1994, p. 10). The data reduction can be done through summaries, coding, memos etc. and is a method that sharpens, sorts, focuses, discards, and organizes data in such a way that conclusions can be drawn and verified (Miles & Huberman, 1994). The data can then be displayed through matrices, graphs, charts, or networks. All of which are designed to assemble organized, compressed information that permits conclusions

to be drawn and verified (Miles & Huberman, 1994). This is a very helpful tool when dealing with qualitative data as it helps sorting and identifying important information. Displays are therefore frequently applied in the analysis in Chapter 5.

3.4 Validity and reliability

Before analyzing the findings, it is important to test the validity and reliability of the study. This chapter assess the internal validity, external validity, and the reliability of this thesis.

Internal validity, or credibility, involves evaluating whether the results of the qualitative study are credible (Guba, 1981; Lincoln & Guba, 1985). One way to secure the credibility of this study was to include respondents who have experience regarding the topic or phenomenon of interest. In this thesis, there were 4 respondents representing IP Huse. These respondents had approximately 9, 20, 40 and 60 years of experience in the company. Furthermore, all of the respondents have key positions in the company, either as an owner, a management position, or through a supervisory position, and all of which were, at some point, involved in the backsourcing process. Based on the respondents' knowledge, experience, position in the company, and role in the backsourcing process, the credibility of these respondents should be sufficient. Moreover, 4 external respondents were interviewed with regards to IP Huse's competitive advantage. All of these respondents had sufficient knowledge regarding IP Huse and their competitive advantage(s), either as a partner or customer, a representative of apprentices (and former employee), or as an independent respondent. These respondents constitute four different perspectives of IP Huse and their competitive advantage. These respondents have long experience and insights into the maritime industry, which should strengthen the credibility of their responses.

Moreover, this thesis used triangulation as a method to validate the findings from the study by checking and rechecking the data by comparing the findings from the respondents with other data sources, such as journal articles, newspapers, and observations (Golafshani, 2003; Miles & Huberman, 1994). As previously mentioned is one of the unique strengths of case studies that it can incorporate several different types of evidence, such as observations, interviews, documents, and artifacts (Yin, 2012). The aim of using triangulation sources is that they have different biases and strengths so they can complement each other, thus the researcher can

check the consistency of the findings by looking at the issue from different angles (Lee & Lings, 2013; Miles & Huberman, 1994; Yin, 2012). This triangulation was especially important when dealing with the drivers for backsourcing, the backsourcing process, and the internal challenges. For instance, when identifying the drivers for backsourcing, the respondents' answers were compared with findings from previous journal articles, and a newspaper-article where the company had been given the same question. In addition, the question was stated to the Vice President – Technology and Development in Farstad Shipping ASA, who has over 15 years of experience in the maritime industry, who confirmed these findings. Thus increasing my confidence regarding the drivers.

External validity, or transferability, refers to the degree to which the results of the study can be generalized, or transferred, to other contexts or situations (Ghauri & Grønhaug, 2010; Guba, 1981; Lincoln & Guba, 1985). Qualitative studies, in particular single-case studies, generally have a low degree of transferability as these studies are more context-dependent (Guba, 1981; Yin, 2012). Thus, as this is a single-case study that is limited to a certain industry, there is a small basis for transferring the findings to a larger population. Moreover, as there is no available research regarding the research question, this study is perceived as an initial study within the chosen topic. However, to increase the transferability of the study, a thorough description of the context, participants, and research design was provided so that the readers can make their own determinations about the study's transferability.

Reliability, or dependability, is concerned with the consistency of the findings (Lincoln & Guba, 1985). To secure the dependability of this study, I have conducted all interviews and written all transcripts and memos, and the findings were supplemented with observations, as discussed in previously. The theoretical background for this thesis is summarized in Table 2 and the interview guide is presented in Table 4. Thus, it is possible for others to repeat the researcher's procedures.

4 About the case company

This chapter present the case company, its history, products, and markets. The chapter also present the case company's supply network and the background for their outsourcing and backsourcing.

4.1 IP Huse's history from 1882 - 2017

The Huse-family is the founding family of IP Huse and has a long and rich family history, dating all the way back to the 1880s when the Huse-family started with fishery and agriculture at Harøy (Rørhus, 2013). In the 1920s, the family founded a fish meal factory that gradually evolved into a mechanical workshop for the herring oil industry (IPHuse, u.d.-c; Rørhus, 2010).

In 1941, Hydraulik Brattvaag was founded. The company was established in close collaboration with the Huse-family (IPHuse, u.d.-c). This was the start of a new and prosperous partnership. Although Brattvaag Hydraulik has changed owners several times during the last decades, the partnership is still active. Hydraulik Brattvaag is now known as Rolls Royce Marine.

Throughout the 60s IP Huse delivered a number of large winches to trawlers. However, in 1970, IP Huse was forced to take a gamble on a new product in order to survive, going from trawler winches to anchor handling winches (IPHuse, u.d.-c). The gamble paid off and it did not take long before IP Huse became a world leader in the production of anchor handling winches for supply vessels (IPHuse, u.d.-c; Rørhus, 2013).

Over the years, IP Huse has strengthened its role as a world leader in designing and building large winches, and in 2002 IP Huse was awarded "Company of the year 2001" for the region of Møre & Romsdal (IPHuse, u.d.-c). Furthermore, in 2009 the company delivered the world's strongest anchor handling winch with a bollard pull of more than 340 tons to the world's strongest anchor handling vessel (IPHuse, u.d.-c). Today, the company has a unique position in the market and the partnership between IP Huse and Rolls Royce Marine has been an important contributor to this position as it enables the companies to offer a differentiated product to the market.

"*Together we have different strengths that complement each other in a positive manner, and that enables us to offer a differentiated and amazing product to the market*" (Project Sourcing Manager, R11).

Inge Huse, who represent the 4th generation of the Huse-family, is the owner and CEO of the company today. At the age of 24, Inge Huse gradually took over the managing role of the company after his father (Rørhus, 2010). He is now close to 80 years old and has been the owner and manager of IP Huse for over 50 years (Rørhus, 2010). Throughout this period, Inge Huse has been a charismatic and unifying leader that has created a safe and healthy work environment for his employees (R7; R8; R9). His genuine care and appreciation for his employees has created a unique culture in the company and a very loyal workforce (R9).

Inge Huse's vision for the company is not to become rich, but to survive. This means always planning ahead and investing in the best equipment (Rørhus, 2013). Inge believes that "*…gold is the only standard to measure by, as he firmly believes being best is a necessity for his factory to survive*" (Rørhus, 2010, p. 156). A glance at the company's history indicates that Inge Huse's philosophy and management has been a success. During the last 10 years the company has had an annual turnover of approximately 500-600 million NOK, with the exception of 2008-2010 when they had about 1 – 1.2 billion NOK in annual turnover (R2). In 2008, Inge Huse was appointed as a Knight, First Class by the Order of Saint Olav for his efforts to develop the industry in rural Norway (Rosbach, 2017).

4.2 Organization, products and markets

The philosophy of IP Huse is to be the best in a limited market. Inge Huse believes that "*...in order to make money, you have to do something that is technologically advanced and you have to have a high market share*" (Owner & CEO, R4). As we can see in the following sections, IP Huse is the market leader in their chosen segments by producing technologically advanced products. We can also see them strive for continuous improvement to maintain this position, as well as innovational thinking is important for the company.

4.2.1 Organization

IP Huse is an engineering and production company with approximately 150 employees (R1). Rolls Royce is responsible for all sales and services for the IP Huse. Figure 6 illustrates IP Huse's value chain. The figure is based on Porter's value chain, however, specific activities rfor IP Huse is integrated in the model. These activities are highlighted in bold writing, while standard activities are in normal writing.

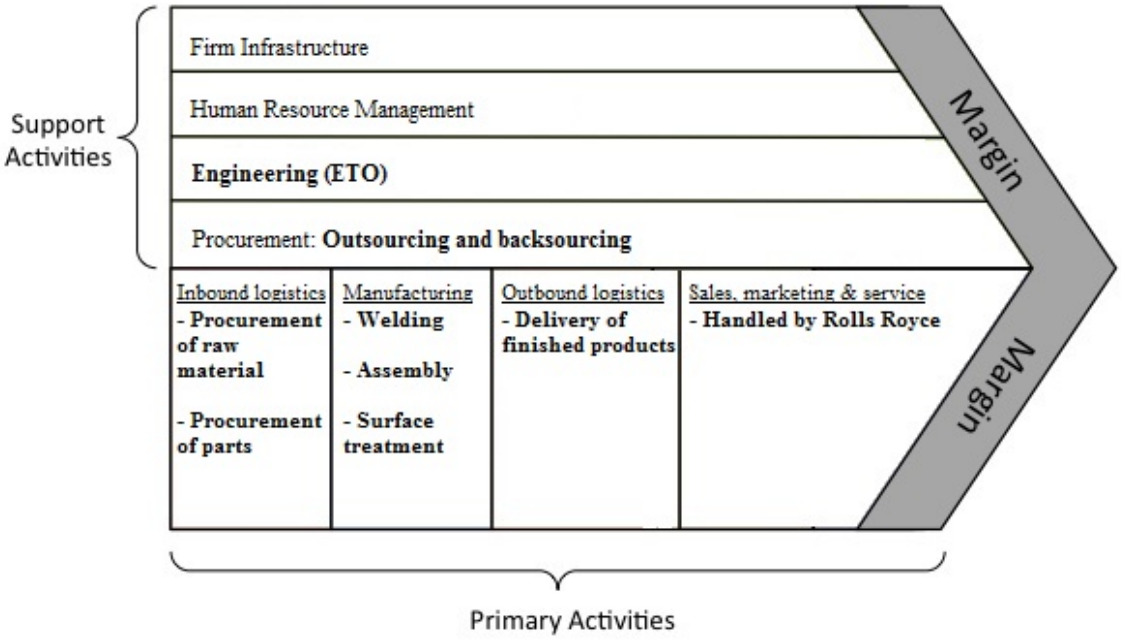

Figure 6: IP Huse's Value Chain

IP Huse's core processes include sales, engineering, procurement and manufacturing (R2). Engineering involves making calculations, sketches and product specifications for the manufacturing and procurement departments. The manufacturing department, or production, uses the sketches from the engineering department to produce the physical product, while the procurement department uses the sketches to purchase raw material for the production department and, if needed, potentially outsource parts of the production to external vendors (R2; R6).

Engineering and manufacturing are the largest departments in the company, holding approximately 100 employees in this workshop (R6). Table 5 depicts the total capacity in these departments in 2016 (IPHuse, 2016).

Capacity	
Engineering department	14
Machine workshop	26
Assembly workshop	18
Surface treatment	6
Welding workshop	40

Table 5: Overview of Capacity in the Engineering and Manufacturing Departments (IPHuse, 2016)

4.2.2 Products

IP Huse follows an engineer-to-order (ETO) strategy, meaning that their production is customer order-driven (Olhager, 2012). This is a natural supply chain strategy for the company, as the lead-time for their products can range between 12-24 months (R2). IP Huse has modularized their products, which makes it easier for the engineering and manufacturing departments to design and produce the parts/products (R2). Furthermore, the modules allow IP Huse to customize their products according to customer preferences (R2).

IP Huse operates within two product areas: Exploration & Production (E&P) and Supply & Service (S&S), as illustrated in Figure 7.

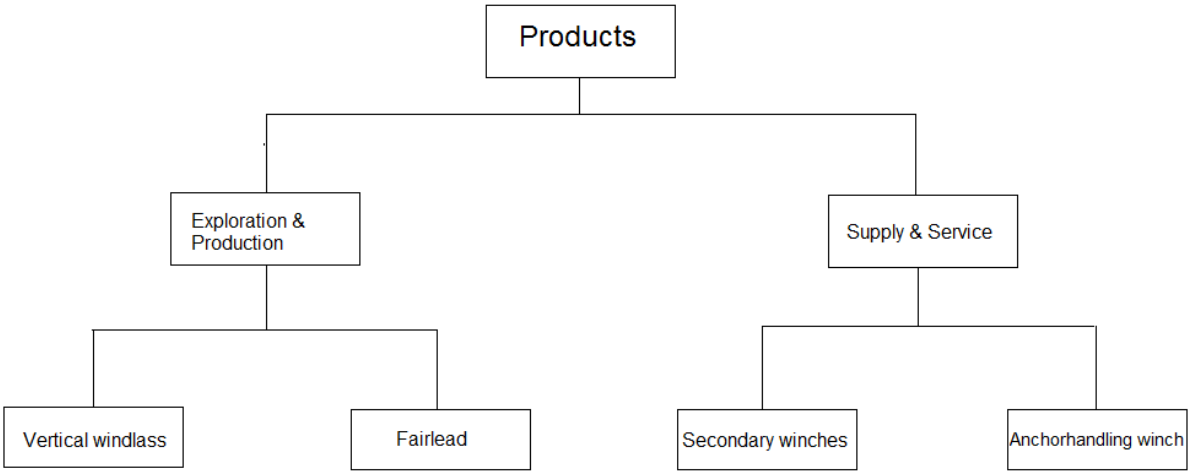

Figure 7: IP Huse's Products

The Exploration & Production-category is mainly related to the exploration and recovery of oil/gas, while the Supply & Service-category is mainly related to anchor handling and supply (IPHuse, u.d.-d). Products within the E&P-category are supplied to FPSO's, spar buoys, installation vessels, cable layers etc. while products within S&S are supplied to towing vessels, anchor handlers etc. (IPHuse, u.d.-a, u.d.-g). Figure 8 depicts some of the products IP Huse produce. These products are further described in Appendix 1.

Figure 8: Some of IP Huse's Products

4.2.3 Markets

IP Huse operates in the offshore market, where the company is a world leading supplier of equipment. The firm's customers are mainly yards, ship owners and oil companies (IPHuse, u.d.-b). In the market for big winches to anchor handling vessels, IP Huse has a market share of 95%. In addition, in the market for mooring equipment for rigs, IP Huse has a market share of 65-66% of the world market (R1; R2).

In 2009, IP Huse delivered the world's strongest anchor handling winch to the most powerful offshore vessel in the world at that point (IPHuse, u.d.-c). The ship is owned by Farstad Shipping and is named Far Samson. Figure 9 shows some of the many vessels IP Huse has delivered maritime equipment to during the last decades. IP Huse has delivered mainly drums and winches to the vessels below.

Figure 9: Vessels IP Huse has Delivered Equipment to

IP Huse is, in response to the recession in the offshore market, trying to find new markets to operate in. According to Inge Huse is IP Huse now working to access the market for hydropower by producing hydropower valves. The new product has similar requirements with welding certifications, materials and tracing as winches, thus allowing IP Huse to benefit from their existing knowledge regarding engineering and manufacturing as well as they can use their existing machine park. Nonetheless, the new market requires substantial investments in new equipment and is difficult to produce. Inge Huse embraces the risk and complexity of the new product as it may prevent competitors from entering the market for hydropower. He believes that although the product is not profitable today, it may become very profitable in the long-run.

4.3 Supply network

Based on IP Huse's organization, products and markets, a supply network for the company can be presented, see Figure 10.

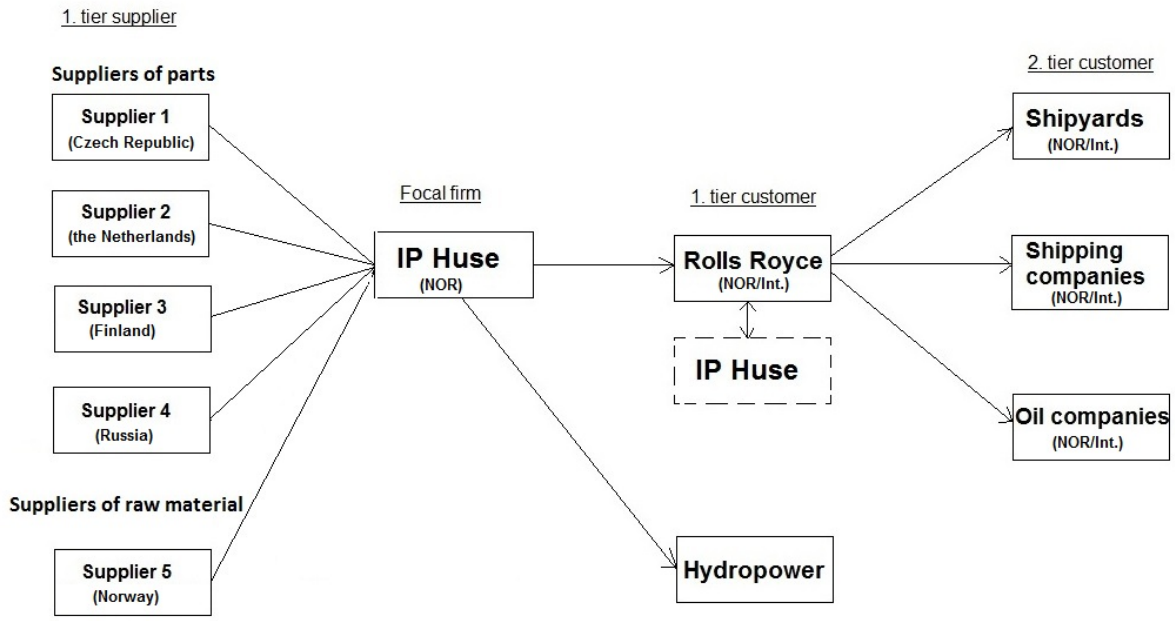

Figure 10: Supply Network for IP Huse

According to the figure above, 1.tier suppliers can be divided into two main groups: (1) Suppliers of raw material and (2) Suppliers of parts. Some of these suppliers are Norwegian, while others are from Russia, Czech Republic, Finland, and the Netherlands (R2; R6). The suppliers will probably have sub-suppliers, but these are not considered in this supply network, as the focus is on IP Huse.

As previously mentioned are IP Huse and Rolls Royce cooperating. Rolls Royce responsible for sales and services while IP Huse is responsible for engineering and production. Based on this, IP Huse will have two different relationships with Rolls Royce. In the first relationship, IP Huse is perceived purely as a supplier of products to Rolls Royce and is treated as any other supplier of Rolls Royce (R11). The second relationship is a partnership between the two parties, also referred to as "*back-to-back partners*" (R11), where both parties are active in the collaboration and dialogue with the end-costumer. IP Huse is therefore equated with Rolls Royce under the 1.tier customer. Figure 11 also displays the new market for IP Huse, namely hydropower. This market is not included in the cooperation-agreement with Rolls Royce, meaning that Rolls Royce is not a customer, or partner, of IP Huse in this market (R4; R6).

IP Huse mainly delivers equipment to shipyards, shipping companies, and oil companies, as mentioned previously. These customers are either Norwegian or international companies. As

Rolls Royce handles all sales, these customers become 2.tier customers for IP Huse, as shown in Figure 10.

4.4 Sourcing

Based on the previous chapters, an understanding of IP Huse's history, products and market, and supply network is established and we can continue to immerse in the company by looking at their background and main drivers for outsourcing and backsourcing production.

4.4.1 Background for outsourcing

In 2007-2010, the offshore-market was in a period of recovery. For IP Huse, this meant a period of many incoming orders from customers. To handle all incoming orders and to maintain their market share, IP Huse decided to outsource parts of their production (R4; R5). The decision to outsource production to external vendors in Norway and Eastern Europe allowed the company to significantly increase their capacity without increasing their in-house workforce. As the company wants to have a capacity that can handle both times of recovery and recession, outsourcing parts of the production became a natural strategic choice for the company in this period (R2).

Outsourcing parts of the production is, however, not completely new for the company. IP Huse has several times outsourced products or parts that is not suitable for the company. Products that have a high degree of manual work, such as gear milling, is not profitable to produce in Norway due to the high hourly wages. As a consequent, such products are outsourced to external vendors, preferably in Eastern Europe where the hourly wages are lower. Additionally, products that occupy large surfaces, such as smaller frames (see Appendix 1 Picture no. 3), or products that are difficult to mechanize are also outsourced to external vendors (R2; R5).

4.4.2 Background for backsourcing

In contrast to the recovery in 2007-2010, IP Huse faces a completely different situation today; the offshore-market is in a deep recession, the order income is low, and the company has less work. As a consequence, IP Huse decided to start backsource products from external vendors in order to increase the in-house production, thus avoiding layoffs (R2; R4).

However, changes in demand and free in-house capacity are not the only reasons for backsourcing production. For instance, when the market calmed down, IP Huse found that several of their outsourced products had become much more expensive than anticipated and many of the outsourced products had little development in terms of design, optimization and production methods. In addition, new technology allowed the firm to mechanize and robotize parts of their production, which ultimately reduced their hourly wages and increased their in-house capacity. Thereby the company was able to produce products that previously required a high degree of manual work, in-house.

All the drivers for backsourcing described by the Owner & CEO, the Manager Project Department, and the Manager Production Department in listed below:

- Free capacity
- Changes in demand
- Investments in new equipment and robotics
- Higher costs than expected
- Innovation
- Little development of the outsourced product
- Currency fluctuations
- Better quality

4.4.3 Drivers for outsourcing and backsourcing

Based on the two previous chapters, drivers for outsourcing and backsourcing can be linked to specific products or parts that IP Huse has outsourced and backsourced during the last decades, see Table 6. As previously mentioned, are the main drivers for both outsourcing and backsourcing changes in demand and capacity, as the table illustrates. Furthermore, as one might expect, cost-considerations is a natural driver for both outsourcing and backsourcing, as depicted in the table. The drivers for backsourcing is reflected in the drivers listed in the previous chapter. See Appendix 1 for images of some of the outsourced and backsourced products, including secondary winches, frames, spooling gear, and guide rollers.

Countries	Products	Drivers for outsourcing	Drivers for backsourcing
Russia	Steel parts for smaller winches	- Capacity	- Currency fluctuations - Monitoring costs - Changes in ownership structure - Changes in demand
Netherlands	Gear milling	- Capacity - High degree of manual work	- New production equipment
Finland	Secondary winches (*Appendix 1 Picture no. 8*)	- Size	- Available capacity - High freight costs
Norway	Smaller frames (*Appendix 1 Picture no. 3*)	- Size	- Available capacity
Czech Republic	Spooling gear (*Appendix 1 Picture no. 1, 4 and 9*)	- Capacity - Lower hourly rates	- Available capacity - Room for improvement in terms of design
Czech Republic	Guide rollers for chains (*Appendix 1 Picture no. 7*)	- Capacity - Lower hourly rates	- Available capacity - Potential product for robotics in the future

Table 6: Drivers for Outsourcing and Backsourcing

4.5 Summary

Throughout this introductory chapter of the case company, we have seen how IP Huse has evolved from a fish meal factory to become a world leading supplier of winches and mooring equipment. The company's vision and mindset is "*not to become rich, but to survive*" (CEO & Owner, R4), and is reflected in everything they do. Planning and investing in the future is essential for the company. Their profits first and foremost go into the investment of new equipment because they believe that in order to be the best, they have to have the best equipment.

The outsourcing of production during the recovery in 2007-2010 was a necessity in order to maintain their market share. Today, the company faces a completely different situation. The decision to backsource production is a consequence of the recession in the offshore market. However, backsourcing also provides great opportunities for the company to, for instance, improve production methods and re-design products.

IP Huse has backsourced several products including secondary winches, frames, and spooling gear, but how do they do this in practice? Are there any internal challenges related to the re-integration of products? These questions will be elaborated in the following chapter based on

interviews with employees from different departments and levels in the focal firm. The drivers for backsourcing will be further discussed in the following chapter, although they are already listed in Chapter 4.4.2 and 4.4.3. In addition, as previously discussed in this chapter, is it important for IP Huse to maintain their position as a market leader in their chosen segments. It is therefore interesting to see whether the decision to backsource will have a positive effect on their competitive advantage. Based on interviews from customers, a partner, an independent organization and a representative for apprentices, this question will be analyzed and discussed in the following chapters.

5 Data analysis

This chapter analyses the findings from the interviews in relation to the research question stated in Chapter 1, "*How do companies conduct the backsourcing process and what internal consequences does this decision have for a company?"*. In order to answer the research question were 4 sub-questions stated. This chapter is based on these sub-questions, thus divided into 4 different parts. The ID-codes used in this chapters, for instance R1 or R2, represents the identity of the respondents, which was presented in Table 3, Chapter 3.

5.1 Drivers for backsourcing

In this section, I will try to answer the question *"What are the drivers for backsourcing activities from abroad?"*. The drivers for backsourcing is the first step in developing a comprehensive understanding of the backsourcing process. The drivers represent the key motivations for backsourcing; without any drivers, the backsourcing simply would not take place. Therefore, it is necessary to analyze and describe the drivers for backsourcing before going into the process. IP Huse's drivers for backsourcing was briefly described in Chapter 4, however, this chapter presents a more comprehensive description of the IP Huse's drivers based information retrieved from the interviews. The identified drivers are then compared to the theoretical framework presented in Chapter 2.

5.1.1 Display of IP Huse's drivers for backsourcing

During the recovery in 2007-2010, IP Huse was forced to outsource parts of their production in order to maintain their market share. The overall purpose of the outsourcing was to increase their capacity that, in turn, enabled the firm to handle all inbound orders from customers. When the market declined, IP Huse's order income was reduced which resulted in less work for the company. As a consequence, IP Huse decided to start backsource products from external vendors in order to increase the in-house production and avoid layoffs. Table 7 displays a mixture of summary phrases and direct quotes from the interviews related to drivers for backsourcing. The drivers are presented based on how frequently they were mentioned by the respondents. The table also presents an overall adequacy judgement by the researcher that range from absent to sketchy, basic, adequate, present, and strong, which is based on Miles & Huberman (1994). The drivers identified in Table 7 will further analyzed in the following sections.

Display of drivers for backsourcing based on interviews with IP Huse

High impact drivers

Drivers	Information & quotes from interviews and the researcher's overall adequacy judgement	ID-code (sources)
Free capacity	*Strong* – When the workshop has free capacity, they [IP Huse] backsource production in order to fill their capacity and keep employees occupied, thus avoiding layoffs. They [IP Huse] also continuously strive to increase in-house capacity through innovation and new equipment. ("We made some effort in the production… and simplified the production process, thus increasing the capacity")	R2, R4, R5, R6
Investments in new equipment and robotics	*Strong* – Investment in new equipment and robotics reduces costs and increases productivity, thus allowing the company to backsource products that can be mechanized or robotized. ("When the company [IP Huse] is going to take home production, they are dependent on a technology change"; "In order to match external vendors' prices, you have to robotize")	R2, R4, R6
Higher costs than expected	*Strong* – Some of the products that were outsourced turned out to become much more expensive than expected. Due to the high costs, the products were not sufficient to outsource, and the company decided to backsource these products. ("During the recovery, IP Huse purchased from external suppliers without any though of what it may cost … When the market stabilized, we got a better overview over the costs of outsourcing."; "We also experienced that the price of parts from Russia rose disproportionately in price. So there was a rise in prices there that was impossible to slow down"; "…Especially larger products, for instance secondary winches, had high freight costs")	R2, R4, R6
Innovation	*Present* – Closeness to the different departments in a company is important when developing new products and innovating. Due to the collapse in the offshore-market, the company had to innovate and enter new markets in order to survive. Backsourcing was therefore a strategic choice that could increase their innovation power. ("As IP Huse is in the process of entering a new market … They [IP Huse] can exploit their existing knowledge and machines ... When you produce at home, the different departments have a close dialogue and get a clear understanding of the manufacturing process and product materials. This is an effective loop that you lose when you outsource")	R4, R8, R9
Changes in demand	*Strong* – Due to a collapse in the offshore-market, backsourcing products was a necessary response to the collapse in demand, and to avoid layoffs in the company. ("The backsourcing that has been done in the recent years is the result of a collapse in the market and has been a necessity"; "The market for smaller winches almost completely disappeared"; "…Our market fluctuates in terms of demand of products - we want to have a capacity that can handle both times of recovery and recession")	R2, R4

Moderate to low impact drivers

Drivers	Information & quotes from interviews and the researcher's overall adequacy judgement	ID-code (sources)
Little development of the outsourced product	*Present* – Some of the products that were outsourced had no or little development. The company saw potential for optimizing and improve these products and decided to backsource these products. ("We clearly saw that the products that had been outsourced for many years had no development in terms of optimization, design and production method. … Then we started backsourcing products that we saw had improvement-potential.")	R2, R6
Currency fluctuations	*Basic* – Changes in currency was an uncertainty that contributed to the backsourcing of some products. ("Fluctuations in the exchange rate also occurred, for example, the NOK strengthened a great deal against the euro in that period … If you produce in-house, you are not exposed to the risk of currency fluctuations")	R2
Better quality	*Basic* – It was expected by one of the respondent that the quality of their products would increase when produced in-house. ("I am certain that IP Huse has better quality and control on their products when they are produced in-house")	R5
Country of Origin-effect	*Basic* – According to IP Huse's partner is the country of origin (CoO) very important for some customers, and sometimes the customers require that the product is produced in Norway as this indicates high-quality products. Thus, the CoO-effect is perceived as a driver for backsourcing. ("… Then there are some customers that we [IP Huse and Rolls Royce] have in common who says that quality from Norway is very important. They want the winches produced by IP Huse to be produced in Norway. Sometimes they set this as a requirement as well".)	R11

Table 7: Display of Drivers for Backsourcing

5.1.2 Analysis of IP Huse's drivers

The identified high impact drivers are: free capacity, investment in new equipment and robotics, higher than expected costs, innovation, and changes in demand, respectively. These drivers are categorized as "Strong" or "Present" by the researcher as they are perceived as the overall drivers and motivations for IP Huse's backsourcing. The moderate to low impact drivers are: little development of the outsourced product, currency fluctuations, better quality, and country of origin-effect, respectively. These drivers are categorized as "Basic" or "Present" as they seem to be more or less dependent on the characteristics of the product being backsourced. The identified drivers will be further described and analyzed in the following sections.

Free capacity is perceived as a strong driver for backsourcing. The company's capacity is affected by two main drivers: (1) changes in demand and (2) more efficient production equipment. When the demand in the offshore-market declined, backsourcing was a necessary strategic choice for the company. Through backsourcing, the company increased their in-house work and thus avoiding layoffs. Cost-considerations are central in this manner. If the company were to purchase from external suppliers while having available in-house capacity, the company must pay wages not only to its own workers, but also to the external supplier's workers, thus the costs would increase significantly. (2) The company's recent improvement of production equipment created a more efficient production that, in turn, increased their in-house capacity. This driver will be further analyzed in the next section. According to Veltri et al. (2008) can free capacity caused by new production equipment be perceived as an internally generated opportunity, while free capacity caused by changes in demand can be perceived as externally generated. In addition, Fratocchi et al. (2016) identified "Untapped production capacity at home" as an important driver, whereas Wiesmann et al. (2017) identified "Changes in the global economy" and "Increased degree of automation in the home country" as drivers for reshoring, which further supports the identified driver. Thus, "Free capacity" is perceived as consistent with existing theory.

Investments in new equipment and robotics is another strong driver for backsourcing and is, as previously mentioned, closely related to the previous driver, *free capacity.* New production equipment and robotics allows the company to engage in more efficient production, thus increasing their in-house capacity. Access to new technology such as robotics is of significant importance in a high-cost country such as Norway. Robotics allows the company to reduce production costs while at the same time increasing the efficiency and capacity. This, in turn, allows the company to take home products that, for instance, previously was outsourced due to a high degree of manual work, such as gear milling (see Table 6). According to Veltri et al. (2008) can this driver be perceived as an internally generated opportunity. Furthermore, Fratocchi et al. (2016) identified "Implementation of strategies based on product/process innovation" as an important driver, which is consistent with the identified driver. In addition, Wiesmann et al. (2017) identified "increased degree of automation" in the home country as a driver for reshoring, which further supports the validity of this driver.

Higher costs than expected is identified as an important driver for 2 of the 6 products displayed in Table 6 (higher costs than expected and high freight costs). When IP Huse outsourced parts of their production, they experienced that some products became more expensive than expected. Particularly larger products, such as secondary winches, became very expensive in terms of freight costs. To reduce the costs, IP Huse decided to backsource these products when they had available in-house capacity. Fratocchi et al. (2016); Veltri et al. (2008); Wiesmann et al. (2017) have similar findings in their studies. Both "high coordination costs" and "over-estimation of cost savings during the offshoring decision" are central drivers in this study, as suggested by Fratocchi et al. (2016); Wiesmann et al. (2017). In addition, the identified driver is consistent with Veltri et al. (2008) findings as it can be categorized as an outsourcing contract problem.

Innovation is another important driver for backsourcing. Due to the high wages in Norway, Norwegian companies have to be the best in the market, which includes continuously improving products and production methods, and developing new products. "*It is of major importance that we are able to restructure, think new innovations and uniqueness so that we can further develop our world-leading production*" (Board leader, R8). Proximity is an important factor when developing new products. Keeping knowledge in-house is essential for further development of products and the creation of new products (R8). These factors constitute the innovational power of a company. According to the Owner & CEO of IP Huse is closeness to the production vital for the development of new products. The identified driver is also consistent with previous research. Fratocchi et al. (2016) identified "Implementation of strategies based on product/process innovation", whereas Wiesmann et al. (2017) identified "Innovation, research, and development suffers due to the distance to manufacturing" as a driver for reshoring, which coincides with the identified driver for IP Huse's backsourcing.

Changes in demand is also categorized as a strong driver for backsourcing. Changes in demand is closely related to free capacity. These two factors are expected to correlate, meaning that when the demand decreases, the company's capacity is expected to increase, and vice versa. Changes in demand is therefore perceived as an important and strong driver for backsourcing. The driver can, following Veltri et al. (2008) categorization, be perceived as an externally generated driver. The driver is further supported by Wiesmann et al. (2017) literature review of reshoring, where "changes in the global economy" is identified as a driver for reshoring. However, Fratocchi et al. (2016) have not identified changes in demand as a

motivational factor for reshoring.

Little development of the outsourced product is categorized as a moderate to low driver. Some of IP Huse's outsourced products had no or little development. The external suppliers mainly followed old sketches. Thus, when the in-house capacity increased, IP Huse decided to backsource these products with the purpose of improving these in terms of design and products methods. Furthermore, due to new technology and production equipment, IP Huse saw that these products could be produced better and cheaper than previously. "Little development of the outsourced product" can be interpreted as an outsourcing contract problem, as the firm lose control over the outsourced product (Veltri et al., 2008). The driver is also consistent with Fratocchi et al. (2016) and Wiesmann et al. (2017) findings.

Currency fluctuations is identified as a moderate to low impact driver for IP Huse. Currency fluctuations creates an uncertainty that is unpredictable in advance and can significantly increase the cost of a product. By producing in-house, IP Huse avoided the exposure of such a currency risk. This can be perceived as a result of an external environmental change (Veltri et al., 2008). The driver also coincides with Fratocchi et al. (2016) and Wiesmann et al. (2017) findings who identified "Total cost of sourcing " and "Instability in exchange rates" as drivers for reshoring, respectively.

Better quality – a representative for IP Huse believes that their products will have better quality when they are produced in-house. By producing in-house, the company has better control over the production activities, capabilities, and product quality. This driver is consistent with Fratocchi et al. (2016) and Wiesmann et al. (2017) findings. Veltri et al. (2008), in comparison, identified "poor service quality" as a driver for IS backsourcing. Since this study focus on the manufacturing industry and Veltri et al. (2008) focus on the IT-industry, the findings are not perfectly consistent. Both industries, however, emphasize quality as an important driver for backsourcing, but from different industry/product perspectives.

County of Origin-effect is also perceived as a driver for backsourcing. According to IP Huse's partner does some customers require that the product is produced in Norway. This driver may be an important driver for backsourcing, although the driver is only mentioned briefly by one representative from IP Huse. The driver is therefore not perceived as a high impact driver, but

it may be classified as an underlying driver. The CoO-effect is highlighted both in Fratocchi et al. (2016) and Wiesmann et al. (2017) studies, while in Veltri et al. (2008) the CoO-effect is not relevant. This indicates that this driver is product- or industry-dependent, meaning that the country of origin has a significant impact on customer's preferences when purchasing products, while it has no or little impact when purchasing services.

5.1.4 Final comments

The identified drivers in Table 7 seems to be consistent with previous research. The high impact drivers are internally and externally generated opportunities that are perceived as triggering causes for backsourcing, such as "higher than expected costs", which seems to be more or less universal. The moderate to low impact drivers are, in comparison, more product- or context-specific. For instance, the CoO-effect is perceived to be very product- or industry-dependent.

It is worth highlighting that the drivers mentioned by the external respondents were included in this analysis. Although these respondents do not represent IP Huse, they do represent the maritime cluster in Møre & Romsdal, and their opinions are perceived as representative for the cluster and those companies included in the cluster, which includes IP Huse.

It is also worth highlighting that the interviews revealed other drivers in addition to those displayed in this paper. As this is a qualitative study that is rich with information from 11 different interviews, a data reduction has been done in order to sharpen and highlight the most important drivers in this case, as discussed in Chapter 3. The drivers outlined in this chapter are therefore interpreted by the researcher as the most important drivers for IP Huse's backsourcing based on the interviews.

5.2 The backsourcing process

I will try in this section to answer the question *"What are steps companies go through when backsourcing activities from abroad?"*. As there is no available theoretical framework to follow for the backsourcing process, this analysis is built on Lacity and Willcocks (2000) model of IT outsourcing. Although outsourcing and backsourcing are two different processes, one might expect that they follow somewhat similar principles. In order to develop a stepwise model for backsourcing products, the thesis follows Solli-Sæther and Gottschalk (2010) systematic way of developing stage models as a theoretical foundation, as described in Chapter 2.

This chapter is based on interviews with employees representing 3 different levels of the firm; from the Owner & CEO to managers to supervisors. All respondents have, at some point, been involved in the backsourcing process. Based on the interviews, 4 phases for backsourcing was identified; each composed of different objectives and activities. In the following sections, the overall objective and activities for each of the different phases are described.

5.2.1 Phase 1 – The Initial Phase

Phase 1 is the initial phase of the backsourcing process. The 3 main activities in this phase are: (1) to create an overall plan for the capacity utilization in the company, (2) to coordinate and delegate orders, (3) and to decide whether to outsource or insource part/products. This phase creates the foundation for any further consideration and analysis regarding backsourcing.

Table 8 displays information from interviews with representatives for IP Huse.

Phase	ID-code	Activities	Objective(s)
Phase 1	R2, R6	*Create an overall plan* - The managers develop an overall plan for their [IP Huse] long-term capacity utilization based on existing and expected orders in the future. This plan may extend for several years ahead.	Initial sourcing decision – outsourcing or insourcing?
	R2	*Coordinate and delegate orders* - The sales department coordinates the incoming orders with regards to delivery times so that the load in all departments are evenly distributed.	
	R2, R6	*Decide whether to outsource or insource* - Based on the long-term plan, the management decides whether there is room for backsourcing or if they have to proceed with the outsourcing.	

Table 8: Display of Phase 1 in the Backsourcing Process

According to Table 8, the management develops a long-term plan for the company based on existing and anticipated incoming orders for several years ahead. In order to balance the company's orders, the sales department tries to coordinate and distribute the customer orders to even out the load in the different departments. The outcome of these activities indicates whether there is any foundation for backsourcing products from external vendors based on drivers such as free capacity, changes in demand, or other drivers displayed in Table 7.

5.2.2 Phase 2 – The Scoping Phase

If the company decides to backsource based on the findings in Phase 1, the management proceeds with an assessment of potential products to be backsourced. The major activities during this phase include:

- Identify potential products for backsourcing
- Conduct a product evaluation-meeting
- Decide what product(s) to be backsourced and terminate contract with the external vendor.

Table 9 displays information from interviews with representatives for IP Huse regarding Phase 2 of the backsourcing process.

Phase	ID-code	Activities	Objective(s)
Phase 2	R4, R10	*Identify potential products for backsourcing* - If the departments have free capacity, the management start to identifying potential products to backsource. Cost analysis are carried out.	Decide what products should be backsourced & terminate contract with supplier(s)
		Product evaluation-meeting - The managers from the project-, construction-, production-, and welding-department holds an evaluation meeting. Product drawings are carefully evaluated in this meeting with the purpose of identifying products or production methods that can be improved (thus reducing costs to an acceptable level). The products are critically evaluated in terms of their machine-park and existing equipment/machines.	
	R6	*Decide what product(s) to be backsourced & contract termination* - Based on the findings in this process, the management decides what product(s) should be backsourced and the contract with the external supplier is terminated.	

Table 9: Display of Phase 2 in the Backsourcing Process

The objective in this phase is to decide what products should be backsourced and terminate the contract with the external supplier. This decision depends on several activities:

Cost analysis - When IP Huse considers backsourcing, they start by calculating costs related to the product. This analysis gives an indication of what the costs of producing the product in-house should be in order for the backsourcing to be a profitable choice.

Evaluate products in terms of design and production methods - Based on the cost analysis, managers from the project-, construction-, production-, and welding-department arrange an product evaluation meeting where they evaluate the potential product(s) in terms of design and production method in order to reduce costs equivalent to the external supplier's price. This often involves investing in new equipment or re-designing existing machines to fit the new product. For instance, *"...the hourly rate for hand welding in the Czech Republic is much lower than the hourly rate in Norway. To match this price, we have to have robot welding*" (Owner & CEO, R4).

Decide what products are to be backsourcing and terminate outsourcing contract - Based on the findings in this phase, the management makes a decision regarding which product(s) should be backsourced to their production site and terminate the contract with the external supplier(s). This decision depends on product-specific drivers such as little development of the outsourced products, high freight costs, or made in-effect. The decision also depends on both external and internal drivers, as well as different weighting of these drivers, as listed in Table 7.

5.2.3 Phase 3 – the re-integration phase

After the decision to backsource has been made, there are several activities that must be performed in order to prepare both the employees and the production site for the new product. This include the following activities:

- Gather a team responsible for the re-integration of the product
- Develop a plan for re-integrating the product
- Re-build knowledge related to the product and prepare employees and the production site for the backsourced product
- Start production of the backsourced product.

Table 10 displays information from interviews with representatives for IP Huse regarding Phase 3 of the backsourcing process.

Phase	ID-code	Activities	Objective(s)
Phase 3	R2	*Establish a team responsible for the backsourced product* - When the decision is made, the management engages a team of selected employees that have the ability to optimize the process of backsourcing and re-integrating the product.	Establish effective production
	R10, R4	*Develop a plan for re-integrating the product* - The team conducts a planning meeting to create a plan for re-integrating the product, and, if necessary, re-design the product or machines to fit in their machine-park. Sometimes the new product requires investment in new machines.	
	R10, R2	*Re-build knowledge and prepare the production site* - If the backsourced product has been outsourced for up to 15-20 years, it is possible that valuable knowledge regarding the product is forgotten or gone [retired]. To cover this knowledge-gap, the team often include employees who has participated in the production of this product previously in the planning-meeting. If the knowledge is gone, the team starts to re-building the knowledge.	
	R10	*Start production* – The backsourced product is produced in-house again.	

Table 10: Display of Phase 3 in the Backsourcing Process

The objective in this phase is to establish effective production of the backsourced product. This depends on several activities:

Establish a team responsible for the backsourced product - A team is established and engaged in the re-integration process of the product. The team consists of selected employees from the manufacturing-, engineering-, and procurement-department. The team is responsible for developing a plan to re-integrate the product and to optimize the re-integration process. Employees with knowledge and ability to optimize and adapt to new products are a scarce resource. The team is, therefore, carefully chosen based on the employees' capabilities, as illustrated in the quote below.

"*People that have the ability to look at things and improve them is a limited resource. Not everyone in a workshop have that ability. Therefore, there is a limit of how many different products that can be backsourced at the same time*" (Manager Project Department, R2).

Develop a plan for re-integrating the product - The team conducts one or several meetings to create a plan for the re-integration of a product. Usually the meetings consist of a project manager, a couple of designers from the engineering department, supervisors from the manufacturing department, and welding engineers. During the meeting, the team critically evaluate the original design of the product and consider how they can adapt the product to their production site and machines. Sometimes the new product requires investment in new machines or a re-design of the product to fit their existing machines.

Re-build knowledge and prepare the production site - An important task when backsourcing products is to re-integrate knowledge and is, according to Nujen et al. (2011), a complex process. It is important that the team identify and understand what types of knowledge needed to be re-integrated in the firm (Nujen et al. 2011). A platform for in-house organizational knowledge should be developed. However, when the product has been outsourced for up to 2 decades, it is possible that valuable knowledge regarding the product is forgotten or employees with explicit knowledge related to the product have retired. The team tries to, if possible, involve employees who has participated in the production of the product previously in the planning-meeting(s) in order to close this knowledge-gap. If the knowledge is gone, the company must re-build the knowledge by following the same principles as when they develop new products.

Another important task in the backsourcing process is to prepare the production site. This preparation is a result of the planning-meeting(s). The preparation may involve re-building existing machines to fit the product, or integrate new machines. The preparation also includes clearing large enough areas for the backsourced product, as some products require large surfaces due to the product-size. Also, employees in the workshop must be prepared for the new tasks.

Start production - The final step in this phase is to start producing the backsourced product in-house. After all the preparation is set, the product is brought back home and set in production. The goal is to establish effective production of the backsourced product.

5.2.4 Phase 4 – The Evaluation Phase

At this phase, the objective is to determine and plan the fate of the backsourced product. The management must decide whether the product is sufficient to produce in-house or if they are better off outsourcing the product. Two activities were apparent in this phase:
- Conduct a project evaluation in terms of what went well and not so good with the product.
- Determine whether the product should be kept in-house or outsourced.

Table 11 displays information from interviews with representatives for IP Huse regarding

Phase 4 of the backsourcing process.

Phase	ID-code	Activities	Objective(s)
Phase 4	R5, R6	*Project evaluation-meeting* - After the backsourced product is produced at their site for the first time, the managers representing construction, production, project and procurement meet for a "project evaluation". At this meeting they evaluate the product and the production process in terms of what went well and bad. Then they plan how they can further improve the product and production process.	Determine and plan the fate of the backsourced product.
	R6, R10	*Decide whether to keep the product in-house or outsource* - A decision is made regarding whether the company want to keep the backsourced product or outsource the product again.	

Table 11: Display of Phase 4 in the Backsourcing Process

The objective in this phase is determine and plan the fate of the backsourced product, which involves two activities:

Project evaluation-meeting - After the backsourced product has been produced in-house for the first time, representatives from the engineering-, manufacturing-, project-, and procurement department meets for a project evaluation. The purpose of this meeting is to evaluate the backsourced product in terms of what went well and not so good with the project, and to consider how they can further improve the product and the production process.

Determine whether to keep the product in-house or outsource - Based on the project evaluation, a decision is made regarding whether the product should be kept in-house or outsourced. This is an assessment case for the project manager. Some backsourced products were successfully re-integrated in the company, while others were not.

"*Some of the products that were outsourced, were outsourced because they were not suitable for us. When you bring such products home, they are still not suitable. This requires some restructuring, and some products are successfully re-integrated and others are not*" (Manager Project Department, R2).

For instance, the company tried to backsource smaller frames from an external supplier in Norway. IP Huse spent a lot of time trying to re-integrate the product, but due to the size of the product, they had to outsource the product again as it required substantial investment in a new welding hall and equipment/machines. The costs required to integrate the product were too high and the management saw no other options than to outsource the product again.

Other backsourced products has been a great success for the company. For instance, the backsourcing of spooling gear from the Czech Republic (Appendix 1 Picture no. 1 and 4) provided the opportunity to improve the design of the product and has been a success. In Appendix 1 Picture no. 9 we can see the product in production at IP Huse's site.

5.2.5 A New Framework

Based on the analysis above, a model of the backsourcing process can be presented. Figure 11 displays the different activities and objectives in each of the identified phases.

	Phase 1 - the initial phase	Phase 2 - the scoping phase	Phase 3 - the re-integration phase	Phase 4 - the evaluation phase
Actitivies:	• Create an overall plan	• Identify potential products for backsourcing	• Establish a team responsible for the backsourced product	• Project evaluation-meeting
	• Coordinate and delevate orders	• Product evaluation-meeting	• Develop a plan for re-integrating the product	• Decide whether to keep the product in-house or outsource
	• Decide whether to outsource or insource	• Decide what product(s) to be backsourced and contract termination	• Re-build knowledge and prepare the production site for the product	
			• Start production	
Objective:	Initial sourcing decision - outsource or insource?	Decide what products should be backsourced and terminate contract with supplier(s)	Establish effective production	Determine and plan the fate of the backsourced product

Figur 11: IP Huse's Backsourcing Process

In the beginning of this chapter, it was a clear expectation from the researcher that the backsourcing process would be a somewhat reversed model of the outsourcing process identified by Lacity and Willcocks (2000). The backsourcing process is, however, not a reverse model of the outsourcing process. Throughout the analysis, we can see that the two models have some similarities, especially in the two initial phases and the final phase. The middle phase is, however, quite different from the outsourcing process. Although both processes focus on establishing operational performance, the difference between backsourcing and outsourcing become significantly evident in this middle phase. The objective in the backsourcing process is to prepare the production site and employees for the re-integration of the product by re-building knowledge and to adapt the machines to the backsourced product. The outsourcing process, in comparison, mainly focuses on establishing a relationship with the external vendor to establish and secure operational performance.

It is worth highlighting that the backsourcing process is dynamic and depend on the context.

When a decision has been made, there are always some factors that are more important than others. For instance, IP Huse's backsourcing during the last five years has been a result of a collapse in the offshore-market, and has been a necessity in order to survive (R4, Owner & CEO).

A fitting end to this chapter is the Owner & CEO's response to what factors are critical in order to have a successful backsourcing process: "*Willingness to restructure, being positive to new tasks – the sum of everything is the ultimate success factor … We learn from our mistakes and do better the next time ... It [the process] is like a wheel – there are no parts that are more important than others, every part is important for the wheel to go around*" (Owner & CEO, R4).

5.3 Internal challenges related to the backsourcing

In this section I will try to answer the question *"What internal challenges have occurred as a result of the backsourcing process?".* Backsourcing is a demanding process that requires extensive planning and preparation, as we can see of the backsourcing process described in chapter 5.2. When backsourcing production, companies must handle organizational adjustments, changing government structures, and develop new knowledge and capacity (Solli-Sæther & Karlsen, 2016). The purpose of this chapter is to identify and analyze internal challenges related to IP Huse's backsourcing.

5.3.1 Display of IP Huse's internal challenges related to the backsourcing process

Although most of IP Huse's backsourced products have been successfully re-integrated in the company, they have experienced some difficulties with the re-integration of products. Table 12 presents different internal challenges that have occurred during IP Huse's backsourcing process. The table displays a mixture of summary phrases and direct quotes. In addition, the cell entries consist of an overall adequacy judgement by the researcher that ranges from absent to sketchy, basic, adequate, present, and strong (Miles & Huberman, 1994). The identified challenges will be further described and analyzed in the following sections.

Internal challenges	Information & quotes from interviews and the researcher's overall adequacy judgement	ID-code
Limitations in capacity	*Strong* – The company prefers to always have approximately 120-130 employees, which limits the company's capacity.	R2, R4
Re-building knowledge	*Present* – When products have been outsourced up to 15-20 years, it is possible that valuable knowledge regarding the product is forgotten or gone. The company must therefore re-integrate this knowledge. This challenge is somewhat interrelated with the limitation in capacity as there are a limited number of employees that have the right capabilities required for this process. ("Employees who can look at things and improve them are a scarce resource. Everyone in a workshop have the ability to look at products and improve them. Therefore, there is a limitation of how many different products we can backsource at the same time")	R2, R10
Adapting the backsourced product(s) to the production site	*Present* – Adapting the backsourced product to the production site is another challenge for the company. ("Some of the products [that were outsourced] were partly outsourced because they were not suitable for us. When you take home such products, they are still not suitable for us. This requires some restructuring. And some things were successfully integrated, while others were not successfully integrated")	R2, R4

Table 12: Internal Challenges Related to the Backsourcing Process

5.3.2 Analysis of the internal challenges with backsourcing

Limitations in capacity

One challenge related to IP Huse's backsourcing is limitations in capacity. In this case, limitations in capacity refers to the number of employees. Since the demand in the offshore-market fluctuates, IP Huse does not want their fixed capacity to be greater than the demand during a recession (R2). The company therefore prefers to have approximately 120-130 employees at all times. This limitation poses several challenges during their backsourcing process:

1) The backsourcing process is a demanding process that requires available in-house capacity. Re-integrating a product does not only require available capacity in the manufacturing department, but it requires that the engineering- and procurement department has available capacity. Furthermore, the procurement department consists of approximately 2 employees that are responsible for the procurement of 500-700 MNOK per year. Thus, the capacity in this department is significantly limited.

2) Backsourcing a product is a time-consuming and complex process. Not everyone in a workshop has the ability to adapt to new products and improve these. The success of the backsourcing therefore relies on a selected team of employees with the right capabilities to handle the backsourced product. However, such employees are a scarce resource, which in turn limits the number of products that can be backsourced at the same time.

An advantage for IP Huse was their modularization of products. As a result of the modularization, most of the parts and components were familiar to the company, which in turn made it easier to re-integrate products and less time-consuming for the different departments.

Re-building knowledge

Another challenge related to IP Huse's backsourcing is re-building knowledge. This knowledge re-integration was a challenge for IP Huse's backsourcing in two ways:
1) If a product had been outsourced for several years, knowledge regarding the product had to be re-built as employees with explicit knowledge regarding the product might have retired/left the company or the knowledge might be forgotten (R2).

2) If both the engineering and manufacturing of a product had been outsourced, the company experienced a challenge in learning how to construct in a way that was well-adapted to their existing machines and production methods. In such cases, the company have to develop new knowledge regarding both the engineering and manufacturing of a product. The procurement department, in addition, has many new parts to purchase, which is a time-consuming process that requires available in-house capacity (R2).

To solve these issues, the company engaged a team of carefully selected employees that has the knowledge and ability to optimize and adapt to new products (R2). Knowledge and ability to adapt are key characteristics in such a process, and the teacher representing apprentices has noticed that IP Huse is more concerned with the level of knowledge and adaptability of their apprentices now compared to previously (R9). If employees who participated in the production of the backsourced product was still employed in the company, these employees were often included in the team responsible for the product re-integration.

An advantage for IP Huse in this matter was their modularization of products. Due to the modularization, many of the parts and production methods was already familiar to the company. Thus, making it easier to re-integrate the product as knowledge regarding the product was already a part of the knowledge platform in the company.

Adapting the backsourced product(s) to the production site

Another challenge related to the backsourcing-process is to adapt the backsourced product(s) to the production site. Some products were outsourced to external suppliers because they were not suitable for IP Huse. This can be products that occupy large surfaces, are difficult to mechanize, products that require a high degree of manual work, products or parts that the company has not been adequate to produce in terms of knowledge and/or capabilities, or products that require significant investments (R2; R4). When IP Huse backsource such products, they are still not optimal for the company. This requires substantial planning and evaluation in order to find a good solution as for how the company can adapt and re-integrate the product. For instance, the example below illustrates the importance of carefully planning the re-integration process before embarking on the re-integration of the product in order to avoid costly and time-consuming mistakes.

"*We tried to backsource some smaller frames and it was awful. We spent a lot of time trying to re-integrate this product. If we are going to produce this product, we have to invest in new equipment and a new welding hall. We were, at least, convinced that smaller frames are some of the last products that will be backsourced before any new investments have been done*" (Manager Project Department, R2).

5.3.3 Final comments

Based on the interviews, three major challenges related to the backsourcing process has been described, namely limitations in capacity, re-building knowledge, and adapting the product(s) to the production site. Previous studies have identified knowledge re-integration as an internal challenge related to the backsourcing process. This study is therefore consistent with previous research regarding this challenge. The two other challenges – limitations in capacity and adapting the backsourced product(s) to the production site – have not been addressed in previous research and can therefore be perceived as a new contribution to theory.

5.4 Backsourcing's impact on a firm's competitive advantage

In this section, I will try to answer the question *"What consequences does the decision to backsource have for the company's competitive advantage?"*. This part of the analysis involves looking at IP Huse's competitive advantages and investigating whether the decision to backsource will have any influence on their competitive advantage(s).

5.4.1 Display of IP Huse's competitive advantages

Figure 12 displays information from four different external respondents regarding IP Huse and competitive advantage. The four different respondents represent four different stakeholder views on IP Huse. Thus, the table is divided into four parts, namely 1.tier customer (partner), 2.tier customer (end-customer), independent organization, and representative for apprentices. The analysis does not include any suppliers. This is a conscious choice that has been made by the researcher. As the purpose is to measure IP Huse's competitive advantage, it is expected that more honest and realistic answers would be provided by customers and other, somewhat, independent parties. Interviews with suppliers were expected to contain bias, and was therefore not included in this analysis.

	Partner/customer	Customer	Independent organization	Rep. for apprentices
What are IP Huse's competitive advantage(s)?	• Their machine park/facilities • Knowledge • Short delivery times • Flexibility • Quality • Good communication • Competitive prices	• Unique knowledge • Production equipment is one of a kind • The partnership with Rolls Royce • Their adapability	• Impressive production site • Local and stable ownership • The CEO	• Unique products • High quality • Loyal workforce • Strong and charismatic leader
Will backsorcing strengthen their cometitive advantage?	Yes, if they want to enter new markets.	The location of production site is not important for this customer. They expect the same quality regardless of the location of production site.	Yes, but it will not happen "just like that".	No, the company is already a market leader in its chosen segments.
	An improvement in knowledge, delivery times and/or costs would strengthen their CA.	An improvement in price, quality and/or delivery times will make IP Huse a more attractive supplier.	Keeping knowledge in-house and continously investing in new technology is a key driver for the strengthening of IP Huse's CA.	In terms of innovational thinking, the decision to backsource may be a positive, strategic choice for the company The decision will not affect the company's attractiveness as an apprentice company as long as they still have work for their apprentices.

Figur 12: IP Huse's Competitive Advantages

5.4.2 Analysis of IP Huse's competitive advantages

1.tier customer (partner)

According to the partner and customer of IP Huse, is IP Huse's competitive advantages related to high-quality products, extensive knowledge, flexibility, their machine park, and short delivery times, among others. The relationship with IP Huse has endured for over 70 years, and is built on trust and good communication.

When it comes to IP Huse's decision to backsource, the partner believes that this decision will have a positive influence on IP Huse's competitive advantage with regards to entering new markets.

"*If they want a wider product range, I am sure that the measures they do now, are the right measures for them*" (Project Sourcing Manager, R11).

From a customer-perspective, are knowledge, delivery times, and costs important factors when choosing a supplier. *If* IP Huse manages to improve some of these factors through backsourcing, then they would further strengthen their competitive advantage. They would also become even more attractive supplier if any of these factors are improved.

2.tier customer (end-customer)

IP Huse's competitive advantages are, according to an end-customer of IP Huse, unique knowledge and production equipment, ability to adapt, and the partnership with Rolls Royce. These factors constitute IP Huse's competitive advantages from an end-customer perspective. Moreover, as the majority of the customer's fleet is located in Brazil and Asia, the need for an international service network is of critical importance. Thus, the partnership with Rolls Royce is an important factor when choosing IP Huse as a supplier.

When it comes to backsourcing and competitive advantages, the end-customer believes that the decision to backsource will be advantageous *if* the company manages to improve quality, reduce prices, and/or reduce delivery times. Short delivery times of spare parts is critical for this end-customer, as highlighted in the quote below.

"*If one of our operating vessels break downs, we lose money each day the vessel lays to dock. Fast delivery times of spare parts is therefore a critical factor for us*" (Vise President – Technology and Development, R3).

Furthermore, the location of production site is not important for this end-customer. The customer expects the same quality of the products they buy regardless of production location. Thus, IP Huse's backsourcing does not matter for this customer – rather, the attractiveness of IP Huse will depend on their prices, quality, and delivery times.

Independent organization

IP Huse's competitive advantages are, according to an independent organization, an impressive production site, and a stable owner and CEO that is engaged in the company and the local society. These factors add up to their competitive advantage as seen from an independent perspective.

When it comes to backsourcing and competitive advantages, the independent organization believes that backsourcing will strengthen IP Huse's competitive advantages. However, this will not happen "just like that". The respondent highlights the importance of knowledge, and emphasize that IP Huse can improve their position in the market and competitive advantages if they continue to develop their extensive knowledge and keep this knowledge in-house. Moreover, the strengthening of IP Huse's competitive advantages also depends on further investments in new technology that increases the company's competitiveness.

Representative for apprentices

According to the representative for apprentices are IP Huse's competitive advantages: Unique, high-quality products; a loyal workforce; and a strong and charismatic leader.

When it comes to backsourcing and competitive advantages, the teacher believes that backsourcing will not have any influence on IP Huse's position in the market as the company already is the market leader in its chosen segments. Nor will the decision to backsource have any influence on the company's attractiveness as an apprentice company. When it comes to IP Huse's competitive advantages, the decision to backsource may have a positive effect on IP Huse's innovational power.

5.4.3 Competitive advantages for backsourcing

Based on the analysis, a summary regarding IP Huse's competitive advantage (CA) can be presented, see Table 14. Only those CAs that have been mentioned by at least two respondents are summarized in this table. Four CAs is therefore excluded from this table as they were only mentioned by one of the respondents.

Competitive advantages	Sources			
	1.tier customer (partner)	2.tier customer (end-customer)	Independent Organization	Representative for apprentices
Production site/machines	X	X	X	
Knowledge	X	X	X	
Delivery times	X	X		
Product quality	X			X
Flexibility	X	X		
The CEO			X	X
Partnership with Rolls Royce	X	X		

Table 13: Summary of IP Huse's Competitive Advantages

In order for a capability or resource to be a competitive advantage, it needs to be (1) valuable, (2) rare, (3) hard to imitate, and (4) organizationally supported, which is also referred to as the VRIO-framework (Barney, 1991). These resources can be tangible, intangible, or human resources. IP Huse's production site and knowledge are perceived as core competencies that create a sustainable competitive advantage for the company. The production site has been continuously expanded and improved since the 1900s and involves substantial investment in machines and equipment, which makes it rare and difficult for competitors to imitate. Moreover, their knowledge regarding the production of winches is perceived as a core competence that is developed and improved through many years. This knowledge eventually led to their unique position as a market leader in their chosen segments. As long as this knowledge is retained in the company and continuously used and improved, their knowledge can be perceived as a sustainable competitive advantage. In addition are factors such as delivery times, product quality, flexibility, leadership, and the partnership with Rolls Royce important factors that constitute IP Huse's competitive advantages. The company's core competences comprise of these factors, and are developed through a long-term process of improvement and enhancement that has endured for over a century.

With regards to backsourcing's influence on IP Huse's competitive advantages, were 5 potential outcomes of the backsourcing highlighted in the interviews:

1) Increased innovational power
2) Reduced delivery times
3) Reduced costs
4) Increased knowledge
5) Increased product quality

Increased innovational power was the most important predicted outcome of IP Huse's backsourcing. By having critical parts of the production in-house, IP Huse's innovational power may be increased.

Reduced costs and delivery times were emphasized by the 1.tier and 2.tier customers as possible outcomes of IP Huse's backsourcing that may strengthen the company's competitiveness and increase their position as a preferred supplier of maritime equipment.

Increased knowledge and product quality were also emphasized by some of the respondents as possible outcomes of the backsourcing. An increase in knowledge or quality may, in turn, further strengthen IP Huse's competitive advantages.

6 Discussion of findings

This chapter discusses the findings from Chapter 5. The chapter follows the same structure as the previous chapter, starting with the drivers for backsourcing, the backsourcing process, internal challenges related to backsourcing, and finally backsourcing and competitive advantage(s).

6.1 Drivers for backsourcing

In the IT-industry, the following drivers have an impact on the decision to backsource: Outsourcing contract problems, opportunities arising from internal organizational changes, and opportunities arising from external environmental changes (Veltri et al., 2008). This include drivers such as higher than expected costs, poor service quality, loss of control, changes in business strategy, or external business and/or environmental change.

Wiesmann et al. (2017) literature review revealed several drivers for reshoring, some of which are: Changes in the global economy; instability in exchange rates; inadequate quality; increased degree of automation; strengthened brand through made in "XX"; innovation, research and development suffers due to the distance to manufacturing; high coordination costs; and over-estimation of cost savings during the offshoring decision.

In manufacturing reshoring, Fratocchi et al. (2016) identified the following motivations; total costs of sourcing, untapped production capacity at home, proximity to customers, implementation of strategies based on product/process innovation, made in effect, poor quality of off-shored production, and local employees' poor skills among others.

In this study, the following drivers for manufacturing backsourcing were identified; free capacity, investment in new equipment and robotics, higher than expected costs, innovation, changes in demand, little development of the outsourced products, currency fluctuations, better quality, and country of origin-effect.

By comparing these drivers, we can see that most of the drivers are consistent with existing theory. This is particularly interesting as the drivers identified in Veltri et al. (2008) is based on the IT-industry, while the drivers in this study is based on the manufacturing-industry. This

imply that there might exist some universal drivers for backsourcing that are the same regardless of industry, such as “higher than expected costs”. In comparison, some drivers seem to be industry-related drivers. For instance, the country of origin-effect is not identified as a driver for IT-backsourcing (Veltri et al., 2008), but is identified as a driver for manufacturing reshoring (Fratocchi et al., 2016; Wiesmann et al., 2017), which implies that this driver probably depend on the type of industry.

Another interesting finding in the analysis is that IP Huse’s drivers for backsourcing are not mutually exclusive. Rather, they are complementary, meaning that they enhance and strengthens each other. For instance, the drivers ‘free capacity’, ‘changes in demand’, and ‘new equipment and robotics’ complement each other and strengthens the motivation to backsource.

Another interesting finding is that the backsourced products can be outsourced again if the company has insufficient capacity to handle all their orders (R2). The question of outsourcing will, of course, depend on how well the backsourced products are integrated and optimized. It will also depend on the product itself; if the product becomes a bottleneck item, meaning an item with low profit impact but high supply risk, then the best option is to buy the product from external suppliers, which is consistent with Kraljic (1983) recommendation.

6.2 The backsourcing process

The purpose of this sub-question was to identify a stepwise model as for how companies can backsource activities. Previous research regarding backsourcing has mainly focused on the process *up to* the decision to backsource has been made, however, research regarding what happens *after* the decision has been made and the outsourcing contract has been terminated is rather limited. Lacity and Willcocks (2000) model for IT outsourcing was therefore used a theoretical framework for the development of the backsourcing process.

Both Phase 1 and 2 of the backsourcing process have some similarities with the outsourcing process identified by Lacity and Willcocks (2000). The overall objectives in these phases are somewhat similar in both backsourcing and outsourcing, where both models focus on identifying potential products or activities for outsourcing/backsourcing. The two models are

also somewhat opposites, for instance Phase 2 of the backsourcing process involves a contract termination, while in the outsourcing process involves a contract signing.

In Phase 1 of the backsourcing process, an overall decision is made regarding whether to outsource or insource based on overall drivers such as free capacity, investment in new equipment and robotics, changes in demand, higher than expected costs, and/or innovation. These drivers were identified as high impact-drivers in Chapter 5 and were consistent with previous research regarding drivers for backsourcing/reshoring (Fratocchi et al., 2016; Veltri et al., 2008; Wiesmann et al., 2017). Moreover, in Phase 2, a more concrete decision is made regarding what products should be backsourced. This decision is, of course, based on the overall drivers for backsourcing, but product-specific drivers, such as little development of the outsourced product, high freight costs, or "made in-effect", were also important for this decision. These drivers were identified in Chapter 5 as moderate to low-impact drivers, and were also consistent with previous research. Phase 3 is especially different from the outsourcing process - while the activities in the backsourcing-process includes a contract termination and a re-integration of activities, the outsourcing-process involves a contract signing and to establish operational performance between the focal firm and the supplier. The final phase, Phase 4, is again quite similar to the outsourcing process, as both models involves determining whether to continue with the outsourcing/in-sourcing.

While some of the activities and objectives in the outsourcing- and backsourcing process are similar and somewhat opposites, the backsourcing process represent a new contribution to theory. The model proposed in this thesis can be perceived as an extension, or a possible outcome, of the final phase in the outsourcing model proposed by Lacity and Willcocks (2000), where the focal firm must decide whether to continue outsourcing or terminate the contract with the vendor and backsource the activity. Figure 13 depicts the theoretical contribution of this thesis, and is a revised figure of IP Huse's sourcing process that is adapted by Veltri et al. (2008).

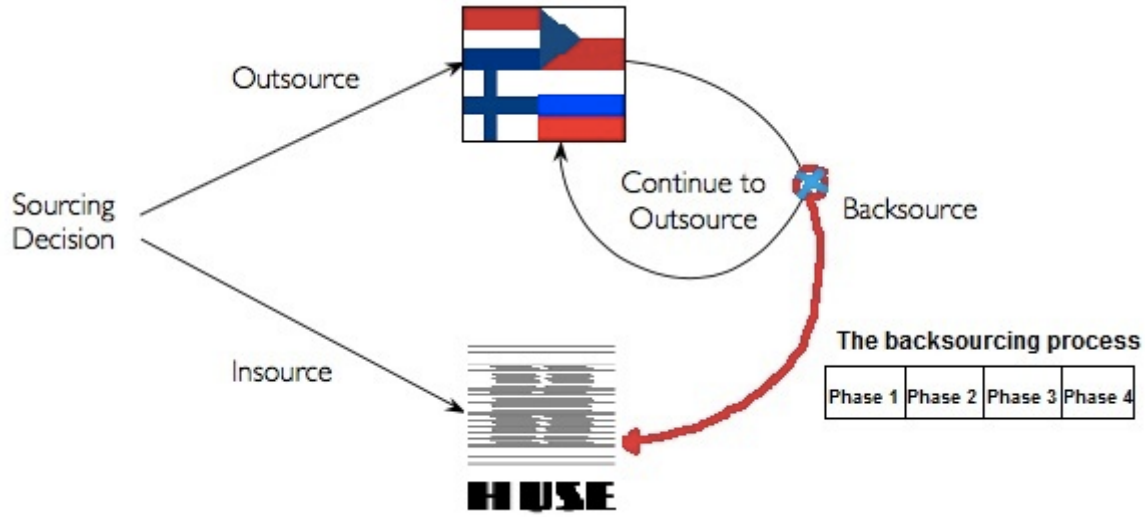

Figure 13: Revised Model of the Sourcing Process for IP Huse

6.3 Internal challenges related to backsourcing

The purpose of this question was to identify internal challenges related to IP Huse's backsourcing. Three challenges were identified: (1) Limitations in capacity, (2) knowledge re-integration, and (3) adapting the backsourced product to the production site.

Knowledge re-integration has previously been identified as an internal challenge related to backsourcing (Bhagwatwar et al., 2011; Nujen et al., 2011). Nujen et al. (2011) is of particular interest in this thesis as it studies the same type of industry. One critical success factor for the backsourcing of activities in IP Huse was the time dimension, as highlighted by Nujen et al. (2011). It was apparent that the less time since the product was outsourced, the higher the probability that the knowledge still existed in the company. When the company started to re-integrate the product, the solution often was, if possible, to include employees that participated in the production of the product previously in order to fill the knowledge-gap. If the knowledge regarding the product was gone, then the company had to re-build the knowledge, which is a more time-consuming process. Moreover, since the company had modularized some of their products, most of the parts and production methods were already known for the different departments, thus making it easier to re-integrate the product, which was also identified as a supporting factor for the backsourcing in Nujen et al. (2011). The findings in this thesis is therefore perceived as consistent with the findings from Nujen et al. (2011).

In addition to knowledge re-integration were two other internal challenges related to the backsourcing process identified, namely limitations in capacity perceived and adapting the backsourced product(s) to the production site. These challenges have not been addressed in previous research, and can therefore be perceived as a new contribution to theory.

The limitations in capacity is perceived as an internal challenge related to the backsourcing process as it is necessary for a company to have available capacity in order to produce the product and handle the re-integration process. Moreover, "free capacity" was identified as a high impact driver for backsourcing in sub-question 1 and was, based on the interviews, the most frequently mentioned driver *for* backsourcing. As limitations in capacity was identified as an internal challenge related to backsourcing, the factor reinforces and highlights the importance of "free capacity" as a driver for backsourcing. If the company decides to backsource *without* having enough available capacity, the capacity might become an internal challenge related to the re-integration of the product.

Adapting the backsourced product(s) to the production site was also identified as an internal challenge related to the backsourcing process. Some of IP Huse's products were outsourced because they were not suitable for the company. This can be products that, for instance, are difficult to mechanize or that occupy large surfaces. When the company backsource these products, they are still not suitable, which poses a challenge for the company. It is therefore of major importance that a careful plan for the re-integration process is developed before embarking on the re-integration process.

An interesting conclusion that can be drawn from the assessment of internal challenges related to the backsourcing process is that all three challenges seem to occur during phase 3 of proposed backsourcing model. A revised model of the backsourcing process that contains the internal challenges related to backsourcing process is therefore suggested. The extended framework is presented in Figure 14. This finding emphasize that Phase 3 is a critical phase for the success of the backsourcing process, which further indicates that managers should pay particular attention to this phase when considering to backsource activities from external suppliers.

	Phase 1 - the initial phase	Phase 2 - the scoping phase	Phase 3 - the re-integration phase	Phase 4 - the evaluation phase
Actitivies:	• Create an overall plan	• Identify potential products for backsourcing	• Establish a team responsible for the backsourced product	• Project evaluation-meeting
	• Coordinate and delevate orders	• Product evaluation-meeting	• Develop a plan for re-integrating the product	• Decide whether to keep the product in-house or outsource
	• Decide whether to outsource or insource	• Decide what product(s) to be backsourced and contract termination	• Re-build knowledge and prepare the production site for the product	
			• Start production	
Objective:	Initial sourcing decision - outsource or insource?	Decide what products should be backsourced and terminate contract with supplier(s)	Establish effective production	Determine and plan the fate of the backsourced product
Internal challenges:			• Limitations in capacity	
			• Re-building knowledge	
			• Adapting the backsourced product(s) to the production site	

Figure 14: Revised Model of the Backsourcing Process

6.4 Backsourcing and competitive advantage(s)

Based on the analysis in Chapter 5, IP Huse holds several strong competitive advantages; their production site/machines, knowledge, delivery times, product quality, flexibility, a strong owner and CEO, and the partnership with Rolls Royce, respectively. These advantages constitute IP Huse's competitive advantage, or strategic core, as seen from the "outside".

The purpose of this question was to explore whether the decision to backsource would have any influence IP Huse's competitive advantages. Based on the analysis, 5 factors were highlighted by the external respondents as possible outcomes of the decision to backsource production, thus affecting the company's competitive advantage: Increased innovational power, increased knowledge, reduced delivery times, reduced costs, increased quality.

According to the respondents was increased innovational power a predicted outcome of IP Huse's backsourcing. "Innovation" was also identified as a high impact driver for IP Huse's backsourcing.

Knowledge is of major importance for a firm's competitiveness in a knowledge-intensive industry and it is important to keep this knowledge in-house. For instance, if the demand changes and the company do not take home production, the company might be forced to lay off employees, thus loosing valuable knowledge which in turn will have a negative effect on

the firm's competitiveness. Keeping knowledge in-house is also an important factor when developing new products, which also will have an affect the company's competitiveness and their ability to innovate.

Furthermore, producing in-house allows the firm to have better quality control of their products compared to having production in another country. Follow-up costs can be decreased by having production in-house, which is also positive for the company's competitiveness. By backsourcing products, the company can further increase the quality of their products and possibly reduce delivery times as there is much less logistics required when everything is produced in-house. The production process can be optimized, which in turn can positively affect the costs of their products, the delivery times, and their product quality.

It is, however, worth noting that these are possible, *predicted* outcomes of the backsourcing. It is up to company to exploit and utilize these possible outcomes. Previous theory emphasize the importance of keeping important skills, knowledge, critical activities, or elements that are important to customers in the long run, in-house (Ellram & Billington, 2001). Activities that are brought back in-house should therefore constitute, or at least support, a part of the focal company's core competencies.

7 Conclusion and implications

In the following sections I will present the conclusions to the research problem and the sub-questions, starting with the sub-questions and ending with the research problem. The conclusions are based on the analysis in Chapter 5 and discussion in Chapter 6. Secondly, the limitations of the study are addressed, as well as the study's managerial and theoretical implications. Finally, implications for future research will be presented.

7.1 Conclusion to the sub-questions

7.1.1 Drivers for backsourcing

The first sub-question is "*What are the drivers for backsourcing activities from abroad?*". In Table 7 and the following analysis, I identified the drivers for IP Huse's backsourcing. Based on the interviews, the drivers were ranged according to their frequency, which divided the drivers in to two main categories: (1) High impact drivers and (2) Moderate to low impact drivers. The high impact drivers were the most common drivers and included *free capacity, investment in new equipment and robotics, higher than expected costs, innovation*, and *changes in demand*. All of which were perceived as overall drivers that were either classified as "strong" or "present" drivers for backsourcing. In addition, four drivers were perceived as moderate to low impact drivers, namely *little development of the outsourced products, currency fluctuations, better quality,* and *country of origin-effect.* These drivers were only mentioned once or twice in the interviews. Therefore, these drivers were classified as "basic" or "present".

Based on the findings, the conclusion is that the identified drivers are consistent with available research regarding the topic. An interesting conclusion that can be drawn from this study is that some of the drivers are relevant for both the manufacturing- and IT-industry, indicating that some drivers may be universal, whereas other drivers are perceived as product- or industry-dependent. The "country of origin-effect" and "higher than expected costs" are good examples of industry-specific and universal drivers, respectively.

Another interesting conclusion that can be drawn is that the drivers are not mutually exclusive. Rather, they strengthen and enforce each other, which indicates that backsourcing is a dynamic process that is highly context-dependent. The fact that backsourcing is a

dynamic and highly context-dependent decision is further supported by the Manager Project Department who states that the backsourcing was not a final decision, rather, the backsourced products could be outsourced again if the company has too little in-house capacity or the products become bottleneck items.

7.1.2 The backsourcing process

The second sub-question is "*What are the steps companies go through when backsourcing activities from abroad?".* The outcome of this question, was the development of a new theoretical model that describes a stepwise model for backsourcing products. Lacity and Willcocks (2000) outsourcing model was used as a theoretical foundation, and the model was developed by following the recommendations from Solli-Sæther and Gottschalk (2010). The stepwise model is depicted in Figure 11. According to the figure, the backsourcing process consists of 4 phases; the Initial Phase, the Scoping Phase, the Re-Integration Phase, and the Evaluation Phase, respectively. Each of the phases consists of different activities and an overall objective, as seen in the figure.

As previous research regarding backsourcing has mainly focused on the process *up to* the decision to backsource has been made, this study extends our existing knowledge regarding the backsourcing process by highlighting what happens *before* and *after* the decision to backsource has been made and the contract with the external supplier has been terminated.

7.1.3 Internal challenges related to the backsourcing

The third sub-question is as follows; "*What internal challenges have occurred as a result of the backsourcing process?*". Although most of the products IP Huse has backsourced have been successfully implemented in the company, they have experienced some challenges related to the re-integration. Three main challenges were identified; (1) limitations in capacity and (2) re-building knowledge, and (3) adapting the backsourced product to the production site.

The re-integration of knowledge has been identified and discussed in previous research. The findings of this study was consistent with previous research. The two other challenges, namely the limitations in capacity and adapting the backsourced product to the production site, have not been addressed in previous research and is therefore perceived as a new

contribution to theory.

7.1.4 Backsourcing and competitive advantages

The final sub-question is "*What consequences does the decision to backsource have for the company's competitive advantage*?". The analysis and discussion related to this sub-question identified 5 factors that could become possible, positive outcomes of the backsourcing decision, namely increase in knowledge, reduction in delivery times, increase in product quality, increased innovational power, and reduction of costs. However, the effect between the backsourcing-decision and IP Huse's competitive advantages depends on how well the company exploit and utilize these possible outcomes. These outcomes will not be realized without any effort from IP Huse.

7.2 Conclusion to the Research Question

The overall research question stated in this thesis is "*How do companies conduct the backsourcing process and what internal consequences does this decision have for a company?"*. Four sub-questions were specified in order to answer this research question.

IP Huse has since 2010 backsourced several products from external suppliers in Norway, Czech Republic, Russia, the Netherlands, and Finland, among others. IP Huse was therefore selected as a case company for this study. The description of IP Huse's backsourcing process revealed 4 phases the company went through when backsourcing products, see Figure 11. Each phase is composed with different activities and objectives. This figure represents *one* way of conducting the backsourcing process.

The decision to backsource pose several internal consequences for a company. For IP Huse, three main challenges related to the process of backsourcing was identified:
(1) *Limitations in capacity* was a particularly interesting challenge related to the decision to backsource. Findings imply that if a company decides to backsource production *without* having enough available capacity, the capacity might become an internal challenge for the company. The internal challenge therefore reinforces the strength and importance of "free capacity" as a driver for backsourcing.

(2) *Knowledge re-integration* is another internal consequence of the decision to backsource. When a product is backsourced after many years of outsourcing, knowledge regarding this product or activity needs to be re-integrated in the company. This is a time-consuming process that in turn may require even more available in-house capacity. It also requires that the company has employees with the right capabilities required for this re-integration.

(3) *Adapting the backsourced product to the production site* is another internal consequence of the decision to backsource. Some of IP Huse's products were outsourced because they were not suitable for in-house production. When such products are backsourced, they are still not suitable, which poses a challenge for the company. Careful planning is thus the key for a successful backsourcing process for such products. By spending some time planning this re-integration, the company may avoid mistakes that are both costly and time-consuming.

An interesting conclusion can be drawn from this assessment of the backsourcing process and the internal consequences of the decision to backsource. All of the internal challenges related to the backsourcing process occurred during Phase 3 of the backsourcing model, as highlighted in Figure 14. This implies that Phase 3 is a critical phase for the success of the backsourcing process. Managers should therefore pay particular attention to this phase when considering to backsource activities from external suppliers.

7.3 Implications and Limitations of the Study

7.3.1 Limitations of the Study

As with any research, this study is not without limitations. The aim of the thesis was to study the backsourcing phenomenon with the purpose of developing a better understanding of the drivers, process and challenges that managers are forced to address when considering backsourcing. A better understanding of these factors may in turn help managers to more efficiently address these decisions and challenges when they occur. However, as the thesis applied a qualitative method in the form of a single case study, generalizations that can be drawn from the thesis are limited. However, the purpose of this study was not to generalize the findings to a larger population, rather, the intent of this study was to develop a framework that might be applicable to other companies or situations.

Moreover, the study followed an inductive qualitative approach, where observations and data from the interviews made the foundation for the proposed backsourcing model and the identified internal challenges. Although I tried to clarify any ambiguities during the interviews, there is a possibility that some of the answers from the respondents have been misinterpreted. As a measure to reduce the risk of misinterpretations, several of the respondents were asked similar questions that, in most cases, confirmed the information.

Another limitation of the study is that interview did not include a supplier firm. Thus, the suppliers' opinion and experience regarding IP Huse's backsourcing was not taken into consideration. Considering that a 1. tier customer/partner and 2. tier customer was included in the sample, this is unfortunate. However, the choice was consciously made as it was a clear expectation that interviews with suppliers would contain biases when measuring IP Huse's competitive advantage. Nonetheless, it would be interesting to hear how the suppliers experienced the process of backsourcing and whether they experienced any challenges related to IP Huse's decision to backsource.

7.3.2 Managerial Implications

The context of this study is perceived as highly relevant due to the present situation in the offshore market. Companies operating in the offshore market are going through a critical phase now, and many companies are considering new markets to enter. Changes in demand and available in-house capacity, among other factors, make backsourcing an attractive strategic choice for companies to increase their in-house production. However, backsourcing is a demanding and time-consuming process that requires substantial planning. In addition to filling a literature gap, the findings of this study highlights many important factors that managers are faced with when embarking on a backsourcing strategy. The results of this study have several managerial implications:

First, the identification of strategic drivers and processes in the manufacturing industry could help managers to more efficiently address decisions and dilemmas related to the backsourcing process. It is no doubt that the process of backsourcing is demanding, and the framework depicted in 11 and 14 was created as a tool that could help managers to better understand and plan the process of backsourcing, and possibly avoid costly mistakes.

Second, it is recommended to keep knowledge in-house. Keeping knowledge in-house is of significant importance when operating in knowledge-intensive industries such as the maritime industry. If knowledge is outsourced, companies will lose valuable knowledge that, in turn, will reduce a company's competitiveness and innovational power. High wages make it hard for Norwegian companies to compete on price. Instead, Norwegian companies often chose to compete on quality and innovation. It is therefore of major importance that we retain our knowledge in-house and continuously strive to improve and enhance our knowledge.

Third, it is recommended that managers pay particular attention to the phase 3 of the backsourcing process as all of the identified internal challenges in this thesis occurred during phase 3 of the backsourcing process.

7.3.3 Theoretical Implications and Recommendations for Future Research

The purpose of this study was to increase our knowledge regarding the backsourcing process by conducting an in-depth study of the phenomenon. As most of the previous research regarding backsourcing have mainly focused on the process *up to* the decision to backsource has been made, this study extends our knowledge by providing a comprehensive description of what happens *before* and *after* the decision to backsource has been made and the outsourcing contract has been terminated. The following theoretical implications and recommendations for future research can be drawn from this thesis.

First of all, the drivers for backsourcing is consistent with previous research, but the findings also indicate that there might exist some universal drivers and some industry-related drivers for backsourcing. A recommendation for future research is therefore to conduct a quantitative study of the drivers for backsourcing in different industries.

Second, the backsourcing model proposed in this study is a new contribution to theory. The model can be perceived as an extension, or a possible outcome, of the finale phase in the outsourcing process. However, as this is a single case study, the model's generalizability is limited. A recommendation for future research is therefore to test the proposed stepwise model as for how companies can conduct their backsourcing process on other manufacturing firms or industries.

Third, the knowledge re-integration process is built on previous studies and the findings in this study is consistent with existing theory. In addition, limitations in capacity and adapting the backsourced product to the production site were identified as internal challenges when backsourcing production, which is a new contribution to theory. However, these challenges may be perceived as case-specific challenges that might not occur in other cases. A recommendation for future research is therefore to further examine the internal challenges related to the backsourcing process and include several companies, preferably from different industries, as it would be interesting to see if challenges related to the backsourcing process differ according to the type of industry. A good starting-point for such a study is Nujen et al. (2011) or Bhagwatwar et al. (2011).

Fourth, the investigation of backsourcing's impact on IP Huse's competitive advantages was requested by the company. The findings were expected to be very case-specific. However, the findings revealed several interesting outcomes. For instance, the findings indicated that the focal company could further enhance their competitive advantages through backsourcing, thus strengthen their position as a preferred supplier of maritime equipment. The findings also indicate that even though the backsourcing process is demanding and time-consuming, the company may achieve several benefits by doing so. However, it is worth noting that these are possible benefits, not realized benefits. It is up to company to exploit and utilize these possible benefits. As for the theoretical relevance, the topic highlights that there might be an important relationship between backsourcing and competitive advantages that is worth investigating. A recommendation for future research is therefore to conduct a multiple case study of companies that already have backsourced activities/production to investigate what, if any, benefits or outcomes they have experienced as a result of the backsourcing.

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Appendix 1: *An overview of some of IP Huse's backsourced products*

Picture no. 1 – Spooling Gear

The parts are produced in Czech Republic, assembled at IP Huse. The product is now backsourced.

Picture no. 2 – Small towing winches

Previously produced by an external vendor, now backsourced to IP Huse.

Picture no. 3 – Frames

Bought from an external vendor in Norway. The product is outsourced due to the size.

Picture no. 4 – Spooling gear

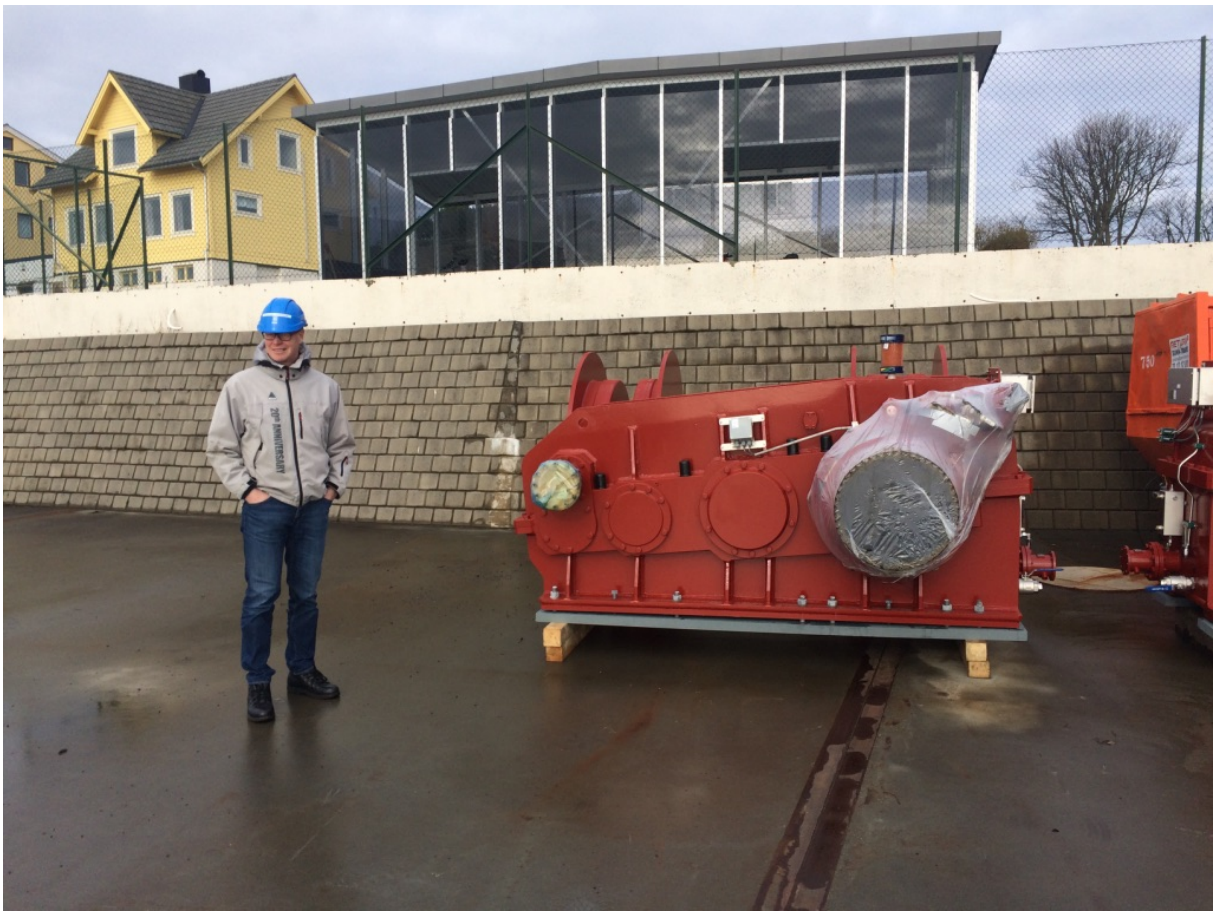
Backsourced from Czech Republic. These are produced at IP Huse.

Picture no. 5 – Middle-size winch

Produced by a supplier in Norway.

Picture no. 6 – Italian gearbox

Produced in Italy, painted at IP Huse.



Picture no. 7 – Guide rollers for chain

Produced in Czech Republic. Now backsourced to IP Huse.

Picture no. 8 – Secondary winches

Previously outsourced to Finland. Now backsourced to IP Huse. These secondary winches are produced at IP Huse's site.

Picture no. 9 – Smaller spooling gear

In production at IP Huse site.