A reshoring decision framework
Title: A reshoring decision framework
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Abstract

Background: An increasing number of companies in Europe are interested in reshoring the production to their home country. Advantages in other countries, such as low direct wages, do not seem to play the major role anymore. Companies start to reassess their manufacturing location decision and start to see advantages in having production facilities in their home country and closer to the market. Nevertheless, reshoring is a long-term decision and comes with many factors that must be taken into consideration.

Purpose: The purpose of this thesis is to show learnings from shortcomings of outsourcing and offshoring decisions, so the shortcomings can be avoided when making reshoring decisions. Based on this together with a deep research of the literature, factors to consider when deciding to reshore should be proposed. These factors should be compared to the results of the empirical research to see their validity and if possible, they should be developed and complemented.

Method: To answer the research questions, a thorough literature review was crafted and a qualitative case study in form of semi-structured interviews with highly experienced employees of different companies in Sweden, Germany and Switzerland was conducted. The companies were picked based on their location, their industry and their experiences with manufacturing location decisions. The collected data was summarized, discussed and analyzed based on common themes.

Conclusion: After reviewing a vast amount of literature and empirical material concerning the topic of reshoring, the nature of the reshoring decision became a lot clearer. It is a very complex decision which requires the companies to take a close look at many different factors, as shown in figure 2. This framework allows companies to have a better overview of the factors influencing their reshoring decision. Since the reshoring decision itself varies quite substantially depending on the company, it is important that companies adapt these factors to their specific needs. Only when considering this step, a correct decision can be ensured.
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1. Introduction

In this part, the background of the topic will be introduced. The problem will be presented and discussed, and the purpose as well as the research questions for the thesis will be stated. Furthermore, at the end of this chapter, the delimitations will be presented.

1.1. Background to the topic:

Over the last decades, trade barriers were alleviated, international transport became cheaper and faster, and communication over long distances became easier (Wiersema and Bowen, 2008; Lewin, Massini and Peeters, 2009). Nowadays, goods and services can easily be produced in one country and sold in another. With this new opportunity came a major shift in how companies were set up and structured. In the early 1990s, companies started to focus more on their core competencies and began to outsource other parts of their business to achieve quick wins (Kakabadse and Kakabadse, 2005). Outsourcing became a tool to achieve best practice and to improve the company’s service and product quality (Kakabadse and Kakabadse, 2005; Barthelemy, 2003). Besides the advantages of gaining access to missing resources, like labor, products, technologies or knowledge, outsourcing decisions are often based on potential savings due to low wages and therefore, low production costs (Lewin, Massini and Peeters, 2009). Thus, the location decision of specific divisions of a company became one of the most important factor to gain competitive advantages. Especially Eastern Europe, Southeast and South Asia were destinations for outsourcing of manufacturing companies (Tate, 2014).

But outsourcing did not always result in success. Barthelemy (2003) states that outsourcing decisions tend not to bring wished results because of insufficient research or because of not thinking through the whole process, which is also confirmed by MacInnis (2003). Also, producing abroad became less attractive due to the increasing costs in once cheap labor countries (Fratocchi et al., 2016). As a result, companies began to reassess their sourcing decisions and started to take back, namely reshore their activities.

When making the decision to either outsource, offshore or reshore activities, a lot of factors must be considered. It is a very complex long-term decision that affects the whole supply chain of a company and can therefore come with great disadvantages when not planned well. Even though literature of decision models for outsourcing exists, the topic of reshoring is rather new and not a lot of research has been done yet. A company must be aware of all the gains and losses such a decision comes with.

Regarding the reshoring trend, an increasing number of articles mention first indications of a reshoring trend in Europe (Heim, Matiz and Ehrat, 2014; Albertoni et al., 2015). Many authors mention Eastern Europe in this context, but also countries with higher labor costs show an increase in reshoring activities. A survey, conducted by Svensk Näringsliv in 2013, states that in the year 2013, 2% of the Swedish companies had moved their operations back to Sweden in form of reshoring. It was asked, whether companies are planning to reshore and the result of this was that 1% of the Swedish companies plan to reshore activities in the coming year. Also, the study points out that of these activities reshored, 52% where manufacturing activities, showing that mostly production activities were reshored to Sweden. Since the study is now four years old, it can be expected that the number of companies’ reshoring their production has further increased.
Within this thesis, we therefore focus on reshoring activities in developed countries with similar characteristics and economy to be able to draw valuable conclusions. We selected Sweden, Germany and Switzerland. Firstly, they show a similar strong economy, since their GDP per capita ranges between 37,100€ and 73,000€ (Eurostat, 2015a), their GDP growth rate ranges between 0,8% and 4,1% (Eurostat, 2015b) and the hourly earnings in the manufacturing industry ranges between 20,98€ and 33,49€ (Eurostat, 2014). Secondly, the access to contacts within companies in these three countries is given, which guarantees the collection of valuable and in-depth data. Moreover, the presence of similar reshoring trends and similarities when it comes to the labor market and the factors relevant for a decision are another reason for this focus. An increasing number of online newspapers, such as Forbes, Logistics Management, The Guardian or Deutschlandfunk discuss that more and more companies decide to move their production back to Sweden, Germany and Switzerland. It is estimated that between 2010 and 2012, 2% of German manufacturing companies were involved in reshoring activities (Kinkel, 2014). Due to these characteristics, similar results, motives and decision processes for doing reshoring can be expected.

1.2. Problem discussion:
As outlined in the background section, outsourcing decisions were often made without deeper research and without knowing about the consequences they come with (Barthelemy, 2003; MacInnis, 2003). Therefore, outsourcing decisions are reviewed by many companies today. Often the outsourcing projects did not return the expected savings, and it turned out that having the manufacturing closer to the home location might be beneficial. Especially in the manufacturing industry, companies must be more responsive and flexible to react to the unpredictable customer demand by providing short delivery times (Christopher, 2000). Moreover, many companies do not necessarily aim for volume increase anymore, but for variety, variability and customized production. When moving back, logistics costs and inventory levels decrease, the know-how stays in-house, the coordination of the activities is easier and higher control and monitoring possibilities are given (Fratocchi et al., 2016). Also, technological improvements such as automation allow to increase quality and reduce costs in form of labor (Wiesmann et al., 2017). However, not only companies themselves have interests in reshoring, but also politics. Reshoring has a major influence on the labor situation in a country, which is why countries are interested in making the own market more attractive for companies to create new jobs (Tate et al., 2014; Fratocchi et al., 2016). Under certain conditions, these advantages of reshoring start to outweigh the advantages of producing abroad. The decision to reshore activities involves the consideration of many different factors. It is a very complex long-term decision and will affect the structure of the company and can come with great disadvantages when not planned well.

Since the decisions to either outsource, offshore or reshore are on the one hand contrary, but on the other hand reflect the same factors that must be taken into consideration, it is valuable to learn from the shortcomings of outsourcing and offshoring decisions to be able to improve future attempts at reshoring. Therefore, the focus of this thesis is on these shortcomings, which we aim to identify and overcome or improve. Additionally, the interest in this topic can be reasoned by looking at the high costs resulting from, and the effort put into making these strategic decisions. Moreover, there is not much research done yet on the reshoring decisions in developed countries within Europe, which is why this thesis focuses on the countries Sweden, Germany
and Switzerland, with high production costs and similar factors influencing these reshoring decisions.

1.3. Purpose and research questions

With keeping the problem discussion, the background and the research gap in mind, the research purpose of this study is:

*Showing what to learn from shortcomings of outsourcing and offshoring decisions, so they can be avoided when making reshoring decisions. Based on this together with a deep research of the literature, factors to consider when deciding to reshape should be proposed. These factors should be compared to the results of the empirical research to see their validity and if possible, they should be developed and complemented.*

To be able to fulfill this purpose, we defined two research questions:

1. Which factors required for the outsourcing, offshoring and reshoring decision can be found in the literature and how can these factors be summarized?

2. What are the factors that must be used, considering input from the literature and experienced companies in Sweden, Germany and Switzerland when making a reshoring decision?

The reason for having these two research questions is that we want to look at the reshoring decision from two different perspectives. First, taking the viewpoint of the literature, which is important for understanding the basic concept and the relevant factors for the outsourcing, offshoring and reshoring decision. Second, looking at the practical experiences, which is provided by the empirical part. Lastly, both views will be combined to be able to provide factors influencing the reshoring decision, based on the learnings from outsourcing, offshoring and reshoring as well as experience from companies.

1.4. Delimitation:

Due to constraints in relation to the length of this thesis and the time available to write it, there are some delimitations. Firstly, the focus of our thesis will only be on manufacturing companies and their production. Therefore, other kinds of industries are excluded from our thesis. Furthermore, we will focus on companies which are originally located in Sweden, Germany or Switzerland, for the reasons stated in chapter 1.1. Consequently, the findings within this thesis are only applicable to these markets.

Additionally, the focus is on decision factors required for the creation of a framework for the reshoring decision. Furthermore, within this study we do not differentiate between smaller and bigger companies. Since there is a major difference of the approach to the decision and the means for it depending on the company size in terms of resources, this must be also considered as a delimitation.
2. Frame of reference

Within the frame of reference, the existing literature will be discussed and critically compared. We will therefore identify the elements of a manufacturing location decision by looking at outsourcing, offshoring and reshoring. To answer our research questions, we will critically discuss the relevant factors influencing a decision, and present two major theories to facilitate a decision from a cost and resource point of view. Based on the major theories, we will lastly define the most important factors in groups, that must be taken into consideration when making a reshoring decision. The findings at this point are solely be based on the outcome of the literature review.

2.1. Definition of relevant terms

Within this sub-chapter, we will explain the most important terms used throughout this thesis.

2.1.1. Outsourcing

The basic definition of outsourcing is to source materials or services from outside of the company (Troaca and Bodislav, 2012). Over the years, new outsourcing concepts arose and the definition was extended. Nodoushani and McKnight (2012) adapted the definition and named outsourcing as the act of having another company perform a specific, limited function, which was performed in-house before. Hereby it is important to mention that when a company is outsourcing a task, the ownership and control will be transferred to a third party (Arlbjørn and Mikkelsen, 2014). Srinivasan (2004) looks at outsourcing from two perspectives. Firstly, he states that in the 1980’s it was referring to firms expanding their purchases of inputs from outside the company rather than making them internal. He adds that since 2004, the meaning of outsourcing changed and is now referring to a specific segment, which is the growing international trade. This shows the changing nature of the term and its understanding within the business world.

In short, outsourcing is the move of production activities from the firm to another unrelated third party, including a handover of ownership and control to this external party.

2.1.2. Insourcing

Nodoushani and McKnight (2012) define insourcing as the opposite of outsourcing, namely bringing back a function to the company, which has once been outsourced. This is confirmed by other definitions from Osborne (2016) and Arlbjørn and Mikkelsen (2014), who state that insourcing is an activity which is performed in-house instead of being handed over to an outside party.

Important to notice here is that ownership and control are going back to the company when performing insourcing.

2.1.3. Offshoring

Different to outsourcing, Nodoushani and McKnight (2012) define the term offshoring as the relocation of the whole factory to another country. This means, the function is still performed in-house, but in another country with operational or economic advantages such as cheaper labor or tax advantages. To sum it up, it can be said that offshoring is the execution of a task or work in a country different to where the firm’s headquarters are located (Grossman and
Rossi-Hansberg, 2008). An important amendment is that control and ownership are kept in-house (Lewin and Peeters, 2006).

In general, offshoring is the move of activities to a facility away from the production firm, mostly overseas, while ownership and control of the activity stays within the company.

2.1.4. Reshoring

A simple definition is offered by Fratocchi et al. (2016, p.99), saying that reshoring is:” A company decision to bring production or sourcing back to their home country”. In another article, Fratocchi et al. (2014) add that the reshoring decision intends to be the company’s decision to reverse previous offshoring by bringing manufacturing back to the country of origin. Furthermore, they define that the decision does not necessarily mean that the whole offshored activity or plant is repatriated (Fratocchi et al., 2014).

Kinkel and Maloca (2009, p.155) extend the definition further by saying that reshoring is the “re-concentration of parts of production from own foreign locations as well as from foreign suppliers to the domestic production site of the company.” They also add another more critical dimension by saying that reshoring decisions are corrections happening short-term, due to prior location misjudgments and not specifically a long-term reaction to slowly emerging local development trends (Kinkel and Maloca, 2009). Furthermore, this sheds a critical light on the definition by Fratocchi et al. (2014, 2016), who see the reshoring decision as an ultimate decision of moving production back to the home country. Holz (2009, p.156) states that reshoring is “the geographic relocation of a functional, value creating operation from a location abroad back to the domestic country of the company.” This again supports the statement of Fratocchi et al. (2014, 2016) of being a move back into the home country and not to another country abroad.

Irrespective of the terminology chosen, we want to point out that there is common ground for these definitions, which is that reshoring is a location decision, involving production activities which are reversing an earlier implemented offshoring decision. Companies do so, by moving the production back to the domestic country while the ownership and control remain within the firm.
2.2. Motives and risks for outsourcing, offshoring and reshoring

In this sub-chapter, we will identify and discuss the motives and risks of outsourcing, offshoring and reshoring. Every decision is based on potential wins and drawbacks which will help to understand the decisions made by companies. Furthermore, the findings within this part build the base for the groups of factors for our reshoring decision framework.

The reason why we combined outsourcing and offshoring in this part is, because their drivers and risks often overlap and are not clearly separated within the literature.

2.2.1. Motives and expectations for outsourcing and offshoring

We analyzed 13 articles that discuss the motives, drivers or expectations of outsourcing and offshoring and summarized them in Table 15 (see appendix). To be able to search for suitable articles, we used the search-terms “outsourcing motives”, “outsourcing drivers”, “outsourcing expectations”, “offshoring motives”, “offshoring drivers” and “offshoring expectations”. With the interest of providing a recent, relevant and up-to-date list, we only included articles published after 2002. Often, the same motives are named differently depending on the article, which is why we used umbrella terms to simplify the categorization.

As shown in Table 15, all 13 articles we analyzed stated the motive of saving costs by outsourcing or offshoring activities. Especially the low labor costs and low operational costs or resources are of interest for companies (Hung Lau and Zhang, 2006; Ellram, Tate and Peterson, 2013; Canham and Hamilton, 2013). Canham and Hamilton (2013) name China and India as a common choice for companies interested in low production costs.

The second motive, gaining access to new resources, talent and technology, was named in eleven articles. Thus, companies outsource or offshore to get access to new markets and secure scarce resources, talented individuals and technologies (Quélin and Duhamel, 2003; Kakabadse and Kakabadse, 2005).

Furthermore, the motives of achieving best practice and the focus on core competencies, were named in six out of 13 articles. Harland et al. (2005) state that it can be beneficial for a company to focus only on a small number of activities, namely its core activities. According to Susomrith and Brown (2012), outsourcing non-core activities frees up capacities and resources, which can be invested in core activities, and eventually result in higher performance and quality.

An additional motive mentioned in five out of 13 articles was the access to new markets. With the deregulation of borders, foreigners cannot be shut out from entering one’s own market. Therefore, outsourcing allows companies to enter markets without high initial investments (Hung Lau and Zhang, 2006). Instead of investing in own production facilities, the process can be outsourced to a company in a host country. Hung Lau and Zhang (2006) add that gaining access to new markets, equals access to new potential customers and an increasing responsiveness towards these customers, which comes with the opportunity of growth (Ghodeswar and Vaidyanathan, 2008). Similar to this is the reason of capacity constraints. The literature suggests that outsourcing is also beneficial when thinking about increasing the capacity for the core business (Hung Lau and Zhang, 2006).

In addition to the advantage of low initial investments for entering a new market, the literature also discusses the motive that fixed costs turns into variable costs. Through outsourcing, the
firm can avoid fixed costs such as expenses for facilities, equipment, information technology and more (Liu and Tyagi, 2016). Again, this allows a company to focus more on other parts of the business and invest in areas with core competencies.

The motive of gaining flexibility was named in three articles. Kremic, Tukel and Rom (2006) state that flexibility can include demand flexibility, operational flexibility, resource flexibility or other strategic flexibilities.

Besides the motives mentioned, the literature also discusses increased speed, copying competitors, fleeing from political pressure, reducing headcount, getting rid of problem functions and shared risk as further reasons for outsourcing. Those could only be found in one article and therefore, cannot be confirmed in the same way as the other motives before.

2.2.2. Risks and uncertainties for outsourcing

Before making an outsourcing or offshoring decision, a company should analyze all risks coming with such a decision. We analyzed 14 articles, which discuss the risks of outsourcing and offshoring and listed them in table 16 (see appendix). Many of the articles, which were used to analyze the outsourcing motives, also discuss outsourcing risks. Therefore, we used some of the articles for both tables. To find additional articles, we used the keywords “outsourcing risks” and “offshoring risks”. Again, we only included articles published after 2002.

A vast amount of literature can be found on outsourcing risks and all articles list similar findings. The most common risk, mentioned in nine out of 14 articles, was low quality. This comes with the risk of losing close control over outsourced activities, more specific, control of the quality of services and products (Quélin and Duhamel, 2003). In the effort of keeping the quality high and keeping close control over the outsourced or offshored functions, the literature also states that the coordination and monitoring costs can increase drastically (Kinkel, 2014). Furthermore, the quality of a product can have a huge impact on its sales. Therefore, if a product does not have the quality the customer expects, it will not only affect the sales, but also the reputation of a firm (Gandhi, Gorod and Sauser, 2012).

Nine out of 14 articles mentioned the fear of losing know-how, skills or other critical activities as a risk. As discussed within the motives for outsourcing and offshoring, one advantage of outsourcing is the ability to focus more on core competencies. Still, an outsourcing firm fears to accidently outsource critical know-how, skills and activities (Quélin and Duhamel, 2003), which could ultimately lead to the loss of a competitive advantage (Hung Lau and Zhang, 2006; Wiesmann et al., 2017).

Since outsourcing decisions are complicated to undo, the selection of the right supplier is very important for a successful future. Poor supplier selection was named in nine out of the 14 articles. For example, many companies recently outsourced their customer service to places such as India. As a result, the company’s customer ratings went down, because the customers did not perceive the new customer service as satisfying (Tate et al., 2014). The relationship between the outsourcing firm and the supplier will not only be based on a contract but also on trust. Critical information will be shared, which is why the lack of trust or fear of leaking information is a risk.
Furthermore, although flexibility is a reason for outsourcing, a company can also lose flexibility and responsiveness. Kremic, Tukel and Rom (2006) state that especially long term contracts in a limited market can decrease a company’s flexibility. As mentioned previously, it depends on the set-up of the outsourcing project, the environment and economy of the host country.

Another risk discussed in the literature is uncertainty. A change in politics, the economy or environment of the outsourced or offshored country can have huge consequences for a company (Kumar, Kwong and Misra, 2009). Often, political situations or legislations are the reason for a firm to outsource or offshore to that country in the first place (Kremic, Tukel and Rom, 2006). A company might want to flee the political pressure in their home country and sees benefits by outsourcing or offshoring to another country. An unexpected change of any of these factors can come with consequences, because an outsourcing or offshoring decision cannot be reversed easily.

Nine of the 15 articles also listed the risk that firms fail to calculate the hidden costs. The top motive for outsourcing or offshoring are cost advantages, which is why this is a critical topic. Due to the physical distance between the outsourced or offshored activity and activities such as management, coordination and monitoring increase a lot (Kinkel, 2014). Also, the transition will come with high costs since employees must be redeployed and relocated, and it will take some time until the new setup is operating stable (Tafti, 2005). Kremic, Tukel and Rom (2006) also state the social cost, namely these of low morale, high absenteeism, and lower productivity.

Furthermore, six out of 14 articles name the risk of low employee morale, since employees are afraid of losing their jobs and will be replaced by labor in another country. However, this does not only affect the companies, but also countries face consequences when jobs are moved abroad, which then becomes a problem for the economy (Kierzkowski, 2005).

Another risk discussed in the literature, are effects on a company’s reputation, which was listed in five out of 14 articles. Maybe the stakeholders do not agree with the decision and the risks coming with the outsourcing decision, or the customers do not like the company’s decision and boycott the company (Gandhi, Gorod and Sauser, 2012). Not just the news of outsourcing or offshoring an activity, but also the possible consequences coming with it can influence the reputation of a company.

2.2.3. Motives and expectations for reshoring

Since reshoring is a rather new and recent topic, only recently more research resources have been invested in analyzing this phenomenon as well as its advantages and disadvantages. Therefore, we found and included articles published after 2005, even though initial ideas of reshoring were published much earlier. Eight out of nine of the articles were even published after 2013.

Again, we analyzed articles which name reshoring or backshoring motives and other variations of it. We identified reasons, drivers and motives, which support the reshoring decision, but we noticed that the motives mentioned in the literature are often similar or the same as the outsourcing risks (see table 15 and table 16 in the appendix).
The findings are displayed in table 17 (see appendix). As for outsourcing risks, the top ranked reason, supporting the reshoring decision is the quality aspect. Due to the lack of control over a supplier abroad, many companies are unsatisfied with the quality of the outsourced products and improvement of the quality would be connected to remarkable higher costs (Stentoft, Mikkelsen and Johnson, 2015). Besides quality issues, the drivers increased flexibility, loss of know-how or expertise through outsourcing, coordination efforts, environmental changes, reputation, labor market, employee morale, supplier dependency and regaining control are discussed in the literature as outsourcing risks and as reshoring motives. Therefore, we will not elaborate on these factors again. Nevertheless, the literature mentions additional drivers concerning the reshoring decision.

Many articles discuss that outsourcing and offshoring might become less attractive in certain areas, because of environmental, economic or political changes and uncertainties. Specific changes mentioned in the literature are rising labor costs (Fratocchi et al., 2016; Kinkel, 2014; Wiesmann et al., 2017), tax rates (Wiesmann et al., 2017; Foerstl, Kirchoff and Bals, 2016), resource shortages (Foerstl, Kirchoff and Bals, 2016), or other uncertainties. Kinkel (2014, p.64) backed this up and stated that “[…] approximately 20 percent of German companies’ reshoring decisions might be characterized as mid-term or long-term reactions to the changing local environment and its local advantages […].” Any change, environmental, economic, political or also strategical, can favor the reshoring decision. For example, government incentives such as tax cuts are often used to make a country more attractive for companies and therefore, allow them to create jobs (Wiesmann et al., 2017).

Another motive mentioned in four out of nine articles is qualified labor. Tate et al. (2012) state that there is an increasing shortage of skilled and semi-skilled labor in low cost countries like China or India, which is why companies look for skilled labor in their home countries. Another major driver discussed in the literature, are the advantages of sourcing nearby and the vicinity to the customers. Suppliers will be closer to their customers (Wiesmann et al., 2016), lead times will be shorter (Stentoft et al., 2016), inventory levels will be lower (Fratocchi et al., 2016; Tate et al., 2012), monitoring and coordination efforts will be lower (Kinkel, 2014) and companies will be more responsive to changes. All these factors positively influence the total costs of sourcing (Fratocchi et al., 2016).

Another driver discussed in the literature favoring reshoring, is the increasing automation of processes. Through automation, the labor costs are of less importance and it makes the production in developed countries and high-cost environments possible (Wiesmann et al., 2016).

2.2.4. Reshoring risks and uncertainties

After reviewing approximately 60 articles, we concluded that the risks and uncertainties of reshoring are not analyzed enough and that it is unclear which risks and uncertainties come with a reshoring decision. The articles we found discuss mostly the outsourcing advantages which will be lost if the outsourcing firm decides to reshore. Therefore, reshoring risks leave opportunities for further research.
2.3. Decision theories

After reviewing the motives and risks for outsourcing, offshoring and reshoring, we will have a closer look at the two major decision theories, the transaction cost theory (TCT) and the resource based view (RBV). These give an insight into the manufacturing location decision and show different ways of how to view activities within a firm and how to look at a firm’s competencies. These two major theories build the basis for the framework, which we will propose.

2.3.1. Transaction cost theory

Due to the reason that cost advantages are a major driver for the manufacturing location decision, many decisions are solely based on calculating the resulting gains and required investments. Within the literature there are different terms used for this method. Ngwenyama and Bryson (1999) name it the transaction cost theory (TCT) and define it as an economic theory to analyze a buyer-supplier relationship and structure, with the intention to minimize the total cost and maximize the total value to the firm. Ellram, Tate and Peterson (2013) name this transaction cost economics and describe it as a make-or-buy decision, based on the concept of moving from higher cost regions to regions with lower costs. The TCT deals with all costs connected to the manufacturing location decision, and includes indirect buyer-supplier relationship costs, such as monitoring costs, contracting costs, intangibles, transition costs and coordination costs (Kremic, Tukel and Rom, 2006; Ngwenyama and Bryson, 1999; McCarthy and Anagnostou, 2003).

Grover and Malhotra (2003, p. 466) call these costs safeguards and include “[…] communication, negotiation and co-ordination costs; screening and selection costs (ex ante) and measurement costs (ex post)”. Whereby ex ante means before, and ex post means after the realization of the manufacturing location decision. Some of these costs are difficult to calculate because of their variability and dependency on different operational and economic factors. Also, it is difficult to put a certain value on a relationship.

The authors discussing the TCT name two factors, bounded rationality and opportunism, which should be taken into consideration when making a manufacturing location decision based on the TCT (Aubert, Rivard and Patry 1996; Grover and Malhotra, 2003). The term bounded rationality describes that the human mind is limited and cannot “[…] receive, store, retrieve and communicate information without error” (Grover and Malhotra, 2003, p.458). In this sense, no fully rational decision is possible, which can increase the transaction costs due to recurring negotiation activities when the environment changes. Ngwenyama and Bryson (1999) argue that inaccurate information can also lead to poor decisions or missed opportunities. The second assumption, opportunism, says that one party involved in the agreement might take advantage of the other. This can be in the form of slight violations of agreements, lying, cheating or acting with guile (Grover and Malhotra, 2003). McIvor (2009) adds two more attributes, namely small numbers bargaining and information impactedness, which is defined as the availability of alternative sources and the information asymmetry between seller and buyer. McIvor (2009) listed small numbers bargaining and information asymmetry as two additional factors, which are part of opportunism, where one party takes advantage of the other, since they have more power.

The literature claims that transaction costs can increase under the effects of both factors, bounded rationality and opportunism (Grover and Malhotra, 2003). Mechanisms such as thorough contracts for every possible scenario of the relationship can of course help to
minimize the consequences of bounded rationality and opportunism, but will also result in
additional transaction costs (Ngwenyama and Bryson, 1999; Grover and Malhotra, 2003).

The three most common attributes also having a major impact are asset specificity, uncertainty
and frequency of transaction (Yang, Wacker and Sheu, 2012; Ellram, Tate and Billington,
2008; Mclvor, 2009; David and Han, 2004). Other attributes mentioned in the literature are
“[…] the difficulty of assessing the performance of the transaction” (Aubert, Rivard and Patry,
1996, p.53) and governance mechanisms (Grover and Malhotra, 2003, p.459). Within this
thesis, we will only focus on the three most common factors, namely, asset specificity,
uncertainty and frequency of transaction, because the factors named by other authors are
often just a variation or an extension of the main factors.

According to Aubert, Rivard and Patry (1996), asset specificity refers to assets which are
dedicated to specific transactions. These can be human specificity, which is special training
for employees to perform a task in a certain way, or physical specificity which is for example
equipment and tools (Grover and Malhotra, 2003). The characteristic of these assets is that
outside of the supplier-buyer relationship these assets would be worth substantially less. Apart
from the agreement, the supplier will not have any intention to maintain these assets, which is
why the supplier has greater power over the buyer and can demand higher rates (Kremic,
Tukel and Rom, 2006).

Uncertainty refers to the unexpected environmental changes, which have a direct impact on
the transaction. Especially long-term contracts are not lucrative in an uncertain environment.
Also, in uncertain environments companies prefer to perform tasks in house, because they feel
they will have more control over it (Ellram, Tate and Billington, 2008). Aubert, Rivard and Patry
(1996) add that it is very difficult or costly to measure or monitor the individuals’ contributions
within a relationship with such a physical distance.

According to David and Han (2004), the combination of high asset specificity and uncertainty
leads to an increase in transaction costs. Frequency of transactions refers to the number of
transactions within a certain time (Ellram, Tate and Billington, 2008). Aubert, Rivard and Patry
(1996) argue that in the case of less frequent transactions, the buyer might bear the risk of
opportunism. If the supplier-buyer relationship involves more frequent transactions, it will result
in higher transaction costs due to costly governance activities. All these attributes have a huge
impact on the manufacturing location decision and the supplier-buyer relationship connected
to it. Depending on the nature of the manufacturing location decision, these factors will move
the power either towards the supplier or the buyer. Therefore, depending on these three
attributes, companies use different forms of governance to stay in control of the situation and
the possible consequences (David and Han, 2004; Grover and Malhotra, 2003).

There are several ways of calculating the transaction costs including all the direct relationship
costs. The literature does not explain how to calculate the costs, it just mentions the variables
that must be taken into consideration, which is why there are different approaches. Grover and
Malhotra (2003) define transaction costs as the coordination costs plus the transaction risks.
Transaction risks are the result of opportunism and bounded rationality. The TCT’s aim is to
find the best organizational structure with the lowest transaction costs including the relationship
and risks factors (Yang, Wacker and Sheu, 2012). Grover and Malhotra (2003) define it in
another way, that the TCT helps to find the true value of a relationship.
Critics of the TCT point out several missing aspects. Different than in the RBV, the consideration of core competences and strategic resources is missing (Espino-Rodríguez and Padrón-Robaina, 2006). Companies might want to decide against outsourcing to manage competitive advantages in form of competences, know-how or other strategic resources. Another point discussed in the literature is the contradictory of bounded rationality. On the one hand, bounded rationality refers to the inability of the human mind to process all information available (Aubert, Rivard and Patry, 1996). On the other hand, the literature discusses the need of contracts to mitigate and manage bounded rationality (Yang, Wacker and Sheu, 2012). Assuming there are no fully rational decisions, then how are we able to cover all possibilities in form of contracts. Lastly, there is the difficulty to value or measure certain transaction costs limit within this model in praxis (Masten, Meehan and Snyder 1991).

2.3.2. Resource based view

This paragraph discusses the Resource Based View (RBV), which has been created by Chandler (1977), Nelson and Winter (1982) and Penrose (1959), and was further developed by Barney (1986), Teece (1988, 1989) and Teece at al. (1994). In general, the major focus of the RBV lies on the competitive advantages of a firm (McIvor, 2013; Wiesmann et al. 2017; Espino-Rodríguez et al. 2006). It argues that:” […] a business enterprise is best viewed as a collection of sticky and difficult-to-imitate resources and capabilities” (Mowery, Oxley, and Silverman,1998, p.508). Moreover, the RBV evaluates the relationship between the firms’ internal characteristics and its positioning in the market (Espino-Rodríguez et al. 2006). This creates a point of reference for the competitiveness of the firm, by focusing on an internal analysis of the firm and seeing it as a set of resources (Wernerfelt, 1984).

As Grant (1991, p.115) stated: “The RBV provides an approach that regards the firm as a set of resources and capabilities that are treated as the strengths that must be supported and that should guide the firm’s strategy”, which is confirming the definition by Mowery, Oxley, and Silverman (1998). The resources mentioned are defined as any production factors available to the firm which they can control in a stable manner, even though the ownership rights are not within the company (Espino-Rodríguez et al. 2006). According to Grant (1992), there are five resource categories: financial (tangible), physical (tangible), human (intangible), technological (intangible) and reputation (intangible). The tangible resources are easy to assess and identify because they can be put in numbers or can be seen based on data, whereas the intangible resources possess sufficient potential to be a competitive advantage, since it is difficult to measure these and thereby, also hard to imitate (Mowery, Oxley, and Silverman,1998; Grant, 1992).

According to Barney (1999), Gainey and Klaas (2003) and Grant (1991), resources can be exploited by the means of contracts, which is why the RBV as a theoretical framework may help in the manufacturing location decision. Therefore, with this perspective the approach of core competencies can be used to explain as to why companies outsource (Teng et al. 1995). Won (2015) states that the resource-based view suggests insourcing core competencies, which provide competitive advantages and find other sourcing strategies for non-core competencies. The focus on those core competencies is seen to improve a firm’s performance and furthermore enables a long-term competitiveness as opposed to a focus on price which only brings short-term success (Prahalad and Hamel, 1990). To be able to achieve a strategic outsourcing decision based on resources and capabilities, one must understand a company’s
core competencies on which organizations want to build their future competitive advantage (Bettis et al. 1992).

Since the creation of capabilities within a firm can be very costly, the RBV suggests that tradeable resources must be obtained from the market, since investment in a creation of those will not result in a competitive advantage (Gilley and Rasheed 2000). Therefore, the RBV states that a firm must already have these unique resources to have a competitive advantage, which is specificity or scarcity and uniqueness in the external market (Williamson 1991). If it is the case, that these are core competences, outsourcing of these activities would be very costly and is thus not suggested to be pursued.

The main criterion for outsourcing in the RBV is value creation. The focus is on determining whether it is a core competency, and if it makes sense to perform the operation in-house. With outsourcing, the RBV wants to help a firm gain competitive advantage, it tries to facilitate and enable a strategic decision and tries to develop capabilities reaching across organizational boundaries (Espino-Rodríguez et al., 2006; Eric, 2000). Of course, there are also risks that come with an outsourcing decision based on the RBV and those are mainly the loss of critical skills and capabilities due to wrong decisions and the lack of capabilities which would be required from an outside firm. Therefore, the importance of executing the RBV correctly is high.

2.4. Summary of the frame of reference

At the beginning of this frame of reference, we discussed the definitions required for understanding the thesis. Furthermore, we presented the motives and risks of outsourcing, offshoring and reshoring, which is necessary to understand the environment of a manufacturing location decision and what is at stake when making such a decision.

Within the last part, we considered how to get to a decision and which decision theories are available in today’s literature. Therefore, we presented the TCT and the RBV, which are the major theories in the literature for this area, even though there is criticism among both models. There are of course many other decision theories available regarding make or buy decisions, sourcing strategies or manufacturing location decisions but we decided to focus on those two, since they are the major ones in this area.

Furthermore, there are two major reasons why we decided to make use of the TCT within this thesis. First, its focus on the financial aspect of the decision. As Mathur and Kenyon (2008) state: “The purpose of a business is to create financial value, that is to earn returns more than the cost of capital”. Therefore, every decision a company makes must create financial value for the company in the long-term. The same applies to the reshoring decision, the gained advantages must ultimately result in a financial value. Secondly, the TCT is widely accepted and discussed theory within the literature and was developed and adapted over decades. The reason why we decided to also include and discuss the RBV in addition, is due to the critics on the TCT. The addition of the RBV allows us to limit the critic points of the TCT and therefore, to further discuss aspects influencing a reshoring decision. Furthermore, we decided not to utilize existing decision frameworks and models, since those do not reflect all the important factors. We wanted to build a framework, which is based on the most important and known factors and extend them with knowledge from practical experience so they are applicable to companies.
Another issue we came across, is that it is difficult to create a generic model which suits every business in every industry. Depending on the nature of a business and the industry, a manufacturing location decision is approached very differently due to the diverse motives and goals. Also, there is not much literature on reshoring decision models, which is why these models must be adapted to a new set of drivers for this type of location decision. Therefore, we want to discuss the different factors outlined in the chapters before, by summarizing them in groups of factors. These groups of factors, which are based on the theories presented above, will build a framework which focuses specifically on the reshoring decision, while taking the learnings from the outsourcing and offshoring decision into consideration.

As we showed in the frame of reference, the reshoring decision has an impact on various parts of a business based on different factors. Therefore, we compiled these factors into six groups of factors and made sure that all parts of a business are covered. The reason for selecting these six factors, was that they can cover all the factors named within the literature, while taking all perspectives of a business into consideration. This is possible, since they are on the one hand broad enough to cover many aspects without being too detailed and on the other hand, they are detailed enough, so it is possible to understand which factors are included in the respective group. The possibility of gathering all factors in another way is of course always existent, but we wanted to make sure to provide a comprehensive summary on a good level, which was possible by having these six groups (see figure 1).

Firstly, costs must always be taken into consideration, since in the long run the reshoring decision must result in an advantage and result in a profit for the company. Moreover, the cost aspect is also present in every module. Secondly, this decision highly depends on the economic and political environment. Changes within an economy can increase or decrease the attractiveness of a market and therefore, strongly influence the decision. Thirdly, the reshoring decision will have a long-term influence on the company and its structure and strategy, which must be taken into consideration. Lastly, it affects the whole supply chain, namely the supplier - buyer relationship, the operations as well as the market and customer.

The motives and risks had a crucial influence on the creation of these specific categories. Every motive or risk of offshoring, outsourcing or reshoring targets a different aspect of a business, and the categories allowed us to summarize them under an umbrella term. However, we did not want to solely base the decision framework on motives and risks, which is why we also included the input from the TCT and the RBV. This input further provided a valuable contribution to our reshoring decision framework.
2.4.1. Group of factors 1: Overall costs

This is present in all stages and groups of factors of a manufacturing location decision. First, if the company does not have the necessary resources or the relocation is not affordable, reshoring can be dismissed. Costs and profitability will always be present in the decision, no matter if it is monitoring costs, logistics costs, labor costs, the economy, the resource availability or the inequality of power between supplier and buyer.

When it comes to cost, the TCT names the issue of bounded rationality and opportunism. While bounded rationality, the possibility of missing critical information, will still be present within every step, opportunism will be limited through reshoring due to regaining control over the activities. Bounded rationality goes hand in hand with the concern within the literature of missing to calculate all hidden costs.

On the one hand, costs can increase due to higher labor costs or higher costs of resources in a country, but they can also decrease due to lower logistics costs and monitoring costs. Furthermore, costs resulting from poor quality decrease and communication issues decrease. In all stages, the costs of the different factors must be taken into consideration.

2.4.2. Group of factors 2: Economic and political environment

This group of factors discusses the economic and political changes which come with the reshoring decision. Major reasons to outsource or offshore are to gain access to know-how, new markets, technology or qualified and low labor cost. It should be carefully evaluated, if the advantages obtained at that time can also be fulfilled in the home market. Thereby, it must be mentioned that also the economic or political stability and advantages of the home versus host country should be taken into consideration. This includes the economy, politics and environment changes over time, which can have consequences on the attractiveness of a country from a company perspective. The literature mentions that the economy of former low wage countries change, which is why manufacturing becomes more expensive in those countries, especially due to increased labor costs. Although it might still be cheaper in those countries for now, more companies start re-evaluating the advantages of producing in their
home country. Therefore, it must be assessed, whether the gains outweigh the losses of the reshoring decision. Also, the governments show increasing interest in bringing back companies to create jobs and boost their economy which is why they create incentives, making production at home more attractive.

Table 1: Economic and political environment

<table>
<thead>
<tr>
<th>Motives</th>
<th>Risks or lost advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Political and economic stability</td>
<td>– Loss of access to know-how, markets and technology and other resources</td>
</tr>
<tr>
<td>– Availability of qualified personnel</td>
<td>– Loss of access to cheap labor</td>
</tr>
<tr>
<td>– Increased costs in host country</td>
<td>– Economic and political advantages of host country are lost</td>
</tr>
<tr>
<td>– Political or governmental incentives</td>
<td>– Access to innovation and best practice</td>
</tr>
<tr>
<td>– Creating new jobs</td>
<td></td>
</tr>
</tbody>
</table>

2.4.3. Group of factors 3: Strategy and long-term goals
This group looks at the implications of environmental, political and economic changes. These have a rather strong influence on the company itself and thereby on the strategy and the long-term goals. This also depends on the focus which the company has in general: is it short-term wins by outsourcing and giving away core as well as non-core competences, or is it long-term goals, looking at what will be the best for the company in the long-term. Often outsourcing or offshoring decisions have been made with the target of achieving quick cost wins.

Other factors influencing these long-term decisions are the core competences of a company and activities which could help to gain competitive advantage. According to the literature and the RBV, especially the activities which are intangible and difficult to imitate should be performed in-house. This is also a reason why more and more companies fear to lose valuable know-how and therefore, try to regain know-how and expertise. The loss of know-how also comes with the fear of being copied by other companies. Reshoring such an activity would help to protect know-how and the activity itself, since close control can be kept. This is congruent with the motive of increasing innovation by keeping important know-how, research and other core activities close together. Hereby, also the resource availability must be taken into consideration. Companies outsource to gain access to resources, such as R&D and technology, but the access to certain resources can also be a reason for reshoring. Apart from this, the literature also states that bringing jobs back to the home country can increase employee morale and therefore the productivity of the company.

Often companies are not able to achieve the expected results when they offshore, which is why reshoring could be the simple correction of a previous location decision. One reason is the miscalculation of all hidden costs, which can also happen when a company decides to reshore. Overall it can be said that a company must decide which of these strategies they want to pursue.
Table 2: Strategy and long-term goals

<table>
<thead>
<tr>
<th>Motives</th>
<th>Risks or lost advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>− Keeping know-how within the own organization</td>
<td>− Miscalculating hidden costs</td>
</tr>
<tr>
<td>− Less fear of being copied</td>
<td></td>
</tr>
<tr>
<td>− Regaining control over activities</td>
<td></td>
</tr>
<tr>
<td>− Increase in innovation due to short physical distance</td>
<td></td>
</tr>
<tr>
<td>− Increasing employee morale</td>
<td></td>
</tr>
<tr>
<td>− Resource availability, R&amp;D or technology</td>
<td></td>
</tr>
<tr>
<td>− Correction of previous location decision</td>
<td></td>
</tr>
</tbody>
</table>

2.4.4. Group of factors 4: Impact on supplier - buyer relationship

This group of factors focuses on the supplier - buyer relationship, considering raw material and the shift of power that reshoring of the production causes. The number of available suppliers and the raw material can have a huge influence on the decision. As mentioned within the TCT, if there is only a small number of suppliers, it gives power to the supplier which can result in opportunism. An industry with a lot of close suppliers allows the supply chain to be more flexible and gives the company more options and power when it comes to negotiating. Moreover, the closer the supplier is, the easier it is to audit and monitor them and the access to the resources is secured. Furthermore, it returns control to the company, which was mentioned as one of the main motives for reshoring in the literature. Overall it should be carefully evaluated if reshoring would limit opportunistic behavior of the new supplier situation and improves the firm’s situation.

The TCT hereby also mentions that the frequency of transactions plays a role when it comes to manufacturing location decisions. Meaning, when a transaction is performed more often, the company can achieve a more profitable deal than in the case of less frequent transactions. Less frequent transactions come with the fear of being exploited, in form of opportunism (Aubert, Rivard and Patry, 1996).

In that sense, reshoring could be interesting if the company deals with a consistent production and if the market offers the right resources and suppliers as well as enough capacity for production. Furthermore, reshoring the production decreases the complexity of the supply chain which makes for example monitoring, coordination and communication a lot easier. Again, it should be assessed if the advantages of having the production in the home country outweighs the disadvantages. Advantages, such as low labor costs and suppliers, flexible production volumes, sharing risk and getting rid of problem functions are factors which must be considered.

Table 3: Impact on supplier-buyer relationship

<table>
<thead>
<tr>
<th>Motives</th>
<th>Risks or lost advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>− Coordination, communication and monitoring becomes easier</td>
<td>− Lack of suitable suppliers in the home country</td>
</tr>
<tr>
<td>− Increased flexibility</td>
<td></td>
</tr>
<tr>
<td>− Lower logistics or transportation costs</td>
<td></td>
</tr>
<tr>
<td>− Less supplier dependency</td>
<td></td>
</tr>
<tr>
<td>− Regaining control over activity</td>
<td></td>
</tr>
<tr>
<td>− Decreasing complexity of supply chain</td>
<td></td>
</tr>
</tbody>
</table>
2.4.5. Group of factors 5: Impact on operations

Depending on the production set-up, reshoring becomes relevant for a company. According to the findings in literature, the critical factors within this module are type of product, degree of automation, asset specificity and capital intensity. Firstly, the decision to reshore often depends on the type of product. The most frequently motive mentioned for reshoring, are quality issues. To be able to provide good quality, many companies decide to produce in their home country. It allows them to monitor processes and quality of their products and to control the manufacturing processes easier. Another widely discussed topic within the literature is that reshoring the production often comes with new investments in equipment and facilities and eliminates the advantage of changing fixed costs into variable costs. Very important is also the degree of automation, which can replace labor intensive processes and can lead to a more efficient production, making it more profitable and attractive to produce in the home country. The fourth factor is asset specificity, when a supplier builds certain assets only for one specific company. In that case, the supplier has power over the buyer, because other suppliers do not hold these assets. On the one hand, reshoring would avoid this problem, but on the other hand, it would require rebuilding all these assets once again in case there is no supplier base available in the home market.

The fifth point, capital intensity, discusses a similar situation like asset specificity. The more capital intensive the production is, the less attractive it is to reshore, because of large investments required to move the production back. Due to these investments, it is a long-term and capital intensive decision to reshore a production, if the facilities and equipment are not already held by the company. On the other hand, reshoring comes with the advantage that less capital is tied up in form of safety stock.

Table 4: Impact on operations

<table>
<thead>
<tr>
<th>Motives</th>
<th>Risks or lost advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher and consistent quality of services and products</td>
<td>New investments are necessary</td>
</tr>
<tr>
<td>Increased flexibility</td>
<td>Variable costs are turned into fixed costs</td>
</tr>
<tr>
<td>Monitoring</td>
<td></td>
</tr>
<tr>
<td>Increasing degree of automation</td>
<td></td>
</tr>
<tr>
<td>Less tied up capital in safety stock</td>
<td></td>
</tr>
</tbody>
</table>
2.4.6. Group of factors 6: Impact on the market and customers

Lastly, the sixth group of factors discusses the impact of reshoring on customers. Many customers want their products to be produced in their home country and not in foreign countries. Reshoring might improve the brand’s reputation and ensures the right quality as well as the perceived quality of the product. Also, the production would be located closer to the customer which is why logistics costs would be lower, transport would be faster and the production could be more responsive and agile to the changes in demand. Of course, this assumes that the better part of customers is in the home country. If the production was outsourced because of access to a new market and other customers, reshoring might not make sense, because many advantages, such as a responsive supply chain would be lost. Again, it must be evaluated what gains the customers would have and if reshoring would have an impact on them and their buying behavior.

Table 5: Impact on market and customers

<table>
<thead>
<tr>
<th>Motives</th>
<th>Risks or lost advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reputation of the firm</td>
<td></td>
</tr>
<tr>
<td>Lower logistics/transportation costs</td>
<td></td>
</tr>
<tr>
<td>Increased flexibility in terms of demand</td>
<td></td>
</tr>
<tr>
<td>Closeness to key customer</td>
<td></td>
</tr>
</tbody>
</table>
3. Methodology

"Within this chapter, the methodology of this research as well as strategies and methods used to collect and analyze the data will be explained and discussed."

3.1. Research philosophy

A research philosophy that is looking at the whole complexity of a subject is the interpretive philosophy. Within this type of philosophy, researchers try to understand the full complexity and all socially constructed meanings of the subject (Saunders, Lewis and Thornhill, 2012). Walsham (2006) argues that interpretive methods assume that the reality is a social construction by human actors, which also applies to our research. Each of our analyzed cases has a unique set-up within a unique environment. Therefore, to fully understand the decision-making processes within these cases, we had to interpret the findings while also considering the natural setting and context. This includes the strengths and weaknesses of the companies, the environmental forces from the outside, but also the social construction of the case. Furthermore, just as in the interpretive philosophy, we believed that there are no definite and universal laws that apply to the cases we analyzed (Saunders, Lewis and Thornhill, 2012). As a result, our reshoring decision group of factors are a generic collection of different factors influencing a manufacturing location decision.

3.2. Frame of reference

After we agreed on our research topic and the research questions, we constructed a frame of reference. The frame of reference built the foundation of our study by helping to explore the research topic and gaining an in-depth understanding of the key issues, concepts and theories (Easterby-Smith, Thorpe and Jackson, 2015). The findings within the systematic literature review built the foundation for the following steps within our thesis. All groups of factors were created in respect to the findings within the literature review and the case studies.

To ensure validity of the thesis, we only used peer reviewed articles gathered from various accredited journals and academic books. After collecting around 70 articles, discussing the relevant topics, we evaluated the applicability for this thesis. We only included data that was relevant for the research. By critically comparing the findings of the different articles, we ensured objectivity and a broad perspective of recent discussions within the literature.

We divided the frame of reference into three parts:

First, the definitions of relevant terms, where we critically reviewed the terms by discussing the definitions within the literature and concluding on how they will be used in this study. Within the second part of our frame of reference, we identified and discussed the risks of location decisions. The idea was that every location decision is based on calculated drivers and risk factors. Therefore, these factors form the corner stones of our decision framework. We used a systematic literature review approach, where we identified relevant studies for the topic.

First, we identified relevant articles by using relevant search terms. Which search terms were used and how many articles we included in this part is described in detail in chapter 2.2. After gathering a great number of articles, we analyzed them to decide whether an article was suitable for our study or not. When an article not specifically discussed the drivers, motives or risks of the specific manufacturing location decision, it was excluded. Especially, due to the
improvements in information technology and technology, the reasons of a manufacturing location decision changed over the years. Therefore, it was important to only use recent articles, which means we excluded articles before 2002. By taking this span of years for the articles we ensured that our findings are up-to-date and useful.

The third section discusses two of the most common decision theories, which provided us with additional input for our decision framework.

All these findings within the frame of reference allowed us to create six groups of factors, which discuss different aspects that must be taken into consideration when making a reshoring decision.

3.3. Research approach

The two most common approaches to perform research, are deductive and inductive. The deductive approach is used when the researchers analyze the existing literature and develop hypotheses based on the findings (Saunders, Lewis and Thornhill, 2012). The researchers will then use a suitable method to test and either confirm or reject them (Thomas, 2006; Saunders, Lewis and Thornhill, 2012). Therefore, the deductive approach is rather applicable for testing existing theories than for creating new sciences, models and frameworks (Kovács and Spens, 2005). The inductive approach follows the opposite process. Hereby, the researchers start by collecting data from the field. This approach is used to identify common themes, patterns and eventually create new theory in form of concepts or models through interpretations by the researchers (Kovács and Spens, 2005; Thomas, 2006).

Within this thesis, we use the inductive approach. Within the frame of reference, we identified the drivers and risks of the manufacturing location decision and discussed two approaches for it. Based on these findings, we created new theory in form of factor groups. After creating the first draft, we collected further data in form of case studies and semi structured interviews, which we conducted with companies in Sweden, Germany and Switzerland. Thereby, we gained deeper insight into this insufficiently researched topic. These cases allowed us in our analysis to further develop the groups of factors and to include additional factors, which a reshoring decision is based on.

3.4. Research design

The research design describes how the research has been carried out to answer the research questions. This chapter helps the reader to understand the decisions made in the thesis and allows to repeat the study with the same terms. The research design includes the methodological choice, the research strategy and the time horizon (Saunders, Lewis, Thornhill, 2012).

3.4.1. Methodological choice

Within the section of methodological choice, the distinction and decision regarding whether to adopt a quantitative, qualitative or multiple method research design is made. Generally, the approach being used depends on the subject and the purpose of the research. In our case, the nature of the business matter is very complex and versatile. As aforementioned, one must take the whole context and all natural settings into consideration to understand it (Saunders, Lewis, Thornhill, 2012). Every business is set up differently, and it is
It is not possible to analyze the decision processes with a standardized questionnaire. Another characteristic pointing towards qualitative research is that our data collection was not standardized (Saunders, Lewis, Thornhill, 2012). Qualitative research allows to gain greater understanding of all factors influencing the subject (Gelling, 2015), or as Runfola et al. (2016, p. 116) states, this type of research has the advantage: “[…] of explaining complex connections between phenomena and their context.” Therefore, real-world scenarios can be studied through qualitative research.

On the contrary, quantitative research would require structured data collection methods to conclude a relationship between variables (Saunders, Lewis and Thornhill, 2012). In our research, the results and answers varied from case to case, which is why quantitative research would not be suitable for this interpretive analysis.

The data we used for our research is collected through interviews, scientific articles and secondary data, which is called a multi-method research. In favor of the multi-method research, Saunders, Lewis and Thornhill (2012) argue that the use of a mono method does not provide as rich data as the use of multiple methods. By using different sources of data and using different approaches to collect this data, we ensure to use enough data to draw conclusions. We will go into more detail in the next sections.

3.4.2. Research strategy

One of the thesis’ goals is to create new theory in form of reshoring decision factors. Like qualitative research methods, explorative studies also deal with the creation of new theory (Runfola et al., 2016; Barrat, Choi and Li, 2010). As in exploratory studies, we gained further insight into the topic’s nature, which helped to close the research gap (Saunders, Lewis and Thornhill, 2012).

One qualitative research strategy is the case study, which analyzes a real-life case within its context. Case studies are specific events or incidents which are analyzed by the researchers to gain deeper insight into the subject matter. They can provide answers while also taking the context and the natural settings of the subject matter into consideration (Keen and Packwood, 1995) and allow to create new theory, ideas or the illustration of new concepts (Easterby-Smith, Thorpe and Jackson, 2015; Barratt, Choi and Li, 2010).

Furthermore, case studies allow triangulation, which is the use of multiple sources to provide credibility of a study (Saunders, Lewis and Thornhill, 2012). The utilization of multiple sources enables to prove that the findings are not biased and provide neutral results. Details about the collection of data and types of sources we used, is discussed in section 3.6.1.

The next decision that was made is either to focus on one single case or multiple cases. Easterby-Smith, Thorpe and Jackson (2015) defined these two options as instrumental or expressive studies. As multiple cases, instrumental studies look at specific cases to find general principles, and expressive studies, as single cases, focus on one single case due to their unique features.

We decided that a single case would not provide sufficient and reliable data. The context in which each manufacturing firm is active, differs from business to business, therefore approaches and solutions vary from company to company. Depending on the nature of a
business, the motives and risks of reshoring differ, and especially the coverage of these factors is crucial for a generic decision framework. As Yin (2009) wrote, multiple cases are picked because of the expectation to find common or similar results. Moreover, the possibility to replicate across cases only exists in research done with multiple cases (Saunders, Lewis and Thornhill, 2012).

Yin (2009) distinguishes between two further characteristics of case studies, namely holistic or embedded cases. A holistic case study focuses only on the organization, while an embedded study also examines the sub-units, such as the departments of the organization (Saunders, Lewis and Thornhill, 2012). Of course, often the different departments have different motives to resho re activities, but the overall target is to utilize advantages for the whole organization and to outweigh the disadvantages. Therefore, we use a holistic case study design within this thesis.

Besides all the advantages of case studies, Easterby-Smith, Thorpe and Jackson (2015) look at this research strategy from a more critical perspective. They mention that the amount of data collected within case studies would allow to make any interpretation (Easterby-Smith, Thorpe and Jackson 2015). Therefore, we made sure to have a clear research design, that we select only relevant cases and that we have a clear strategy on how to collect credible data and analyze it.

3.4.3. Time horizons

The concept of a cross-sectional time horizon describes the study of a phenomenon at a certain time (Saunders, Lewis and Thornhill, 2012; Zikmund et al., 2010). It can be said that this implies a time constraint, which is true in our case. The opposite of a cross-sectional study would be a longitudinal study, which is happening over a longer period of time and is therefore also called diary perspective (Saunders, Lewis and Thornhill, 2012).

The advantage of doing a longitudinal study, is the ability to study change and development, but it is a long-time focused study. For the reasons stated above, namely the specific time constraints, we chose a cross-sectional approach.

3.5. Techniques and procedures

3.5.1. Data collection

Within this part of the thesis, we want to go into further detail of how we pursued the data collection, so in our case the interviews. The nature of our research topic demands in depth knowledge of the manufacturing location decision. Therefore, we used purposive sampling, by focusing on a small number of carefully selected cases (Saunders, Lewis and Thornhill 2012).

When it comes to qualitative case studies, one common method to collect data are semi-structured interviews, where you try to understand the meaning while taking the context into consideration (Saunders, Lewin and Thornhill, 2012). Moreover, since this interview type is unstructured, it allows the researcher to ask open-ended questions, so the interviewee must give an extensive answer (Saunders, Lewis and Thornhill, 2012). For the semi-structured interviews, we prepared an interview guide with several key questions (see appendix). Depending on the interview, we added questions, excluded questions or used follow-up questions to gain deeper insight into the topic and the interviewee’s experiences. Easterby-
Smith, Thorpe and Jackson (2015) call this technique laddering-down, where the interviewee is asked to elaborate on an answer and give specific illustrations and examples.

In the preparation for our data collection we defined criteria which companies must fulfill to contribute to our research (Easterby-Smith, Thorpe and Jackson, 2015).

- Companies must have production, such as manufacturing components or products.
- The company must be located in Sweden, Germany and Switzerland.
- A company must have experiences with location decisions of manufacturing facilities. This can involve experiences with outsourcing, offshoring, insourcing or reshoring.

We found companies via an extensive company database research and an analysis of newspaper articles concerning the location of company’s production facilities and experiences with manufacturing location decisions. Before we contacted any of the companies, we made sure that they fulfill the criteria stated above, as far as we could evaluate it externally. Our first contact with the companies was via phone or email, depending on the available contact information. During our initial call, we always introduced our topic and what we are looking for. For the process of getting interviews we contacted 50 companies in Sweden and 20 in Germany and Switzerland, which led to a response rate of eight firms.

Generally, there are no specific guidelines of how many interviews are necessary to develop a theory. Saunders, Lewis and Thornhill (2012) suggest 5-25 samples depending on the study. Considering the focus of our thesis, we agreed that 8 interviews would provide enough data to draw conclusions. In total, we retrieved 7 hours and 25 minutes of interviews with highly experienced managers (see table 6).

Before the actual interview, we provided the interviewee with the three key questions and the purpose of our research to help the interviewee understanding the topic. This allowed them to prepare for the interview, but also allowed follow-up questions where the interviewee had to give spontaneous answers.

The actual interview guide was divided into four parts: the opening questions, the questions on outsourcing and offshoring, specific questions on reshoring and closing questions (see appendix). Before starting with the first question, we asked the interviewees to introduce themselves and their company, which helped them and us to get used to the topic and the interview atmosphere. The results of the interviews can be found in chapter four, the empirical research.

If we were not able to collect all necessary information during the interviews we contacted the interviewee again in a later stage and asked for further clarifications. Also, if we were not able to have a face-to-face meeting with the interviewee, we conducted the interview via skype or telephone. On agreement with the interviewee we recorded the interview.
Table 6: Interview details

<table>
<thead>
<tr>
<th># and location</th>
<th>Position of the interviewee</th>
<th>Interview type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1: Sweden</td>
<td>Operations Manager</td>
<td>Face-to-Face</td>
<td>70 min</td>
</tr>
<tr>
<td>C2: Germany</td>
<td>Director of Supply Chain</td>
<td>Phone interview</td>
<td>60 min</td>
</tr>
<tr>
<td>C3: Sweden</td>
<td>Supply Chain director</td>
<td>Phone interview</td>
<td>30 min</td>
</tr>
<tr>
<td>C4: Sweden</td>
<td>Logistics Engineer</td>
<td>Face-to-Face</td>
<td>70 min</td>
</tr>
<tr>
<td>C5: Sweden</td>
<td>Logistics Manager</td>
<td>Face-to-Face</td>
<td>45 min</td>
</tr>
<tr>
<td>C6: Switzerland</td>
<td>Vice President Global Precision mechanics, Director Production Engineering and Projects Global Operations</td>
<td>Face-to-face</td>
<td>65 min</td>
</tr>
<tr>
<td>C7: Germany</td>
<td>Supply Chain Manager</td>
<td>Face-to-face</td>
<td>60 min</td>
</tr>
<tr>
<td>C8: Sweden</td>
<td>Supply Chain Manager</td>
<td>Phone interview</td>
<td>45 min</td>
</tr>
</tbody>
</table>

Besides the semi-structured interviews, we also collected secondary data from the companies, if available helping us to further understand their location decision making processes. We used the secondary data also for triangulation and providing credibility of our study. In this thesis we used presentations, information brochures and reports provided by the interviewed company and online articles, company webpages and annual reports found online.

3.5.2. Data analysis

After completing the data collection, the next step was analyzing the data. As there is no general or standardized process for data analysis, we want to explain our choices and our approach in this section.

Saunders, Lewis and Thornhill (2012) suggest, when utilizing a qualitative approach for the data collection, a qualitative approach should also be used for the data analysis to capture and work with the data in the right way. In general, Saunders, Lewis and Thornhill (2012) state that data which is derived from words, as it is the case with qualitative analysis, makes it more ambiguous and complex to analyze, than with quantitative data. Keeping the research quality high and clarifying the purpose of the collected data requires thorough interaction between data collection and data analysis. To ensure this, we followed the outlined procedure suggested by Saunders, Lewis and Thornhill (2012): Summarizing Data (compiling of meanings); categorizing data and structuring and analysis of data.

By summarizing and transcribing the complete interview, we made sure that all mentioned points were considered in the analysis. Furthermore, when transcribing, we made sure to capture the actual words as well as the context in which these words were said into the transcript (Kvale and Brinkmann 2009; Saunders, Lewis and Thornhill, 2012). When using electronic textual data, as for example documents that were provided by an interviewee, we anonymized the data by excluding information that would compromise the anonymity of the interviewee. Since the transcripts of the interviews were often long, we did a summary of the transcript, to achieve a better overview of the material in form of groups of factors.

For the next step, the presentation of our empirical results, we grouped the data according to the themes outsourcing/offshoring and reshoring. This allows documenting a structured overview of the interview results. The themes used, were partially provided by taking the research questions as well as the interview questions into consideration. We wanted to
connect each theme to the purpose of this thesis. Therefore, we assigned the findings at the end of the empirical research to the relevant groups of factors.

In the analysis step, we compared the findings presented in the frame of reference, to the findings of the interviews, while also considering our groups of factors. We did so by making a thorough analysis of both outputs, group by group and added the new findings of the case studies. Furthermore, we used a cross-case analysis, displaying one group of factors and adding and comparing all the findings from our case studies. All of this is then used in the conclusion for answering to the research questions and purpose of our study.

3.6. Research quality

To ensure credibility of our research, we will have a closer look at the research quality and want to explain our approach in the following paragraph.

3.6.1. Reliability

Reliability is concerned with whether the data collection techniques and analytical procedures produce consistent findings. Therefore, if the research would be replicated, the results should be the same. We took two major approaches. Firstly, we described the procedures we used in detail in the introduction part, as well as in this methodology part. We reviewed the description multiple times to ensure that it is understandable without misinterpretations. Secondly, we looked at the threats that can occur to reliability. These threats in general imply that we must be methodologically rigorous, meaning that the execution was made in a way to avoid threatening the reliability of our findings and conclusions (Saunders, Lewis and Thornhill, 2012). Therefore, we described each step of the process in detail allowing others to judge or replicate the study for themselves.

According to Saunders, Lewis and Thornhill (2012), there are four threats to reliability: participant error, participant bias, researcher error and researcher bias. Participant error can be any factor altering the way in which a participant performs. We avoided this by scheduling the interviews to times where this was no threat. Participant bias is closely connected to participant errors, as it is any factor inducing a false response by the participant. We avoided this by ensuring a good environment for the interview. A research error would be any factor altering the researcher’s interpretation and researcher bias would be any factor inducing bias in the researchers’ recording of responses. By always making sure to get a second opinion, reviewing our findings multiple times and thoroughly transcribing our interviews, we also avoided those two threats.

3.6.2. Construct validity

The second major point is construct validity, describing the extent to which measurement questions represent the presence of the targeted constructs. In our case, this is closely connected to the interviews, since this is the main input on which measures have been applied. By firstly conducting an extensive literature review, and crafting a frame of reference which is capturing relevant factors, we made sure to have these as a part of our thesis. In the next steps, the interview and the analysis, we worked with an iterative process to check the validity of the measures and if they were measuring the intended factors.
3.6.3. Internal validity

Internal validity is established when a research demonstrates a causal relationship between two variables (Saunders, Lewis and Thornhill 2012).

The threats to internal validity are: past or recent events, which change a participant's perception; the fear of future consequences due to answers; instrumentation; mortality; maturation and lack of clarity about cause and effect. Measures we took against those were, being informed about the companies and possible incidents, making sure the interviewee knew that we treated their answers confidentially. Moreover, sticking to the same tools and methods throughout the research, taking only a snapshot of a certain time and thereby, avoided changes of opinions and thoroughly analyzed the causes and effects of the different phenomenon we looked at with an iterative process.

3.6.4. External validity

External validity is concerned with whether the findings can be generalized to other relevant settings and contexts. For this study, we can say that within the delimitations set, the research findings can be generalized. For any use, more than for the ones indicated, new studies or tests would have to be performed to ensure that the findings are applicable. This thesis was made as a theoretical study with input from practical experience. Therefore, it is difficult to say that it can be used generally, since it would have to be tested and adapted extensively to fit specific settings.

3.7. Research ethics

Here, the process and considerations when trying to gain access to companies for undertaking this research, including possible ethical concerns arising when pursuing our research are shown. This is especially important when human participants are involved. (Saunders, Lewis and Thornhill, 2012).

According to Saunders, Lewis and Thornhill (2012), there are the following ethical issues: integrity and objectivity, respect, avoidance of harm, privacy, voluntary participation, right to withdraw, informed consent, confidentiality and anonymity, responsibility in analyzing and reporting, data management compliance and safety. These issues are regarded within each step of the research, depending on their applicability. Therefore, we want to go into further detail what the steps of our research are and explain the ethical issues and considerations during each step based on the framework by Saunders, Lewis and Thornhill (2012).

3.7.1. Formulation and clarification of the research topic

While formulating the research topic, we acted openly by taking a vast amount of literature into account, ensuring that we looked at all important factors to fulfill the purpose of this thesis. Furthermore, we were truthful by making limitations and showing the scope we want to cover. Since we improved our research topic continuously, we increased its accuracy. By taking different author’s opinions into account, as well as having a clear method of citation, we were avoiding deception and dishonesty. This also ensured to recognize our responsibilities to those who will take part in the study, since we can give them a clear statement on what to expect from this thesis. Connected to this, it is important to avoid any kind of harm to participants, which we always ensured. Furthermore, we avoided the possibility of misinterpretation of data.
and other findings by defining the required terms at the beginning of this thesis and clarifying the meaning of statements.

3.7.2. Research design and access

The first ethical issue in this step is the right to absence of coercion by the researcher. Meaning, that the voluntary nature of the study must be kept and the right not to participate in the research project is unchallengeable. Additionally, those who decided to take part in the study, could always determine how and in which way they want to contribute to our study. Secondly, the participants had the right of being fully informed about the study. Thirdly, the right to give informed consent of those taking part in the study. Meaning, to give enough information so the interviewees can decide if they want to participate. This includes anonymity and confidentiality.

3.7.3. Data collection

The next point is the maintenance of objectivity throughout the data collection. Since the interviews for this thesis will always reflect an opinion or a personal experience of one or more persons, we always made sure to not being influenced by their opinion. The next point is the right to confidentiality and anonymity. As said before, the focus of our research was always on the “how” and never on the “who”, thereby we were always interested only in the experience and findings a participant had and never in the participant himself. The next point considered, is the right to quality research, which in other words includes the importance of keeping integrity and objectivity throughout the whole data collection process. The last point is the need for debriefing, referring to the fact that we informed the research participants after conducting the interview about what we will do with their data and what the outcome of our research was.

3.7.4. Data processing and storage

Here it is important to maintain objectivity, which is ensured by looking at the collected data from a distance and by reviewing different opinions on the topic. Since research always involves personal data of some kind, regulations regarding the processing of personal data must be taken into consideration and followed. Within this step, also the agreed consent was observed. This means that participants were aware that their interview answers were processed from our side and that they approved this. Furthermore, we double checked the collected data with other findings, opinions and statements to ensure validity and credibility.

3.7.5. Data analysis and findings reporting

Within this step, the right to absence of coercion was valid again and we made sure to maintain our objectivity by also utilizing the helicopter view, where we were looking at the overall approach of our thesis and tested it for objectivity. In general, it can be said that we upheld all assurances concerning anonymity, privacy and confidentiality throughout the step of analysis and the reporting. We made sure to report all findings fully and accurately, no matter if they were contradicting our expected outcomes. All analyses and interpretations we made, were checked carefully, both by ourselves and during the seminars for this thesis.
4. Empirical research

Within this part, the results of the interviews will be presented. A short introduction about each company will be given, followed by a summary of the interview. This includes the main points of the interview and the strategy or plans the company is pursuing. The findings are reported from the point of view of the interviewee and display their opinion and experiences. The companies interviewed had both experience in reshoring but also outsourcing, insourcing and offshoring. Since the interviewees experience in these areas have been made over a long time, they are included in this part, allowing us to use the learnings from these decisions and utilize them for the reshoring decision.

4.1. Company 1

Company one is located in Sweden and has a special kind of ownership, since the ownership is a Foundation. Furthermore, the company is in the wood and furniture industry. The general strategy of the company is to have a regional supply, meaning, that they try to have their production facilities as close to the market as possible. The product characteristics are bulky, big and produced in large volumes. Their major target is to have low production costs and to offer affordable products. The company produces high volumes and has a quite stable demand, partially influenced by seasonality. They also have a strong believe in sustainability, which is always being considered when making a strategic decision.

4.1.1. Offshoring and outsourcing experience

According to the interviewee, most companies’ major motive for offshoring are quick wins. Through a quick analysis of the salary level between two countries, a calculation on a yearly basis is made and the savings will be calculated. Also, short-term focus was a major reason for reshoring to emerge according to the interviewee. This is even more valid, since many companies are stock owned and have a hard time justifying long-term investments. In short-term, the people and the countries where companies outsource to benefit in form of jobs, but in the long run cultural differences will get obvious and companies must deal with them. One must create an understanding, so the people in the outsourced country know why they are doing certain things. Otherwise they will just do what they are told to and it will not last over time.

Around 15 to 20 years back, as offshoring became interesting, the decision was often purely based on direct salaries. A lot of companies have been successful according to the interviewee, but many also struggled, since important factors were not taken into consideration.

The part which was especially missed, was the soft part, namely the culture, the way of considering quality and the way they treat the sustainability agenda, which has grown a lot especially in Sweden in the last five years. According to the interviewee, it is a general mentality that the fastest way to make a product cheap is to decrease the salary costs, but it is the direct material which is the biggest cost driver. The sustainability agenda is very important for the company and it was said that this must be considered even more in the future, especially when looking at the logistics that is done today. In the future, according to the interviewee, it will come down to a regional supply.
4.1.2. Reshoring experience

According to the interviewee, the culture, the way of working around quality and the sustainability make companies reconsider their offshoring decision. Another reason is the salary increase, which is for example 8-10% in the case of China. This increase eats up most of the savings achieved by offshoring. In general, the interviewee said that if you don’t have a defined way of working with quality, the losses of the material costs will eat up all the gains and benefits accomplished previously through a low-cost salary country. Another motive for reshoring named was an increase in automation. An example was a factory in Slovakia where they had low wages but their competitiveness compared to other plants was negative. In 2007, the decision was made to reshore this production to Sweden and build a completely new plant which has a very high degree of automation. One reason for the decision to reshore the facility to this specific town was that the raw material required for the production is manufactured in the same town. This newly built factory operates seven days a week with three shifts and per shift there are only 16 employees needed to run the whole plant. In total, they produce 10,000 wardrobes a day. When comparing to the old factory to the new one, the productivity of the old one was 5,4 m² per hour, while the new built automatized plant has a productivity of 85 m² per hour. This makes the new plant the best in the whole production network when it comes to price. Since the company has a long-term view when it comes to such strategic decisions, the high initial investments for this plant were not an issue. Their investment horizon of four to five years, is according to the interviewee a major advantage compared to companies on the stock market that must show quarterly results.

Therefore, to come to a decision, one should look at the main cost drivers. The main cost driver, according to the interviewee, are the direct material costs. The cost is the highest for materials sourced from a long distance. The second point are the direct salaries, which make usually 12-18% of the product cost. The interviewee pointed out that, when looking only on direct wages, one misses the bigger picture, since those costs are only a small part of the total product cost. This was also confirmed by the experience the interviewee had in the metal industry, the telecommunication industry and the contractionary industry.

Table 7: Findings Company 1

<table>
<thead>
<tr>
<th>Group of factors</th>
<th>Company 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall cost</td>
<td>Main cost drivers must be taken into consideration: 1. Direct material 2. Direct wages 3. Depreciation Quick monetary wins named as reason for offshoring → focus on cost calculation when making reshoring</td>
</tr>
<tr>
<td>Economic and political environment</td>
<td>Not forget about the soft part (culture, values, considering quality) Salary increase another factor of why to reshore</td>
</tr>
<tr>
<td>Strategy and long-term goals</td>
<td>Depending on the ownership of the company, long-term decisions cannot be possible because quarterly results are demanded Regional supply as long-term solution for all companies Make decisions with long-term focus</td>
</tr>
<tr>
<td>Impact on supplier-buyer relationship</td>
<td>Raw material availability Mostly own manufacturing plants and therefore not applicable Control over production Decreasing complexity of supply chain by having regional supply</td>
</tr>
<tr>
<td>Impact on operations</td>
<td>Usability of automatization as reason to reshore Way of working with quality as major reason for reshoring, all savings will be reversed when quality not good</td>
</tr>
</tbody>
</table>
4.2. Company 2

The second company is located in Germany. It is a limited company and operates in the semiconductor testing industry. Their general strategy is to outsource everything and therefore they source by looking for the best fit worldwide. On the one hand, the product is characterized by high technology and capital intensiveness. On the other hand, mostly standardized components are used for the production. Furthermore, the company is a specialized capital equipment manufacturer and the product cannot be marketed and shared to a wide customer base, since it is very specialized. The demand for the product is very volatile, they have small lot sizes and the produced volume can differ a lot, from two units to 60 units per month. The company sees its core competence in the development and marketing of their products, the establishment, definition and management of their supply chain. In general, the company has a three-step supply chain: First, components, which are purchased from standard manufacturers worldwide. Second, the design which is made in-house. And third, the final assembly of the customer configured product.

4.2.1. Offshoring and outsourcing experience

The company’s general strategy is to outsource their production process, which they have been doing since the 1990’s. As they were producing everything on their own in the 1980’s, they realized that it would be better to utilize their capital in another way, than investing it in the very expensive machinery. Since 2006 all production processes, with one exception which will be explained later, are outsourced. Offshoring was never an option for this company, since they can only realize the benefits if they give away the responsibility completely. Especially for the final assembly this is true due to their volatile demand. Also, it may be easier for an external partner to provide the required flexibility, since they can devote the freed-up production capacity to other companies.

The selection of the partner happens by firstly checking if the product is suitable for an outsourced supply chain, which means, looking at the volume, the product characteristics and the volatility of the demand. The actual selection happens with the criteria of cost, quality, checking how the partner can fulfill the supply chain requirements, which are a short lead-time, flexibility and the logistics concept, so which market or customer the product will go to. Also, the design of a product must be regarded in this process, sometimes the design and architecture is so difficult, that an external partner can only produce it with the help of an engineer and then it would be better to produce it internally. One requirement which is very important in general, is the flexibility of the partner to cope with fluctuation in the number of produced units.

In general, they are looking at the complete solution to see which supply chain set-up makes sense. One of the important points according to the interviewee is to especially look at the people working at the partner. This means, who will be the ones to manufacture or assemble the product, how is the company’s culture, what is the size of the company and do the companies fit together. Furthermore, long-term goals should be considered and where the partner invests and if the possible partner has experience or references in this specific field.
All these questions are a key to a good partnership for this company. The topic of how to protect intellectual property is of importance for the company, since they work together closely with external partners even during the development process. Therefore, all intellectual property topics are regulated via contracts. The reason for this is mainly to protect the products as well as the ideas and architecture behind it. Considering that the product contains a lot of know-how and customization, the fear of other companies re-engineering the product is rather low, as it would be very cost intensive and difficult.

The question of outsourcing affects the whole company according to the interviewee and it also affects future developed products in the sense of that they must fit an outsourced supply chain. This means, keywords like design for manufacturing or design for supply chain are relevant. At this point and to show the approach of the company we selected one citation from the interview: "From my experience it is not possible to say, ok, we are looking for a partner to take out a maximum profit, so we don't care how the partner is doing because we can just change partner." Meaning their best option is to work together with the partner instead of just focusing on the price.

4.2.2. Reshoring experience

This company has no direct reshoring experience, but the factors stated for the outsourcing decision are according to the interviewee the same that they would consider for a reshoring decision. Furthermore, the company shifted and changed production partners often, which made them knowledgeable in the field of evaluating the fit of external partners for their purposes. Therefore, they developed a catalogue of criteria that partners must fulfill. Even though the company stated that it is difficult to evaluate some factors before an outsourcing decision, they learned from mistakes and reversed unbeneificial decisions.

Additionally, they kept a production facility in Germany. The reasons for keeping it there, are factors that should be regarded when making a reshoring decision. In this German facility, they produce zero-series and support product launches. Additionally, the development of new products and the first prototypes, which must be integrated into a system, is performed there. Furthermore, a validation if the set-up works and what must be changed on the hardware or software takes place in this facility in Germany. The proximity of test engineers and research and development co-workers, which is given in the plant in Germany, is a major reason for the decision to keep it in Germany. Since the development of a new product is an iterative process, this proximity is indispensable. Also, looking at the architecture and complexity of the product is an important factor for the decision to produce a certain product in Germany. Some of the products are rather complex which is a result of their architecture and their production process. In this case, development engineers are needed to produce the product and according to the interviewee, this is much easier when done in the German facility.
<table>
<thead>
<tr>
<th><strong>Group of factors</strong></th>
<th><strong>Company 2</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall cost</td>
<td>– While cost is an important factor, a reliable and competent partner is often more critical</td>
</tr>
<tr>
<td>Economic and political environment</td>
<td>– Availability of qualified personnel at the supplier</td>
</tr>
</tbody>
</table>
| Strategy and long-term goals         | – Comparison of the long-term goals and investments of both companies to see if they fit  
– Ability to protect intellectual property  
– Proximity as benefit when it comes to research and development, as well as very complex products |
| Impact on supplier-buyer relationship| – Flexibility required  
– How can a supplier fulfill the supply chain requirements like short lead-time, flexibility, logistics concept?  
– Capabilities and skills of the manufacturing partner’s employees  
– Easier coordination, communication and monitoring  
– Reduction of logistics costs                                                                                                           |
| Impact on operations                 | – Fit of the product for a reshored supply chain (design, degree of production difficulty)                                                                                                                  |
| Impact on the market and customers   | – Lower logistics costs                                                                                                                                                                                     |

### 4.3. Company 3

Company number three is located in Sweden and operates in the textile industry, producing high quality products with a premium price. Their general strategy is to outsource the production, but only within Europe. Furthermore, they keep a close cooperation with their suppliers, defining which production methods they should use and which production steps to do. Therefore, it is unclear whether this could also be called offshoring, because they keep close control. They collect the specialist knowledge for their product from all over Europe and they face an increasing demand for their product. For this company, it is important that the core part of their business stays in Sweden and therefore, the headquarters and small parts of the production as well as the warehouse are located in Sweden.

#### 4.3.1. Offshoring and outsourcing experience:

The company has a long experience in offshoring, since they started to move out of Sweden 25 years ago, as the volume required for production increased significantly. With the conscious decision of outsourcing to European suppliers exclusively, they kept the production close to their head offices and are thereby able to maintain a close cooperation with their suppliers. Since all the important knowledge for their product is available only within Europe, this decision has been kept until today, even though many other textile companies have their production in Asia. The company does not want to own the factories themselves, but keep close control of the performance and the processes pursued within the company. This kind of control and cooperation with their partners requires a close relationship and transparency. This transparency is required for the production process but also for the actual costs that occur in the production. Other factors that are relevant for the selection of future production partners are the possibility of this partner to grow with the company to a certain extent, the amount of
business the possible partner has and that they are willing to be transparent as well as that they want to engage in long-term relations to ensure a high-quality level. In general, the point of sustainability plays also a big role within the company and is another major factor for the decision to stay within Europe, to have short delivery times and to avoid harming the environment by long transports.

4.3.2. Reshoring experience

The company does not have direct reshoring experience, but what is of same importance is the reasons why they kept their headquarters, their warehouse and some production in Sweden. The company has a long history of being a family owned company, which is still shown in a very strong family culture, also making the heritage of the company important. All of this is connected to the location of Sweden, which stands for their high-quality level and heritage, as well as the experience they collected in their almost 90 years in business. Everything from design to marketing over planning, quality, warehouse and distribution and the finance department is still located in Sweden. By building a warehouse two years ago, they strengthened their will to stay in Sweden, even though the labor costs are high in Sweden. They also have a small production facility in Sweden, where they have a running line and perform some of the operations. Despite that one would think this cannot be reasoned from a cost perspective, new employees and customers are impressed by this and therefore, it serves the company as a marketing tool. Additionally, it gives the designers and engineers the advantage of being able to make test products before going to the bigger factories and start a series production.

Table 9: Findings Company 3

<table>
<thead>
<tr>
<th>Group of factors</th>
<th>Company 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall cost</strong></td>
<td>– Always must be considered</td>
</tr>
<tr>
<td></td>
<td>– The exact costs must be calculated</td>
</tr>
<tr>
<td><strong>Economic and political environment</strong></td>
<td>– Availability of qualified workers with knowledge of special techniques</td>
</tr>
<tr>
<td><strong>Strategy and long-term goals</strong></td>
<td>– Culture, quality and heritage of the company connected to the home country</td>
</tr>
<tr>
<td></td>
<td>– Less fear of being copied as reason to avoid low cost countries</td>
</tr>
<tr>
<td></td>
<td>– Innovation increase due to closeness of special suppliers</td>
</tr>
<tr>
<td></td>
<td>– Possibility of doing research and development tests</td>
</tr>
<tr>
<td><strong>Impact on supplier-buyer relationships</strong></td>
<td>– Close relationship and transparency required</td>
</tr>
<tr>
<td></td>
<td>– Ability to grow</td>
</tr>
<tr>
<td></td>
<td>– Increased flexibility due to possibility of also producing on their own</td>
</tr>
<tr>
<td><strong>Impact on operations</strong></td>
<td>– Depends where the knowledge is coming from</td>
</tr>
<tr>
<td></td>
<td>– Possibility of having higher and consistent quality of the product</td>
</tr>
<tr>
<td></td>
<td>– Possibility to monitor product each step of the way</td>
</tr>
<tr>
<td></td>
<td>– Tied up capital reduced due to short transporting</td>
</tr>
<tr>
<td></td>
<td>– Ability to produce zero series or new products</td>
</tr>
<tr>
<td><strong>Impact on the market and customers</strong></td>
<td>– Perception of high quality product</td>
</tr>
<tr>
<td></td>
<td>– Marketing effects which are increasing firm’s reputation</td>
</tr>
<tr>
<td></td>
<td>– Lower logistics costs</td>
</tr>
<tr>
<td></td>
<td>– Sustainability by having short delivery times and avoiding transport</td>
</tr>
</tbody>
</table>
4.4. Company 4

Company four is also located in Sweden and produces outdoor power tools for average consumers and professional users. They distribute their products under different brands and hold 20% market share with potential to grow. Their major markets are North America and Europe, and they expand in Japan and China through acquisition of smaller brands. The company employs 13,000 people in 40 different countries.

Depending on the product, the production volume varies strongly. Due to their high-quality products and the necessary expertise to produce them, they only offshored and not outsourced the production. It is very important for them that specific know-how, research and innovation stays in-house. Their targets for the future are to achieve sustainability, to increase the company’s productivity through automation and to become a market leader. Furthermore, they put increasing focus on their battery power tools due to the technological improvements in this field and the increasing awareness of the customer for environmental friendly products. The core competencies are design, innovation, research and technology. Since these core competencies are linked to the production, they rarely outsource it. On the other hand, if an activity is not directly linked to a core competence, it might be outsourced. Therefore, their outsourcing or offshoring decision strongly depends on core competencies and their future goals and plans.

4.4.1. Offshoring and outsourcing experiences

The company’s sourcing strategy depends on the core activities of the company. On the one hand, they keep their core competencies in-house, on the other hand they use outsourcing of components as a tool to gain special competencies and knowledge of their suppliers. An example mentioned by the interviewee was the change of the production method. In the 1960’s the company had many plastic products. Therefore, these plastic products were one of their core competences at that time. Once the products changed and more aluminum and magnesium components were used, the plastic ratio and the volume of these products decreased and they decided to outsource the plastic components to domestic suppliers. Another crucial factor for the company is the production volume of a component or product. Once it drops below a certain level, it is not reasonable for the company to produce it in-house. Consequently, markets with lower labor costs become attractive. The fear that comes with outsourcing is the lack of control and the fear that the supplier cannot deliver, which is why they audit and monitor their suppliers closely. The interviewee also mentioned the possibility of leaking information to competitors through a supplier or the longer transports coming with outsourcing the production. The company mostly chooses their supplier based on their ability to fulfill the task. Often these suppliers hold specific know-how or are simply the market leader in that area.

Other than that, the company has different experiences with offshoring. By offshoring they can keep know-how, technology and expertise in-house, while also having the advantages of a low labor cost country. The offshoring decision within this company was often driven by low labor costs in other countries. Therefore, they offshored whole products or components to locations such as China, Japan and the USA. In certain regions, it was not necessarily only the low labor cost, but also the availability of qualified labor. Furthermore, the company often uses offshoring as a tool to achieve higher production volumes and scale advantages. Especially in Europe, the decision where to produce depends on the demand within the different countries. If one country sells more than 75% of a product, they move the whole production of that product...
there. The reasons are scale advantages, closeness to customer and logistics costs. When the demand is spread over multiple countries, they move production facilities close to the regions where they sell at least 50,000 pieces a year.

Additional factors that influence the decision are the economic and political stability of a country. They carefully assess, whether the production in a certain country has a future or not. Often the countries they offshore to, is where their suppliers were located. They acquire these suppliers and offshore the production to that location. It gives them the possibility to keep know-how and control within the company. Also, the supplier already has the necessary equipment, facilities and capacities required for production.

One problem they were confronted with was communication. The different languages or metric systems can often cause misunderstandings between the offshored or outsourced entity. Another problem were the consequences for the reversed logistics processes. They have customers all over the world and if a customer had a problem with a product this person had to ship it back all the way to the production facility. This process was very time consuming and expensive.

4.4.2. Reshoring experiences

Since a few years, the company also considers to reshore their production to Sweden. As the automation in Sweden increases, producing in the home country becomes more and more interesting. The interviewee mentioned the change of the economy and the labor costs in the countries abroad, which make the reshoring decision increasingly attractive. Furthermore, they have most of their customers in Scandinavia, and being close to the customers increases responsiveness and makes the reversed logistics and customer service more efficient. Lead times become shorter and logistics costs decrease. Producing in Sweden would also have the effect to improve brand reputation and gives the perception of a high-quality product. Due to the reason that their current focus is on increasing productivity through automation, reshoring becomes more realistic and affordable.

A reason speaking against reshoring, is the lack of space in their location in Sweden. Moving back production would require a lot of space and the reorganization of the rest of the site.
Table 10: Findings Company 4

<table>
<thead>
<tr>
<th>Group of factors</th>
<th>Company 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall cost</strong></td>
<td>- Cost component plays a huge factor</td>
</tr>
<tr>
<td></td>
<td>- Degree of automation and level of productivity has huge influence on affordability of production in a country with high labor costs</td>
</tr>
<tr>
<td></td>
<td>- Total costs = Unit price + logistics + costs of relationship</td>
</tr>
<tr>
<td><strong>Economic and political</strong></td>
<td>- Evaluating the economic and political stability of a country to assess whether the production in a country has a future</td>
</tr>
<tr>
<td><strong>environment</strong></td>
<td>- Resource availability in either market, home or host country, plays a huge role (e.g. space, capacities, labor)</td>
</tr>
<tr>
<td><strong>Strategy and long-term goals</strong></td>
<td>- Decisions are based on core- and non-core competencies.</td>
</tr>
<tr>
<td></td>
<td>- Know-how, innovation, research and technology must stay in-house to have a competitive advantage</td>
</tr>
<tr>
<td></td>
<td>- Closeness to customer improves reverse logistics and customer service</td>
</tr>
<tr>
<td><strong>Impact on supplier-buyer</strong></td>
<td>- Keeping control over core activities to avoid losing know-how</td>
</tr>
<tr>
<td><strong>relationship</strong></td>
<td>- Communication and monitoring becomes easier</td>
</tr>
<tr>
<td></td>
<td>- Same language and metric system is of advantage</td>
</tr>
<tr>
<td></td>
<td>- Losing or leaking important know-how decreases by producing in-house</td>
</tr>
<tr>
<td><strong>Impact on operations</strong></td>
<td>- Consistency and level of quality can be increased</td>
</tr>
<tr>
<td></td>
<td>- Automation makes production more affordable</td>
</tr>
<tr>
<td></td>
<td>- Productivity is a lot higher in Sweden</td>
</tr>
<tr>
<td></td>
<td>- Scale advantages must be taken into consideration</td>
</tr>
<tr>
<td></td>
<td>- highly depends on the product, if it is a customized product with low or high volumes</td>
</tr>
<tr>
<td><strong>Impact on the market and</strong></td>
<td>- Responsiveness to customer and lead-time increases</td>
</tr>
<tr>
<td><strong>customers</strong></td>
<td>- Better reverse logistics and customer service</td>
</tr>
<tr>
<td></td>
<td>- Brand reputation</td>
</tr>
</tbody>
</table>

4.5. Company 5

Company five is also located in Sweden and produces painting tools for average consumers and professional use. Their main markets are the Nordic countries, where they are the leading supplier for painting tools, and Great Britain. They employ 250 people, while half of them are located in Sweden. In 2012, they were acquired by a Norwegian company, although they operate independently from them. All their products have a high and relatively stable production demand. Their production facilities are in Sweden and in China in form of a joint venture. In Sweden, they use a lot more machinery for production than in China, where many production processes are still carried out manually. Their long-term goal is to grow as a company by acquiring smaller competitors to increase their market share and competitiveness.

4.5.1. Offshoring and outsourcing experience

This company has experiences with offshoring in form of a joint venture in China. The initial motive to outsource their production to China was to stay competitive. After their competitors started producing painting tools in low labor cost countries, the company had to make the same move to stay competitive. The low labor costs also have a big influence on adjustments during the production. When a product has a defect and it must be fixed manually, it only costs a few cents in China. In Sweden on the other hand, such an adjustment would cost probably more than the product itself. This factor plays a huge role when it comes to products with low production costs and high quality.
To avoid bad reputation, they made sure that the quality of the products stayed the same when building the joint venture in China. The customer was not supposed to notice the move of their production to a low labor cost country. Furthermore, they decided not to outsource all products and to keep parts of the production in Sweden. This allowed them to keep know-how within the company and if they would want to move the production back to Sweden, they would still have the necessary facilities and equipment to produce locally. Therefore, they would not have to make new large investments. With the interest of finding the perfect supplier or joint venture partner in China, they visited several manufacturers in China. The partner chosen by the company already had experience with painting tools, which strongly influenced the decision. Important for them was to only outsource very cheap and basic painting tools, because of the fear of being copied.

Challenges they faced during the outsourcing process were the loss of control over production and quality. Also, the flexibility decreased and misunderstandings between the company and the Chinese partner arose. Often these problems resulted from cultural differences or the different language. For example, they had to learn that “yes” does not always mean “yes” in China. Their Chinese partner tended to agree on terms he struggled to fulfill.

4.5.2. Reshoring experiences

The big advantage of producing abroad according to this company are low labor costs. Therefore, they outsourced cheap products with low automation to take full advantage of the low production costs abroad. A few years ago, after the joint venture in China reached the breakeven point, they discussed moving the production back to Sweden. One issue was that they were afraid to lose production in Sweden and would not have enough work and thus, would not be able to fully utilize their capacities. The changing economy in China also played an important role. Labor and material cost increased, which is why the market lost its attractiveness over time. The company also faced the problem of high stock and long lead times, which was due to the reason that the production in China was not very flexible. A change of the production would result in delays of the whole supply chain. New material would have to be ordered and production would have to be changed. One of the main reasons for the company to reshore was also that a big customer asked them to produce in Sweden. Customers would believe the product is of higher quality and put a higher value on it. In contrast to other companies, automation does only play a role in terms of reshoring for certain products. Many painting tools still require handwork to achieve high quality. For these specific tools, automation is a factor to reduce costs, but does not help to improve quality.
### Table 11: Findings Company 5

<table>
<thead>
<tr>
<th>Group of factors</th>
<th>Company 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall cost</td>
<td>– Low production costs are important to stay competitive&lt;br&gt;– Lowest possible costs, while keeping quality the same</td>
</tr>
<tr>
<td>Economic and political environment</td>
<td>– Resource availability influences decision&lt;br&gt;– Increasing costs in host country favor the reshoring decision</td>
</tr>
<tr>
<td>Strategy and long-term goals</td>
<td>– Important to keep know-how within the company&lt;br&gt;– Products which they fear being copied are produced in Sweden&lt;br&gt;– Keeping capacities/parts of the production at home to be flexible in terms of the offshoring and reshoring decision&lt;br&gt;– Otherwise reshoring comes with new investments in equipment, facilities, know-how and qualified personnel</td>
</tr>
<tr>
<td>Impact on supplier-buyer relationship</td>
<td>– Communication across cultures can lead to misunderstandings&lt;br&gt;– Monitoring and coordination becomes easier&lt;br&gt;– Logistics costs&lt;br&gt;– Flexibility and lead time improves&lt;br&gt;– Select supplier based on experience</td>
</tr>
<tr>
<td>Impact on operations</td>
<td>– Consistent quality&lt;br&gt;– Less tied up capital in stocks&lt;br&gt;– Low price products with high manual rework are not affordable when producing in a country with high labor costs&lt;br&gt;– Automation used only in specific processes. Other processes are very labor intensive therefore production abroad comes with huge advantage.</td>
</tr>
<tr>
<td>Impact on the market and customers</td>
<td>– Brand reputation&lt;br&gt;– Product quality perceived higher when produced locally&lt;br&gt;– Increased responsiveness and shorter lead-times</td>
</tr>
</tbody>
</table>

### 4.6. Company 6

This company is a multinational and its headquarter is in Switzerland. Since 2005 they are part of a Swedish group and are fully owned by them. The company employs more than 2,400 employees, whereby half of them are in Switzerland. They produce high-end systems for geographic measurements and the product portfolio offers a wide variety of different measurement products for mostly professional use. Moreover, the products are based on complex technologies and a long history of research. Also, the production volume varies a lot depending on the product. Specific products, with rather low sales, are produced on demand, while other products are produced in high volumes and on stock. Some of these products also involve a lot of manual work. Offshoring and outsourcing is used by the company as a common strategy to stay competitive and to improve the product.

#### 4.6.1. Offshoring and outsourcing experiences

The company offers very complex products and to produce these, many different activities must come together. The company does not want to take care of all these activities themselves. They argue that many other suppliers might be able to provide better services than they can do themselves. The interviewees also pointed out that the product life cycles become shorter and shorter. A company in this industry is not able to deal with all these changes, which is why they need suppliers who can deliver what they need. Overall, offshoring and outsourcing serves as a common tool to improve their products and makes the production more efficient. In the headquarter in Switzerland only processes they consider as their core
process are kept. Since their products are very know-how and technology intensive, they try to keep these processes close to them. When they decide to outsource an activity, they emphasize a close relationship to their new partner and the idea is to profit from each other. They stated that suppliers will gain more orders, while the company achieves lower prices for components due to scale advantages through the supplier. To achieve great results, their relationships are based on mutual trust and transparency, where both can learn from each other. Therefore, they often involve employees of their supplier in their own projects.

The interviewees mentioned that many products turn into commodities at some point, where it is not possible or worth to develop them further. These commodities are usually offshored or outsourced, because the next logical step is to try to produce them for a lower price.

Furthermore, they offshored their production to China 30 years ago. Besides the advantage of low labor cost, they moved there to be closer to their customers. Back then, China was a booming market for geographical measurement devices. On the one hand, they were closer to their customers, on the other hand, this boom also increased the availability of engineers with professionalization in this area. Many other companies in this industry also moved there, which is why also know-how and technology was increasingly available there. Furthermore, the interviewees mentioned that their products have a high-price and many companies cannot afford Swiss-made products. The cheaper production in China allowed the company to sell their products in countries with a less strong economy. Additionally, parts of the production are still very labor intensive and China offered low labor costs as well as qualified labor. The additional resources in China allowed the company to grow and increase their capacities.

As mentioned before, the products are very capital intensive, so if products are shipped across the world, a lot of capital is locked-up on these ships for weeks. Another challenge is to find the right supplier. One that either already has the necessary competencies or one that has the potential to grow with help of the company, so both can profit from each other. Other challenges are also quality and delivery issues, which is why they audit their suppliers on a regular basis. A problem the company came across since they moved the production to China is being copied, which is unavoidable.

Another challenge they faced was the loss of know-how through outsourcing and offshoring. As mentioned before, their products are very complex, and after producing them abroad for such a long time, people in Switzerland do not have the necessary in-depth knowledge to fully understand the product and how it is produced and developed. The company started to put increasing effort in bringing back this know-how to Switzerland.

4.6.2. Reshoring experience

The company does not have specific experiences in reshoring, but with insourcing and moving the insourced activities to Switzerland. Due to the reason that their industry is very technology intensive, they must invest a lot in research and development to increase their market share. A way to gain new know-how, experienced employees and technology is to buy start-ups and move them and their resources to the companies headquarter in Switzerland. Moreover, often these acquired start-ups do not have the capacities or resources to produce in large volumes, so both profit from each other.
Reshoring also becomes interesting when there is a major shift of how the production is carried out, when technology changes. For example, when 3D-printing becomes more applicable for certain parts of the production.

Table 12: Findings Company 6

<table>
<thead>
<tr>
<th>Group of factors</th>
<th>Company 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall cost</td>
<td>Low costs are important to stay competitive</td>
</tr>
<tr>
<td></td>
<td>Decreasing production costs especially important for commodities</td>
</tr>
<tr>
<td></td>
<td>Producing in countries with low production costs to make product affordable for other markets too</td>
</tr>
<tr>
<td>Economic and political environment</td>
<td>Choosing the market according to the resource availability, proximity to key customers and research</td>
</tr>
<tr>
<td></td>
<td>Qualified labor with education in the company’s field</td>
</tr>
<tr>
<td>Strategy and long-term goals</td>
<td>Outsourcing and offshoring used as tool to achieve best practice and get access to important resources</td>
</tr>
<tr>
<td></td>
<td>Product development, technology, know-how should be kept in-house; among others, to avoid being copied</td>
</tr>
<tr>
<td></td>
<td>Availability of R&amp;D, technology and other resources</td>
</tr>
<tr>
<td>Impact on supplier-buyer relationship</td>
<td>Should be based on mutual trust, both can profit from each other’s know-how and experiences</td>
</tr>
<tr>
<td></td>
<td>Lead times</td>
</tr>
<tr>
<td></td>
<td>Monitoring costs to ensure quality can be high, but must be seen with regards to costs and profit of the product. In the case of high price products, the monitoring costs are just a small proportion.</td>
</tr>
<tr>
<td>Impact operations</td>
<td>Capital intensive production requires new investments if moved</td>
</tr>
<tr>
<td></td>
<td>Quality must match customer expectations</td>
</tr>
<tr>
<td></td>
<td>Changes in technology can redefine how and where the production is set up</td>
</tr>
<tr>
<td></td>
<td>E.g. 3D-printing and automation can make production more affordable in Switzerland</td>
</tr>
<tr>
<td></td>
<td>These changes would come with high investments</td>
</tr>
<tr>
<td></td>
<td>Capacities and scale advantages must be considered</td>
</tr>
<tr>
<td>Impact on the market and customers</td>
<td>Market was chosen depending on the proximity to customer</td>
</tr>
<tr>
<td></td>
<td>Increase flexibility and delivery time</td>
</tr>
<tr>
<td></td>
<td>Long delivery times, e.g. by ship, binds large amounts of capital</td>
</tr>
</tbody>
</table>

4.7. Company 7

Company number seven is located in Germany and is a worldwide manufacturer of different machinery and technical solutions. They are established within the market for more than 165 years. Since the company has 351 000 employees in more than 200 countries this company operates at a true global scale. The focus of this interview was on a company division within the power generation sector. This division of the company offers gas turbines, steam turbines and generators and the ownership of this company is a holding. Their general strategy is to find the best production locations based on facts and figures by having thorough processes and tools.

4.7.1. Offshoring and outsourcing experiences

Within this company, the manufacturing location decision is called make or buy decision and is made in cooperation with manufacturing and purchasing. They had both good and bad experiences when it comes to outsourcing. A bad experience was when they did not look at
total cost, since they did not take qualification cost and expediting cost of the supplier into account. An example named was a component they wanted to source from China, since it was 60% cheaper than if they would produce it in Germany. What they did not consider, were the flight costs to China as well as the expediting and qualification cost. Furthermore, as they only produced 30 of these parts per year and the costs for each one of them was 2 500 Euro, the savings were eaten up fast and in the end, they had to pay more than they saved. In this specific case, the volume was too low to utilize the benefits of outsourcing.

Another challenge named by the interviewee was the miscalculation of the manufacturing cost. Often, these were calculated too ambitious and therefore, had unrealistic results. This includes hourly rates, processing times and fixed cost which are not calculated right due to the reason that the manufacturing does not want to lose production to an external partner or to another production facility abroad. The interviewee provided an example where this was the case. As a plant in Germany did not want to give away a component to the plant in Hungary, their calculated costs were suddenly unrealistically low, but when the real costs were visible, they were a lot higher than those calculated before.

The company calls this manufacturing footprint, where they assess which products and components they manufacture themselves, which manufacturing locations are in their network and who should produce which products. The overall goal has always been to keep production costs as low as possible. The interviewee was part of this project and therefore had in-depth knowledge about the learnings and outcomes.

Whenever production is moved to another facility, the company must deal with the unused capacities and the workers. Therefore, an increase in production costs might result in workers losing their jobs. According to the interviewee, it should then be calculated how much it would costs to either requalify the people or also to consider the option of laying off workers and the costs connected to it. This one-time cost often determines if it is worth to offshore or if the investment will take several years until it pays off. The primary target of the manufacturing footprint project was to save costs. They saved 36 million Euro, which had a substantial influence on the product price.

The experience they got from that project was that the task to decide on the manufacturing location was done by people from within the facility. Mostly, the assigned employees did not even want to take this task due to personal relations and thereby social pressures in the plant and consequences resulting from a decision. Therefore, taking a neutral person for these kinds of decisions was named as a learning by the interviewee. Another improvement would be the willingness to take decisions. Often, even though they had the facts and figures, the responsible employees did not dare to decide.

The factors they are taking into consideration when making such a decision, are mostly fixed and variable cost like hourly rates, processing times, qualification cost and qualification times and logistics costs. These obviously will increase with a longer physical distance. Therefore, the interviewee said that they do a total costs consideration plus the one-time costs that could occur. Other important topics named are logistics, expediting and financing of the project. Furthermore, it is also important to look at production areas that get freed up due to a decision, meaning when production is moved, the area that has been used before is now empty.
Before making any of these decisions, this company defines via a matrix what their core competencies are and what is not a core competence. This company does not want to outsource a core part and thereby already closely predetermines part of the decision.

4.7.2. Reshoring experience

The experience the company has in this field is mostly due to capacity utilization. Depending on the order situation, capacities got freed up that had to be utilized. Therefore, the pressure to move manufacturing back for parts that they have outsourced or offshored before due to a high demand increased, when the order volume was shrinking. Even though it will be more expensive to do it in-house, since the fixed costs are higher, they decided to take it back. This was named as a mostly political decision to utilize the given capacity.

Another reason for reshoring according to the interviewee could be quality problems, where partners cannot deliver the quality standards even though the company tried to support them with additional qualification methods. In general, this provided two possibilities. Either the supplier does not have the capabilities to do it or it is the companies fault, since they did not qualify the partner in the right way. According to the interviewee, the qualification of suppliers is a difficult topic. This is since they require qualified engineers, but also the manufacturing people that have the knowledge of how to produce the components. Often the motivation of manufacturing employees to teach their competence to others is not very high, due to the reason that they must share the competence and responsibility and are therefore replaceable.

Mostly, the company took back the production when they realized that the production technology provided in the market does not provide reliable results. Furthermore, when the supplier does not have the know-how and machinery for the technology, they would have to invest a considerable amount of money which then increases product prices significantly. Before considering the possibility of reshoring or outsourcing and offshoring the topic of raw material availability is a precondition for a decision. The company looks at their supplier base and thereby gets a clear overview of all possibilities.

A general comment that was made by the interviewee, is that the question of how to include the people is very important when making a manufacturing location decision. When giving responsibilities to another country, people in this country will be very happy to get more responsibilities, but the company must on the other hand work with the fears and reservations of the people handing over the tasks. According to the interviewee, it is the company’s responsibility to motivate them to give up their tasks and transfer their knowledge and responsibilities. This can be done for example by developing a benefit system and by trying to find the right people for this. Nevertheless, it should be kept in mind that it is possible that the situation changes and then the people will be needed again.

Furthermore, it was stated that direct wages account for only 10% of the product price. When looking at labor costs in Germany, one can see that they are high but the productivity per hour must also be taken into consideration. There can be a substantial difference in productivity within countries. For example, the interviewee experienced that the productivity in Germany is noticeably higher than in Russia.
Table 13: Findings Company 7

<table>
<thead>
<tr>
<th>Group of factors</th>
<th>Company 7</th>
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</thead>
</table>
| Overall cost                           | − Target is to find lowest total cost  
|                                        | − Consider total cost plus possible one-time cost  
|                                        | − Fixed and variable costs (hourly rates, processing times, qualification cost and times, logistics cost)  
|                                        | − Expediting costs  
|                                        | − Calculation of manufacturing costs must be done correct  
|                                        | − Consider one-time costs for employees due to requalification or lay-offs  
|                                        | − Financing of the project  
| Economic and political environment      | − For special technology, manufacturing knowledge needed  
|                                        | − Include the employees when deciding  
|                                        | − Find best location based on data and facts  
|                                        | − Productivity per hour  
|                                        | − Taking external people to decide because of less social pressure and distance to decision → neutral decision  
| Strategy and long-term goals           | − When technology available in the market is not reliable  
|                                        | − Define core competences to protect these  
|                                        | − Having centers of competence  
|                                        | − Morale of employees increasing when they can keep responsibility  
|                                        | − Moving back from previous decisions due to miscalculations  
|                                        | − Utilize given capacity  
| Impact on supplier-buyer relationship  | − Volume that is available for production  
|                                        | − When there is a lack of suppliers for a special production knowledge  
|                                        | − Reliability of technology  
| Impact on operations                   | − Being able to build flexibility to cope with order fluctuations  
|                                        | − Ensuring quality  
|                                        | − Freed up surfaces should be utilized  
|                                        | − Expediting of decision  
|                                        | − Raw material availability  
| Impact on the market and customers     | − Ability to react on fluctuations and without impact on product price  
|                                        | − Lower logistics costs  
|                                        | − Ability to provide lower prices to customer  

4.8. Company 8

This company is located in Sweden, but owned by the same holding as company seven. They also operate in the power generation business - producing gas turbines from four megawatts to 425 megawatts. Their general approach is like company 7, since it is the parent company. Therefore, their main target is to search for the best manufacturing locations worldwide and to have centers of competence for certain manufacturing processes. One specific characteristic that must be taken into consideration is that their products are very heavy.

4.8.1. Offshoring and outsourcing experiences

The company developed a process that deals with outsourcing, offshoring, reshoring and insourcing decisions. Within this process, the production and procurement work closely together, since both departments’ expertise and know-how is important for such a decision.
First, they calculate how many turbines they can produce within a year. In general, they need 40 gas turbines per year to break even. Secondly, they assess the flexibility of their available production capacity. This might include the possibility to increase or lower the capacities and the output through means such as working overtime. Having this kind of flexibility allows them to avoid under absorption, meaning that they have more capacity than orders, which is a major problem in plants in the company’s manufacturing network that have not implemented this process yet. With the help of their process, they can cover the fluctuation in orders which would otherwise mean over- or under absorption. Therefore, this flexibility must be given in machining and in terms of manpower. Possible solutions are temporary workers, consultants and workers who can run more than one machine. Furthermore, the company’s long-term investment strategy aims to open critical bottlenecks in the production.

The interviewee stated that motives for producing in-house could be that either the processes are best practice and you have the lowest production costs, or that you want to keep and safeguard critical activities. Critical refers to the difficulty of finding suppliers due to the reason that it is an important part for the function of the product.

Another strategic factor the interviewee named is that the company aims to avoid single sourcing of components, due to the reason that a lot of profit is generated in the aftermarket. The ability to protect certain parts from competition comes with being thorough with the way they are protected, for example by core- or non-core considerations.

On the other hand, when looking at the buyer side, they want to achieve the lowest possible cost and therefore, use a total cost approach. For example, if the external costs are 25% lower than producing it in-house, they will always source it from outside. Are the cost advantages less than 25%, the component is in the flex zone, meaning, that they can either produce themselves or outsource the component. Again, this strongly depends on the demand and the degree of utilization of their capacities.

The interviewee said that they of course want to do what is best for the business. Therefore, before they apply a make or buy decision, they define what the core competencies and what the non-core competencies are. Of course, core competencies can change over time, due to technological improvements or other changes in the supplier network.

Furthermore, they use a triangle approach for any kind of decision, including three perspectives, namely time, quality and price. Time could mean the necessity of a shorter lead-time. Since the products are very heavy, the lead-time from China to Sweden can take up to nine weeks. Time can also be punctuality, so when you are forced to produce certain components in-house to have a better control over them.

4.8.2. Reshoring experience

According to the interviewee, technology could be a reason for reshoring. An example named was a component that was very difficult to manufacture and therefore, they had to produce it in-house. After some years, the technology got cheaper, easier and available for everyone, which is why they moved it to one of their own plants in Hungary. A specific reason was the lower labor costs in comparison to Sweden. After some years, a new technology for the same component emerged, which is more complicated again, and since they have the necessary
know-how they moved it back to Sweden again. Therefore, in Sweden they only have products which require complex machining and processing.

Another reason for them to reshore is the lead-time, which is becoming more critical with the variations of customer specific offers. When the customer specific offering is too high, they have lower volumes for the single components and it gets less interesting for the suppliers in low cost countries to produce these small volumes. Furthermore, in this specific case, having the suppliers close to the production comes with the advantage of increased flexibility.

The location of raw material must also be taken into consideration. This was the case for one component where machining was required right before finalizing the component. Otherwise the component would not have the necessary quality. Apart from this, the location does not play an important role according to the interviewee, since raw material can be obtained easily in other countries.

In general, it was added that there is always a political dimension to these kinds of decisions. Meaning that there are agreements with unions where certain things are promised, which is especially the case in Germany. Furthermore, often it is demanded that a certain production must have a local share when it is imported.

Additionally, it was said that general trends should be taken into consideration, such as the trend of moving from global to local. This means that countries are less open when it comes to taking part in global trade, since they want to keep production in their own country.

Table 14: Findings Company 8

<table>
<thead>
<tr>
<th>Group of factors</th>
<th>Company 8</th>
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<tbody>
<tr>
<td>Overall cost</td>
<td>– Total cost approach</td>
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<tr>
<td></td>
<td>– Lowest possible costs</td>
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<tr>
<td></td>
<td>– Triangle for decision: time, quality, price</td>
</tr>
<tr>
<td>Economic and political environment</td>
<td>– Political dimension should be regarded in terms of agreements</td>
</tr>
<tr>
<td></td>
<td>– Trend of being more local</td>
</tr>
<tr>
<td></td>
<td>– Requirements for local share</td>
</tr>
<tr>
<td></td>
<td>– Technology reason to reshore e.g. difficult manufacturing</td>
</tr>
<tr>
<td>Strategy and long-term goals</td>
<td>– Thorough process of defining core competences</td>
</tr>
<tr>
<td></td>
<td>– Build flexibility in production and manpower</td>
</tr>
<tr>
<td></td>
<td>– Decide based on what is best for the business</td>
</tr>
<tr>
<td></td>
<td>– Regaining control in terms of lead-time and punctuality</td>
</tr>
<tr>
<td>Impact on supplier-buyer relationship</td>
<td>– Respect views and expertise of manufacturing and procurement</td>
</tr>
<tr>
<td></td>
<td>– Easier coordination and communication with suppliers</td>
</tr>
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<td></td>
<td>– Lead-time reduction</td>
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<tr>
<td>Impact on operations</td>
<td>– Consider product characteristics</td>
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<td></td>
<td>– Possibility to use the production in a flexible way</td>
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<tr>
<td></td>
<td>– Aim to open critical bottlenecks</td>
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<tr>
<td></td>
<td>– Better control of quality and monitoring</td>
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<tr>
<td></td>
<td>– Availability of raw material</td>
</tr>
<tr>
<td>Impact on the market and customers</td>
<td>– Lower transport and logistics costs</td>
</tr>
<tr>
<td></td>
<td>– Ability to provide lower prices to customer</td>
</tr>
<tr>
<td></td>
<td>– Increased flexibility due to strategy</td>
</tr>
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</table>
4.9. Summary of the empirical research

In this chapter, we displayed and summarized the findings of our case studies. All relevant findings where then listed in tables and categorized according to the groups of factors.

On the one hand, the findings strongly differed depending on the company, since each company considers the reshoring decision from a slightly different perspective. Although, the general considerations that the companies named are all related to a total cost approach, even though the nature of the industries differs quite a lot.

When compiling the findings of the interviews, the broad formulation of the groups of factors facilitated an allocation of the findings. Therefore, we could add almost all findings to the groups of factors without having to modify them.

Two new dimension that were added through the analysis of the empirical research, were the cultural differences and the customer awareness for sustainability. Both must be taken into consideration when a company is making a reshoring decision, since they can influence the reshoring decision substantially. Customer awareness fits to the group of factors considering the customer. Cultural differences on the other hand was more difficult to assign to a group. We decided to add it to political and economic environment, due to the reason that cultural differences are also an external factor which cannot be controlled by the company, such as other factors within this group.
5. Analysis

This chapter combines the findings from the theoretical framework and the empirical findings. The group of factors from chapter 2.4 formed the basis for the analysis. The findings of all companies are compiled based on the groups of factors to enhance and develop them. An overview of the results, sorted by groups of factors, can be found in the appendix. It is possible and intended that some factors are named in multiple groups, since they can be considered from different perspectives.

5.1. Group of factors 1: Overall cost

As said before, the question of the costs connected to a decision and the benefits or losses that come with a decision are present in all stages of the manufacturing location decision. All eight interviewed companies named costs as one of their major motives for making a manufacturing location decision. Mostly, costs were not named solely as the motivation, but rather as a moving factor which must be assessed and monitored closely. Four out of eight interviewed companies stated the term total cost, as explained in the TCT in chapter 2.3.1. The other four companies indicated that they also use this approach but did not directly name it. Interestingly, company 4, 7 and 8 stated that they additionally use major elements of the RBV. This confirms what we stated in the frame of reference, that there are shortcomings to both models which companies also discovered and try to overcome by utilizing the benefits of both decision theories. Furthermore, when naming the factor cost, almost all the companies named the factor quality directly afterwards. Therefore, the goal is not to have the lowest possible cost, but it is to have the lowest cost while providing a certain product quality.

The next finding was that four companies stated that they have parts of their production abroad to lower the total cost for the customer. When looking at the reshoring decision this is interesting in two ways. First, this means that there must be a balance of capacity between the production locations the company has available. Therefore, it would be better not to offshore or reshore the complete production, but parts, to ensure that the balance in the network is kept. Second, the factor of automation plays a major role as a facilitator for reshoring. Even though only two companies specifically named automation, it is still important for their industry. Automation was also named in the literature, whereby the motivating factor for automation in the literature was an increase in quality and reduce costs, such as labor costs (Wiesmann et al., 2017). Three of our interviewees stated that automation is also strongly connected to the productivity of the company in terms of their output. Productivity can be a major reason for reshoring and must be considered when making the manufacturing location decision. According to several companies, there is a difference in productivity between countries. One interviewee said that for example the productivity in Germany is higher than in Russia. The same was said by another interviewee from a Swedish company in relation to Sweden.

Another point named by almost all companies is that it is not possible to only look at the salary cost for employees. Two companies said that the direct salary cost is only of secondary importance, there are also other costs that must be taken into consideration. One interviewee summed up the main cost drivers. First, it is direct material costs, second it is the direct wages and third the depreciation. All of this can also be confirmed when looking at the findings from the literature, that there are often hidden costs which must be taken into consideration. Therefore, when a company decides to reshore, it should not only focus on the direct labor
cost, but also on other costs coming with it, as mentioned within the TCT, the transaction risk and coordination costs.
For some companies these other costs are connected to the core competences, for others they are connected to raw material. It was mentioned by one interviewee, that the offshoring decision mostly focused on quick wins, which disregarded the long-term consequences. Therefore, the interviewee stated that the reshoring decision is the logical consequence of offshoring.

Another finding we want to point out are the one-time costs, which can come with a decision, meaning, costs such as the requalification and reallocation of employees. When closing a production location due to reshoring, these costs must be taken into consideration. Otherwise, the decision could in the worst-case cause additional costs for the company and negatively affect the profitability of the decision.

One finding that all companies agreed on, is that a low price or in general low total cost is one main target of reshoring. Every decision must result in some sort of financial value for the company and the customer.

5.2. Group of factors 2: Economic and political environment

The second group of factors discusses factors within the economic and political environment that must be taken into consideration when making a reshoring decision. Any changes within the economic and political environment can suddenly shift the attractiveness of a country. As company seven said, it is important to look at all the data and facts to decide whether a location is suitable for the production or not. Moreover, a company should not only assess the current economic attractiveness, but also the countries trends and future attractiveness.

Many companies named increasing material and labor costs in their previous host countries as a major reason for reshoring. This agrees with statements within the literature, that labor costs start to rise in countries with once low labor costs (Fratocchi et al., 2016). Company one said that already a salary increase by just 10% eats up most of the monetary gains achieved by offshoring. Additional to the costs of production, also other political incentives must be taken into consideration. In the literature, we found that specific tax advantages or similar benefits enabled by the government are used to make a country more attractive for a company (Wiesmann et al., 2017). An increasing number of countries use these methods to bring back production and create new jobs. Hereby can be added what company 8 said, that agreements with unions must be taken into consideration and that these influence the reshoring decision.

The attractiveness of a country is also closely connected to its stability and the degree of uncertainty within a country and its future (Kinkel, 2014). A heavily fluctuating currency and an uncertain political situation within or across borders are the first indications when a company should reassess the manufacturing location decision. Company 8 also adds that some countries want to have a local share within a product. This means that to be able to sell a product, a fraction of the product must be produced within that country. This of course can have a huge impact on a manufacturing location decision, especially when a big part of the customers sit in one country with such specific regulations.

With reshoring, the advantage of not having to deal with cross-cultural communication arises. Cultural differences can lead to misunderstandings resulting from language barriers, different
working morale, religion, ethics and different goals and values. Therefore, communication and coordination will supposedly be easier, more efficient and cheaper when the production is being reshored. Company 1 stated that different countries might have a different understanding of quality, which can result in a conflict. Company 5 made similar experiences and had to learn that other cultures communicate more indirect, which can lead to misunderstandings when two different cultures clash. These different working morals can also result in different levels of productivity, simply due to the employee’s mindset towards work and their reliability.

All eight companies repeatedly named the availability of resources in form of raw materials, qualified labor, technology and capacities as an important factor. Which resources are of special importance for a company strongly depends on the nature of their production. The goal of company 4 is to lower production costs, which is why they look for resources such as low cost labor. Company 3, 4, 6, 7 and 8 on the other hand named their interest in finding qualified labor, with an education in a very specific field to allow innovation and technological development. Hereby Tate et al. (2012) mentioned that there is an increasing shortage of skilled labor in countries with low labor costs. Therefore, both, the findings in the literature and in the case studies point to reshoring from low cost countries.

Company 6 further discussed that the attractiveness of a market also strongly depends on the research being done within that country and the number of qualified graduates. Hereby, it is important to mention that even if all necessary resources are available, the accessibility to these resources must be assessed, and whether the infrastructure allows an effective use of these resources.

5.3. Group of factors 3: Strategy and long-term goals

The third group of factors focusses on the strategy and long-term goals coming with reshoring. Before going into details with the analysis we want to point out a statement made by an interviewee: “The decision should be based on what is best for the business”. This can be taken as a leading statement for this group of factors, since the reshoring decision has a considerable influence on a company’s strategy and thereby its long-term goals.

The first factor, named by four companies, was the required investment in equipment that comes with reshoring. In the literature, low initial investments in new equipment and facilities, was especially discussed as an advantage of outsourcing (Liu and Tyagi, 2016). Of course, if this factor is applicable depends on if the company already manufactured this product or component before in their home facility, or if they start completely from scratch. This again depends on how technology intensive the product is, and since the interviewed companies differ a lot in terms of the complexity of the product, this can result in higher or lower investments.

Connected to this is the next factor, availability of the technology in the market, meaning the technology a company would need, to be able to produce a product. This was mentioned by three companies and is first, a reason for reshoring and second, a reason why investments in equipment are required. Furthermore, two companies mentioned a company’s strategy to build centers of competence to avoid these issues with the availability of technology in the market. To be able to do this, companies must define their core competences to evaluate what they can outsource, or what they must keep in-house, which was directly named by three companies but also implied by the other companies. The consideration of whether a product or component is core-competence is done by every company, either by protecting their
intellectual property, or by having a thorough definition of their core- and non-core components. Company 5 even specified this further, by stating that they keep products, where they are afraid of being copied, in Sweden. In the literature, this is also clearly stated as an important factor connected to the RBV. The same can be said about the fear of being copied and imitated and thus lose a competitive advantage. The fear of being copied was not only named by several interviewees, but was also found within the literature.

Another point is the heritage and culture of a company which should be considered when building a strategy and the long-term goals. Especially for company 3 this plays an important role, since they identify themselves with this strong culture and heritage stemming from their history. Therefore, this influences the decision in terms of what the company’s background and their goal demands from them. Company 3 considered this issue by keeping a part of the production and their headquarters in the town where the company was founded. The same goes for company 1 that puts a strong focus on culture and values, which is why they mentioned similar things than company 3 in this context. Of course, this is not applicable for all companies, but when it is applicable it has a major influence on the company's strategy.

When making the decision to reshore, also the benefit of having research and development close to the company, as well as keeping suppliers close, has a major influence on the business, since it promotes research and development activities. This was named by five companies and these companies make use of the close production, when it comes to the research and development, since this is much easier and will be promoted when having it close to where the engineers or product developers are located. In the literature, Tate et al. (2014) agreed with this and said that the physical distance can hinder innovation. This is again connected to the availability of qualified personnel, which was named by three companies. In other words, the know-how must be available at the reshored location, otherwise the employees must be requalified or if there are no qualified personnel available they must be employed from other locations and this will substantially increase costs.

Another implication of the strategy chosen is the employee morale (Canham and Hamilton, 2013). As stated by company 7, the morale will be influenced in a negative manner when the production is offshoring, but in return this means that the morale can be increased when bringing jobs back to the home country. This was named by two companies and can be confirmed by findings from the literature which state that reshoring increases the morale as well as the productivity of employees. These factors can then be connected to the communication strategy a company chooses. Are they open and honest in the way they communicate with their employees? This was named by two companies and especially company 7 named this as a major drawback when making the decision. According to them, the people affected are often not included enough in the decision process. They further stated that the decision should be made by externals or external consultants to provide full objectivity and neutrality.

Lastly, a strategic reason for reshoring is the correction of previous decisions that turned out to be wrong. As for example described by company 7 and 8, when they corrected previous decisions and reshored production because they did not achieve the expected results. This factor is also confirmed by the literature research. In general, it all depends on the long- or short-term focus of the decision and what the company wants to achieve.
5.4. Group of factors 4: Impact on Supplier – buyer relationship

This group discusses the different factors that change within the supplier-buyer relationship when a company decides to reshore. With reshoring comes the restructuring of logistics processes and the building of new supplier-buyer relationships.

With the change of existing and the creation of new supplier-buyer relationships also the exertion of power will change. As identified in the TCT, the shift of power can have a huge impact on the performance of a supply chain. Opportunism can result from lack of governance mechanisms, agreements and trust. The availability of qualified suppliers and the type of agreement can strongly affect the performance and financial result of a company. Company 6 hereby mentions that trust is a very important factor. In their case supplier-buyer relationships are long-term agreements, where both can profit from each other. This of course requires that they do not take advantage of another. Therefore, the length of a partnership will influence the willingness to invest in assets that are built especially for one buyer.

Reassessing all supplier-buyer relationships provides the opportunity to build new close and transparent relationships, where both can profit from each other. Company 3 names the importance that a supplier has the capacities and resources to grow with the company, when the sales increase and more volume is needed. Company 6 adds that both buyer and supplier can learn from each other and improve processes and cooperation. This again requires high transparency and trust between supplier and buyer, which was named by company 2 and 3. Company 4 says that reshoring allows to keep specific know-how closer to the headquarter and the closeness to the supplier allows to monitor how they handle company specific knowledge and processes. The loss of know-how can lead to disadvantages, such as in the case of company 6, who invested a lot of resources in regaining access to the know-how and expertise held by offshored production facilities. The literature hereby argued, that companies want to keep know-how within the company, but simultaneously they also want to have access to the know-how and expertise of suppliers (Fratocchi et al., 2016). Therefore, the knowledge and buyer-supplier relationships must be carefully handled.

Another factor named by company 4 was that regaining close control over activities allows to build and preserve know-how within the company. But it should be evaluated if this specific know-how provides competitive advantages, because resources such as space, capacities and man-power, which could have been spent on other projects, are now spend on the reshored activities. Furthermore, the monitoring costs would decrease due to close control over the activity. According to company 6, the monitoring costs should always be seen in respect to the total production costs. If the company offers expensive high-end products, the monitoring costs are only a small portion of it. When it is a low-price product, then the monitoring costs and other facilitating costs can have a major impact on the total costs of the production.

Four companies stated that reshoring the production brings back close control over the processes, which agrees with the literature. The question is, whether reshoring improves the flexibility and lead-time of the suppliers. Again, this depends on the available suppliers. The concern of company 2 is, if the available suppliers have the capacities and resources to improve the flexibility and the lead-time. Therefore, the capabilities of a supplier must be carefully evaluated. Company 2 adds that having the production and suppliers locally also decreases the complexity of the supply chain, which increases its transparency. This allows to
reduce logistics costs and increases responsiveness by being able to manage the processes more efficiently.

The result from the interviews and the literature also show that the short physical distance makes communication and coordination across activities easier and faster, which was also specifically mentioned in the literature. As company 4 and 5 explained, reshoring additionally avoids misunderstanding caused by different languages or the use of different measurement systems.

Overall, within this group of factors, major motives to reshore were decreasing logistics costs, proximity to key customers and increasing responsiveness. Although it must be mentioned, when the home country is not the major market of a company, reshoring does not come with all the identified advantages.

5.5. Group of factors 5: Impact on operations

Within this group of factors, the factor quality was named by all eight companies. Also, in the literature quality was the most mentioned motive for reshoring. Resulting from the interviews, the term quality can then be subdivided in two other terms. First, the wish and target to have the right quality. Second, the possibility to monitor all processes closer when having the production close to the headquarters where the responsible functions of a company are located. This confirms the findings from the first group of factors once again, that it is not only about the price. When the quality is not right, companies will lose their customers and thereby their position in the market. Therefore, quality is one of the most important factors when it comes to reshoring, which agrees with the findings from the literature.

Here we want to add again the ability to monitor the processes and production at each step of production process that comes with reshoring. A lot of cost connected to monitoring will be obsolete when reshoring, since it will be produced in the company’s own facilities where close control is given. Therefore, this is directly connected to quality in the end.

Automation as a facilitator for reshoring, and sometimes even as the most important facilitator, was named by three companies as well as in the literature. As outlined in the empirical research, one company even created such a big increase in productivity, quality and cost efficiency, that they are now the best when it comes to costs, even though they are in a country with comparably high production costs. One of these three companies named automation as facilitator only for special processes. Nevertheless, it is needed for these processes to run smoothly.

Another important factor, named by two companies, was to check whether the product is a good fit for reshoring. One of the companies defined this clearer by saying that they look at the product design and at the degree of production difficulty. This means in other words, are we even able to produce this product? Do we have the knowledge that is required? Or do we have to get the knowledge first before we can start production? Is the product highly customized and does it have high or low volumes? If it would be a low-price product that requires a lot of manual work, it will most probably not be possible to produce it in a country with a high wage level, as one company stated.

With this comes the question of how flexible the company will still be when they reshored certain tasks. For example, when a product is reshored, but the production volume for that
product is not enough to utilize the given capacity, the company will pay more in the end. It could also be the other way around, that the capacity taken back is too much, which is why it is not possible to handle it in the own facilities and the company must work overtime to cope with the additional demand. All of this can be avoided when considering what four companies showed, the ability of being flexible. When there is a low amount of orders they can take certain products back, but if there is a high workload, they can outsource less important components. Looking at this from a different angle, this is the ability of the company to cope with fluctuations, which as we saw from company 2, as it was also the case with the other companies. The literature names an umbrella term for this, which is asset specificity but also capital intensity when looking at what will be needed to achieve the goal.

Another factor mentioned by three companies was the change in technology, which could result in the company not being able to be competitive in the market because suddenly everyone can produce a product, since no special knowledge is required anymore.

The last factor which should not be neglected according to the companies and the reviewed literature is that less capital will be tied up in stock, since all the transporting from offshored or outsourced locations will be obsolete.

5.6. Group of factors 6: Impact on the market and customers

The sixth group of factors discusses gains and consequences for the customers. Most companies name savings in logistics cost as an advantage of reshoring. When the home country is also the main market of the company, it would allow to have shorter distances between the production facility and the customer, which makes transportation faster and cheaper. The strategy of company 6 is to choose the location of the production facility depending on the proximity to the customer. The logistics cost starts to become of increasing importance to the total cost of a product. Company 7 and 8 say that due to the lower logistics cost, they can offer lower prices to their customers. This is only true if also the rest of the production costs are the same or lower than abroad. As aforementioned, this could be achieved by a higher degree of automation and therefore, higher productivity.

Company one adds that the closeness to the customer does not only affect the logistics cost, but also the responsiveness of production to changes in demand. Through market research and immediate action, the company can adapt the production to the customer’s preferences and order habits. Also, the shorter lead-time allows to provide the products faster to the customer, which positively affects customer satisfaction. All these factors agree with the findings within the literature.

The results of the case studies also agree with the literature that reshoring and producing in the home country can positively affect the brand’s reputation (Fratocchi et al., 2016). Company 3 and 5 state that the customer perceives products, which are produced locally, being of higher quality than products produced abroad. Especially markets such as Sweden, Switzerland and Germany profit from products being produced at home. Company 1 also adds that the customer awareness for sustainability and environment increases, which leaves the opportunity to promote locally produced products and will eventually improve the company’s reputation. Company 3 especially names efficient transportation, shorter distances and therefore, a more environmental friendly delivery process. This is of course promoted when the material is sourced locally and not from other continents, which would have negative effects
on the environment. Company 6 produces very capital intensive measurement tools, which is why in their case, being close to the customer would also have the advantage that less capital is bound in transportation means.

An important factor added by company 4, was the reverse logistics process. Due to the closeness to the customer the company can offer a better customer service. Not only would the afterlife cycle be shorter, but also in case of having to repair a product, the company could solve the problem faster and return the product earlier. Company 4 mentioned that otherwise, a product had to be shipped across continents and repairing it could take weeks. Customer service receives increasing importance and is a key factor for achieving customer satisfaction.

5.7. Summary of the analysis

Within this chapter, we analyzed the findings from the empirical part and matched them to the findings from the literature in the frame of reference.

Overall, the analysis allowed us to extend existing factors or identify and categorize new factors which were assigned to the groups of factors of the reshoring decision framework (see figure 2). To analyze them, we used a cross-case analysis. This is done by analyzing one group of factors, while taking the input from all the interviewed companies into consideration (see appendix: 8.5). The results mostly agreed with the findings from the literature. Some of the factors were discussed within multiple groups of factors, since they can be considered from different perspectives.

As stated in the frame of reference, the reshoring decision affects the whole company and its supply chain. Therefore, the final groups of factors allowed us to put all findings in categories, while considering all parts of a business. Also, this set-up allowed us to include theories, such as the RBV and the TCT which added important perspectives in such a decision, which were also confirmed by the companies interviewed.

All in all, it should be said that the factors are kept general, so when utilizing this framework, they must be adapted to a company’s needs and their expectations. Furthermore, it might be difficult to determine the factors stated in the model when using it in a company context since it is not always easy to find out the required input or to prepare the data in a way that it can be used to decide. This again depends on the company’s context and abilities.
Figure 2: Groups of factors and findings
6. Conclusions and discussion

In this chapter, we want to conclude the findings made in this thesis. Furthermore, we want to show the research purpose as well as the research questions again and provide answers for both. Additionally, we want to show our contribution to existing literature as well as present suggestions for further research.

6.1. Conclusion

To start with, we state the research purpose, formulated at the beginning of this thesis:

Showing what to learn from shortcomings of outsourcing and offshoring decisions, so they can be avoided when making reshoring decisions. Based on this together with a deep research of the literature, factors to consider when deciding to rehouse should be proposed. These factors should be compared to the results of the empirical research to see their validity and if applicable, they will be developed and complemented.

We fulfilled this purpose with our thorough literature review, which provided the necessary background to understand why the topic of reshoring came up and what the considerations for such a decision are according to the literature. Furthermore, the empirical research enriched these findings with valuable input from companies. Lastly, within the analysis we compared the findings from the frame of reference as well as the empirical part and provided a framework for the reshoring decision. This framework takes all the aspects mentioned into consideration and uses the RBV and TCT.

After having stated the purpose, we want to answer the research questions:

1. Which factors required for the outsourcing, offshoring or reshoring decision can be found in the literature and how can these factors be summarized?

The factors found in the literature can be summarized in six groups of factors, which are: overall costs, economic and political environment, strategy and long-term goals, impact on supplier-buyer relationship, impact on operations, impact on the market and customers. The exact explanation of what is included in the groups of factors can be found in chapter 2.4.

2. What are the factors that must be used, considering input from the literature and experienced companies in Sweden, Germany and Switzerland when making a reshoring decision?

These factors are divided into the same groups of factors named before, providing a thorough overview. Some factors are named multiple times, but in different groups of factors, since it is necessary to look at them from different perspectives. Additionally, this emphasizes the importance of these factors for making a reshoring decision. The factors to be considered are displayed in figure 2 at the end of the analysis part.

In general, it can be said that the reshoring decision is very complex. This complexity has been confirmed only when looking at the final groups of factors in figure 2, which includes all identified factors that must be considered. In general, it can be said that one part is the awareness that these factors must be considered, the other part is the usability of these factors.
Usability in this context refers to the possibility to get access to the data that is needed to apply the factors on a decision. Often it is difficult to obtain all this data and furthermore determine which factors are essential for the actual decision. As said in the background, the shortcomings in offshoring and outsourcing were main triggers for the reshoring decision and therefore, it should be assured that the same will not happen when making a reshoring decision. The framework proposed should therefore be used as a guideline when considering reshoring.

6.2. Contribution

With the results presented in this thesis we contribute to the existing literature, since we provided a detailed decision framework, showing the relevant factors that must be taken into consideration when considering to reshore. We identified these factors by pursuing a thorough analysis of the reshoring, outsourcing and offshoring factors and by taking learnings as well as drawbacks from these decisions into account when creating the final framework.

Furthermore, these factors are not only based on theoretical research, but they are also confirmed by empirical research, which we crafted with the help of eight very experienced managers from different companies in Sweden, Germany and Switzerland. This helped to extend the learnings and knowledge from theory and allows managers to be able to see the decision from a theoretical point of view. Furthermore, the framework is based on the RBV and TCT, and thereby benefits of both theories. With all the named contributions, this thesis fills the gap in literature for a framework that can be utilized to make a reshoring decision, which is not only based on theory but also has a strong background from company experiences.

We especially contributed to existing literature by bringing up the cultural dimension and the aspect of sustainability. These two aspects are until now neglected within the literature, but they are becoming increasingly important. Firstly, the cultural dimension in the sense that it gives the background for such a decision. Mostly cultural differences and therefore, differences in perceptions, like the quality of a product, can cause conflicts. As pointed out with the empirical material, the cultural component must be considered to a much higher degree to ensure long-term success. The second aspect, the sustainability and the customer awareness for this also increases in importance and must therefore be considered in the decision making.

This thesis should be seen as a starting point for further investigation in how to pursue the decision itself.

6.3. Suggestions for further research

Based on the delimitations made for this thesis as well as during the process of crafting this thesis, we discovered possibilities for further research which we want to present here.

First, depending on the company size there are different motives for making a reshoring decision and therefore, it would be interesting to analyze these different motives and expectations which come with the different sizes of companies.

Furthermore, we now provided a decision framework for the reshoring decision and we showed during each step that it heavily depends on the specific company which factors apply and how this can be used. Therefore, the second suggestion is to consider how this decision framework can be adapted to specific companies, so they can use it for decisions.
Third, it would be interesting to see an analysis of the reshoring decision with the background of the wage level in a country. How is the decision seen in countries with a low wage level and what is their focus? Furthermore, since we focused on Sweden, Germany and Switzerland it would be interesting to also look at other countries and which influence the circumstances in these countries have on the decision and which factors should be considered.

Another point for future research is the reshoring of services. Here the interest would be whether the same factors that are used for the manufacturing reshoring decision can be used. If this would not be the case, it would be necessary to do additional research on that topic.

As the last point for future research we want to point out what was said at the beginning of this thesis, a further investigation into the risks of reshoring. Within the literature there is few or no research done on this subject but it is also a crucial consideration when it comes to the decision, since the risks also must be considered when deciding.
7. References


Holz, R. (2009), An investigation into off-shoring and back-shoring in the German automotive industry, University of Wales.


Osborne, J. (2016). Outsourcing vs. insourcing. Medical Laboratory Observer, 48(11), 44.


8. Appendix

8.1. Outsourcing and offshoring motives and expectations

Table 15: Outsourcing and Offshoring motives and expectations

<table>
<thead>
<tr>
<th>Outsourcing and Offshoring motives and expectations</th>
<th>#</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs of resources and labor or operational costs</td>
<td>13</td>
<td>(Lyles and Park, 2013), (Canham &amp; Hamilton, 2013), (Fratocchi et al., 2016), (Quélin and Duhamel, 2003), (Caniato et al., 2015), (Hung Lau and Zhang, 2006), (Kakabadse and Kakabadse, 2005), (Roza, Bosch and Volberda, 2011), (Susomrith and Brown, 2013), (Lewin, Massini and Peeters, 2009), (Kremic, Tukey and Rom, 2006), (Harland et al., 2005), (Ellram, Tate and Peterson, 2013)</td>
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<tr>
<td>Access to resources and access to technologies, knowledge, labor</td>
<td>11</td>
<td>(Fratocchi et al., 2016), (Quélin and Duhamel, 2003), (Caniato et al., 2015), (Ellram, Tate and Peterson, 2013), (Kakabadse and Kakabadse, 2002), (Roza, Bosch and Volberda, 2011), (Susomrith and Brown, 2013), (Lewin, Massini and Peeters, 2009), (Kremic, Tukey and Rom, 2006), (Harland et al., 2005), (Ellram, Tate and Peterson, 2013)</td>
</tr>
<tr>
<td>Increasing performance and achieving best practice and quality</td>
<td>6</td>
<td>(Ellram, Tate and Peterson, 2013), (Kakabadse and Kakabadse, 2005), (Roza, Bosch and Volberda, 2011), (Susomrith and Brown, 2013), (Kremic, Tukey and Rom, 2006), (Harland et al., 2005)</td>
</tr>
<tr>
<td>Focus on core activities/competencies</td>
<td>6</td>
<td>(Quélin and Duhamel, 2003), (Hung Lau and Zhang, 2006), (Kakabadse and Kakabadse, 2005), (Susomrith and Brown, 2013), (Kremic, Tukey and Rom, 2006), (Harland et al., 2005)</td>
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<tr>
<td>Access to new markets</td>
<td>5</td>
<td>(Canham and Hamilton, 2013), (Caniato et al., 2015), (Harland et al., 2005), (Ellram, Tate and Peterson, 2013), (Hung Lau and Zhang, 2006)</td>
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<tr>
<td>Turning fixed costs into variable costs</td>
<td>4</td>
<td>(Hung Lau and Zhang, 2006), (Kremic, Tukey and Rom, 2006), (Harland et al., 2005), (Quélin and Duhamel, 2003)</td>
</tr>
<tr>
<td>Increase flexibility</td>
<td>3</td>
<td>(Susomrith and Brown, 2012), (Kremic, Tukey and Rom, 2006), (Harland et al., 2005)</td>
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<tr>
<td>Limited capacity</td>
<td>2</td>
<td>(Canham and Hamilton, 2013), (Hung Lau and Zhang, 2006)</td>
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<tr>
<td>Further motives:</td>
<td></td>
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<tr>
<td>Increased speed</td>
<td>1</td>
<td>(Kremic, Tukey and Rom, 2006, p.471)</td>
</tr>
<tr>
<td>Copy competitors</td>
<td>1</td>
<td>(Kremic, Tukey and Rom, 2006, p.471)</td>
</tr>
<tr>
<td>Fleeing from political pressure</td>
<td>1</td>
<td>(Kremic, Tukey and Rom, 2006, p.471)</td>
</tr>
<tr>
<td>Increasing innovation</td>
<td>1</td>
<td>(Harland et al., 2005, p.841)</td>
</tr>
<tr>
<td>Reducing headcount</td>
<td>1</td>
<td>(Kakabadse and Kakabadse, 2005, p.193)</td>
</tr>
<tr>
<td>Getting rid of problem functions</td>
<td>1</td>
<td>(Kremic, Tukey and Rom, 2006, p.471)</td>
</tr>
<tr>
<td>Shared Risk</td>
<td>1</td>
<td>(Kremic, Tukey and Rom, 2006, p.469)</td>
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</table>
## 8.2. Outsourcing and offshoring risks and uncertainties

Table 16: Outsourcing, offshoring risks and uncertainties

<table>
<thead>
<tr>
<th>Outsourcing, offshoring risks and uncertainties</th>
<th>#</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low quality of service or product</td>
<td>9</td>
<td>(Quélin and Duhamel, 2003), (Hung Lau and Zhang, 2006), (Kremic, Tukel and Rom, 2006), (Kumar, Kwong and Misra, 2009), (Herath and Kishore, 2009), (Gandhi, Gorod and Sauser, 2012), (Harland et al., 2005), (Tafti, 2005), (Ikediashi et al., 2012)</td>
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<tr>
<td>Loss of know-how, and critical activities/competencies</td>
<td>9</td>
<td>(Quélin and Duhamel, 2003), (Hung Lau and Zhang, 2006), (Kremic, Tukel and Rom, 2006), (Herath and Kishore, 2009), (Gonzalez, Gasco and Llopis, 2005), (Hon Kam and Chen, 2011), (Harland et al., 2005), (Tafti, 2005), (Ikediashi et al., 2012)</td>
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<tr>
<td>Poor supplier selection/disparity between buyer and supplier</td>
<td>9</td>
<td>(Herath and Kishore, 2009), (Kremic, Tukel and Rom, 2006), (Gandhi, Gorod and Sauser, 2012), (Gonzalez, Gasco and Llopis, 2005), (Hon Kam and Chen, 2011), (Harland et al., 2005), (Kumar, Kwong and Misra, 2009), (Ikediashi et al., 2012)</td>
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<tr>
<td>Miscalculating hidden costs</td>
<td>9</td>
<td>(Hung Lau and Zhang, 2006), (Kremic, Tukel and Rom, 2006), (Kumar, Kwong and Misra, 2009), (Herath and Kishore, 2009), (Gandhi, Gorod and Sauser, 2012), (Gonzalez, Gasco and Llopis, 2005), (Hon Kam and Chen, 2011), (Harland et al., 2005), (Tafti, 2005),</td>
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<tr>
<td>Political, economic or environmental uncertainty or policy changes in terms of labor,</td>
<td>8</td>
<td>(Kremic, Tukel and Rom, 2006), (Kumar, Kwong and Misra, 2009), (Herath and Kishore, 2009), (Kremic, Tukel and Rom, 2006), (Gandhi, Gorod and Sauser, 2012), (Ellram, Tate and Peterson, 2013), (Quélin and Duhamel, 2003), (Ikediashi et al., 2012)</td>
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<tr>
<td>Dependency on supplier and loss of control over activities</td>
<td>8</td>
<td>(Kierzkowski, 2005), (Quélin and Duhamel, 2003), (Hung Lau and Zhang, 2006), (Kremic, Tukel and Rom, 2006), (Herath and Kishore, 2009), (Hon Kam and Chen, 2011), (Kumar, Kwong and Misra, 2009), (Ikediashi et al., 2012)</td>
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<tr>
<td>Loss of flexibility in terms of operation, strategy, resources and demand</td>
<td>6</td>
<td>(Hung Lau and Zhang, 2006), (Kremic, Tukel and Rom, 2006), (Kumar, Kwong and Misra, 2009), (Gandhi, Gorod and Sauser, 2012), (Hon Kam and Chen, 2011), (Ikediashi et al., 2012)</td>
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<tr>
<td>Decreasing employee moral</td>
<td>6</td>
<td>(Hung Lau and Zhang, 2006), (Kremic, Tukel and Rom, 2006), (Gonzalez, Gasco and Llopis, 2005), (Hon Kam and Chen, 2011), (Tafti, 2005), (Ikediashi et al., 2012)</td>
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</table>
### 8.3. Reshoring motives and expectations

*Table 17: Reshoring motives and expectations*

<table>
<thead>
<tr>
<th>Reshoring motives and expectations</th>
<th>#</th>
<th>Authors</th>
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<tbody>
<tr>
<td>Higher and consistent quality of services and products</td>
<td>8</td>
<td>(Canham and Hamilton, 2013), (Tate et al., 2014), (Kinkel, 2014),</td>
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<td></td>
<td></td>
<td>(Fratocchi et al., 2016), (Foerstl, Kirchoff and Bals, 2016),</td>
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<td></td>
<td></td>
<td>(Stentoft et al., 2016), (Wiesmann et al., 2017), (Stentoft, Mikkelsen</td>
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<td></td>
<td></td>
<td>and Johnson, 2015)</td>
</tr>
<tr>
<td>Increased flexibility in terms of operation, strategy, resources and</td>
<td>7</td>
<td>(Canham and Hamilton, 2013), (Kinkel, 2014), (Tate et al., 2014),</td>
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<tr>
<td>demand</td>
<td></td>
<td>(Ellram, Tate and Peterson, 2013), (Fratocchi, 2016), (Foerstl,</td>
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<td></td>
<td></td>
<td>Kirchoff and Bals, 2016), (Stentoft et al., 2016)</td>
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<td>Lower logistics/transportation costs</td>
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<td></td>
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<td></td>
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<td>2016)</td>
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<td>Closeness to key customers</td>
<td>6</td>
<td>(Foerstl, Kirchoff and Bals, 2016), (Stentoft et al., 2016), (</td>
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<td></td>
<td></td>
<td>Wiesmann et al., 2017), (Canham and Hamilton, 2013), (Ellram,</td>
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<td></td>
<td></td>
<td>Tate and Peterson, 2013), (Tate et al., 2014)</td>
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<td>Keeping know-how within the own organization</td>
<td>6</td>
<td>(Kinkel, 2014), (Fratocchi et al., 2016), (Foerstl, Kirchoff and Bals</td>
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<tr>
<td></td>
<td></td>
<td>(2016), (Stentoft et al., 2016), (Wiesmann et al., 2017), (Stentoft,</td>
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<tr>
<td></td>
<td></td>
<td>Mikkelsen and Johnson, 2015)</td>
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<tr>
<td>Coordination, communication and monitoring becomes easier</td>
<td>5</td>
<td>(Kinkel, 2014), (Fratocchi, 2016), (Foerstl, Kirchoff and Bals, 2016,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Stentoft et al., 2016), (Wiesmann et al., 2017)</td>
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<td>Long physical distance hindering innovation</td>
<td>5</td>
<td>(Tate et al., 2014), (Fratocchi et al., 2016), (Stentoft, Mikkelsen</td>
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<tr>
<td></td>
<td></td>
<td>and Johnson, 2015), (Wiesmann et al., 2017); (Foerstl, Kirchoff and</td>
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<td></td>
<td></td>
<td>Bals, 2016, p. 499)</td>
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<tr>
<td>Availability of qualified personnel</td>
<td>4</td>
<td>(Kinkel, 2014), (Fratocchi et al., 2016), (Stentoft et al., 2016),</td>
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<td></td>
<td></td>
<td>(Wiesmann et al., 2017)</td>
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<tr>
<td>Motive</td>
<td>Frequency</td>
<td>References</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>-----------</td>
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<tr>
<td>Increasing costs in host country (E.g. labor and logistics costs)</td>
<td>4</td>
<td>(Fratocchi et al., 2016), (Tate et al., 2014), (Foerstl, Kirchoff and Bals, 2016), (Stentoft et al., 2016)</td>
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<td>Political, economic or environmental changes and uncertainties in the host country</td>
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<td>Reputation of the firm</td>
<td>4</td>
<td>(Canham and Hamilton, 2013), (Fratocchi et al., 2016), (Foerstl, Kirchoff and Bals, 2016), (Wiesmann et al., 2017)</td>
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<td>Resource availability, R&amp;D or technology</td>
<td>3</td>
<td>(Foerstl, Kirchoff and Bals, 2016), (Stentoft et al., 2016), (Wiesmann et al., 2017)</td>
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<tr>
<td>Correction of previous location decision</td>
<td>3</td>
<td>(Stentoft et al., 2016), (Canham and Hamilton, 2013), (Stentoft, Mikkelson and Johnson, 2015)</td>
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<tr>
<td>Increasing degree of automation</td>
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<td>(Wiesmann et al., 2017), (Tate et al., 2014), (Stentoft, Mikkelson and Johnson, 2015)</td>
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<tr>
<td>Less tied up capital (e.g. safety stock)</td>
<td>2</td>
<td>(Tate et al., 2014), (Fratocchi et al., 2016)</td>
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<tr>
<td>Creating new jobs</td>
<td>2</td>
<td>(Tate et al., 2012), (Fratocchi et al., 2016),</td>
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<td>Increasing employee moral</td>
<td>2</td>
<td>(Canham and Hamilton, 2013), (Wiesmann et al., 2017)</td>
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<tr>
<td>Political/Governmental incentives</td>
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<td>Other motives:</td>
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<tr>
<td>Less supplier dependency</td>
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<td>(Foerstl, Kirchoff and Bals, 2016, p. 499)</td>
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<tr>
<td>Regaining control over activities</td>
<td>1</td>
<td>(Foerstl, Kirchoff and Bals, 2016, p. 499)</td>
</tr>
<tr>
<td>Decreasing complexity of supply chain</td>
<td>1</td>
<td>(Foerstl, Kirchoff and Bals, 2016, p. 501)</td>
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</table>
8.4. Interview guide

1. Opening the interview
   - Interviewer introduces topic of the thesis, and offers conducting an anonymous interview.
   - Asking for approval to record the interview

2. Opening questions

Interviewee is given the possibility for a short presentation of the company and her or his position.

If not covered by the short presentation or could not be found online while doing research on the company, the following questions can be asked:
   - What are the core competencies of the company?
   - How much is the annual production amount of the company?
   - What is the aim of the company at the moment and in the future?
   - What is the nature of the company's production: capital intensity; degree of automation; utilization.

Interviewer will quickly explain the terms outsourcing, offshoring and reshoring.

3. Questions around key topics

Questions will be adapted to the company and the ongoing conversation. Therefore, the questions can slightly change, follow-up questions can be added or questions can be skipped.

Outsourcing and/or Offshoring

General Question: What are your experiences with Outsourcing and Offshoring

- Has your company outsourced activities?
- How did you become aware of the possibility to outsource?
- Which activities did you outsource and where to?
  - Did you outsource a complete product, only parts or the complete production?
- What were your motives or expectations of outsourcing activities?
- How did you make the decision to outsource?
- How did you find the right location for outsourcing?
  - Did you do any specific market research?
- How did you get to know about the party you outsourced to?
- Were you aware of all the risks coming with outsourcing? Did you calculate these risks?
- What are your lessons learned? Would you now do anything different when looking back?

- Has your company offshored activities?
- How did you become aware of the possibility to offshore?
- What were your motives or expectations of offshoring activities?
- Which activities did you offshore and where to?
  - Did you offshore a complete product, only parts or the complete production?
- How did you make the decision to offshore and not to outsource?
- How did you find the right location for offshoring?
- What budget was available for making the decision to offshore activities?
- How many resources were available for the project?
- What are your lessons learned? Would you now do anything different when looking back?
Reshoring

**General Question:** What are your experiences with reshoring

- Has your company reshored?
- When and why did the topic reshoring come up in your company?
- What did you reshore and where to?
  - Did you reshore a complete product, only parts or the complete production?
- Where (which country) did you reshore from?
- What were the initial motives and expectations of your reshoring decision? (Why did you reshore?)
- How did you reason your reshoring decision?
  - Which factors did you look at? What are important things to know, what did you take into consideration? What were relevant KPI's?
- Which degree of automation do you use in your reshored plant?
- What budget was available for making the decision/ carrying it out?
- How many resources were available for the project?
- What do you think now after the decision about the process you went through?
- What are the lessons learned? Would you now do anything different when looking back?
- What would you tell your colleague if he starts to consider reshoring is important to look at?
8.5. Summarized groups of factors from the empirical part

8.5.1. Groups of factors 1: Overall cost

<table>
<thead>
<tr>
<th>Company</th>
<th>Groups of factors 1: Overall cost</th>
</tr>
</thead>
</table>
| 1       | Main cost drivers must be taken into consideration:  
1. Direct material  
2. Direct wages  
3. Depreciation  
Quick wins monetary wins named as reason for offshoring → focus on cost calculation when making reshoring → relevant for stock owned companies |
| 2       | While cost is an important factor, a reliable and competent partner is often more critical |
| 3       | Always must be considered  
The exact cost must be calculated |
| 4       | Cost component plays a huge factor  
The degree of automation and level of productivity has a huge influence on the affordability of a production in a country with high labor costs  
Total costs: Unit price + logistics + costs of relationship  
Productivity is a lot higher in Sweden |
| 5       | Low production costs are important in order to stay competitive  
Lowest possible costs, while keeping quality the same |
| 6       | Costs are important to stay competitive  
Decreasing production costs is especially important for commodities  
Producing in countries with low production costs in order to make product affordable for other markets too  
Qualified labor with education in the company’s field |
| 7       | Target is to find lowest total cost  
Consider total costs plus possible one-time costs  
Fixed and variable costs (hourly rates, processing times, qualification costs and times, logistics costs)  
Qualification costs  
Expediting costs  
Calculation of manufacturing costs must be done correct  
Look at one-time costs for employees occurring due to requalification or layoffs  
Financing of the project |
| 8       | Total cost approach  
Lowest possible costs  
Triangle for decision: time, quality, price |

8.5.2. Groups of factors 2: Economic and political environment

<table>
<thead>
<tr>
<th>Company</th>
<th>Groups of factors 2</th>
</tr>
</thead>
</table>
| 1       | Not forget about the soft part (culture, values, way of considering quality)  
Salary increase is another factor of why to reshore, since not so much savings possible |
| 2       | Availability of qualified personnel at the supplier |
| 3       | Availability of qualified workers with knowledge of special techniques |
| 4       | Evaluating the economic and political stability of a country to assess whether the production in a country has a future  
Resource availability in either market, home or host country, plays a huge role (e.g. space, capacities, labor) |
| 5       | Resource availability influences decision  
Increasing costs and prices in host country favors the reshoring decision |
### 8.5.3. Groups of factors 3: Strategy and long-term goals

<table>
<thead>
<tr>
<th>Company</th>
<th>Groups of factors 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Depending on the ownership of the company, long-term decisions cannot be possible because quarterly results are demanded.</td>
</tr>
<tr>
<td></td>
<td>Regional supply as solution for long-term plan for all companies.</td>
</tr>
<tr>
<td></td>
<td>Make decisions with long-term focus.</td>
</tr>
<tr>
<td>2</td>
<td>Comparison of the long-term goals and investments of both companies to see if they fit.</td>
</tr>
<tr>
<td></td>
<td>Ability to protect intellectual property.</td>
</tr>
<tr>
<td></td>
<td>Proximity as benefit when it comes to research and development, as well as very complex products.</td>
</tr>
<tr>
<td>3</td>
<td>Culture, quality and heritage of the company connected to the home country.</td>
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<tr>
<td></td>
<td>Less fear of being copied as reason to not go to low cost countries.</td>
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<tr>
<td></td>
<td>Innovation increase due to closeness of special suppliers.</td>
</tr>
<tr>
<td></td>
<td>Possibility of doing research and development tests.</td>
</tr>
<tr>
<td>4</td>
<td>Decisions are based on core- and non-core competencies.</td>
</tr>
<tr>
<td></td>
<td>Know-how, innovation, research and technology has to stay in-house in order to have a competitive advantage.</td>
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<tr>
<td></td>
<td>Closeness to customer improves reverse logistics and customer service.</td>
</tr>
<tr>
<td>5</td>
<td>It is important to keep know-how within the company.</td>
</tr>
<tr>
<td></td>
<td>Production of products which they fear being copied stays in Sweden.</td>
</tr>
<tr>
<td></td>
<td>Otherwise reshoring can come with new investments in equipment, facilities, know-how and qualified personnel.</td>
</tr>
<tr>
<td>6</td>
<td>Outsourcing and offshoring can be used as a tool to achieve best practice and get access to important resources.</td>
</tr>
<tr>
<td></td>
<td>Product development, technology, know-how should be kept in-house.</td>
</tr>
<tr>
<td></td>
<td>Among others, to avoid being copied.</td>
</tr>
<tr>
<td></td>
<td>Availability of R&amp;D, technology and other resources.</td>
</tr>
<tr>
<td>7</td>
<td>When technology in market is not reliable.</td>
</tr>
<tr>
<td></td>
<td>Define core competences to protect these.</td>
</tr>
<tr>
<td></td>
<td>Having centers of competence.</td>
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<tr>
<td></td>
<td>Morale of employees increasing when they can keep responsibility.</td>
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<tr>
<td></td>
<td>Moving back from previous decisions due to miscalculations.</td>
</tr>
<tr>
<td></td>
<td>Utilizing given capacity.</td>
</tr>
<tr>
<td>8</td>
<td>Thorough process of defining core competences.</td>
</tr>
<tr>
<td></td>
<td>Build flexibility in production and manpower.</td>
</tr>
<tr>
<td></td>
<td>Decide based on what is best for the business.</td>
</tr>
</tbody>
</table>
### 8.5.4. Groups of factors 4: Impact on supplier-buyer relationship

<table>
<thead>
<tr>
<th>Company</th>
<th>Groups of factors 4</th>
</tr>
</thead>
</table>
| 1       | - Raw material availability  
- Mostly own manufacturing plants and therefore not applicable  
- Control over production  
- Decreasing the complexity of the supply chain by having regional supply |
| 2       | - Flexibility required  
- How can a supplier fulfill the supply chain requirements like short lead-time, flexibility, logistics concept?  
- Capabilities and skills of the manufacturing partner’s employees  
- Easier coordination, communication and monitoring  
- Reduction of logistics costs |
| 3       | - Should be close to keep close control, communication and cooperation  
- Close relationship and transparency required  
- Ability to grow  
- Increased flexibility due to possibility of also producing on their own |
| 4       | - Keeping control over core activities to avoid losing know-how  
- Communication and monitoring becomes easier  
- Same language and metric system is of advantage  
- Losing or leaking important know-how decreases by producing in-house |
| 5       | - Communication across cultures can lead to misunderstandings  
- Monitoring and coordination becomes easier  
- Logistics costs  
- Flexibility and lead time improves  
- Select supplier based on experiences |
| 6       | - Should be based on mutual trust, both can profit from each other’s know-how and experiences  
- Lead times  
- Monitoring costs to ensure quality can be high, but they must be seen in respect to the costs and profit of the product. In the case of high price products, the monitoring costs are just a small portion of it. |
| 7       | - Volume that is available for production  
- When there is a lack of suppliers for a special production knowledge  
- Reliability of technology |
| 8       | - Respect views and expertise of both manufacturing and procurement  
- Easier coordination and communication with suppliers  
- Lead-time reduction  
- Regaining control in terms of lead-time and punctuality |

### 8.5.5. Group of factors 5: Impact on operations

<table>
<thead>
<tr>
<th>Company</th>
<th>Group of factors 5</th>
</tr>
</thead>
</table>
| 1       | - Usability of automatization as reason to reshore  
- Way of working with quality as major reason for reshoring, all savings will be reversed when quality not good |
| 2       | - Fit of the product for a reshored supply chain (design, degree of production difficulty)  
- Quality as important factor |
| 3       | - Depends where the knowledge is coming from  
- Possibility of having higher and consistent quality of the product  
- Possibility to monitor product each step of the way |
- Tied up capital reduced due to short transporting
- Ability to produce zero series or new products

4
- Consistency and level of quality can be increased
- Automation makes production more affordable
- Scale advantages must be taken into consideration
- This highly depends on the product, if it is a customized product with low or high volumes

5
- Consistent quality
- Less tied up capital in stocks
- Cheap products with high manual rework rate are not affordable to produce in a country with high labor costs
- Automation comes to use only on specific processes. Other processes are very labor intensive which is why producing abroad comes with a huge advantage.
- Keeping capacities/parts of the production at home to be flexible towards the offshoring and reshoring decision

6
- Capital intensive production requires new investments if moved
- Quality must match customer expectations
- Changes in technology can redefine how and where the production is set up
  - E.g. 3D-printing and automation can make production more affordable in Switzerland
  - These changes would come with high investments
- Capacities and scale advantages must be taken into consideration

7
- Being able to build flexibility to cope with order fluctuations
- Ensuring quality
- Building up a flexibility for fluctuations
- Freed up surfaces should be utilized
- Expediting of decision
- Raw material availability

8
- Consider product characteristics
- Possibility to use the production in a flexible way
- Aim to open critical bottlenecks
- Better control of quality and monitoring
- Availability of raw material

8.5.6. Group of factors 6: Impact on the market and customers

<table>
<thead>
<tr>
<th>Company</th>
<th>Group of factors 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regional supply strategy and therefore close to the customer</td>
</tr>
<tr>
<td></td>
<td>Possibility to provide low prices due to automatization → positive impact on customer</td>
</tr>
<tr>
<td></td>
<td>Increased flexibility on customer demand</td>
</tr>
<tr>
<td></td>
<td>Growing agenda of sustainability another reason for reshoring</td>
</tr>
<tr>
<td>2</td>
<td>Lower logistics cost</td>
</tr>
<tr>
<td>3</td>
<td>Perception of high quality product</td>
</tr>
<tr>
<td></td>
<td>Marketing effects which are increasing firm’s reputation</td>
</tr>
<tr>
<td></td>
<td>Lower logistics costs</td>
</tr>
<tr>
<td></td>
<td>Sustainability by having short delivery times and avoiding transport</td>
</tr>
<tr>
<td>4</td>
<td>Responsiveness to customer and lead-time increases</td>
</tr>
<tr>
<td></td>
<td>Better reverse logistics and customer service</td>
</tr>
<tr>
<td></td>
<td>Brand reputation</td>
</tr>
<tr>
<td>5</td>
<td>Brand reputation</td>
</tr>
<tr>
<td></td>
<td>Perceive higher quality if product is produced locally</td>
</tr>
<tr>
<td></td>
<td>- Increased responsiveness and shorter lead-times</td>
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<td>--------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>- Market was chosen depending on the proximity to customer</td>
</tr>
<tr>
<td></td>
<td>- Increase flexibility and delivery time</td>
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<tr>
<td></td>
<td>- Long delivery times, e.g. by ship, binds large amounts of capital to the ship</td>
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<tr>
<td>7</td>
<td>- Ability to react on fluctuations better and without impact on product price</td>
</tr>
<tr>
<td></td>
<td>- Lower logistics costs</td>
</tr>
<tr>
<td></td>
<td>- Ability to provide lower prices to customer</td>
</tr>
<tr>
<td>8</td>
<td>- Lower transport and logistics costs</td>
</tr>
<tr>
<td></td>
<td>- Ability to provide lower prices to customer</td>
</tr>
<tr>
<td></td>
<td>- Increased flexibility due to strategy</td>
</tr>
</tbody>
</table>