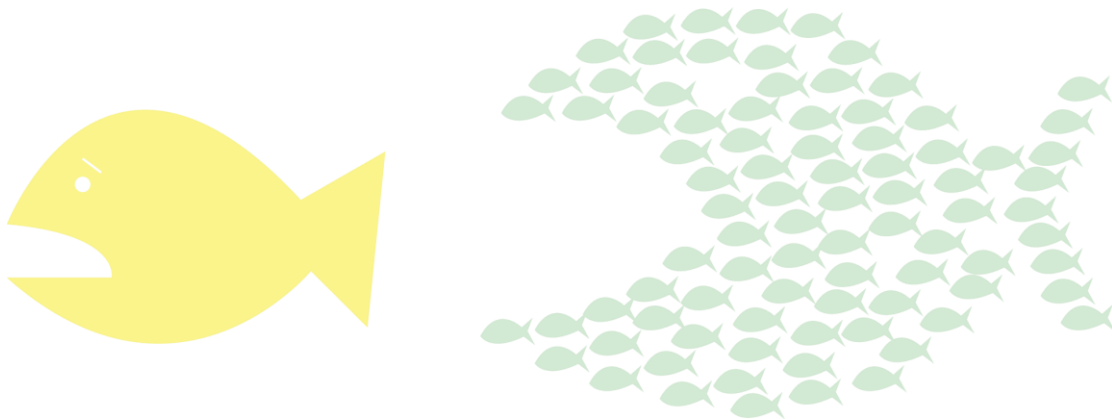


Supply Chain Improvements Through Clustering:

Relationships and Competitive Collaboration in the
Norwegian Furniture Industry



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Abstract

There is an on-going debate regarding what Norway will do when the country can no longer rely as heavily on the oil as a source of wealth and prosperity. As there is a tradition for designing and making furniture in Norway, and the furniture industry is not dependent on favourable natural conditions, this industry could represent an alternative.

As the Norwegian furniture manufacturing companies are producing in one world's most high waged countries, they must focus other aspects than price. As the international competition is strengthening, the Norwegian furniture industry must also increase their competitiveness accordingly. The purpose of this thesis is to explore opportunities for the Norwegian furniture industry to advance through cluster participation, with a focus on supply chain and relationships. The research problem is: *“In what ways can the Norwegian furniture industry improve their supply chain through participation in an industry cluster?”*

Supply chain is presented as strategic rather than a pure operational aspect together with the framework for supply chain management, which is based on network structure, business processes, and management components. Information and knowledge sharing, along with power are the focus of relationship theory. Characteristics and possibilities are the main areas of interest in cluster theory.

The data is collected through a qualitative method. Multiple sources of collection have been used, but interviews make up for the most important part. Interviewing different actors allowed for several perspectives to be included. Informal talks, observations, a presentation, and literature and documents are also included, to gain a better understanding as well as verifying what was found in the interviews.

In order to answer the research problem, the data were analysed through four research questions. The two first questions seek to map out the current state of supply chain and relationships in the companies, in order to find out where they are today versus where they want to be or could be. The third question is for identifying possible

changes to be made, while the fourth question looks at in what way being in a cluster can make a difference in making these changes.

Different challenges or points for improvement were identified, and suggestions to possible measures, related to improving the supply chain for the companies in the industry, are: Courses and training programs, which could contribute in raising the competence level and professionalism as well as better the current situation were it is difficult to attract graduates to the industry; branding/employer branding, which would also potentially contribute to attract graduates to the industry; framework agreements, which could reduce the cost of non-strategic or indirect purchases through economies of scale and a switch in the power structure; and arenas for information sharing and networking, which could contribute to enhanced collaboration, increased knowledge sharing and less vulnerable suppliers.

Preface

This thesis is handed in as a partial fulfilment of MSc degrees in *Business Administration, Strategic Management* at the University of Stavanger, Norway. The workload is that of one semester.

The last six months we have introduced to an exciting industry, where we have met many interesting persons, with just as many ideas and perspectives. We have been welcomed through an open door into the everyday opportunities and challenges that the companies and the industry face. Both visiting different companies and meeting others at Møbel+Interiørkonferansen 2015 and Leverandørforum 2015 has been a valuable and enriching experience, which has enabled us to visit different places. Although this has been a great experience, hard work and late nights has been the rule rather than the exception.

Working together with someone that shares the same interest both personally and academically, as well as a good discussion have been invaluable. Working with such an interesting topic has resulted in us appreciating the different stages of the research process 'till the very end.

We would like to use this opportunity to thank our advisor Ola Barkved for all the help and guidance during this semester. Jan Frick also deserves thanks for having an open door and being a discussion partner along the way. We are very grateful for the unique opportunity provided to us by Norwegian Rooms, and also the insights provided by all the interview participants.

We hope this thesis can contribute in making improvements both for the members of the cluster as well as in the furniture industry in general.

Jorunn Lindholm

Anna With Rødstøl

Stavanger, June 12th 2015

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1. Introduction

In this chapter the motivation and background for choice of topic will be presented, followed by the purpose and research problem, and the research questions. Following this, the limitations and structure of the study will be outlined.

1.1 Motivation and background for choice of topic

We both have a genuine personal interest in furniture and interior, and we both enjoy browsing through interior magazines, blogs, and shops. We feel that through the use of different colours, textures and design one can create a personal space that allows for relaxation, stress relief in a busy everyday life, or a more energetic, fun atmosphere - which ever is wanted. There are a lot of exciting things happening in the furniture and interior industry, trends come and go, or stay and develop, and you can see new brands emerging and taking their place in the market. This is also true for the Norwegian furniture and interior industry, where there is a good mixture of well-established brands as well as new challengers.

Traditionally, it has been the other Scandinavian countries that have gotten most of the attention, but it seems like the winds are changing, and a new generation of Norwegian designers are getting noticed outside of Norway, with international magazines writing about a 'Norwegian wave' (Jørgensen, Trend: Norsk Bølge, 2015). The Norwegian design differs from the more well known category called 'Scandinavian design' in being more playful, colourful, and even more provocative (Jørgensen, Norsk design strålte i Milano, 2015). But, we do have a way to go still as we do not have enough manufacturers back home, and in the mean time foreign manufacturers must spread the reputation of Norwegian design for us (Jørgensen, Trend: Norsk Bølge, 2015). However, one can question if there are indeed not enough manufacturers here in Norway, or if the problem is rather that the manufacturers are not taking advantage of the opportunities to attract new designers.

The furniture industry is an exciting industry, with apparent possibilities internationally. There is an on-going debate regarding what Norway will do when the

country can no longer rely as heavily on the oil as a source for wealth and prosperity. Suggestions made are for instance aluminium (Framstad, 2015), finance (NTB, 2015), and nanotechnology (Haugan, 2014), but having a long tradition with furniture manufacturing and design, the furniture industry too could surely be a possibility? This need for Norway to have more than one leg to stand on is even more obvious with today's unstable oil price.

However, there are not only exciting things happening, but also different challenges that are arising as the world is getting more globalized, the competition is strengthening, and the economy is facing a possible recession. The competition is mainly from Asian companies, and there are many small and medium sized companies. Even though the number of competitors is reduced, Asian companies and their products are getting better (Ekornes ASA, 2014). This calls for measures to be made and actions to be taken, the industry must become more efficient, lowering their costs or increase the value or willingness to pay for their products. One measure the furniture industry, or at least a part of it, have taken are the establishment of Norwegian Rooms. This of course, can be hard for the different companies that are affected, but this is also, as we see it, interesting to look into from an academic point of view. Norwegian Rooms will be further introduced in chapter 2.4.

1.2 Purpose and research problem

The Norwegian furniture industry are facing the need to strengthen their positions in the market both from increased international competition, higher wages and consolidation from few large actors in the market, in order to stay competitive. Could participation in an industry cluster benefit the furniture manufacturers, and help the Norwegian furniture industry face the increased competition? The purpose of this study is to explore opportunities for companies in the Norwegian furniture industry to advance and prosper through such cluster participation, with focus on relationships and supply chain.

We define the research problem as the following:

In what ways can the Norwegian furniture industry improve their supply chain through participation in an industry cluster?

Based on this research problem and the literature study, this thesis will focus on four research questions connected to the research problem:

1. *What are the supply chains like today?* – This analysis seeks to explore the current state of the supply chains in the companies from a strategic perspective. Focusing on patterns and similarities.
2. *What kind of relationship does the companies have with their suppliers?* – This analysis seeks to identify the nature of the relationships with emphasis on information and knowledge sharing, and power structure. Both the supply chain and the relationships will be looked at from the manufacturers point of view, and analysed based on data and theory.
3. *What changes might be necessary to improve the supply chains?* – This analysis seeks to identify what changes might be necessary for the companies to improve their supply chains, based on theory, data, and the findings in the two previous questions.
4. *In what ways can cluster participation make a difference?* – This analysis seeks to identify in what manner being in a cluster can facilitate the changes, or what the cluster actively can do to help facilitate these changes. This will be done based on theory and the findings from the previous questions.

1.3 Limitations

There are a lot of factors that can affect whether or not being in an industry cluster will be an advantage or not, and also whether the members of the cluster are able to gain full advantage from this form of cooperation/collaboration or not. However, the time and resources are limited, and it is therefore necessary to limit the scope of this thesis to only include some of these. The decision regarding what this thesis is to include is partly based on what we have understood to be most important for Norwegian Rooms and in the Norwegian furniture industry in general, such as the relationships with the suppliers, and partly based on the literature and documents study, as well as theoretical knowledge, such as power, and information and knowledge sharing being important both with regards to relationships and supply

chain. From this we have decided that this thesis will focus on supply chain, relationships, and cluster, and more specifically within these themes – information and knowledge sharing, and power structure.

Supply chain is too broad and complex of a subject to be completely studied in depth in this thesis. Hence, this thesis will focus on one part of the supply chain, namely between the furniture manufacturers and their immediate, main suppliers. This limitation will of course result in only some factors that might facilitate advantages in the supply chain for members of industry clusters being included.

The same limitation on scope is applied for knowledge sharing and learning, meaning that the thesis will focus on knowledge sharing and learning between the different manufacturers in Norwegian Rooms, and between the manufacturers their main suppliers. This might exclude other sources of new knowledge and learning.

The Norwegian furniture industry includes in some contexts both Norwegian furniture and interior. In this thesis, the focus is primarily on the furniture industry, although several companies introduced here are producing both furniture and interior. Thus, factors such as turnover from the interior and the relationship with the interior suppliers are included in the study.

Further limitations will be discussed in their respective chapters, such as the theory chapter and the chapter on data collection and design.

1.4 Structure

As displayed in Figure 1 below, this study is about the Norwegian furniture industry's participation in an industry cluster and the effect this can have on the supply chain of the member companies. The four research questions are related to supply chain, relationships, potential changes and how the cluster can contribute to these changes. These research questions are assessed in terms of a theoretical approach and collected data.

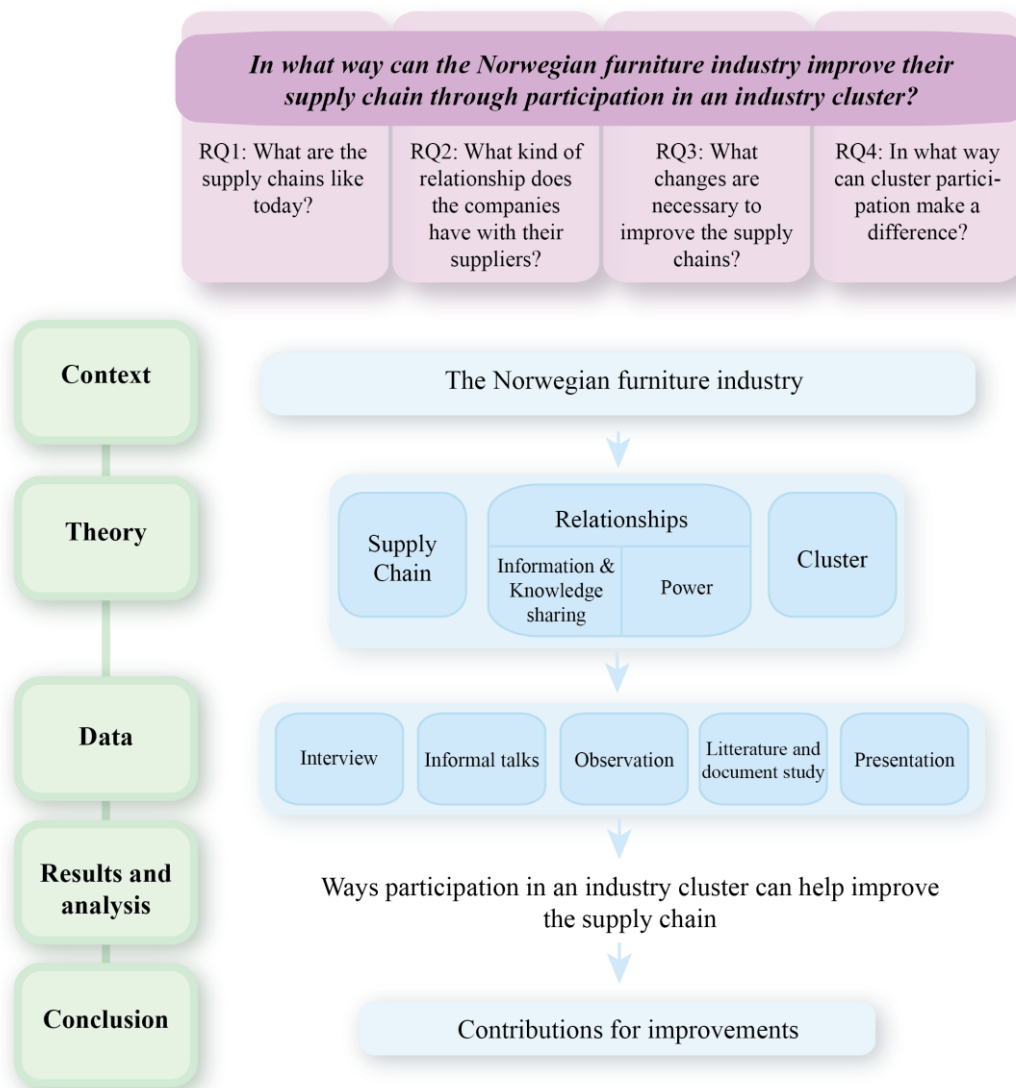


Figure 1: Structure of the study

The thesis is organized as follows: Chapter two contains a description of the context of the study. Here we look into the Norwegian furniture industry from a historical as well as a present perspective in order to get a better understanding of this industry. This also includes a look at a previous study done on clusters in the Norwegian furniture industry. We also take a look at the cluster organization Norwegian Rooms.

Chapter three contains the theories the study is based on. First, supply chain as a strategic choice, rather than a pure operational aspect of the day-to-day operations will be presented. Next, important aspects regarding relationships will be presented with a main focus on information and knowledge sharing, and power. Lastly, cluster theory will be presented in order to gain a better understanding of what a cluster is

and how this can contribute to the competitiveness of its members. The summary at the end of the chapter will point at the connections between these different theories.

In chapter four, choices made regarding design, research strategy and validity is first presented. Next, methodology will be presented. Here, data source and collection method is outlined and explained, before the method for analysing the data is explained.

Chapter five and six contains the presentation of results and analysis/discussion respectively. Both these chapters are divided into the four research questions. A summary to each research question will also be presented. However, as these questions are intertwined, some results will be interesting for not only one question and the discussion will hence not be strictly divided between the questions.

In conclusion, the findings on how cluster participation can help improve the members supply chain are presented, through suggestions on measures that can be taken, and how this is related to supply chain. Interesting topics for further research will also be listed.

2. Context

This chapter will describe the context for the area of study. First, the emergence of the Norwegian furniture industry will shortly be presented, with emphasis on historical development, previous cooperation and also status quo. Then, the main findings from a 2009 cluster analysis will be presented, and then the cluster organization Norwegian Rooms with its set-up and purpose will be presented.

2.1 The Norwegian furniture industry

When studying the emergence of the furniture industry in Norway, it becomes clear that there were many factors that was in play in order to make the Sunnmøre area Norway's leading region for furniture production.

The furniture industry originally had its centre of gravity in the cities, and especially in the Oslo-area. The relocation of the furniture industry to the districts was during a time of the emergence of new technology that were very beneficial for small and medium sized companies, such as electricity and small engines that could be used in production. This led to a lower and more efficient use of electricity. This technology could apply to all furniture companies, but one of the reasons why production in the districts was cheaper than in the cities was due to the household economy (Wicken, 1995). There were low investments in production, the workers lived for free at home, young farm boys was happy to get work, and they could go for a long time without receiving salary. Also, farmers lived by the ideal of doing everything by themselves, and were grown up with having to work hard (Tandstad, 2009). These above mentioned reasons were important for the prominent decentralization of the industry in the years between 1930-1950.

The development continued, and the combination of low costs and simple, standardized products lead to a price revolution in the industry. During the interwar period, over 140 manufacturing companies producing furniture or furniture-related products existed in the area of Møre og Romsdal (Wicken, 1995). In Møre og

Romsdal there was a successful industrialization due to general commercial knowledge developed in context with the fishing industry, also in the area.

The years from 1950-1970 were characterized by internationalization and concentration. New markets in foreign countries opened up for more opportunities – but also more competition. The prizes were under pressure and the turnover was slow. Small companies were under a lot of risk, due to few suppliers and acquisitions from larger companies. In the years 1970-1990, higher salaries from the oil industry, which needed mobile labour, pressured the Norwegian furniture industry. Higher demands regarding environmental standards, and other initiatives from the government side, made it hard for new companies to establish business in the area (Høidal, 1990). It had thus become more expensive for Norwegian furniture manufacturers to produce in Norway. Many companies were struggling with low profits and slow turnover, and the number of companies slowly decreased.

Today, the furniture industry represents, despite of decreased turnover over the last years, an important industry for Norwegian business sector. A feature the Norwegian furniture industry possesses, and has been highlighted repeatedly, is its success despite the lack of advantages found in the natural environment. This is interesting due to the fact that much of Norway's other industries are based on just that. Furniture and interior is a part of the Norwegian finished goods industry, and of this industry which has a turnover of approximately NOK 115 billion, the production furniture and interior is accountable for approximately NOK 17 billion (Norsk industri Møbel+interiør, 2015). As shown in figure 2 below, the Norwegian furniture industry is a large industry in Norwegian context, here as a part of the finished goods industry put aside other industries such as agriculture and forestry and fish farming.

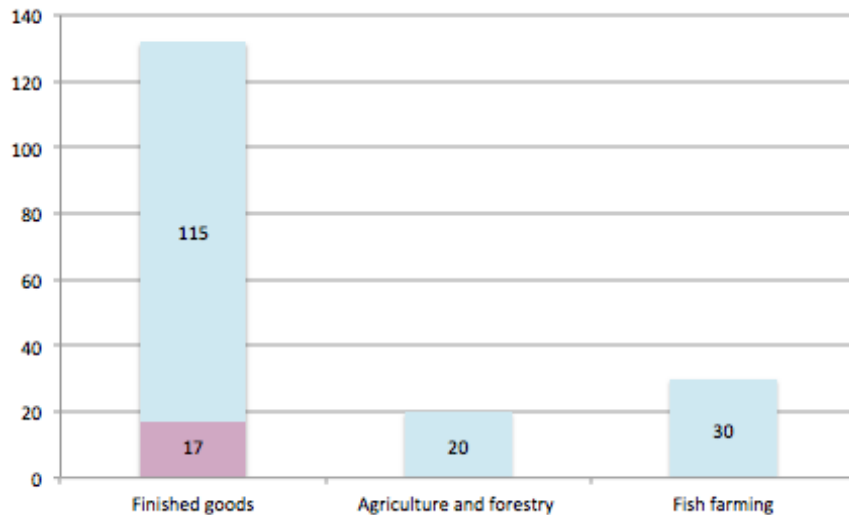


Figure 2: Turnover for selected Norwegian industries 2014

2.2 Previous co-operations

The Norwegian furniture industry is not a stranger to being part of initiatives that several companies are part of. There have previously been carried out projects, and also agreements for joint purchasing into production to name a few. These previous co-operations and projects is not a core element in this thesis, but some of them will briefly be mentioned below. Many of these projects were organized by or in collaboration with the industry association The Association of Norwegian Furniture Industry, an association under The Federation of Norwegian Industries (Norsk Industri Møbel+Interiør), as one of their focus areas is to facilitate initiatives for the members to network with each other (Norsk Industri, 2015).

Innovasjon Møbel was a development program initiated by The Association of Norwegian Furniture Industry and Innovation Norway. The program was initiated from 2003-2009, consisting of two phases. The project focused on innovation in design and internationalization, in addition to competence and technology. The project was externally reviewed to be a very successful project (Norsk Industri, 2010).

Other than this, there has previously been established a joint purchasing organization for several furniture companies for production material. There is little public information available about this organization, but the goal was to coordinate purchases, and especially in material groups representing large costs as leather and

fabrics, to name a few. This project was working for a few years and especially for small and medium sized companies. However, the large companies eventually wanted to negotiate their purchases themselves, and they also wanted to gain that knowledge themselves (interview with Håvard Fanum, April 25th 2015).

2.3 A previous study of the industry and cluster mechanisms

The furniture industry in the region of Norway called Sunnmøre in the northwest part of the country has often been referred to as an industrial cluster. Møreforskning Molde AS conducted a cluster analysis for the furniture industry in Norway in 2009, as a sub-project under Innovasjon Møbel. The main conclusion from the study is that the furniture industry in the Northwest region of Norway as a whole lacks most of the cluster mechanisms the study searched for.

According to the report by Oterhals and Johannessen (2009) from this study, it is said that geographic co-location of labour with the same competence and experience, is an important cluster mechanism that strengthens the possibility for a given industry to succeed, and that this co-location is found to be present in the furniture industry in the Sunnmøre area.

However, the report next presents that co-location should promote development in supplier specialization and economies of scale to due to the suppliers being able to delivering to many companies in the same area as another important mechanism. This mechanism was not found to be present (Oterhals & Johannessen, 2009). Looking at size and growth, and excluding the largest actors, the furniture industry seems to be “subcritical in the sense that they do not manage to exploit economies of scale, and that they lack common, efficient suppliers which would make the entire value chain more cost efficient” (Oterhals & Johannessen, 2009, p. 41). It was neither found that the furniture industry in this region had any advantages regarding factor conditions, such as availability of commodities, skilled labour, capital and so on.

The study further found that there are limited market relations between the different actors in the value chain, and that there is a lack of innovativeness and knowledge dissemination between companies (Oterhals & Johannessen, 2009).

Some measures for more efficient value chains and logistics were also presented in the report, such as: common purchasing, development of suppliers and efficient production lines, efficient distribution, and increased dedication towards the market.

2.4 Norwegian Rooms

“Norwegian Rooms shall contribute in developing existing, as well as building additional strong and profitable brands in the international arena. Furthermore, to develop furniture and interior to become a viable finished goods industry, as a clear supplement to our commodity based economy”

(Norwegian Rooms, 2014)

Norwegian Rooms was established as a limited company in January 2013 (Proff), to be an industry cluster for the Norwegian finished goods industry of furniture and interior. They are aiming on developing the member companies' competitive force in the international arena. This is the first time this industry have gotten a project approved that has been given the official status as an industry cluster (Norwegian Rooms, 2014). Being newly established, they have not yet been able to find out how to fully benefit from the cooperation between the member companies, and their suppliers.

Norwegian Rooms is run as a co-operation with only one permanent employee, but all of the firms in the cluster are either shareholders and/or board members of Norwegian Rooms. The company's goal as a cluster organization is to establish meeting places where the companies develop business relations, competence and innovation (Norwegian Rooms). They are among other things participating and co-hosting Møbel+Interiørkonferansen 2015, which is the largest meeting place for the industry in Norway. They also arrange Leverandørforum 2015 in connection with Møbel+Interiørkonferansen 2015, which is a conference for the member companies and their most important suppliers.

The cluster was established after an initiative of ten leading Norwegian companies producing finished goods, all with international positions or potential (Norwegian

Rooms, 2014). A possible growth within the cluster will stem from companies with the same goals. There are differences as to what type of furniture and/or interior the companies are producing, and also with regards to how they sell their products. Some sell through their own stores while most sell through chain retailers. Most of the companies sell their products through retailers in several countries, and are well-known brands throughout the world or have international potential. Considering the location of their production and office facilities, the companies are located either at Sunnmøre or in the Oslo region, as shown in figure 3. During the time period this study have been conducted there has been some changes regarding the composition of members of the cluster, where some have left while others has joined, so that the cluster now consists of twelve companies. These changes are highlighted in red (exits) and green (entrees). There is variation among what the companies deliver in both regions. For instance, both regions contain companies that produce beds and mattresses, furniture for businesses and consumers.

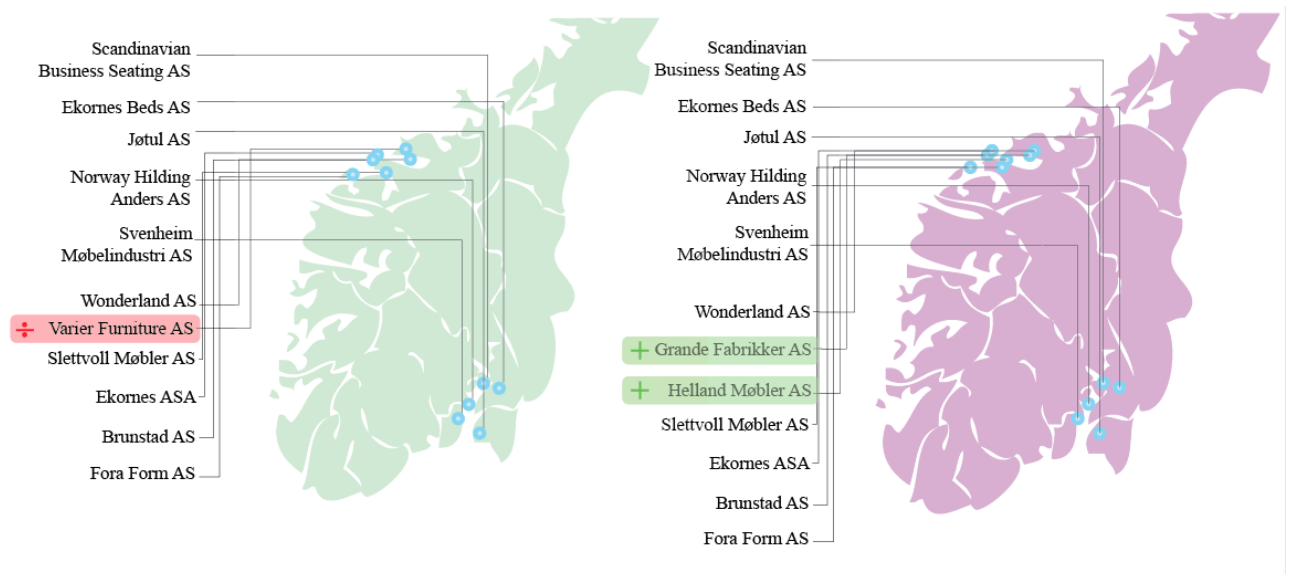


Figure 3: Members of Norwegian Room as of January 2015 and June 2015.

2.4.1 Arena status

As an industry cluster, Norwegian Rooms are supported financially by different actors, such as Møre og Romsdal county (3-years support beginning in 2013). They have also received Arena-status, which makes them part of the Arena-program under *Norwegian Innovation Clusters*. The Arena-program offers financial and professional

support for up to three years for those projects that are accepted in the program. Innovation Norway, Forskningsrådet, and SIVA both own and run the program (Norwegian Rooms, 2014). Arena-status is the first step in the Arena-program, followed by NCE (Norwegian Centre of Excellence) and GCE (Global Centre of Excellence) as the cluster matures, becomes more complete and improve their position (Innovation Norway, 2014). According to Innovation Norway (2014) there are four factors that are necessary for a cluster to succeed. These factors are management, strategic choices, ownership, and developing the clusters structure and resources.

3. Theory

In this chapter the relevant theory used in this study will be presented, along with discussions around the theory and choices made when there are conflicting or divergent theories. The theories that are included are; supply chain theory; theory regarding relationships, with a focus on power, and information and knowledge sharing; and cluster theory, where the focus is on characteristics, and benefits and costs. At the end of this chapter there will be a brief summary, where the different theories will be tied closer together in order to present a picture of how it is all connected, and how one affects the other (fig. 4).

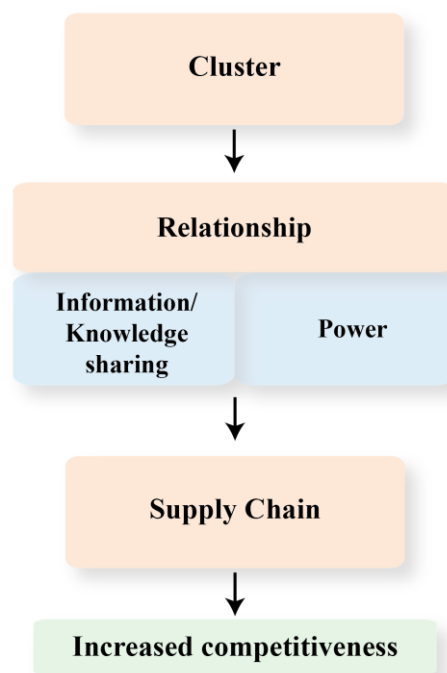


Figure 4: How the different theories are connected

3.1 Supply Chain

“One of the most significant changes in paradigm of modern business management is that individual businesses no longer compete as solely autonomous entities, but rather as supply chains. Business management has entered the era of inter-network competition and the ultimate success

of a single business will depend on management's ability to integrate the company's intricate network of business relationships."

(Drucker, 1998, as cited in (Grønland & Persson, 2002).

“Supply chain involves the flow of both tangible and intangible resources including materials, information and capital across the entire supply chain” (Rashed, Azeem, & Halim, 2010, p. 61). The supply chain is often pictured with the flow of materials going downstream until it reaches the end consumer, the cash flow going upstream from customer to supplier, and the flow of information going both ways (fig. 5). The flow of goods (and services) downstream is a prerequisite for supplying the customers. As for the flow of information, this is important amongst other to avoid what is called the ‘Bullwhip effect’. The bullwhip effect is when suppliers making far more of what they sell compared to what is needed due to a combination of a change in end-customer demand and lack of communication, which can lead to increasingly large disturbances, errors, inaccuracies and volatility upstream in the supply chain (Slack, Chambers, & Johnson, 2010). The flow of information is also important with respect to develop and sustain the desired relationship between the actors in the supply chain. According to Rashed et al. (2010), it is expected that if each member of the supply chain has more information about other members then they treat each other as strategic partners. Also, information sharing is a prerequisite for knowledge sharing, and as we will come back to later: knowledge is the key to the success of a supply chain as it affects decisions.

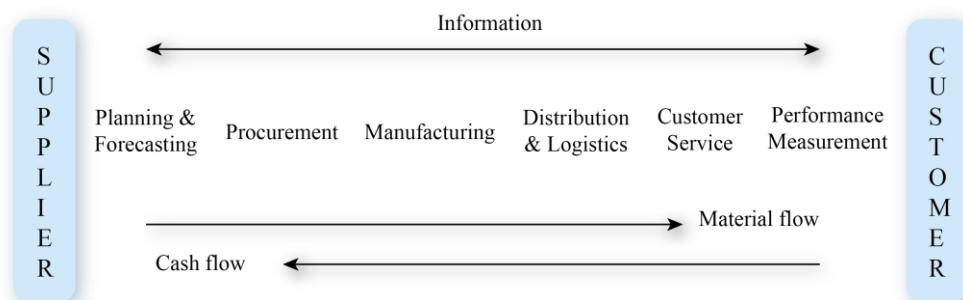


Figure 5: Illustration of a company's supply chain. Adopted from Spekman et al., 1998, p. 55

3.1.1 Supply Chain Management

When companies decide to become involved in any supply

chain they have to make decisions about how they will control and manage the primary supply chain itself.

(Cox, 1999)

According to Cousins, Lamming, Lawson and Squire (2008, p. 24), “purchasing and supply management is of growing importance to organization”, and because of increased competition, need for cost reduction and improved time-to-market, the organizations have to “respond by re-engineering their supply structures to match the strategic pressures and priorities that are being placed on the firm” (Cousins et al., 2008, p. 24). Traditionally, supply chain management has been viewed as leveraging “the supply chain to achieve the lowest initial purchasing price while assuring supply” (Spekman, Kamauff Jr, & Myhr, 1998, p. 54). However, supply chain management can be also redefined as “a process for designing, developing, optimizing and managing the internal and external components of the supply system, including material supply, transforming materials and distributing finished products or services to customers, that is consistent with overall objectives and strategies” (Spekman et al., 1998, p. 54). The Global Supply Chain Forum (GSCF), defines supply chain management as “the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders” (Lambert & Cooper, 2000). According to Spekman et al. (1998, p. 57) companies should, in order to have effective supply chain management in the new competition, seek close, long-term working relationships with one or two partners, and that they should depend on one another for much of their business. In other words, the buyers and suppliers should try to develop relationships with close interaction and interdependence, which as we will come back to, requires information and knowledge sharing.

The supply chain can often be looked upon as a supply network, where materials, parts, information, ideas and sometimes people flow through the network of buyer-supplier relationships formed by all the operations that make up the supply chain (Slack et al., 2010). Aitken (1998, according to (Grønland & Persson, 2002) also include the aspect of these connected and interdependent organizations working *together* to improve this flow. These networks comprises of different entities that are either directly or indirectly interlinked and interdependent serving the same customer

in getting what they want, when and where they want it, at the price they want. In other words, this means that the supply chain can be said to underlie the value chain (BusinessDictionary). According to Spekman et al. (1998, p. 53), “success is no longer measured by a single transaction; competition is, in many instances, evaluated as a network of co-operating companies competing with other firms along the entire supply chain”. As we see here, supply chain management is of utter most importance to the company, but at the same time the supply chain, or supply network, is getting more and more complex. This means that when developing a strategy for its supply chain, there are a lot of things for the companies to consider, and Spekman et al. (1998, p. 54) argues that “developing a supply chain strategy is predicated on understanding the elements of sourcing strategy, information flows (internal and external), new product co-ordination, concurrent procurement, teaming arrangements, commodity/ component strategies, long-term requirements planning, industry collaboration and staff development”. According to Cox (1999), supply chain has both an operational and strategic importance to companies, which means that the supply chain have two dimensions, one is the operational supply chain and the other the entrepreneurial supply chain. All companies have an operational supply chain, which refers to the supply chain that delivers inputs and outputs necessary. As for the entrepreneurial supply chain, this involves strategic thinking on what to outsource and how to position oneself in the supply chain, considering dependency, threats and value appropriation (Cox, 1999).

According to Grønland and Persson (2002), there are three different strategies for studying supply chain management, which will affect which phenomenon that are studied: supply chain management as an expanded logistics concept; supply chain management as management and coordination of a focal organisations inter-organisational processes; or supply chain management as management and coordination of a particular supply process. That there are three different strategies for studying supply chain management is consistent with what is mentioned above about supply chain management not being a purely operational concept, but that there is also a strategic or entrepreneurial side to it.

3.1.2 Supply Chain and the Value Chain

Since managing the supply chain is no longer seen to be just about getting the best price-deal and lowering the costs as much as possible, but as a mean to reach the company's strategy, this could be seen as the supply chain also being a tool for creating additional value. According to Kalsaas and Veer van't Hof (2009, p. 151), purchasing/sourcing is not just a support function in Porter's value chain, but also something that can contribute in the value creation both in the other support functions as well as the primary functions. They state that this function can contribute in selecting the right suppliers and make purposeful relations, which is connected to the business' value chain as well as their strategy. If a firm is able to create a unique value chain this can allow them to gain a competitive advantage over their competitors, through improvements in speed, price, quality or other aspects (de Wit & Meyer, 2010; Daniels, Radebaugh, & Sullivan, 2011).

Kaplinsky and Morris (2001), separates their definition of the value chain into the simple and the extended value chain, where the simple value chain can be defined as "the full range of activities which are required to bring a product or service from conception, through the different phases of production, delivery to final consumers, and final disposal after use". As for the extended value chain they state that it will be much more complex and containing more links than this first simple definition, like it would be in real life. In addition to this they acknowledge that, "in addition to the manifold links in a value chain, typically intermediary producers in a particular value chain may feed into a number of different value chains". According to Domberger (1998, p. 11) it is important for firms to know how much of their value chain that should be kept internally, and how they should outsource the rest or "what arrangements they should use to link together various value chain activities undertaken by outside firms". This means that one firm's value chain is interlinked with other firm's value chains, like a network of value chains.

If we look at what this network of value chains can look like (fig. 6), it is easy to see the resemblance to what is known as the supply chain, and some do use these terms interchangeably arguing that if they use a wider definition of value chain than Porter's more traditional one and put less emphasis on the nuances between value chain and supply chain, the term value chain management can be understood as supply chain

management (Kalsaa, Ledelse av verdikjeder, 2009). However, according to Holweg and Helo (2014) these two views does not commonly interact, as the value chain (or value creation) is aiming at capturing as much value in financial terms as possible, while the supply chain is more concerned in designing supply chains that are operationally efficient. “Hence, even though often used synonymously, there is a specific difference in perspective on the same phenomenon: value is created in sequential steps by a set of distinct firms” (Holweg & Helo, 2014, p. 231)

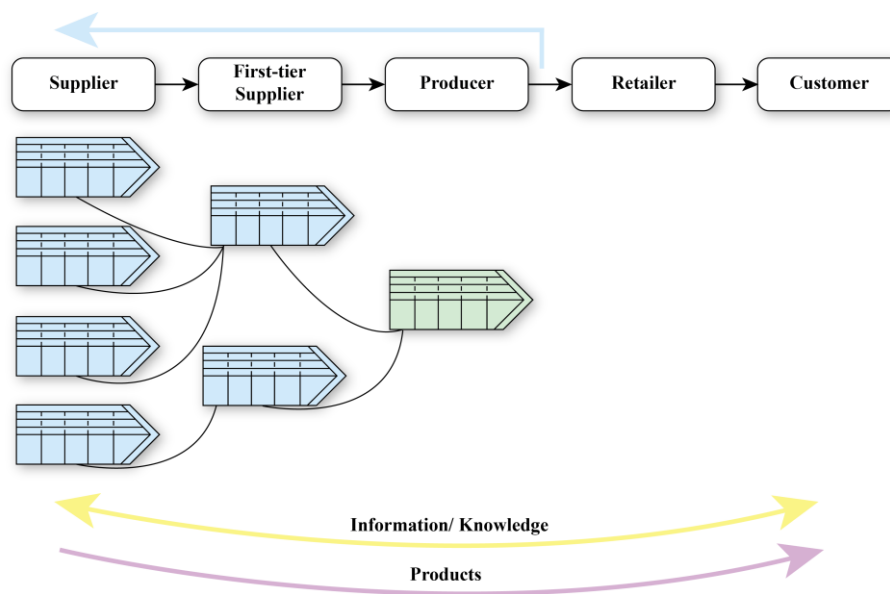


Figure 6: The Value Chain as a network of the supply chain with focus on the upstream links

We agree that there are subtle differences between the two terms, and that the two in many ways can be said to be the same, but we still believe it to be most appropriate to separate these two terms in our thesis and will hence stick with the term supply chain. However, we do recognize that a firms supply chain and value chain are interlinked, that improvements in the supply chain will also affect the value chain, and that the supply chain is also a vital part of the firms value creation. Also, supply chain management does not necessarily have to be limited to the purely operational aspects of the chain, but should also include the strategic, or entrepreneurial aspect as mentioned above.

3.1.3 Supplier strategy

Increased competition from offshore producers, shorter product life cycles, and rapidly changing technologies have forced buyers to search for suppliers whose expertise and competence can be leveraged.

(Spekman R. E., 1988)

According to the positioning matrix made by Kraljic in 1983 a company needs to consider both the importance of a good or service to the firm and the competitiveness of the supply market, as well as the technical complexity of the product when making decisions regarding sourcing and competitive strategies. Hence, the items impact of the business as well as the supply risk should be assessed (Cousins et al., 2008). When making decisions regarding the supplier strategy the companies should, according to Kraljic's approach, base this decision on not only classification of materials, components and suppliers, and a market analysis, but also on the strategic positioning. The term 'strategic positioning' builds on analysis of the power regime between companies as a basis for choice of supplier strategy. Lastly is the development of action plans (Kalsaas & Veer van't Hof, Innkjøp, konkurranseevne og verdiskaping, 2009).

Cox (2004) has classified four sourcing options for the buyers (fig. 7): Supplier selection, which are relatively short-term contracting relationships where the buyers work on arm's-length; supply chain sourcing, which is similar to supplier selection only that the buyers not just only look at the first-tier, but from as many tiers as possible; supplier development, where the buyer and supplier will, jointly make dedicated investments in the relationship and create technical bonds and relationship specific adaptations; and supply chain management, which involves the buyer undertaking proactive supplier development work, not only at the first-tier of the supply chain but also at all stages in the supply chain (Cox, 2004). Here we see that depending on what type of focus the buyer has in its relationship with its suppliers, and also the level of scope they have affects what type of sourcing options is better suited, both of which are, or at least should be, closely tied to the company's strategy.

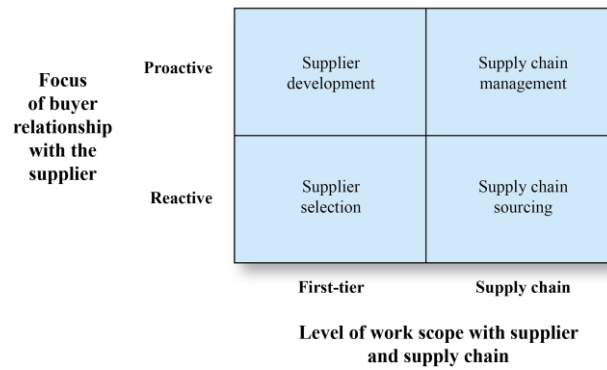


Figure 7: The Four Sourcing Options for Buyers. Adopted from Cox, 2004, p. 349

3.1.4 Framework for Supply Chain Management

The conceptual framework of supply chain management first developed by Cooper, Lambert and Pagh (1997) is a model that can be used by executives to capture the potential of successful supply chain management. It consists of three closely related elements (fig. 8); business processes; management components; and network structure (Lambert & Cooper, 2000), which will be elaborated more detailed in the following. This framework is not complete as a model (Lambert & Cooper, 2000), but will serve as a guide regarding which elements that will be analysed.

3.1.4.1 Supply chain network structure

Starting with supply chain network structures, this concerns identifying supply chain members and the structural dimensions in the network. A third aspect of the network structure is the different type of process links across the supply chain (Lambert & Cooper, 2000), or identifying the different relationships between the actors (Grønland & Persson, 2002). According to Lambert and Cooper (2000) this identification is important in order to determine which parts of the supply chain that will get management attention, and must be weighted against the firms capabilities and importance to the company, as it would more often then not be counterproductive or even impossible to integrate and manage all process links with all members of the supply chain. They divide the process links into four categories; the managed process links, the monitored process links, the not-managed process link, and the non-member process links. If complex, one way of making the network more manageable is to separate the members into primary members; the ones that add value, and secondary members; that provide different types of resources or assets to the primary members. The different structural dimensions in the network can be the vertical, which refers to

the number of suppliers/customers represented within each tier; the horizontal, which refers to the number of tiers across the supply chain; and the horizontal position of the focal organization (Lambert & Cooper, 2000).

3.1.4.2 Supply chain business processes

Supply chain business processes consist of the activities and information flow connected to supply customers with products (Grønland & Persson, 2002). Continuous information flows are required in order to operate an integrated supply chain, and going from managing individual functions to integrate activities into key supply chain processes is a requirement for successful supply chain management (Lambert & Cooper, 2000). According to Lambert and Cooper (2000), GSFC have identified eight such key supply chain processes, which are; customer relationship management; customer service management; demand management; order fulfilment; manufacturing flow management; procurement; product development and commercialization; and returns. The procurement processes is especially interesting for this study, as it concerns the development of strategic plans with the suppliers to support both the manufacturing flow management process and development of new products. With a win-win situation as the desired outcome, there is a development of long-term strategic alliances with a small core group of suppliers (Lambert & Cooper, 2000).

3.1.4.3 Supply chain management components

Lambert and Cooper (2000) has identified nine management components for a successful supply chain, which are; planning and control; work structure; organisation structure; product flow facility structure; information flow facility structure; management methods; power and leadership structure; risk and reward structure; and culture and attitude. The management components can be parted into physical/technical components and operational/behavioural components. The structure of the flow of information is an example of the first group, while management methods and power and leadership structure are examples of the latter (Grønland & Persson, 2002). Since both the type of and frequency of information sharing is important for the efficiency of the supply, the information flow facility structure is often the first component to be integrated (Lambert & Cooper, 2000). The organisational structure can promote integration of the supply chain through cross-functional teams or in-plant supplier personnel, while the exercise of power, or lack

of, can promote exit behaviour or affect the level of commitment (Lambert & Cooper, 2000).

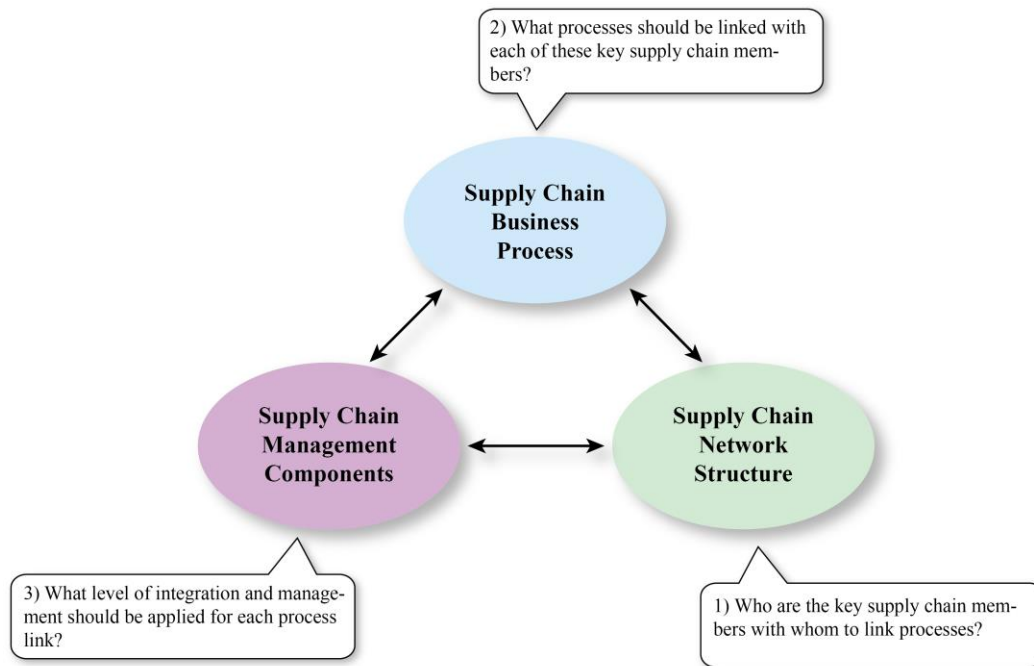


Figure 8: Supply chain management framework: elements and key decisions. Adopted from Lambert & Cooper, 2000, p. 70.

As can be see here, supply chain management is not just about lowering cost and throughput time, but also about strategic choices, relationships and value creation, both on the business level as well as in a wider perspective in a chain or a whole network. It is also evident that information flow and the structure of this flow, together with organizational structure, and the power and leadership structure are important success factors for of supply chain management. This thesis will now proceed to look into relationships, power, information and knowledge sharing, and governance.

3.2 Relationships

Inter-firm relationships and networks are an indispensable part of business relationships...

(Dekker, 2003)

As we will see, the inter-organizational collaboration between the member businesses in a cluster is one type of relationship. According to Szwejczewski et al. (2005, as cited by (Rashed et al., 2010, p. 62)) the descriptions of relationships are relatively abstract and vary with the discipline from which they are being researched, but it can still be defined as a relationship “as soon as two or more parties associate themselves in order to fulfil a mutual business purpose”. Rashed et al. (2010) also states that these relationships can be seen as generic, mutual, and involved exchanges between buyers and suppliers. There are many different types of relationships in the business world, such as business-to-business, business-to-consumer, consumer-to-business, and even consumer-to-consumer (Slack et al., 2010). But for this thesis it is the business-to-business (B2B) relationship that is important and that we will take a deeper look into. In the B2B relationship there are two dimensions that are particularly important – what to outsource (the make-or-buy decision), and who to source it from (Slack et al., 2010). This thesis will not consider the make-or-buy decision, but rather the ‘*how*’ which is related to the ‘*from whom*’ decision.

3.2.1 Arm’s-length relationships vs. partnerships

According to Rashed et al. (2010, p. 66) the “most important characteristics of buyer-supplier relationships are the different cultures of the business partners, their communication problems and technological distances”. Cannon and Perreault (1999, p. 441) have also defined informative exchange, operational linkages, legal bonds, cooperative norms, and relationship-specific adaptations by both buyers and sellers as the six relationship connectors as “dimensions that reflect the behaviours and expectations of behaviour in a particular buyer-seller relationship. Even if the characteristics of the different types of relationships are not absolute, they should be mentioned, as they are important to consider when making a decision related to what type of relationship to have with one’s supplier and how to manage the relationship. As we see here the information exchange or lack thereof, co-operative norms, which for instance could be adversarial or non-adversarial, together with adaptations, which are related to the power structure, are important for the relationships. These will be elaborated further in this chapter, as they are important for supply chain.

There has been a historical development from the traditional market supply relationship towards vertical integration and corporate organizations, before it moved more towards partnership supply relationship or hybrid solutions (Domberger, 1998). Even if the businesses to a certain degree moved away from vertical integration, this doesn't mean that they are not dependent of each other. In 1994 Harrison claimed (according to (Askildsen & Kalsaas, 2009)) that there is a dependency between firms, even if they are independent entities in the sense of legal understanding. And in 1993 Grabher (according to (Askildsen & Kalsaas, 2009)) defined four basic characteristics defining these networks of businesses that are to some extent dependent of each other; reciprocity; interdependence; loose coupling; and power, which we already have seen is also important for supply chain.

As already mentioned there are many different descriptions of different types of relationships. This is suitably illustrated by the fact that Gummesson alone defined 30 forms of relationships in 1997 (Rashed et al., 2010). However, it is possible to look at relationships defined in wider terms. Ellram (1991, as cited in (Rashed et al., 2010, p. 62)) states that the buyer-supplier relationships can be classified as either adversarial arm's-length or partnership, and according to Rashed et al. (2010, s. 62) there is a clear difference between traditional arm's-length relationships and partnerships, as partnerships are closer than other types of relationship. We will start by looking into these two types.

The arm's-length relationship is what also can be called a traditional market supply relationship. Here the buyer will often look to the market for each new purchase, trying to find what they consider the best supplier, making each transaction a separate decision. This means that the relationship between buyer and supplier more often than not can be short-term (Slack et al., 2010). Also, price will often be an important factor when choosing the supplier. For the arm's-length type of relationship the advantages might be that having a more traditional market supply relationship helps maintaining the competition between alternative suppliers forcing them to provide best value (or lowest price) to the buyers, and at the same time if the suppliers specialize and offer their product to many buyers they can gain economies of scale. It can also provide the buyers more flexibility given that they can change the number or volume of the orders to fit the demand of the customers. If both the supplier and the buyer are able to

concentrate on their core activities this can also help innovation on both sides, which can be for the better of both sides if they are able to take part in increased efficiency, better/higher quality products, or lower cost (Slack et al, 2010; Domberger, 1998).

The partnership is what we earlier referred to as a hybrid, and can also be seen as a strategic alliance (Domberger, 1998). The reason why it is called a hybrid is because it is not the same as a pure market relationship, nor is it full vertical integration where the company owns all the resources which supply to them (Slack et al., 2010). This relationship type have been defined by Parkhe in 1993 (according to (Slack et al, 2010, p. 389)) as “relatively enduring inter-firm cooperative agreements, involving flows and linkages that use resources and/or governance structures from autonomous organizations, for the joint accomplishment of individual goals linked to the corporate mission of each sponsoring firm”. Other factors in this type of relationships are the sharing of success between the buyer and supplier, long-term expectations, multiple points of contact, joint learning, few relationships, joint coordination of activities and problem-solving, information transparency and trust (Slack et al., 2010). Some of the advantages mentioned for the arm’s-length relationship are of course also true for the close partnership, such as both parties being able to concentrate on their core activities. There are also advantages with having close partnership that you won’t necessarily obtain through an arm’s-length relationship. Rashed et al. (2010, p. 66) state that, “for manufacturing firms, long-term, cooperative relationships with suppliers can provide a unique capability that establishes a source of competitive advantage”.

According to Spekman (1988, p. 77), “long-term relations with fewer suppliers, close interaction between a number of different functional areas across organizational boundaries, supplier proximity, and blanket contracts signal partnership like interaction”. However, this does not define the domain and scope of collaboration (Spekman R. E., 1988). Firms can “co-operate and be co-ordinated in a supply chain but not collaborate. Collaboration requires high levels of trust, commitment and information sharing among supply chain partners. In addition, partners also share a common vision of the future...Collaborative behaviour engages partners in joint planning and processes beyond levels reached in less intense trading relationships” (Spekman et al., p. 56-57, 1998).

3.2.2 Power

Arm's-length relationships and partnerships are what can be characterized as two extremes, and other researchers have classified the different relationship types somewhat differently with different nuances. Bensaou (1999) makes a distinction between four different types of relationships based on the investments made by either only the buyer or only the supplier, by both of them, and by neither of them. Asymmetry in the investments can make one part captive in the relationship. We can relate this to the classifications made by Cox (2004) in his 'Power matrix' (fig. 9), which are based on the power regime in the relationship. If one party has made investments in the relationship and the other hasn't, making the invested party captive, this should at the same time give the other party a certain degree of power. If both the supplier's power relative to the buyer and the buyer's power relative to the supplier are low, the relationship is classified as independent, while if both are high it is interdependent. If there is an inequality the relationship is either classified as buyer dominant or supplier dominant.

Attributes to buyer power relative to supplier	High	Buyer Dominance (>)	Interdependence (=)
	Low	Independence (0)	Supplier Dominance (<)
		Low	High
		Attributes to supplier power relative to buyer	

Figure 9: The power matrix. Adapted from Cox, 2004, p. 352

3.2.2.1 Power and relationships

Power can be seen as the dependency between companies, which in turn will give one of the parties power over the other in their relationship, or interdependency, giving both parties power. Thus, power can be seen as a tool for influence in the relationship and is ever present, but it doesn't mean that it is a source for conflict as all parties are aware of it and act in accordance with this (Askildsen & Kalsaas, 2009). According to Maloni and Benton (2000), power has an effect on inter-firm relationships, which in

turn has an effect on the supply chain. It is therefore necessary that firms recognise the power structures in the relationships and manage their relationships appropriately. It is also important to notice that exploitation in the relationship due to power can hurt the dominant part through dissension and under-performance, while a sensible use of power can lead to benefits.

Cox (2004) stated that there is not one right method for purchasers to handle commercial transactions with the suppliers. According to him “sourcing competence must, therefore, rest on buyers understanding not only what is “ideal” but also what is possible given the circumstances they are in...buyers need a guide to action when they confront the universe of real world circumstances that can occur when managing supply and suppliers“ (Cox, 2004, p. 346). In his ‘Power and contingency’ model, Cox considers the possible leeway the company has regarding its sourcing decisions through an analysis of what purchasing alternatives that exist, a power regime analysis, and an analysis of which management styles that effectively can be used to handle different approaches to purchasing (Kalsaas & Veer van't Hof, 2009).

According to the ‘Power matrix’ (Cox, 2004), independence in the relationship is characterised by; many buyers and suppliers; the buyer has a relatively low share of the suppliers total market; the supplier is not dependent on the buyer for revenues and has many alternatives; the buyer and supplier have low switching costs; the buyer is not that attractive to the supplier; the good or service offered by the supplier is a standard commodity; buyers search costs are low; and the supplier has very limited information asymmetry advantages over buyer. Comparing to the classifications made by Bensaou (1999), one can say that since one reason for the independence are that there are low switching costs on both sides, it is fair to assume that neither has made large investments in the relationship, and that this is a market exchange type of relationship. He also mention that in this type of relationships there is limited information exchange, structured routines for operational coordination and monitoring, there is no systematic joint effort and cooperation, and no early supplier involvement in design.

If we look at the relationship were there is supplier dominance then there will be few suppliers and many buyers; the buyer has low share of the suppliers total market; the

supplier is not dependent on the buyer for revenues and has many alternatives; the buyer is not particularly attractive to the supplier; what the supplier offers is relatively unique; the buyer has high switching costs while the supplier has low switching costs; the buyers search costs are high; and the supplier has substantial information asymmetry advantages over buyer (Cox, 2004). Since one source for supplier dominance is that the buyer has high switching costs while the supplier has low, it can be fair to assume that the buyer has made high investments in the relationship while the supplier has not. Comparing this to Bensaou's (1999) captive buyer is therefore possible, which might also imply that the relationship is characterized by exchange of detailed information on a continuous basis, there are frequent and regular mutual visits, the climate can be tense with lack of mutual trust, there is no early supplier involvement in design, and there is a strong effort by buyer toward cooperation.

If, on the other hand, the buyer is the dominant party, then there might be few buyers and many suppliers; the buyer has high share of the suppliers total market; the supplier is dependent on the buyer for revenues and has few alternatives; the buyer is attractive to the supplier; the suppliers are offering a standardized commodity; the buyer has low switching costs while the supplier has high switching costs; the buyer has low search costs; and the supplier has no information asymmetry advantages over buyer (Cox, 2004). Since one source for buyer dominance is that the supplier has high switching costs while the buyer has low, this can be compared to a relationship with a captive supplier, because this can imply that the supplier has made high investments in the relationship while the buyer has not. This type of relationship is often characterised by a low degree of information exchange, few mutual visits, there can be high mutual trust, but still limited direct joint action and cooperation (Bensaou, 1999).

In the interdependent relationship there might be both few buyers as well as few suppliers; the buyer has high share of the suppliers total market; the supplier is dependent on the buyer for revenues and has few alternatives; they both have high switching costs; the buyer is attractive to the supplier; the product offered by the supplier is relatively unique; the buyer has high search costs; and the supplier has moderate information asymmetry advantages over the buyer (Cox, 2004). One of the sources for interdependence is that both the supplier and the buyer have high

switching costs, which can come from both having made high investments in the relationship. Because of this it can be compared to the strategic partnership, where there is frequent information sharing in rich media, there are regular mutual visits and also practice of guest engineers, there is high mutual trust and commitment to the relationship, a strong sense of buyer fairness, early involvement of the supplier in design, there is extensive joint action and cooperation (Bensaou, 1999).

3.2.3 Information and knowledge sharing

Knowledge is the key to the success of a supply chain as it affects decisions

(Wadhwa and Saxena, 2005 according to Rashed et al., p. 63, 2010)

An important aspect of relationship between companies is the sharing of information and knowledge. Information and knowledge can serve both as a means of building or developing a relationship, but information and knowledge sharing can also arise as a result of a relationship between companies. Thus, relationships and information and knowledge sharing can underpin each other.

3.2.3.1 Information and knowledge - distinction

Authors doing research on information and knowledge have argued that the terms data, information and knowledge is often used as synonyms. In this thesis, the distinction between knowledge and information is important, and a brief distinction of the terms will thus follow.

Although information and knowledge are sometimes used interchangeably, they are two distinct terms with different meanings and applicability. Rashed et al. (2010, p. 62) state that “knowledge in the business context is nothing but a more valuable and actionable information”. Information includes facts, axiomatic propositions, and symbols (Kogut & Zander, 1992). By the above-mentioned statement, one can see that the terms are interrelated, where knowledge stems from information. In order for knowledge to be developed, it starts out as data, which has little value on its own. For data to become information, it must be placed into context for the data to make sense to the user. Then, it takes critical and creative thought processes to transform information to knowledge (Rashed et al., 2010). Davenport and Prusak (1998) offers a similar connections between the terms, by stating that data consists of facts or records

of transactions, information consists of captured data in for instance a document which is ordered to some purpose, and knowledge is what we know and that is built on both data and information, but also other elements such as values and experience.

Information and knowledge is important for developing internal capabilities, but as briefly mentioned above, it is the *sharing* of information and knowledge that is important in context with the supply chain and cooperation in this thesis.

3.2.3.2 Information sharing

Information sharing means, “distributing useful information for systems, people or organizational units” (Lotfi, Mukhtar, Sahran, & Zadeh, 2013, p. 300). Two aspects of information sharing are the quality and content of the information. These aspects vary over two dimensions; connectivity and willingness, and both are important for development of a real information *sharing* capability (Fawcett, Osterhaus, Magnan, Brau, & McCarter, 2007). Connectivity refers to the ways in which companies are capable to communicate, whereas willingness refers to openness to sharing relevant information honestly and frequently. The willingness to exchange information determines the extent of the sharing that takes place. Information sharing can facilitate collaborative relationships, and companies are intently focused on upgrading their information-sharing systems (Fawcett et al., 2007).

However, there have been many examples of relatively unsuccessful cooperation between firms in supply chains (Frick, 2005; Fawcett et al., 2007), meaning that the involved parties did not reap the expected benefits they had hoped for. Fawcett et al. (2007) discovered four barriers to sharing information in their study on information sharing and supply chain performance, which include both the aspects of connectivity and willingness. These barriers are cost and complexity of implementing advanced systems, systems incompatibility, the existence of different levels of connectivity in a chain and the fact that managers don’t understand the dimension of willingness to sharing information. These barriers may be much to blame for unsuccessful cooperation between some firms.

3.2.3.3 Knowledge sharing

Knowledge sharing is defined by Rashed et al. (2010, p. 65) as ”transferring knowledge to others within the organization by individual’s effort”. In literature,

numerous distinctions have been made to divide knowledge into different fragments, in order to make the subject more manageable. Some distinctions are between simple and complex knowledge, tangible and intangible knowledge, interdependent and systematic knowledge, component and architectural knowledge and perhaps the most applied distinction –explicit and tacit knowledge. Thus, there is not a universal consensus regarding classification of the types of knowledge, other than the fact that there are multiple distinctions (Despres & Chauvel, 2002). Even though there are some common features to be drawn amongst some of these terms, authors argue that they vary among some dimensions, such as tacitness and transferability (Tallman, Jenkins, Henry, & Pinch, 2004). Many researchers have used the distinction between explicit and tacit knowledge as fragmentations of knowledge. In the cluster and supply chain literature, this distinction is used more often than other distinctions, and is also what will be used in the following.

Explicit knowledge is characterized as being exact, observable, and readily transmittable both orally and in writing (Rashed et al., 2010; Puusa & Eerikäinen, 2010). Leonard and Sensiper (2002) states that this knowledge can be easier to share than tacit knowledge because it can be shared through explanation and because others than the individuals originating it could understand it. Tacit knowledge is knowledge that is unconscious, ‘sticky’, is held in people’s minds and actions or routines and is therefore not easy to express. Also, it is often acquired through a process of learning by doing and practice. The latter characteristic may be due to the fact that “people are unaware of the tacit dimensions of their knowledge, or are unable to articulate them” (Leonard & Sensiper, 2002, p. 116). Leonard and Sensiper (2002) further explain that tacit and explicit knowledge are types of outer points of knowledge, and that most knowledge has some tacit elements. Thus, much knowledge can be said to be found at an intermediate level between the outer points of knowledge.

Tacit knowledge can also be found in a group or organizational setting, not just on the individual level. An example of tacit knowledge in organizational form is a culture residing in a business amongst a group of people; no single person may understand the culture completely. As the man being well known for the tacit dimension, Michael Polanyi said describing: “*We know more than we can tell*” (Nelsom & Winter, 1982).

Dyer and Singh (1998, according to (Fawcett et al., 2007) suggests in their conceptual work that learning and knowledge play a significant role in inter-firm buyer-supplier relationships. They use the term *relational rents* in their work, which represent superior individual firms performance generated within a network. They express that neither firm in isolation can accomplish the benefits that can stem from these rents, it can only occur through joint idiosyncratic contributions of alliance partners.

3.2.3.4 Managing information and knowledge sharing

The sharing and receiving of information is a two-way street. The two dimensions of information sharing are connectivity; creates the capability to share, and willingness; people's openness and honesty to sharing information (Rashed et al., 2010). In addition to the connectivity and willingness dimensions, knowledge sharing also depends on the type of knowledge, the relationship between the sharing parties, and the receiver.

In her framework for managing knowledge within the context of firm boundaries, Matusik (2002) explains that there are issues stemming from the continued growth of arrangements such as inter-firm partnering, and "how these arrangements affect firm knowledge and, ultimately, firm competitiveness" (Matusik, 2002, p. 605) . For such knowledge-based partnering, she introduces a function consisting of three considerations in order to absorb knowledge through partnering. These consist of the nature of the knowledge itself, the nature of the partnership, and firm attributes. These considerations will be explained briefly.

3.2.3.5 The nature of the knowledge itself

As mentioned above, there are many distinctions of knowledge, where the distinction between explicit and tacit knowledge is used in the following. The nature of knowledge affects its ease of transfer across firm boundaries, where codifiability plays a central role in ease of transferring. Because of the nature itself of explicit and tacit knowledge, and their ability to be communicated, explicit knowledge is easiest to transfer, much because it is easier to communicate through documentation or procedures.

3.2.3.6 The nature of the relationship

First, considering the two main groupings of relationships in a business context that are close partnerships and arm's-length relationship, the nature of the relationship

(among other factors) affects the trust amongst the involved parties, and can thus affect the ability and willingness to share knowledge. Rashed et al. (2010) explains that when companies are willing and able to share vital and often proprietary decision-making information, trust can be established and collaboration could be promoted. De Toni and Nassimbeni (1999) explain that the long-term perspective between buyer and supplier increases the intensity of buyer-supplier coordination. This long-term horizon perspective is as previously mentioned more likely to occur in partnership relationship versus arm's-length relationships (Slack et al., 2010). Extensive coordination between parties is often necessary when collaborating. If this coordination is not working out and becomes too costly due to managerial time being used to coordinate, it can diminish the attractiveness of outsourcing activities and thus the potential relationship with a supplier (Mayer, Somaya, & Williamson, 2012).

Also, similarities between companies regarding for instance knowledge bases, skills, organizational structure, and incentive systems affect transfers (Matusik, 2002). This two-way street between similar firms makes the ease of transferring information or knowledge from one of the parties easier, and it also makes it easier for the other party to receive and understand the knowledge. Thus, the nature of the partnership should be considered in conjunction with the nature of the knowledge that is intended transferred.

3.2.3.7 Firm attributes

Does the firm have ability and intent to effectively absorb knowledge? This ability is dependent on a firm's *absorptive capacity* and the appropriate structures, norms, and interaction for the nature of knowledge in question. To the extent firms have similar knowledge bases, they can more easily absorb and apply new information that builds on existing knowledge. Because absorptive capacity is the ability of any firm to acquire, assimilate, adapt and apply new knowledge, this means that they can *learn* from each other (Tallman et al., 2004).

Another element that can help a company to increase its absorptive capacity of information and knowledge acquired from its environment is the possession of certain knowledge. A firm's knowledge and capabilities are primarily situated in their human capital (Mayer et al., 2012). Using Castanias and Helfat's framework (1991) of three

main types of human capital that underlie firm capabilities; firm specific, industry specific and general, one can see that different companies possess heterogenic knowledge bases. A brief description follows from Castanias and Helfat (1991) of the different types of human capital in Mayer et al. (2012):

Firm-specific human capital is knowledge and skills that are unique to a specific company. An example of this could be knowledge about strategies, processes and technologies applied by the company. Industry-specific human capital includes knowledge about the industry setting or the domain in which a project is situated, and thus is re-deployable across companies with projects in the same industry domain. Occupational human capital is knowledge and skills required to perform work within a professional or functional area (Castanias & Helfat, 2001).

People at different levels of an organization possess different types of human capital. Castanias and Helfat (2001) have explained that managers and decision makers 'higher up' in a business hierarchy tend to possess a broader type of knowledge such that take a more occupational type of form. Employees at the lower levels of a business hierarchy may possess knowledge that is specific for the industry the company operates within (industry specific human capital) or knowledge that is more specific to a certain company (firm specific human capital). These different types of human capital differ among several aspects such as scope, transferability between firm boundaries, imitability within the organization and ease of learning. In this thesis, the scope and the transferability are most important, where occupational human capital represent both the human capital that is most broad in applicable areas (Mayer et al., 2012), and is also most easily transferable between firm boundaries (Castanias & Helfat, The managerial rents model: Theory and empirical analysis, 2001). Castanias and Helfat (1991) explain that managerial skills are largely tacit and involve learning-by-doing with no clear blueprint or instructions. Thus, the type of knowledge a manager possesses is difficult to replicate or imitate quickly. However, the possession of a large amount of across-industry occupational human capital within a company may increase its absorptive capacity for knowledge from its environment, and concerns the transferability.

A third factor that can affect a company's absorptive capacity is due to past decisions of whether or not to outsource (e.g. a project, a division, services etc) outside the boundaries of the firm. Mayer et al. (2012) found path-dependence logic where prior-outsourcing decisions affected the development of human capital, and thereby affecting future sourcing decisions. Sourcing decisions helps to shape the company's ability to learn, and outsourcing decrease organizational learning (Reitzig & Wagner, 2010). The scope of existing explicit and tacit knowledge may thus impact the absorption of new knowledge.

As shown, information and knowledge sharing and relationships can underpin each other, creating a self-enforcing process. Information sharing requires that the parties are able and willing to share information, while sharing of knowledge also depends on the nature of the knowledge, the nature of the relationship and firm attributes. Due to the fact that businesses compete as chains rather than single companies, the sharing of knowledge is important in light of supply chains as it affects decisions (Rashed et al., 2010). Wadhwa and Saxena states: "In any supply chain the mode of knowledge sharing to be adopted is an important strategic issue, which may affect the overall performance of the system significantly. The chains need to respond quickly to knowledge-based decisions and need to be more effective in real time performances" (Wadhwa & Saxena, 2005, p. 14).

3.2.4 Governance – Managing the relationship

There are several different definitions or views on the of types of relationships businesses can have with each other, which in turn is connected to the type of governance that could, or should be used. According to Bradach & Eccles (1989), it is focus on price, authority and trust that are the three control mechanisms that govern economic transaction between actors, while Ring and Van de Ven (1992) looks at the risk of the deal and the reliance of trust among the parties as factors affecting the governance structures.

Heide (1994) divides it into three types of governance: Market governance, unilateral/hierarchical nonmarket governance, and bilateral nonmarket governance. Williamson (1991) identifies three generic forms of economic organization: Market,

hybrid, and hierarchy. Ring and Van de Ven (1992) has parted the governance structures into: Market, hierarchy, recurrent contract, and relational contract. As we see here, there are different types of governance, and these are each considered appropriate for different types of relationships. However, they are not necessarily mutually exclusive. Poppo and Zenger (2002, p. 708) argue that, “well-specified contracts may actually promote more cooperative, long-term, trusting exchange relationships”. Hence, formal contracts and relational governance can function as complements instead of hindering or substitutes.

According to Cox (2004), the question is not necessarily about what is the over-all best type of relationship, be it win-win partnering or a zero-sum approach associated with win-lose outcomes, that every business should seek to have with all their suppliers, but rather about what relationship is most appropriate for that particular situation or circumstances. He further states that it isn't enough for the buyers to know the basic sourcing options in order to develop this appropriateness in sourcing, they must also know the four basic relationship management choices that are available for managing suppliers (fig. 10). The way the firms choose to work together and their share of value appropriation from are related to the nature of their relationship, which can be adversarial or non-adversarial, arm's-length or collaborative. The management choices he argues, is also linked with understanding the “four power circumstances that create the power regimes within which buyers and suppliers have to manage their sourcing relationships” that we have presented earlier (Cox, 2004, p. 351; Kalsaas & Veer van't Hof, *Innkjøp, konkurransevne og verdiskaping*, 2009).

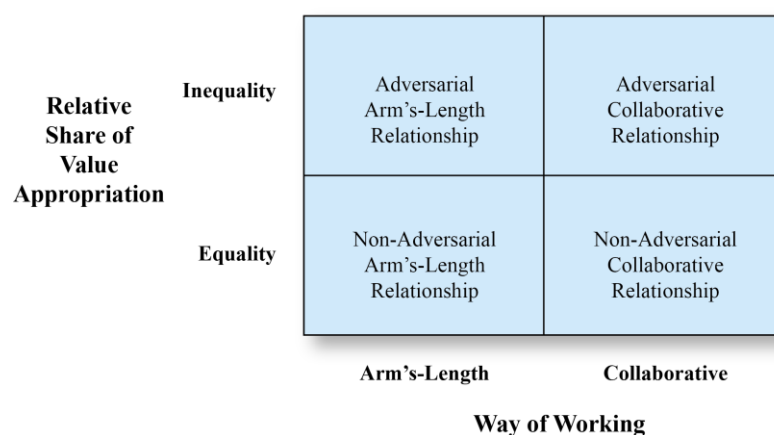


Figure 10: Relationship portfolio analysis. Adopted from Cox, 2004, p.353

3.3 Cluster

It is a commonly known fact that the world is becoming more and more globalized, and it is thus a paradox according to Porter (1998, p. 26) that "...the enduring competitive advantages in a global economy are often heavily local, arising from concentrations of highly specialized skills and knowledge, institutions, rivals, related businesses, and sophisticated customers in a particular nation or region". Even though there are several ways of defining a cluster, Cortright (2006) has pointed out four key areas that characterize clusters; industrial connections, geographic extent, cluster life cycles and inter-firm relationships. As a cluster often consists of many both competing and supporting companies, both competition and cooperation is important in a cluster. Reve and Sasson (2012, p. 18) explain this phenomenon by stating: "Firms are tough competitors in the market, but work together to develop local factor conditions."

3.3.1 Terminology

Before presenting the remaining main points in theory of clusters, it's in place to first distinguish between terminologies often used when dealing with the cluster theory. First, distinctions regarding terminology are presented in table 1 below, from Benneworth, Danson, Raines, & Whittam (2003, p. 513):

The five distinct theoretical elements of a cluster approach	
Cluster (cf. Porter, 1998)	An existing concentration of industrial activity, which is self-replicating and has competitive success, built on agglomeration. However, it is more than a single agglomeration as a result of the innovation arising from the cooperative interactions between firms.
Clustering (cf. Dosi, 1987)	The general behaviour of firms who are collaborating in innovation. ‘Clustering’ does not have to take place within an agglomeration- micro-clusters of c.10 firms can gain advantages from cooperative interaction without the existence of a macro-economic agglomeration.
Cluster activities (cf. Klein Woolthuis, 1999)	The specific events in which clustering can take place, typically through the collaborative activities in which firms meet and cooperate. Effectively a subset of ‘clustering’, these ‘events’ can occur with freestanding organizations or networks, and are characterized by identifiable outcomes.
Cluster organizations (cf. Lagendijk, 2000)	Formal organizations with a responsibility for organizing cluster activities. These may be State-funded and have a number of different goals; removing barriers to collaboration, arranging meetings, collective purchasing, branding etc.
Cluster policy (cf. Larousse, 2000; Gilsing, 2001)	Policies by Government to support cluster development in one of three classes: <ul style="list-style-type: none"> • Support for existing clusters • Support for business that already collaborate • Establishing new collaborations between non-cooperating businesses

Table 1: The five distinct theoretical elements of a cluster approach. Adopted from Benneworth et al., 2003, p. 513

The reason for the distinction is that these five elements operate at different scales, involve different actors and have different organizational logic (Benneworth et al., 2003).

Different theories exist within the area of clusters that attempts to explain how companies being located geographically close together can reap economic benefits. These different theories have in common that they highlight how companies and organizations through cooperation and interactions can create synergies, creating added value (Onsager, 2005). Within the history of cluster theory, there are two main directions that historically stand out. Michael Porter developed the first of the two main directions, and his background for cluster theory is from his main field of business economics and strategy. The second direction within the cluster theory that stands out is Paul Krugman's approach, with background from economic theory. His theory has a mathematical foundation, using microeconomics and international trade. In the following, Alfred Marshall's earliest foundation will be presented briefly, followed by Michael Portman's and Paul Krugman's views of clusters, in order to establish a historical basis.

3.3.3 Alfred Marshall – The foundation

The roots or underlying concepts of cluster theory goes back to Alfred Marshall (1890) and his phrasing of *industrial districts*, where location of employee's homes were closely located to their workplace. He characterized these districts as a "concentration of specialized industries in particular localities" (Marshall, 1890, p. 222). Due to the local concentration of specialized activities, he emphasized growth of external economies existing of supporting and ancillary trade and the specialization of firms in different stages and branches of production (Kuah, 2002). The availability of skilled and academically relevant labour was important in the theory of what has later been known as the 'Marshallian industrial districts'. In more recent decades, researchers have developed Marshall's mechanisms for clusters further.

3.3.6 Michael Porter and Paul Krugman

According to Michael Porter with his background from business strategy, clusters are valuable mainly because they contribute to innovation and export in an economy.

Porter values innovation, and the competitiveness of companies and demanding customers are important to challenge and develop companies. He recognizes three ways in which clusters can contribute to competitive advantages; by increasing the productivity of companies based in the cluster; by driving the direction and pace of innovation, which underpins future productivity growth; and by stimulating the formation of new businesses, which expands and strengthens the cluster, forming a virtuous circle of positive feedback (Porter, 1998). The diamond has become a well-known shorthand expression for his framework.

In Krugman's approach with his background from general economic theory, innovation and export is not the important drivers. Rather, the total increased creation of value is key. However, Krugman also values competitiveness in his approach, but in the view that it helps lower production costs, which in turn make it easier for nations to develop or attract new clusters (Finansdepartementet, 1996). Krugman focuses on the geographical location of companies and how synergies can be created when companies are being located close to each other, both regarding production resources, suppliers, customers and transportation costs. One of Krugman's perhaps most well known concepts are regarding the self-reinforcing mechanisms of clusters, which have also been called "forward linkages". To exemplify, people will prefer to live close to a concentration of manufacturing products, and that the manufacturers would like to be located near a large population demanding their goods because of total lower production and distribution costs. These connections in the cluster creating self-reinforcing mechanisms can stem from either non-pecuniary externalities or pecuniary externalities (Krugman, 1991).

It has been argued by some (Finansdepartementet, 1996) that although Porter and Krugman have very different basis when it comes to *why* clusters are important in an economy, the *conclusion* they both draw from their reasoning is not very different. Both emphasize the importance of clustering in an economy, and especially the importance of competition. Also, they both base their theory on the co-located or regional clusters.

3.3.2 Industrial and regional clusters

In cluster theory, it seems to be common knowledge that Porter popularized clusters.

However, it has been argued that in practice, few clusters bear few common features to Porter's ideal type of clusters (Bergman & Feser, 1999). Since clusters consist of different aspects, it has emerged a distinction between what has been known as *industrial* and *regional* clusters (Onsager, 2005; Bergman & Feser, 1999). There are more distinctions between different types of clusters, but these two are most used when talking about distinctions about the concept of clusters. They differ among other things amongst focus, important mechanisms and geographical levels of co-location (Onsager, 2005). The *regional clusters* are deployed regarding specialized industry concentrations, "...within a region that constitutes a metropolitan area, labor market shed, or other functional economic unit" (Bergman & Feser, 1999, p. 4). It consists of several companies within related industries, and can be looked upon as a geographically concentrated value chain system (Johnstad, 2007). In these clusters there often evolves a certain culture with specific norms, considerations and informal ground rules. The *industrial clusters* can be more or less geographically concentrated, but opens up for the possibility that ties that bind companies together may as well be between companies being more distantly located from each other (Bergman & Feser, 1999). Further, Enright (1996, as cited in Bergman & Feser, (1999, p. 3)) argue that what binds the cluster members together are "buyer-supplier relationships, or common technologies, common buyers or distribution channels, or common labor pools".

3.3.7 Other distinctions

The multiple ways the expression cluster has been used, has often revolved around geographic location of a certain mass of companies in a value chain, which is located in the same region. The intention is to share common inputs, exploit shared knowledge and to learn from each other through experiences (Reve & Sasson, 2011). As mentioned above regarding the distinction between industrial and regional clusters, one can according to Onsager (2005) interpret the expression regional clusters as geographically concentrated value system. Tallman et al. (2004) share the same opinion regarding the emphasis on geographical location regarding the concepts of industrial districts.

Much of the work that focuses on clusters is based on different author's observations

and interpretations on specific areas. Even though findings may be applicable to other contexts, there are many variables differing from cluster to cluster. Each cluster is unique as a result of differences in industry sectors, number and sizes of firms, purchase-sales linkages, and extent of interfirm cooperation and collaboration (Barkley & Henry, 2001).

What makes a cluster unique is the mechanisms that revolves in that specific cluster. Typical clusters that has previously been studied and highlighted include the well-known computer industry in Silicon Valley in California (USA), the Digital Media City in Seoul (Korea) and the textile and clothing industry in Huzhou (China). A report by Onsager (2004) point at some factors that differentiate Norwegian clusters from other countries; Norway have a lower population base, a “thinner” business environment, a large share of commodity and R&D based industries, and the lack of large domestic markets and long distances to important customers. Thus, Onsager show that the basis for development of clusters and the mechanisms underlying these can vary between countries.

In more recent years, it has been argued by Tallman et al. (2004) that because of todays new age of global electronic connectedness, many are beginning to question the significance of geographic location. Surely, some benefits can only occur when collaborating companies are located closely together, such as reduced costs of transportation and interaction, and better control of subcontractors (Johnstad, 2007). The benefit of reduced costs of transportation is intuitive; When located closely to each other, the cost of transportation is reduced due to smaller distances. Both the reduced cost of interaction and the benefit of having better control over subcontractors is connected to spillover information through informal meetingplaces where employees meet and interact socially and exchange knowledge (Oterhals & Johannessen, 2009).

There are benefits that is wholly or partially unrelated to location of companies. Gomes-Casseres (1994) outlines three advantages that can be reaped from networks in general; They are related to linking industries together, maximizing joint volume of market share and to gain a global market perspective. The benefits related to linking industries is development of new products and services in a competitive pace. Many

companies have found out that networks allow specialists in different fields to cooperate and exploit new opportunities much faster than if they were to acquire those same opportunities on their own. The possible benefits that could be reaped from a larger market could be related to for instance the number of companies adopting a technology, helping to gain a 'critical mass' required to further develop a product, creating a snowball effect. Cooperating companies can help each other promote technologies. The global market perspective that can be gained is much due to use of different skills and knowledge and companies can also spread its cost related to some functions by cooperation (Gomes-Casseres, 1994).

Alternative groupings that could have the potential of reaping these benefits wholly or partially linked to localization could be strategic groups (Peteraf & Shanley, 1997), joint ventures or alliances (Gomes-Casseres, 1994). These groups consists of companies joined together in a larger, overarching relationship, linked together formally or informally. Each company may have their specific role within the wide relationship to fulfill.

3.3.8 Possibilities and limitations

As previously mentioned, there are many benefits that clusters have a potential to enable its members. The already mentioned benefits relates to synergies through added value; short distances that reduces transportation costs of goods; the availability of skilled workers; economies of scale; and increased competitiveness both due to increased productivity, innovation and the stimulation of the formation of new businesses. Other benefits that may not be as visible are financial markets that are familiar with the industry; that companies inside the cluster can quickly adapt to market changes; and especially the enhanced likelihood of inter-firm technology and information transfers (Barkley & Henry, 2001).

The latter benefit is related to the fact that clusters are examples of collaborative and relational environments in which the people or firms involved are able to make the transfer of tacit sticky knowledge easier within clusters (Porter, Clusters and competition, 1998). Porter explains that due to the existence of repeated, personal relationships and community ties, trust is fostered and facilitates the flow of

information within clusters. Tallman et al. (2004) defines two kinds of competitive characteristics that can be developed into competitive advantage for a cluster; those based on *traded interdependencies* and those based on *non-traded interdependencies* (Connell & Voola, 2013, s. 210). Traded interdependencies involve formal exchanges including alliances, acquisitions and technological knowledge. Non-traded interdependencies occur inside of the economic environment and is based on shared knowledge related to Marshall's definition of an industrial atmosphere. The latter term has been studied and extended to become a more general statement about one of the advantages that may accrue from the geographical closeness of industries and services in general (Bathelt, Malmberg, & Maskell, 2004). The term has been called many things, but a popular term is 'buzz', which refers to the "...information and communication ecology created by face-to-face contacts, co-presence and co-location of people and firms within the same industry and place or region" (Bathelt et al., 2004, p. 38). An advantage with local buzz is that the information that is communicated is tailored to the receiver of the knowledge. Connell and Voola (2013) emphasize the importance of this industrial atmosphere to explain both individual and collective competitive advantage for firms in clusters.

Bathelt et al. (2004) argue that if the existence of informal buzz within a cluster can lead towards sharing and dissemination of tacit and thus more sticky forms of knowledge, the businesses involved in the cluster could have an advantage compared to competitors outside the cluster. According to Bathelt et al. (2004, s. 38), "... the diffusion of buzz within a cluster can go smoothly, but it can also be somewhat blocked depending on the structure of social relations between the local actors and firms and the history of interactions between them."

As we have seen, the potential for reaping benefits by participating in a cluster are many, and can add value to companies. But there are also costs to consider. It takes both time and money to develop and maintain relations. In order for the benefits to exceed costs, investments in relations are important, and should be looked upon as strategic choices (Strandhagen, 1998). This is also due to the fact that a company's time, attention capacity and economic resources are scarce.

Another limitations that can hinder the creation of clusters are related to the type of

clusters that are initiated by government or external parties. These could be related to the fact that a region may find it difficult to ‘pick’ an industry that are to be fostered and initiated, that latecomers in the cluster may not be competitive, and that supportive institutions are not easily established (Barkley & Henry, 2001). These types of top-down cluster-developments may not survive in the long run, much due to the cluster’s lack of ability to renew itself and to work properly on ‘it’s own’ (Wadhwa V., 2011). Clusters that have shown to work on it’s own and that has occurred rather than created, face partially different challenges or limitations.

An intriguing aspect of clusters is the fact that companies that are competitors in the marketplace but also collaborate within the cluster. Connell and Voola (2013) explain that in this volatile state of competitive collaboration, trust between parties is very important due to the risk of opportunistic behaviour. “...when cluster members have high levels of trust in each other, they will be more likely to be committed to, and persist with, knowledge sharing and thus build social capital” (Connell & Voola, 2013, p. 212). Hence, due to risks as opportunistic behaviour from competitors, trust should be established before sharing valuable information and knowledge within a cluster.

3.3.9 Cluster supply chain management

According to Huang and Xue (2009, p. 273) “the operation of all kinds of collaboration relies on the successful construction of the service infrastructure, which operates as intermediaries to link participating firms to leverage each other’s strengths and collaboratively achieve higher overall performance”. This service infrastructure can be categorized into: trust service, which is a prerequisite for forming other services; information service, which will enable them to react rapidly to changes in demand, reduce the bullwhip effect, and provide capacity and flexibility to respond to changes; logistics service, where given closeness such as geographic proximity or relationships in the firms can reduce their costs and transition time; and knowledge service, which is composed of explicit and the tacit knowledge that can play an important role in improving the core competence of enterprises, and give the members opportunity to interact, innovate and complement each other. They further state that there are several different collaboration modes in a cluster supply chain that will

affect the enterprises and their value chains, such as: collaborative supply, collaborative manufacturer, collaborative R&D, collaborative logistics, and collaborative sale/services (Huang & Xue, 2009). A cluster supply chain can also help in addressing issues such as determining system wide costs and dealing with demand uncertainty, which is two of the main difficulties in supply chain management (Wu, Yue, & Sim, 2006). Wu et al. (2006) state that this is due to the cluster's inherent advantages in efficiency, effectiveness and flexibility, and that the cluster can facilitate efficient sourcing of inputs, sharing of information, process improvements, technological know-how and coordination.

3.4 Summary

As we have seen here supply chain and supply chain management is not limited to the pure operational aspect of the chain, or the day-to-day operations, but also include the more strategic aspects such as how to manage the supply chain and their relationships, what and whom to source from and so on. The flow of information is important for both of these, as it is an important factor in avoiding the bullwhip effect, efficiency and flexibility to meet changes in demand or orders, as well as it is important for making strategic decisions, and to develop and improve the supply chain. Information sharing however is not necessarily enough for making the best strategic choices; knowledge sharing is also needed in order to accomplish this. But in order to acquire knowledge there must be knowledge sharing, and information sharing is what can be called a prerequisite to obtain this.

Furthermore there is a clear linkage between the nature of the relationship and the information and knowledge sharing, where the degree of sharing can affect the relationship, which again can affect the sharing, making it somewhat of a self-reinforcing phenomenon. Also, the power structure will affect the relationship and how this is managed. Power will also have a direct effect on the supply chain, giving one or both parties leverage to make demands or affect decisions.

Relationships are not only important aspects in supply chain theory, it is also essential in cluster theory as a cluster in one sense is just that, *relationships*. In a cluster there are many types of relationships, such as relationships between the members of the clusters, between the members and their suppliers, between the members and their

customers, and so on. Although for this paper the focus has been on the relationship between the members of the cluster and between the members and their suppliers. Being in a cluster can help the members gain advantages through developing relations, and thus facilitate sharing of information and knowledge. For cluster members there might also be gains directly linked to the operational supply chain through economics of scale, and it might also affect the power balance in the relations to suppliers. However, the theory and previous studies we have found are mainly based on regional clusters where a large part of value chain is represented in a cluster located in close proximity to one another.

As for Norwegian Rooms, it has members across Norway, and only members from manufacturing companies (furniture brand companies) and no suppliers/customers. Hence, from the theory alone we cannot say that they will be able to achieve all the same gains or advantages as members of a regional cluster would. This could for instance be that in the regional clusters there could be shorter distances, which in turn could decrease the transportation cost and time. Another possible consequence is that the informal channels of information sharing called buzz might not be applicable when there are longer distances between the companies. However, many of the companies do have local suppliers and are located close to each other, so we cannot say that this is a problem either at this point. On the other hand, as pointed out earlier, the geographical ties might not matter as much, due to the globalization and digitalization (Tallman et al., 2004), and advantages can be gained without this geographical proximity. Examples of groupings are the joint ventures and alliances (Gomes-Casseres, 1994), and strategic groups (Peteraf & Shanley, 1997) mentioned above. And as each cluster is unique (Barkley & Henry, 2001), what gains or advantages the members obtain will also be different from cluster to cluster. This will be part of the analysis and discussion in chapter 6.

4. Design and methodology

This chapter outlines the research design and the methodology applied in the thesis. In order to structure and as an attempt of refining boundaries between elements of the research design, the framework from Blaikie (2005) as adopted in figure 11, will be used in the following.

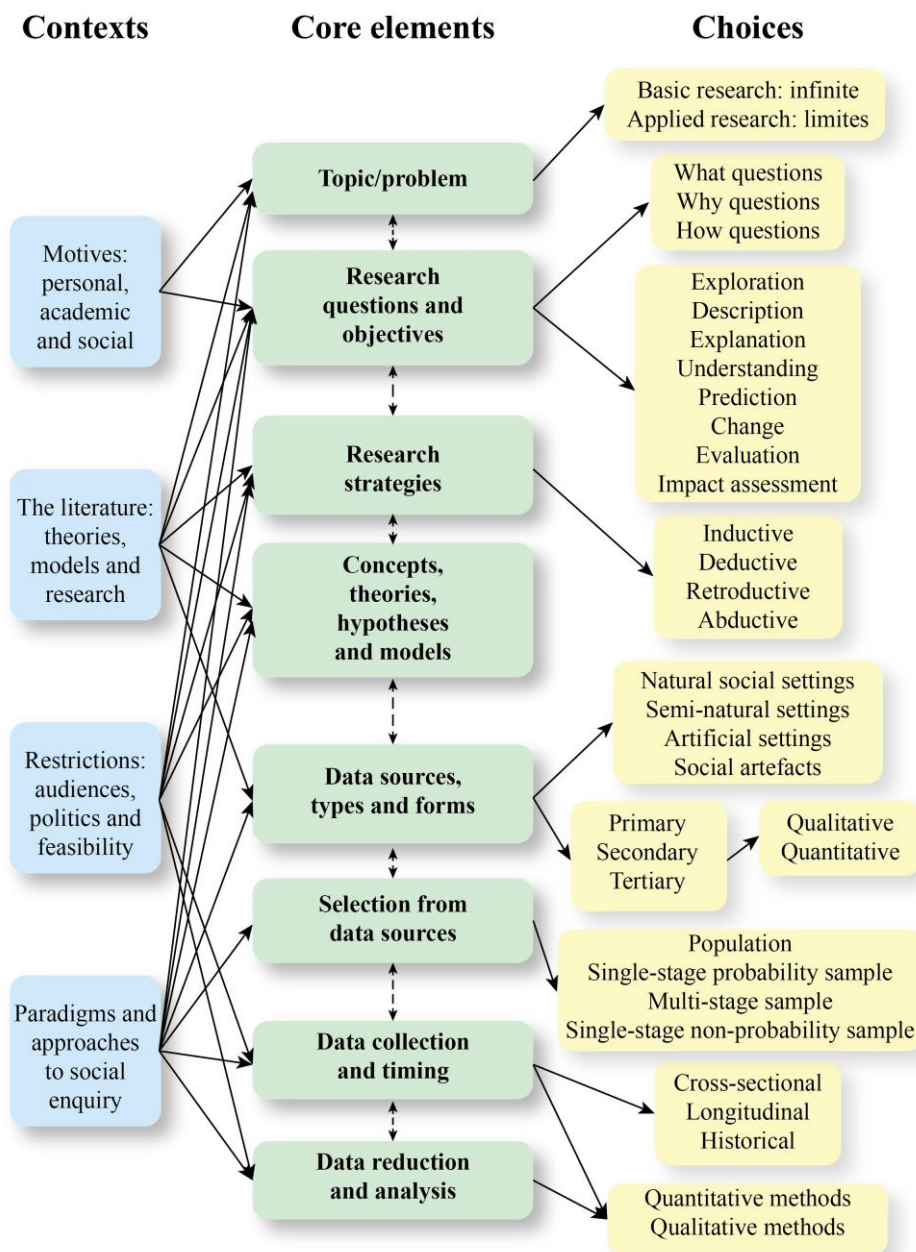


Figure 11: Elements of a social research design. Adopted from Blaikie, 2005, p. 33.

4.1 Research design

In this thesis, the emphasis is to research in what way the Norwegian furniture industry can improve their supply chain through participation in an industry cluster. The key areas of focus are thus on clusters and supply chain, but also on relationship, narrowed down to information and knowledge sharing and power. The two latter topics are, as previously described in detail dependent on some external factors, but they also rely heavily on people in organizations; more specifically their thoughts, experiences, views and opinions, that may affect decisions regarding their supply chain.

4.1.1 Type of social research

From the earliest phases of planning this research project, we were clear that we wanted freedom to choose the topics and methods for ourselves, and that we preferably didn't want to be controlled by a contracting authority. We also wanted to do a thorough research, be able to spend time analysing and we also wanted to make a contribution to knowledge in the field. This mind-set is in line with the basic type of social research, taking a more academic and detached approach (Blaikie, 2005).

On the other hand, we also wanted our work to be used to something in 'the real world', to know that our work actually matters. We came early in touch with the cluster organization Norwegian Rooms, and they were very positive to contributing to our research, and so we also wanted them to be able to use our research to something useful. This type of mind-set; wanting someone to use our result to something useful and apply it to an actual problem, is more in line with the applied type of social research.

So although we wanted our research to be used to solve problems, the research being applied in the following is the basic/theoretical approach, using Norwegian Rooms and it's member companies as a case study. According to Blaikie (2010), a case study can be considered a method of selecting the source of data or subject of study, rather than a research method or design. This is also the way we have understood the term,

and thus this has affected the way in which we have conducted our study.

4.1.2 Research question and objectives

The overall question attempting to be explained is a *what* type of question. This type of question requires a descriptive answer and is directed to among other things, description of characteristics of social phenomenon, for instance groups or processes. This overall question is explained by research questions, from the type of *what* questions. This type of question also requires a descriptive answer, and we need to know what is going on before we can explain it (Blaikie, 2005). First, we need to find out what the supply chain looks like at different companies. Then, we want to find out what kind of relationship they have with their suppliers with a focus on information and knowledge sharing and power. The members of the particular cluster looked upon in this paper are manufacturers of finished goods, and it is their angle we want to see things from. From here, we want to get an overview of what type of connection there is between the relationships and their supply chain. Furthermore, we want to see how participation in an industry cluster can affect these things. By answering these research questions, we hope to be able to answer the overall question “*In what ways can the Norwegian furniture industry improve their supply chain, through participation in an industry cluster?*”. The research objective is connected to the type of knowledge to be produced. Our research pursues a few objectives in a sequence as explained by Blaikie (2005), and our sequence goes as follows: exploration, description and to some extent change. These are supported in the following.

As previously mentioned, the reason why we first need to explore these topics is because there have recently been some changes in the Norwegian furniture industry. It exists material and research papers regarding the Norwegian furniture industry in regards to many disciplines. Much due to geographic location of the companies in the recent established cluster Norwegian Rooms, the underlying culture aspect of the actors, the general outlook of the Norwegian furniture industry being a ‘sunset story’ and the economic situation of the Norwegian furniture industry raise interesting questions that have not been relevant before to the same extent. Since the previous studies on cluster and supply chain that is referred to in the cluster theory in chapter 3.3 have mostly been based on regional clusters, meaning clusters where there are a

close proximity in location, for this particular case, the members of the cluster is located in different areas in Norway, and because of this we feel the need to first explore the situation.

Given the available time and resources, it is not possible for us to go through with an experiment linked to a *why* type question needed to undertake an explanative research with the objective of understanding. Although we see that this would have been not only interesting, but also important if we want to contribute to concrete changes to the industry. Especially regarding the present situation the Norwegian furniture industry is in the middle of, the need to explore and explain the situation is important to get the correct understanding of how things are connected. We wish to capture the actor's views and interpretations, thus we seek to describe and try to develop an understanding for the particular social actions occurring. This is also reflected in our data collection, which will be elaborated on later. In Blaikie's words, we wish to "provide detailed account ... of the characteristics of some population, group or phenomenon, including established regularities" (Blaikie, 2005, p. 72).

Regarding change, this study has not included any form of manipulation, nor has the participants been assisted in doing so, which is the type of research most often linked to change, and by Blakie (2005) referred to as action research. However, in the conclusion suggestions to measures that could be taken are presented, as a result of the research. Hence, change could in this context be said to be a possible consequence of the research.

4.1.3 Research Strategies

The research strategy is about how to answer the research questions. Since there are different approaches concerning how to do this, which method to use depends on types of questions being asked. Different research strategies differ among others in their ontological assumptions, starting-points, steps of logic, use of concepts and theory, styles of explanation and understanding, and the status of their products (Blaikie, 2010). The four different main strategies inductive, deductive, retroductive and abductive, are designed to make it possible to cope with the diversity of views

and practices. Even though some of the strategies may have some similar elements, the combination of the elements is also very important.

A simplified clarification of the four above-mentioned strategies by Hillier (2010) makes it clear that the retroductive research method is the most suitable research strategy in this thesis. Namely, the theory comes before the research itself, and based on a priori theory or model, the data is collected, critically analysed and lastly the study shows the results.

As previously mentioned, since the relevant theory may not be completely suitable for our case study, we wish to find patterns or structures in theory, that if valid will help conceptualize the empirical patterns that are observed in the case (Sæther, 1998). We want to look at companies in the Norwegian furniture industry, and how they can improve their supply chain through participation in an industry cluster. Since Norwegian Rooms is a relatively new cluster organization and in many ways differ from the more frequently studied regional industry clusters, some theories may not be fully applicable to this case. Because of this we see it necessary to see if the theory is applicable for this particular case or similar cases.

4.1.4 Epistemological and ontological assumptions

When designing and conducting social research, it is important for the outcome of the research to keep in mind what the ontological and the epistemological standpoint are. There are many categorizations within epistemological and ontological assumptions, but those applied here are between positivism and interpretivism, and positivism and constructivism, respectively.

Epistemology is concerned with how to capture valid knowledge. Epistemology can be looked upon either as positivism or interpretivism. The positive direction suggests the application of methods of the natural sciences to they study of social sciences. The other direction of interpretivism puts a heavier emphasis on the need for a social scientist to grasp the subjective meanings of social actions, and thus respects the differences between people (Bryman, 2012).

Ontology can be looked upon as either objectivism or constructivism. Objectivism is assuming that there exists one reality, and that reality can be understood independently from an individual's influences or senses (Bryman, 2012). Constructivism is an antithesis to the objectivism, and in this branch, reality is something that individuals construct themselves. Also, this reality that is produced through social interaction is also in a constant state of revision.

Even though one cannot say that the positive direction is reserved for scientific research, we feel that the direction of interpretivism is most suitable for our research. More specifically, we grasp our data material through our subjective understanding, and interpret the research thereafter. Thus, our epistemological standing point is leaning towards the direction of interpretivism.

Our ontological standpoint in this research is that it exists many realities. One particular feature makes our standing points clear; we don't view organizations and culture as an external reality, but rather as an "emergent reality in a continuous state of construction and reconstruction" (Bryman, 2012, p. 34).

4.1.5 Validity

Validity in qualitative research means that "the researcher checks for the accuracy of the findings by employing certain procedures" (Creswell, 2009, p. 190). In other words, it has to do with description and explanation, and whether or not a given explanation fits a given description. There has been some debate in the literature especially considering which categories is best suited for qualitative research. We have chosen to follow the categories introduced by Guba and Lincoln (1985, according to (Trochim, 2006)), which uses the four categories credibility, transferability, dependability, and confirmability as measures of validity in qualitative research. Below, these are briefly described in terms of how they have been attended to in this thesis.

4.1.5.1 Credibility

Credibility in qualitative studies deals with the issue of how coinciding our findings are with the reality (Shenton, Strategies for ensuring trustworthiness in qualitative research projects, 2004). Shenton points to Guba and Lincoln, and explains that there

are certain actions to undertake for promoting confidence that the researcher accurately recorded the studied phenomenon. The steps we took to ensure credibility was:

- **Triangulation:** Involved using multiple data sources in the investigation in order to produce a better understanding. As described in chapter 4.2.1 where data collection is presented, we used several sources such as interviews, informal talks, observations, literature and document study, and a presentation of our findings. Thus, the way we used triangulation was primarily concerning method, but also sources where we examined consistency within the different data sources in the same time period.
- **Peer debriefing:** We both have each our backgrounds and may have led us to be more aware of certain findings than others, referred to as researcher bias. In order to reduce this bias, we discussed the data material in detail. In this way, several perspectives were highlighted, and we also got to see if our emerging hypothesis were reasonable.
- **Negative or deviant case analysis:** During the data collection, we occasionally experienced that the data we collected were deviating from our prior beliefs or assumptions. In the analysis we were aware of these deviations, and kept focus on not letting our prior beliefs control the discussion.
- **Prolonged engagement:** During the time of the research of approximately five months, we talked to several companies, stakeholders, administrative functions and other people in the industry. Keeping in mind that the study has its limitations regarding among others time, we could not work with the industry enough to fully capture the culture, the interactions between actors and the like. However, we did feel like we captured the essence of the situation we were studying.
- **Member checks:** When we had almost finished our study, we were invited to the Ålesund by Norwegian Rooms to present our thesis to Hatløy and Fanum, and they got to validate our findings.

4.1.5.2 Transferability

Transferability concerns the generalizability of our findings to other contexts or settings. In qualitative studies, transferability often concerns the ability to apply research findings to a wider population. Because all observations are defined by the

specific context they occur, the possibility for generalizability is problematic in much qualitative research. Our study is a 'snapshot' of particular persons in particular companies in one particular cluster in one particular country at a specific time; External validity will in our case be limited, but the findings might still be transferable to similar clusters in Norway.

4.1.5.3 Dependability

The question dependability seeks to address, is if the results obtained would be likely to be the same if the research were to be conducted again. Several authors have however, according to Shenton (2004) noted that the changing nature of phenomena being researched, makes this problematic. The example Bryman (2012) mention with the 'auditing' approach, would in our case be very time-demanding due to the large amount of data, notes, e-mails etc that has been made during the process of research.

4.1.5.4 Confirmability

Confirmability deals with the issue of objectivity, or that the researcher has acted in good faith (Bryman, 2012). A recognized problem in qualitative research is that the intrusion of the researcher's biases is inevitable (Shenton, Strategies for ensuring trustworthiness in qualitative research projects, 2004). Looking at the data, the interviews are perhaps the type of data collection where we as researchers must be most aware of these biases. In the interviews we followed an interview guide, and tried to ask as open questions as possible free from our own emerging thoughts, and few leading questions. However, the interviews were analysed subjectively in the analysis, because in qualitative studies, the researcher uses him/herself as a tool of analysis (Nilssen, 2012). Also, one of the researchers is grown up in the area of which the furniture cluster emerged at Sunnmøre, and may have formed an understanding that might have affected the research. However, there are two researchers conducting the research, and that fact may reduce this possible bias.

4.2 Methodology

Because of the complexity in supply chain theory, cluster theory and theory on relationships we found it most appropriate to use a qualitative method, where the researcher can collect participants meanings, focus on a single concept or phenomenon, study the context, make interpretations of the data, create an agenda for

change and collaborate with the participants (Creswell, 2009). Since we had decided on doing a study on the Norwegian furniture industry, in particular a case study on the newly established industry cluster Norwegian Rooms, this also spoke for us taking a qualitative approach, as this method will allow us to get a deeper understanding of this particular case. Also since this is a rather small cluster, consisting of only 12 companies (10 when the study started), it would not make sense for us to study it through a quantitative method that would require large amounts of numerical data.

4.2.1 Data sources and collection

As previously mentioned, we consider a case study to be a method for selecting the source of data or subject of study. Hence, it was in our opinion important to include members of Norwegian Rooms as sources. This also being a study on the Norwegian furniture industry, we felt that in addition to including the members of the cluster, it was also important to include other actors that could provide us with different perspectives on what is the current situation and what possibilities there are. In order to get a wider perspective on the situation we chose to gather data from several different sources and using different types collection (fig. 12).

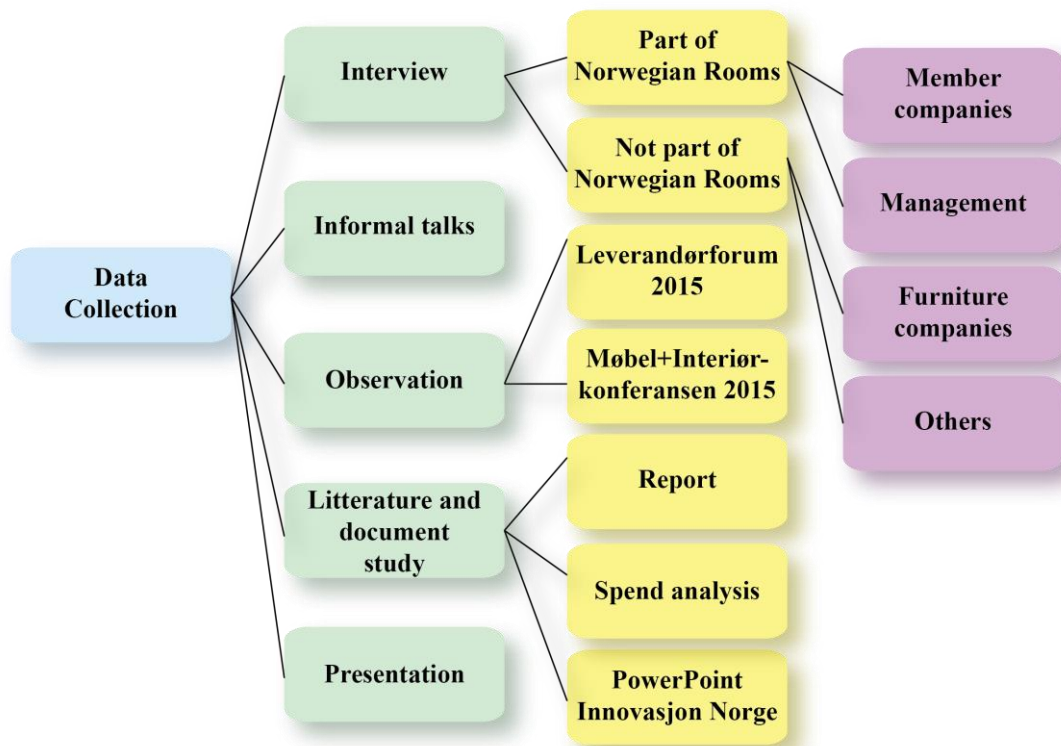


Figure 12: Overview of data collection

Since different sources and collection methods for data has been used, there is a mix of data types. The interviews, informal talks, observation and presentation in figure 12 above are primary data collected in a semi-natural setting, whilst the literature and document study consists of both secondary and tertiary data. The focus of this study has been the present situation hence most data are cross-sectional. However, in order to get an understanding of the context, culture and attitude, some historical data has been included as well.

The decision on which data sources to include was based on our judgement on what was appropriate for this study, based on the nature of the case and literature review. This is what is called ‘judgemental sampling’ (Blaikie, 2010). Appropriateness in this case also includes how many participants to include in order to obtain a representative picture of Norwegian Rooms and also the Norwegian furniture industry.

During the data collection process (table 2) other sources also emerged through suggestions from different actors. This type of sampling is called ‘snowballing’ (Galletta, 2013; Blaikie, 2010). At the same time we wanted to identify purposeful participants, we also knew we had to set boundaries for this study (Creswell, 2009). This meant we could not include everything we felt could be interesting, but rather what we felt was necessary to gain the wanted insight and which were consistent with our set categories. VAD was one of the companies in the sampling that we got through snowballing. VAD is, as also mentioned other places in this thesis, not comparable to the other manufacturing companies interviewed, because they don’t manufacture themselves, but have outsourced all production to one single manufacturer. Thus, VAD is not representative in the sense that they have the same setup as the rest of the companies, but they are representative in the sense that many other Norwegian furniture companies have taken the same choices of moving all production out of the country to external manufacturers. The sample of the other companies in this thesis is just that – a sample. Also, as previously mentioned, we spoke to VAD at the Møbel+Interiørkonferansen 2015, and we felt that he could provide us with a different perspective on the areas of this study.

4.2.1.1 Literature and document study

In order to increase our knowledge and understanding of Norwegian Rooms, the Norwegian furniture industry in general, and clusters, a literature and document study was conducted. This was one of the first steps of the research process, but also something that was revisited and increased in scope as we gained access to new documents throughout the process. Documents and literature have the advantage that they “represent data which are thoughtful in that participants have given attention to compiling them” (Creswell, 2009, p. 180). In this way they provide a good supplement to the interviews and observations, and it also provided us with the basis for designing the interview guide. The findings from the literature and document study are mainly presented in chapter 2 and to a smaller degree in chapter 5.

This literature and document study included a report from a previous study on clusters in the furniture industry done by Møreforskning Molde AS (2009). This study was ordered by The Association of Norwegian Furniture Industry, which makes it possible to question if it is objective and gives an accurate picture of the situation. However, since it was conducted by Møreforskning Molde AS it is our opinion that the report should be both objective and accurate. Since the report is from 2009, before Norwegian Rooms was established we recognize that the findings may not be relevant at this point in time, but it serves its purpose as background information as well as giving an understanding of the overall picture.

A spend analysis consisting of data from 2013 and a survey from Leverandørforum 2015 (supplier forum) done by Norwegian Rooms was also included in our study. The spend analysis gave us a better understanding of the procurement of the different members of Norwegian Rooms, and most importantly we were provided an insight into what the different firms considers strategic and non-strategic materials/purchases.

4.2.1.2 Interviews

Among several qualitative research methods, we have chosen to use interviews as our primary source of data collection, and more specifically semi-structured interviews. During these interviews we wanted to bring meaningful data to the surface, rather than constructing a story. This approach is in line with the miner approach, rather than the traveller approach (Kvale, 1996).

4.2.1.2.1 Research interview

The qualitative research interview is semi structured, which neither is an open conversation or a highly structured questionnaire, but is constructed according to an interview guide that focuses on certain themes, with suggested questions. This was important for us because we had access to different literature and documents as previously mentioned, which raised concrete questions we wanted answers to. However, the themes under investigation are wide, broadly researched and it is likely that each subject being interviewed had their own view of the themes, which we also were interested in. Due to this, we needed to be able to ask a variety of different question types, which the semi structured interview is valued for (Galletta, 2013).

4.2.1.2.2 Design

When planning and designing the interviews, there were several dimensions to take into account. Because we wanted the interviewed subject's 'uncoloured', honest and personal opinion, we wanted to use individual rather than group interviews. Even though we might miss out on interactions between the individuals by not having group interviews, the honesty of the individuals and the quality provided by having individual interviews weighed heaviest. The fact that we have chosen qualitative interviews emphasizes quality rather than quantity regarding the interview questions (Kvale, 1996).

4.2.1.2.3 Choice of participating companies

A consideration was regarding both which companies and whom we were going to interview, in addition to how many. In accordance with the above-mentioned selection of sources, we wanted to speak with actors both inside and outside of the cluster organization. We needed enough interviews to find out what we needed to know. The main categories were companies inside the cluster and outside the cluster. In the cluster, we wanted to talk to people that were members, companies that were members but was considering leaving, and the management of the cluster. Outside the cluster, we wanted to talk to companies that had previously been part of the cluster, companies that had not been part of the cluster and another cluster. These companies are presented in figure 13.

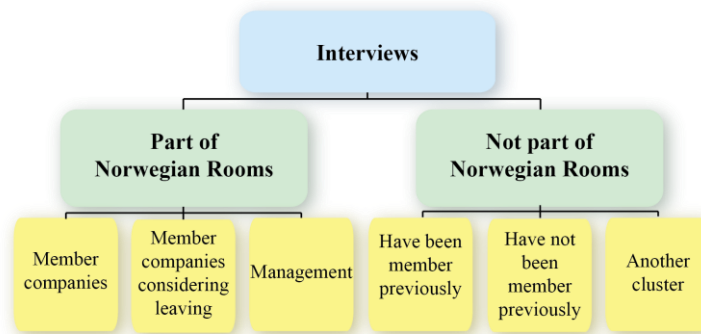


Figure 13: Original selection of companies for interviewing

The companies we ended up with interviewing differed a bit from what we originally planned. There were two main reasons for this. There was only one company that had left the cluster, and one that considered leaving (this was learned later on in the process), and the reasons why they left/considered leaving did not have anything to do with the supply chain. The second reason was that due to ‘snowballing’ we got an interview with a person that is from an outside company (Gagn Consulting), but at the same time he is hired in as leader for the supply chain and sourcing committee in Norwegian Rooms. He is in other words not from within Norwegian Rooms, but are still part of it. He is classified as ‘Other’ together with Innovation Norway. The selection we ended up with is illustrated in figure 14 below.

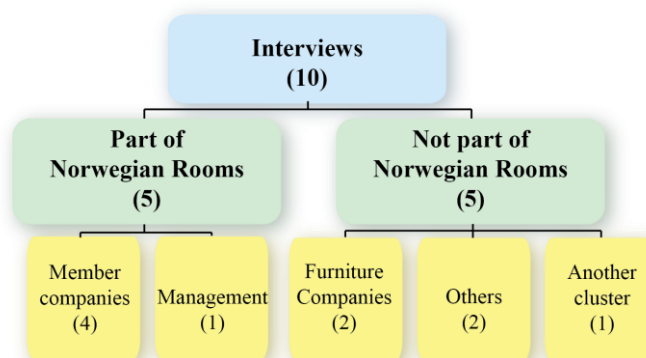


Figure 14: Final selection of companies for interviewing with number of companies inside the parentheses

Regarding the companies in the cluster, we were presented with a suggestion of companies from the general manager in Norwegian Rooms, which we worked on together in order to get the respondents we needed. From the cluster, we ended up with companies that varied in both size, producing different types of furniture and

with a different structure. The companies outside the cluster, we contacted ourselves, but we were conscious about not contacting too small companies, because we wanted someone in the relatively same size that may have the same issues as the companies in the cluster.

Considering the persons we wanted to talk interview, we wanted to talk to someone that had control over, or at least have extended knowledge both of the company's supply chain, clusters or cluster activities, their relations to other companies both in the industry and in Norwegian Rooms. The companies outside the cluster needed similar knowledge, but of course they were not in possession of knowledge about the relations to the companies in the cluster. In the other categories there were already certain people in the roles we were seeking, so that we only chose companies outside and inside the cluster. In all cases with the companies inside and outside the cluster, we got to talk to people that were titled either purchasing manager, general manager, managing director or director of sourcing. In other words, participants that is appropriate for our study. In total, we contacted 12 people to ask them for an interview. Of these 12, ten was contacted by mail and two companies were asked face-to face through 'snowballing' during the interviewing phase. In total, ten companies were interviewed. The remaining two companies that were not interviewed did not respond to our communication, even after repeated attempts from our side. For a full list of participants, titles and companies see appendix 1.

4.2.1.2.4 Creating the interview guides

Since we had several groups of people to be interviewed (see figure 14), we made an interview guide for each group, and in group 'others' under 'Not part of Norwegian Rooms', there were made two, one for each person in the group. This was because we knew beforehand that these persons had quite different background and competence. The interview guides can be found in appendix 2.

The questions in the interview guides varied from being very loose with only few topics written down, to a long sequence of well thought of questions. We chose to have the main categories supply chain, relationships with the sub-categories knowledge/information sharing and power, and clusters, in addition to a few outlined questions.

When making the interview guides, we kept in mind Kvale's 'translation' of research questions into interview questions (1996). As he explains explicit himself, "A good conceptual thematic research question need not be a good dynamic interview question" (Kvale, 1996, p. 130). This is much due to the fact that academic language used in research might not be appropriate in an interview setting, because we want an easy-going conversation. Thus, we designed the interview guides based on the research questions and made interview questions in a more everyday language that would help answer our research questions.

These guides were designed in such a way that the main topics were the same for all, but with different emphasis on the suggested questions, how the questions were formulated and also the degree of specificity. What was coinciding for all of the interview guides was the way types of questions were used. Kvale (1996) lists several types of interview questions that differ among others, in areas of application. When introducing a new topic, and in order to get the interviewee's to talk open and freely, we applied introducing questions that are open questions. In the interviews we used many different question, among others structuring questions, follow-up questions and specifying questions, to name a few.

4.2.1.2.5 Framing the interview

We provided the interviewees with a context for the interview, by giving them both a briefing before the interview and a debriefing afterwards. This was done in order to allow the interviewees to get a grasp of both us as researchers/interviewers, the purpose for the interview, the way the interview was going to be used, and also to clarify if it was fine by them for us to proceed with the interview as we had planned.

The framework used for the design of the briefing is from the work of Seidman (1998). More specifically, he lists several points that should be covered in order to attend to the ethical perspectives of interviewing, and we applied those that were relevant for our interviews. During the briefing, we told the interviewees about who we were, where we studied, what we were studying, a bit about our thesis and what we were interested in, what they could provide us with that could help us, and the progress of the interview. These points were used to set the stage and giving the

participants a picture of what we were interested in, and also how the results of the study would be disseminated. We asked them if they wanted to read through the transcription from their interview, and also if we needed their approval to use quotations in the thesis. They were also informed that if they at any point during the interview they wanted to cancel or stop the tape recorder or the interview itself, they just had to let us know. These points were used to attend their rights to participate or not, and their rights of review and withdrawal from the process. In order to attend to the anonymous perspective, we asked if they wanted to be anonymous and also that we were the ones that would transcribe the interviews.

Only three of the ten interviewees wanted to read through the transcription. Every interviewee wanted to approve their quotations if we were going to use them in our thesis. None of the interviewees wanted to be anonymous, and everyone agreed to record the interview.

The debriefing afterwards consisted of us going through the main points of the interview, and then we asked if they had anything to add to what they had already said within these categories. Also, we asked if there was anything they thought we should know about that not necessarily were connected to the specific topics we had discussed; thereby giving them the opportunity to elaborate on something they may have thought of during the interview (Kvale, 1996). Half of the interviewees made use of the offer about elaborating about something they had said, or if there was something else they thought we should know about. We then asked them if we could contact them at a later point if we had any questions, and that was fine by everyone. Lastly, we thanked them again for their participation.

After every interview, we discussed the interview, shared thoughts, and reflected about the experience we had during the interview. These little talks would prove to be valuable in the stages of the analysis.

4.2.1.2.6 Interview context and conducting

In a semi-structured interview in social sciences, there are bound to be some type of variations in the interviews. However, variation can be viewed as consisting of two components; true variation and variation due to error (Bryman, 2012). We cannot in

our research measure the degree of variation, but we aimed to keep the error component to a minimum.

In our interviews, we followed to a large extent the archetypical research interview, but with two exceptions; first, we conducted the interviews with two interviewers. It has been argued that this form not necessarily is negative, but that it might not bring any added value, compared to have only one interviewer (Bryman, 2012). However, the reason why both writers contributed to the interviewing was not to add additional value to the interviews themselves, but because in social research, much understanding is created continuously rather than discovered at a later point in analysis alone (Galletta, 2013).

Second, interviews were conducted through different channels, both in person, by Skype, or by telephone. Of the ten interviews we conducted, seven of these were conducted face-to-face, two of them through Skype and one through telephone. We consciously wanted all interviews to be conducted either face-to-face or alternatively through Skype. This was in order to make the conditions for the interviews somewhat the same. We are aware of the fact that interviews through telephone may cause some problems. The problems we think are relevant for us are concerning the length of the interview, the lack of observation, and quality of the data (Bryman, 2012). Our only telephone interview was indeed a bit shorter than many of the other interviews, but not shorter than the other interview in the same category (furniture companies not part of Norwegian Rooms). Thus, we believe that the length of the interview was more affected by our belief that these companies may not have the discussed themes as much on 'the agenda', rather than the way we communicated. Another problem may have been that we did not observe facial expressions or gesticulations, to name a few. However, we had met in person previously and discussed a few of these themes briefly. The last possible problem is related to the possibility that the interviewees could be less engaged in the interview process. As will be discussed later, we visited some companies in their office or production facilities, which may have affected the interviews.

Also, it is worth mentioning that we became more confident and comfortable with the interview situation as we conducted several interviews. Also, as many of the

respondents mentioned the same things, we may have asked different follow-up questions due to our attention to the more unusual things coming up as the number of interviews conducted grew. However, the semi-structured interview allows for some variation in the interviews, so we do not consider this a large drawback.

4.2.1.3 Observations

Blaikie (2010) regards participant observations, which can range from total participation to mainly observation, as the qualitative method *par excellence*. For our study we were not able to observe how the supply chain of the different firms work in action, but we were invited to participate in the annual Møbel+Interiørkonferansen, in addition to Norwegian Rooms' Leverandørforum 2015. At the conference we were able to participate in different presentations/lectures and discussions with members of both Norwegian Rooms as well as other participants from the Norwegian furniture industry. And at the forum we were able to participate in lectures with both the members of Norwegian Rooms and their suppliers, and observe the interaction between them in different settings.

Observations have not been our primary method for collecting data. However it did give us the opportunity to crosscheck information and impressions we had gotten during the literature study and interviews, meet new possible informants and having informal talks with actors we wouldn't have met if we had not participated.

4.2.2 Access

Gaining access in qualitative research is considered a pressing concern, not surprising considering its importance in several aspects. As Shenton and Hayter (2004) explains: "The researcher's success in this regard [gaining access] will have a significant effect on the nature and quality of the data collected, on the insight into the organisation and its members that the investigator is able to gain, and, ultimately, on the trustworthiness of the findings" (2004, p. 223). Concerning access, the two main problems are gaining access to the relevant organizations or people, and from that point gaining access to the information the organization or the people possess (Shenton & Hayter, 2004). Trust is not only an important aspect for sharing information and knowledge considering our research question, but also in our fieldwork of data collection. Trust needs to be developed before the willingness

aspect of sharing information and knowledge becomes a reality, also for the interviewees. Below follows a brief description of how we proceeded to gain the needed access.

The first problem is gaining access to the organizations that is relevant for the research. Especially influential gatekeepers can be useful to get permission from at early stages in the research. Shenton and Hayter (2004) emphasize that there are several tactics to use in order to gain access at this level. We applied mainly two of them, namely; exploitation of past links with the organizations, where we got in contact with organizations through intermediaries that the gatekeeper knew and respected (Glesne & Peshkin, 1992), which got in contact with the right people at Innovation Norway, which again got us in contact with Norwegian Rooms; and reciprocity where we guaranteed the involved organizations both a copy of our thesis as well as a presentation of our results. Sharp, Peters and Howard (2002) argues that the providers of access will be much likely to co-operate when they get something in return, for instance as reciprocity suggest, by giving the providers access to the research afterwards. There is a possible danger of promising too much material and to too many participants, but since we apply a qualitative approach focusing on quality of interviews rather than quantity of them, our semi-structured interviews were not too many, and we did not offer our material to outsiders due to some of the confidential nature of some of our data. We experienced no problems in this regard, and we believe it was much due to the fact that all companies were happy to contribute.

The second problem is regarding gaining access to the thoughts and everyday life of single individuals, which gained access to through the relevant organizations. In order for us as researchers to gain access to the interviewees' perceptions and honesty, we were conscious our perceived status as outsiders to the companies. Except from the already mentioned contact approach by telephone and mail, our contact person in Norwegian Rooms provided us contact information to the companies inside the cluster, and informed them in advance that we were going to contact them. Our contact person in Norwegian Rooms was to us what Shenton and Hayter (2004) underpins as a key informant (as well as an interviewee), which gave us useful suggestions for additional interviews, legitimate for our snowballing data collection

approach. This person was also known and respected from the companies' side, making us to at least some degree accepted by them.

Further, the tactic used towards single interviewees can be characterized as prolonged engagement as a previously mentioned credibility measure, and the "chameleon approach" (Shenton & Hayter, 2004). Since we applied prolonged engagement and wanted to understand what was going on in the industry, we did not want to be incongruous with the participants' organization or culture, in order to be accepted. In accordance with the advice of Glesne and Peshkin (1992), from our standpoint, we dressed appropriate, was engaged and involved in the participants' stories, and used suitable language when communicating with the participants. The latter measure is also connected to the interview questions being asked in an everyday language rather than an academic language (see section 4.2.1.2.4).

Much due to the fact that we had co-operative intermediaries that helped us to gain access to many participants, that we were polite and tried to fit into the participants' business environment, and also due to the fact that our thesis is relevant to not only Norwegian Rooms but also other stakeholders, we feel that we got good access to the participants. In addition, and what also may be a challenge in qualitative research, we got access to the participants also after interviews were finished. Mainly through emails, we communicated with the companies if there were any confusion, which in itself may signal good access.

When	What	Why	Outcome
January 2015	Contact Norwegian Rooms	Establish contact, ensure participation, and get insight into what challenges or opportunities they were currently facing in order to find a relevant topic for the thesis	Got input on several relevant topics, and ensured participation. Decided on research problem and got acceptance for this with relevant actors, as well as relevant feedback.
	Literature study	To get an overview of the Norwegian furniture industry and it's history, and narrow the topic	Enhanced our knowledge of the Norwegian furniture industry, the context of this thesis. Enhanced our knowledge about industry clusters, relationships and supply chain.
	Develop a research proposal with research questions and objectives	To establish a structure	Gained structure for the study
January/ February/ March 2015	Developed a theoretical overview	Establish a framework for our thesis	A theoretical approach/framework were established
March 2015	Contact relevant actors	Find and contact relevant actors to set up interviews	Found actors relevant to interview for our thesis and set time and dates for the interviews
	Develop interview guides	Developed semi-structured interview guides	Semi-structured interview guides were made based on the research questions, literature study, theoretical overview/framework, and methodology
March/ April 2015	Interviews in Ålesund and on Skype	To gain findings relevant to our research questions and research problem	Interviews and company visits

April 2015	Participation in Møbel+Interiørkonferansen 2015 and Leverandørforum 2015 in Oslo Interview	Observations and informal talks with both actors we already had contact with as well as other actors Interview with actor met at the conference	Informal talks, 2 days observation at the conference/forum and one full length interview. Established contact with one possible interview participant. Interview
April/May 2015	Data reduction and analysis	To reduce the complexity of the data and get a better overview in order to analyse the data through the theoretical framework/approach and research questions, and make a conclusion to the research problem	Identify in what way the Norwegian furniture industry can improve their supply chains through participation in an industry cluster
June 2015	Presentation of findings to Norwegian Rooms	To get last minute feedback	Got confirmation in that the attendees could relate to the results presented.

Table 2: The data collection process

4.2.3 Data reduction and analysis

The data has been analysed using ‘template analysis’ which is a process where one organizes and analyses textual data according to themes. Template analysis is useful for exploring relationships and trends in data as well as when analysing data originally produced for different purposes or in different contexts. However, the coding process might result in some loss of meaning as fragments of data are removed from their original context (The University of Sheffield, 2014), which means that we need to take care of the details when going through this process.

The template analysis process can be divided into six steps (King, 2014):

- Define a priori themes if this is appropriate for the study, in this thesis this would be supply chain, relationship, information sharing, knowledge sharing, power and clusters.
- Transcribe your interviews and read through them to familiarize yourself
- Carry out initial coding of the data, identify the parts that are relevant to your research questions and attach it to the a priori themes
- Produce your initial template
- Develop the template by applying the full set of data
- Use your ‘final’ template to help you interpret and write up the findings.

Having this structured way of going through the collected data, sorting everything out is extremely valuable for us. Furthermore, going through the data over and over again is a crucial process in order to gain a best possible understanding and identifying the relationship between the different factors, or themes, this study is looking into.

King (2014) also highlights the importance of checking that the analysis is not being systematically distorted by one’s own preconceptions and assumptions. This could be done in one or more of the coding stages mentioned above. As the validity of the study has already been discussed, we will not discuss this further in this section.

4.2.4 Ethics

According to Blakie (2010, p. 31), the following points are usually included in codes of ethics:

- Voluntary participation
- Obtaining informed consent of research participants
- Protecting the interests of the research participants
- Researching with integrity

In order to meet these codes in our research process we felt the need to be open with the participants regarding our research, but at the same time not give them too much information in advance, as not to colour their view and affect the answers given. How this was done in this research is explained below, and it went according to how we planned it.

When asked to participate in the interview, all participants were presented with a short briefing of who we are, what the thesis is about, and also which themes we would like to interview them about. This was repeated in the confirmation email we sent them after scheduling a time and date for the interview. In the information email we also gave practical information and informed the participants that we wanted to record the interview asking them for their consent to this. We repeated all this information again in the briefing before the interview started, where we also asked if the participants wanted to read the transcription and/or approve any quotes we would like to use. All of this was to make sure we *obtained informed consent* from all participants.

It is also important for us that the participants knew and understood that the participation is *voluntary* and that they can withdraw at any time. This was clearly stated in the briefing before the interview.

Furthermore, it is important to *protect the interests of the participants*. Because of this all participants were asked at the briefing before the interview if it was their wish to be anonymous. As previously mentioned, none of the participants wanted this. Protecting the interests is not only related to the anonymity of the participants, but also to the confidentiality of any business documents we were given access to during the study.

Lastly the researcher must ensure that the research is conducted according to acceptable standards of practice, without fraud, deception and dishonesty so that the research is done with *integrity* (Blaikie, 2010).

5. Presentation of results

The empirical data is presented in this chapter, in the following order. The first sub-chapter contains the results regarding today's supply chain and the second sub-chapter the results regarding relationships. Sub-chapter three and four contains the results regarding changes and what Norwegian Rooms can do to facilitate these.

5.1 Supply chain

Here the results related to the supply chain area will be presented, with a focus on patterns and similarities between the different companies. Identifying similarities is important in order to later find measures to meet the challenges the companies have.

5.1.1 Internal state

...supply chain has not really been a word that has been used before. It has in a way, in the factory, just been presumed that you have enough material and components, and then you produce.

- Geir Balsnes, Ekornes ASA

Supply chain is a new area of focus for the furniture industry, and can even be said to be a new term for many. Most of the interviewees have expressed that supply chain has not been on the companies' agenda up until now, and that procurement has been viewed more as just that – *procurement*, and not as a part of a larger picture. Most of the companies have had few or none employees dedicated to working with supply chain and supply chain management, and for many this is still the case. SB Seating seems to be an exception here, where they have a stronger focus on supply chain as well as dedicated employees. They have also separated the supply chain area into two departments: supply chain management, that handles the operational supply chain; and category management, that work with the strategic and commercial aspects of the supply chain.

If one chose to work with both the strategic and the operational aspects, it has a tendency to become the operational aspects that characterizes the

everyday, and you are incapable of being strategic.

- Boye Nickelsen, SB Seating

Furthermore, the level of professionalism towards supply chain and supply chain management is generally considered to be low. In addition to lack of dedicated employees, many of the employees that do work with supply chain have worked their way up from being purchasers and there generally is a lack of competence in the supply chain area.

... here [compared to Rolls Royce] there are a bit more ad hoc monitoring, and less professionalism.

- Karoline Hole Fløtre, Slettvoll

And again, I think it becomes like this [low degree of professionalism] because the industry has not attracted young graduates or highly educated people from other industries.

– Håvard F anum, Gang Consulting

When asked about the categorisation made in the spend analysis, and what they put into the terms strategic and non-strategic there were different interpretations of what strategic meant. The most common answer was that it meant that the material or commodity purchased is important. Some also used the terms ‘off the shelf product’ for describing the non-strategic category, meaning that the categorisation was that the product was either a standard commodity/product or more of a custom made one. We got the impression that there were a certain degree of uncertainty regarding what strategic meant, and that some considered all direct material to be strategic in some sense as it were important for making the furniture regardless if it were a standard commodity or not. The terms value chain and supply chain were also used interchangeably by many, which could be linked to the fact that there is a varying degree of formal competence within the supply chain area.

However, since there has been an increased focus on supply chain there has been a change in some companies so that there are now employees that are dedicated, or at least partly dedicated, to supply chain. And other measures are taken as well.

Examples of this is Ekornes, where Group Procurement and ICT Director (CIO) Geir Balsnes has been given the responsibility for supply chain, and they are planning on implementing Lean. Slettvoll has also brought in Karoline Hole Fløtre as Quality Manager Purchasing and Production, and are planning on implementing Key Performance Indicators (KPI's) in order to monitor their supplier's performance and providing them with better feedback.

5.1.2 Scope of the Supply Chain

The companies have several first-tier suppliers in their supply chain(s). VAD AS has outsourced their entire production and now purchases their product as finished goods from one supplier, which makes them into somewhat of an exception, as they are no longer a manufacturing company and only have this one first-tire supplier. The number of suppliers the companies have is also dependent on their sourcing strategies. Most of the companies have single sourcing, but keep updated on the supplier market either continuously or if something should happen with their current suppliers. The exception here is Ekornes, which aims to always have several suppliers available (2-3), when this is possible and expedient. Single supplier situations should be avoided (Ekornes ASA, 2015).

All companies had both Norwegian and foreign suppliers, and most of them emphasized that they have a share of Norwegian ones as part of their supplier portfolio. Especially when it comes to product development and prototyping, several companies state that they value the close location of their suppliers.

I think that most [companies] would choose local suppliers, it is in any case important for us when we are engaged in product development, it is efficient to be able to meet them [...] We can look at things together, and solve things easily, in stead of having to travel to another country...

-Dag Hjelle, LK Hjelle

The companies also have some of the same suppliers, which are located in the Sunnmøre-area. Another thing common for almost all companies is that they have suppliers that either deliver material or finished goods from Europe. Also, some

companies have suppliers in Asia as well.

As previously mentioned, the member companies of Norwegian Rooms have, in a spend analysis, categorized their purchases as either strategic or non-strategic. There were nine companies that was a part of this analysis. There are a lot of variation in the answers we got regarding what they consider strategic and non-strategic purchases. As previously mentioned, the companies also have a slightly different interpretation of what strategic implies. Looking at what the companies have categorized as non-strategic, there are certain categorized groups that are common for several companies. To name a few, five of nine companies categorized wood, fabric and plastic as non-strategic, four of nine companies categorized steel and packaging as non-strategic, and three of nine categorized logistics and foam as non-strategic. Most of the purchases made are non-strategic, making up for almost 60% of the total spend. Some categories make up large parts of these 60% with large categories such as logistics and freight plus packing making up for nearly 23% of this on an aggregate level. However, some companies have classified these as strategic; these are thus not included in these numbers. A fairly large amount of spend is also classified by the companies as strategic (approx. 33%) and the rest as both strategic and non-strategic (Norwegian Rooms Spend Analyse 2013, 2014).

Few companies are looking further back in their supply chain than their first-tier suppliers. Of the companies we interviewed, only one of them had helped their suppliers to solve a problem regarding negotiating decent terms with their suppliers. A few other companies also have certain demands regarding environmental standards. As mentioned, many companies have commented on a low degree of professionalism towards supply chain. But it is not just the manufacturing companies that displays a low degree of professionalism towards supply chain, but also some suppliers:

[The suppliers] become just as good, or just as bad as their customer.

When the customer doesn't make demands, we do as we please.

-Håvard Fanum, Gagn Consulting

5.1.3 Integration and involvement

As mentioned in chapter 2.2, there have been some previous attempts on joint

purchasing agreements with Norwegian furniture companies, but these are terminated. There are currently no joint purchasing agreements within the cluster, nor was this found among any of the other companies interviewed. Also, there seems to be a general reluctance towards joint purchasing agreements, especially when it comes to direct material and what they have categorised as strategic.

The companies want their suppliers to be more involved and strengthen the collaboration, but at the same time they are not entirely positive towards the suppliers raising their own demands. It is claimed that there's often strategic collaboration in the development stage, but that this tend to be forgotten when they enter the production stage. However, during the interviews few of the companies gave examples of situations where they involved the suppliers.

Furthermore, the transparency concerning the flow of goods and material is apparently low for some of the supply chains, thus the companies do not have full control over where in the world things are and at what time they will be where. This has especially been mentioned in regards to the supply chains stretching outside of Norway. While they in other industries such as the car manufacturing industry are down to specify deliveries on hours and minutes, they still talk about week number in the furniture industry here in Norway and are somewhat ambivalent towards precisions.

5.1.4 Summary

There is a varying degree of complexity and transparency in the different supply chain, with variation in how many first-tire suppliers there are, whether they single-, dual-, or multi-source, and if they have local, national or international suppliers. But there are also similarities in that they only manage the link with the first-tire supplier and don't look further upstream in the supply chain, except for some checking the environmental standards and certifications.

There is a lack of formal competence regarding supply chain and supply chain management in the industry, and low degree of professionalism. This goes both for the companies themselves and for the supplier companies. Almost 60% of the total

spend of the companies are classified as non-strategic, with fairly large amounts of this being on logistics and freight, packing and IT. There are currently no joint purchasing agreements, and it seems to be a general reluctance towards this, especially for what they classify as strategic and direct material.

There is a desire for more collaboration with the suppliers, but this is not found to be strongly present at the time. There also seems to be a reluctance or adverse attitude towards suppliers raising their own demands.

5.2 Relationship

When the companies were asked to speak freely about their relationship with their suppliers, most of them stated to have a good relationship. However, as previously mentioned, the companies emphasis different things in terms of their relationships.

Most mention to have both a good personal and professional relationship with their suppliers, and communicate both through formal and informal channels. Some of these companies recognize that this may be both positive and negative, and a couple of the companies are aware of this, and have taken actions in order to avoid too personal bonds with their suppliers.

The governance mechanisms seem to be fairly the same for all companies, with a signed contract as a foundation, while personal relations are what are functioning as a governance structure on the daily basis. There seems to be a common understanding between the produces and the suppliers of how things are supposed to be. The attitude with many of the companies is that in a good relationship, the contract should be kept in the drawer and this should not be needed to be looked at too often. This is the case for companies both inside and outside Norwegian Rooms. Scandinavian Business Seating (SB Seating) is somewhat of an exception here, admitting that they can also be demanding as a customer, and that they have a more adversarial relationship with their suppliers:

I think we are, by many of our suppliers, considered a very demanding organization ... that place high demands towards the suppliers.

-Boye Nickelsen, SB Seating

That being said, it does not seem like any of the companies will blindly accept change in demands or price from the suppliers, but that if they are faced with an increase in price they are updated on what is the correct price in the market and will try to find other solutions. Some like Wonderland and SB Seating would for instance help their suppliers in improving for instance their efficiency if they are not able to accomplish this alone.

5.2.1 Information sharing

Between the manufacturing companies and their suppliers, the amount and frequency of information sharing is very varying. Everyone share what is necessary for production, while others also share information about new materials and production methods to name a few, with the attitude that sharing of information is necessary for cooperation.

There is also a relationship between how much information companies share and how much information they get in return from their suppliers. Several interviewees admit that there has traditionally not been much information sharing in the furniture production industry. The supplier has previously been someone you order things from, and they deliver what is specified.

Traditionally, there has been very little information going out, only what has been important to be able to make an offer.

-Geir Balsnes, Ekornes

Some of the manufacturing companies have a slightly different view on the situation if their suppliers don't share much information. This situation is if the company's supplier also supplies competitors of the manufacturing company. If the supplier is not sharing much information, this may work as a confirmation of the supplier not leaking critical information:

It is surely not everything thing they [the suppliers] tells us, but we

appreciate that. And that is because we don't want them [the suppliers] to hand over what we are doing to our competitors.

-Dag Hjelle, LK Hjelle

There also seems to be a general perception that having suppliers located further away or in other countries is not a problem with regards to contacting them or sharing information, as this is easily done over phone or internet/ email. Also, due to busy workdays, this is the most common way to contact the suppliers that are located close as well. The only thing that was mentioned regarding localization of the suppliers was that it was easier to have face-to-face meetings more frequently due to shorter travel time with the closely located suppliers. It was also easier to show prototypes and so on to those closer located. Only one company mentioned suppliers stopping by for a coffee, or themselves stopping by the suppliers from time to time, in a more informal matter.

5.2.1.1 Information sharing between manufacturing companies

Between the manufacturing companies in the furniture industry, there has previously not been a culture for sharing information between competitors. Also in other industries such as the maritime, which also have its centre of gravity in the Sunnmøre-area, emphasize the lack of culture for sharing information with the neighbour. Some interviewees, and particularly actors with management titles with an overview of the furniture industry state that there has not previously been any natural arena for companies to meet and discuss problems.

I started to work with the management teams and middle managers eventually, and when you started to cross the companies, you could see that there was a low degree of trust and relations between the companies.

-Oddbjørn Hatløy, Norwegian Rooms

However, in the furniture industry, there have previously been some instances of companies copying their competitors' products, and selling it under their own brand. Thus, the fear for sharing information some of the companies may have is not groundless.

Historically, there has been little sharing of information that resides inside of the company. The type of information the companies in Norwegian Rooms up until now have shared with each other is information about sales, trends and what kind of market they are in, according to the managing parties with an overall perspective. The companies themselves have a varying view of how much information being shared. Some feel that they share much and are not holding back, while others are very conscious about what they are sharing.

One interesting, and from our side unpredictable case, was between the companies in the cluster that were competitors, and the possibility for competitive collaboration. Two large companies inside the cluster had different views of the opportunity of having highly competing firms in the cluster, considering sharing of information. Even though Wonderland also saw the challenges with this case, there are also opportunities:

It is better to have professional competitors than having unprofessional ones... The worst is to have unserious competitors that may dump prices or whatever, and then they might go bankrupt, but then they may ruin the market by operating unserious.

-Per Olav Fredly, Wonderland

On the other hand, SB Seating expressed a more wary or adverse attitude towards the case:

... I think that a direct competitor which has its core business within the same segment as our core business, one that produces office chairs, that [to have competitors as fellow cluster members] could be a problem.

-Boye Nickelsen, SB Seating

Much of the reason for this is due to the possible situation of needing to hold back information because your largest competitors are sitting at the same table.

Norwegian Rooms create meeting places for the companies to talk and possibly share information. The companies outside Norwegian Rooms are sharing information mainly through participation on annual fairs. Other than that, both of the companies outside the cluster felt that they could call other companies and talk with if there was something they were curious about.

5.2.2. Knowledge sharing

As with the case of information sharing between companies and their suppliers, there is also a varying degree to the extent of and platforms for sharing knowledge. Regarding the member companies of Norwegian Rooms, everyone said that they shared knowledge with their suppliers, and especially with the suppliers that they developed products alongside with. This is not the way things historically have been like, but it seems like the companies have started to share more knowledge with their suppliers than before. Most companies said that although they shared knowledge with their suppliers, they were conscious about what they shared. Regarding transferability, Ekornes recognized one important problem of knowledge sharing:

...it has been a general problem, that it [knowledge] is located inside people's heads. And the entire industry is characterized by persons, not by knowledge in a role, documented knowledge ... and you cannot take it [knowledge] from one person and put it inside the next person...

-Geir Balsnes, Ekornes

Different companies in Norwegian Rooms have exemplified what type of knowledge is being shared and discussed with their suppliers; To name a few, communication, e-commerce, new production methods and new design methods.

Some companies producing furniture in Norwegian Rooms said regarding knowledge sharing that they are relatively open with their suppliers, because their furniture production methods were pretty straight forward, and that their suppliers knew mostly how things were being produced.

The platforms the companies share knowledge with their suppliers through are both

formal and informal channels. And while all interviewed companies in Norwegian Rooms visits their suppliers and vice versa, there is a varying degree of the frequency of visits. Some emphasized that they wanted to visit all suppliers at least once; while others develop products with several of their suppliers and thus have more frequent visits. As with information sharing, there seem to be a balanced relationship between how much knowledge the companies share with their suppliers and how much they get in return. To our knowledge, there seems to be a varying and not very large degree of knowledge sharing, and when it occurs it is mainly explicit rather than tacit knowledge.

5.2.2.1 Knowledge sharing between manufacturing companies

The other branch of knowledge sharing being looked upon is the sharing of knowledge between companies both inside and outside Norwegian Rooms. When we spoke to Håvard Fanum in Gagn Consulting, he stated that the companies up until now have not shared much knowledge in the supply chain and sourcing board meetings. All of the companies gave answers that confirm Håvard's observation, by admitting to not have shared so much knowledge yet. What is shared is much in the formal platforms, is consciously picked out and is of more general or overarching nature. One reason given for this is that many of the companies in Norwegian Rooms differ in terms of what they produce, the size of the company and how their setup is.

When asked about the degree in which they shared knowledge with each other, there were few rich, clear or unambiguous answers. There were no examples given when we asked about the knowledge sharing between companies in Norwegian Rooms. Some managing actors say that it is a matter of time, and that relations and trust needs to be developed in order for knowledge sharing to take place. When we spoke to the maritime cluster organization GCE Blue Maritime, they underpin these actors statements, by emphasized that they had spent many years building the trust that is necessary for companies to talk to and share things with each other. GCE Blue Maritime have however found that knowledge sharing between companies of the same kind is possible:

*Also, we have a culture for sharing knowledge. Formally and informally.
And this has led to that the most advanced ships in the world is either*

designed, built or run from companies from here...

-Per-Erik Dalen, GCE Blue Maritime

The furniture manufacturing companies outside Norwegian Rooms have no formal cooperation with any other furniture-producing firms. They don't share much knowledge, either at all, or only on a more general business level.

5.2.3 Power

Although the companies included in this study is of different sizes and for the most have different suppliers, they all answer that they are not dependent on their suppliers. And that in the few cases that they are in fact dependent, at least in the short run, this is a mutual dependency where the supplier is also dependent of them. Both the companies within the cluster as well as the others answered this. It is also evident that they do not want to become single-sided dependent on the supplier due to lack of other options, patents/rights, and so on, and they take measures to avoid this scenario:

Therefore, I often see that some of the smaller furniture companies have an inclination towards selecting the Norwegian suppliers, because then they will often become a large customer.

- Oddbjørn Hatløy, Norwegian Rooms

Or to take action if caught in that situation:

So the day a supplier starts to take too much control over our value chain we will start making a strategy to work around.

- Boye Nickelsen, SB Seating

That being said, when asked more than once about the situation there were some of the companies that admitted being dependent on one or more of their suppliers, but that they were so on purpose or already had/was working on a strategy to get out, and that they felt that at the time being they were comfortable with the situation.

At the same time the companies do not want the supplier to gain too much power,

they do not want the suppliers being too dependent on them either. There are also some cases where the supplier is dependent on the company as a customer for survival, and this is not a wanted situation for the companies. Some of the companies have suppliers where they represent as much as 50-60% of their total market, and they express that this is too much because they want strong suppliers that will survive even if they have to decrease their orders at any point.

We would of course like to be a large customer with a supplier, but we have no wish to be so dominating that they live or die with us.

- Per Olav Fredly, Wonderland

Some of the companies multi- or dual source, while most admit that this demands too much resources and that this is hence not possible. However, most of the companies keep updated in terms of the supplier market and prices, so that they don't pay too much and have an overview over alternative suppliers. Some companies also admit that they presently do not have the resources to search for backup suppliers because they are too small. The companies want long-term relationships and state that searching for and switching suppliers takes time and is something they try to avoid. This can also be seen in that some of the companies invest time in helping their suppliers improve when they are not able to achieve this by themselves. The exception being for some of the off the shelf products, where it is easy for them to shop in the market. As we have seen, a large amount of the total spend is non-strategic, which also includes most of the indirect purchases. However, since a lot of the purchases are also custom made involving special tools and designs this is not always possible, at least in the short run.

5.2.4 Summary

As previously mentioned, and which is also clear here, there is a desire for closer collaboration with the suppliers than it is presently. At the time being, the relationships are described as close, but more personally close rather than in the sense of collaboration and involvement.

There is a varying degree of information sharing, both in amount and frequency. All

share information that is necessary for the production, but some also share information beyond this. None has answered that it is easier to contact or share information with the suppliers that are closer located, but some do mention that it is easier to show prototypes. There seems to be little time for the more informal talks/visits, as only one company confirmed having suppliers coming over for a talk over a cup of coffee or visiting their suppliers the same way. The others said there is no time for such in the busy everyday.

When it comes to knowledge sharing between the companies and the suppliers there has not been a culture for this before, and there seems to be a varying degree of this, although it has been expressed that this is wanted. It seems that there is presently most explicit knowledge being shared today, in the cases where there is knowledge sharing. As for knowledge sharing between the companies, they have spent time building trust between the companies, but there seems to be little of this knowledge sharing yet.

The larger companies have more power both in the relationships with the suppliers as well as in the relationship with the other companies. They are aware of this, and towards the other companies they try not to be too dominant. The smaller companies has answered that they don't see the larger companies as dominating. In relationships with the suppliers they have answered that they do not wish to become to large customers so the suppliers are dependent on them for survival. This is the same for the smaller companies. There is however some cases with this type of dependency present. All the companies consider themselves either not dependent of their suppliers or that there is a mutual dependency in some cases.

5.3 Changes

The participants have not been asked directly regarding what changes they believe should be made, as finding possible changes will be part of what will be discussed in the analysis on basis from the findings in the two previous questions and the theory. However some articulated challenges and wants are presented below.

5.3.1 Challenges

There are some challenges regarding the supply chains and relationships that the different actors are already well aware of. As previously mentioned there is a challenge concerning the lack of competence, professionalism and formal education. Suppliers becoming dependent on them for survival can make them vulnerable, and this can also be a challenge. Furthermore, keeping the costs down is a challenge because at the same time they do not want their suppliers to suffer or risk them going bankrupt, so this means that they need to find smarter, more efficient ways to do things.

I think the challenges we have might be to establish the professionalism, and establish proper contracts, performance monitoring, and a certain control.

- Karoline Hole Fløtre, Slettvoll

Other challenges that have been mentioned are complexity of supply chains, coordination of activities, scheduling, and lack of control. Also, being a small buyer-company in today's business environment has been mentioned as a potential challenge.

...it is significantly more difficult to be small today than it was some years ago. If you are a small buyer then it is difficult.

- Oddbjørn Hatløy, Norwegian Rooms

5.3.2 Wants

As previously mentioned, there is a general consensus among the cluster organization Norwegian Rooms from both the participating furniture companies and the management sides that they want to raise the level of formal competence in the industry, and especially regarding supply chain. Håvard Fanum from Gagn Consulting is pointing out not just the need for raised competence, but also more relevant and updated competence. He points out that the reason for today's level of competence might be because the industry has not acquired young, highly educated people, and that might have experience from other industries.

There is a little inbreeding in the furniture industry. It is a truth that you inherent what you have for better or worse ... and then the attitude becomes a little bit like “It isn’t that important”, and then there is no precision. And then it becomes unprofessional...

-Håvard Fanum, Gagn Consulting

Companies have expressed on their own initiative, that they want students to engage in the industry. Slettvoll are questioning the relevance to having student programs aimed towards the furniture industry if the companies are not engaging the students. Oscar Kipperberg from Innovation Norway confirms that there is a problem to get young educated people interested in the furniture industry. There is not necessarily a lack of study programs to make students qualified to work within the industry, but rather the interest from the student’s side to work in the industry. The industry’s reputation has a potential to be better.

... the furniture industry has been looked upon as a sunset story. They have not been good at communicating success stories, and they have not had a presence in the public eye. Consequently both politicians and funding agencies and others can say that “no, furniture is not important”. Because they are not aware of it.

-Oscar Kipperberg, Innovation Norway

Most companies also mention that they want arenas where the companies can share competence with each other. This is an activity that is already initiated, and the companies recognize benefits from the meetings. Common features that recur are that they can discuss problems, share experience and build network, to name a few.

Another common feature that recurs is the cooperation between the different companies in the cluster. Companies have admitted that they have in recent years realized some benefits from cooperation and collaboration. It is also apparent for all the managing with an overview of the industry.

I think the industry has realized that “If we are going to survive, we must talk together, we must co-operate. We cannot each of us invent the wheel

alone. That is unnecessary.” They have realized that.

-Håvard Fanum, Gagn Consulting

The companies are mentioning different and more concrete things they want from the cluster participation. Some wish to be able to learn more know-how knowledge from their suppliers, some want to have more and larger members of the cluster and some want to engage in research projects.

5.3.3 Summary

There are different wants and challenges present at the time being that the companies are aware of. There is a want to attract and engage students and graduates, and if we look at what the Norwegian business graduates has answered as top three attributes of a future employer in Universum’s 2015 survey, these are: 1) Professional training and development, 2) Leaders who will support my development, and 3) Attractive and exciting products and services (Universum, 2015). Other wants are arenas for sharing competence, discuss problems, share experience and build network. More collaboration and accessing the know-how of the suppliers are also included.

Challenges are lack of competence in supply chain and supply chain management, professionalism and formal education. Too dependent and vulnerable suppliers are a (potential) challenge, along with complexity of supply chains, coordination of activities, scheduling, and lack of control. Also, being a small buyer-company in today’s business environment has been mentioned as a potential challenge.

5.4 Norwegian Rooms

As with the previous section, the analysis on how cluster participation can make a difference will be largely based on the findings in the two previous questions and the theory. However, since some measurements are already set in motion they will be presented below. The member companies’ views and expectations of Norwegian Rooms varied. Several interviewees with managing roles explained that regarding who were most dependent on participation in the cluster organization were the smaller companies rather than the large ones, which they referred to as the ‘reverse law of

gravity'. At the same time, they emphasize that the larger companies also have much to learn from the smaller ones, and that the companies regardless of size share much of the same issues. One mentioned and natural reason why the smaller companies may be more dependent on participation in Norwegian Rooms is due to having a smaller administration, and thus fewer FTE's (full-time-equivalents) spread across the different administrative functions, such as supply chain, marketing, design etc.

5.4.1 Measures in motion

Some measures have already been taken. The first and most obvious one is that Norwegian Rooms has been established. They have also received Arena-status, and the goals for Arena-projects are: Improve the interaction between the different actors; shared long-term, strategic focus; enhanced innovation- and commercialization activities; improved access to relevant competence; increased visibility and attractiveness; stronger international connections; and increased competitiveness for the companies (Innovation Norway, 2014).

In Norwegian Rooms they have established a steering committee for sourcing and supply chain, where they have regular meetings. This steering committee has developed a competence program in supply chain management for the members, which is starting up this summer. Also, Norwegian Rooms have just held the supplier forum mentioned earlier for the first time, where there were different lectures, and speed meetings between the companies and the suppliers. For the speed meetings the suppliers could register up front which companies they wanted the opportunity to talk with one on one. However, these measures are fairly newly established, and there is apparently no financial savings yet from participating.

To my knowledge, there is nobody who has saved a penny so far from participating in this procurement group [steering group for supply chain and sourcing].

- Boye Nickelsen, SB Seating

A project to reach a national reputational strategy has been established by The Association of Norwegian Furniture Industry and Norwegian Rooms (Lauritsen,

2015). They have been able to reach an agreement on this, which was presented at Møbel+Interiørkonferansen 2015. The main goal with this strategy is to make the surroundings realise that the Norwegian furniture industry is a growth industry, and despite being one of the few industries in Norway that is not based on favourable natural conditions they are still competitive. At the conference the importance of branding was also discussed.

Some of the companies have also taken measures on their own, like Ekornes who are to implement Lean in the organization and Slettvoll who are implementing performance monitoring and KPI's.

5.4.2 Summary

Both the companies that are characterized as being small and large have much to learn from each other and share many issues. However, the smaller companies may be more dependent on participation in Norwegian Rooms. The companies, Norwegian Rooms, and the industry have already taken some measures in general. However, there has not been registered any improvements in financial terms yet.

6. Analysis and discussion

In this chapter the results presented in chapter 5 will be analysed and discussed using the context from chapter 2 and the theory from chapter 3. The structure of this chapter will follow the research questions from 1 to 4 before moving on to the research problem. As the different elements in this thesis is closely related and often intertwined there will be cases of repetition although an attempt to keep everything separated has been made for the sake of structure. The ideal is to use the theory and models to analyse each supply chain and each buyer-supplier relationship, but as the purpose here is to look at of the furniture industry and clusters, the analysis and discussions will be on an aggregate level.

6.1 Research question 1

What are the supply chains like today?

Here the results regarding the present state of the supply chain will be analysed and discussed using the ‘Supply chain network structure’ and ‘Supply chain business processes’ from the ‘Supply chain management framework’ (fig. 8).

6.1.1 Supply chain network structure

The first step in answering research question 1 will be to identify how the primary aspects of the supply chain network structures is configured, including the aspects of members of the supply chain, the structural dimensions of the network and the different types of process links across the supply chain as explained in Lambert and Coopers framework for supply chain management (Lambert & Cooper, 2000)

Regarding the supply chain members, even though the term supply chain network is indicating the need to look at the whole network, this discussion will primarily be limited to the first tier suppliers. Since we are investigating many companies and not just one, product or service categories are used in the illustration instead of specific suppliers. As this thesis first and foremost is concerned with the furniture manufacturing companies and their closest suppliers, this selection of which members

are identified could be considered to be in line with what Lambert and Cooper writes about identifying the appropriate number of members (2000). The main reason for this identification in this thesis is to get an overview of the situation. A generalized example of a supply chain in the furniture industry is illustrated in figure 15. The furniture manufacturing companies will be what is referred to as the focal company, with managed process links to their first-tire suppliers. The second-tire suppliers are either non-managed process links (as in the illustration) or monitored process links which would be when they only monitor for instance the environmental standards of the suppliers. Most of the companies interviewed sells through chain stores, making this a managed process link, while the link to the final consumer is a not-managed process link. One of the companies sells directly to the consumers instead of through the chains, which would make that link a managed process link. The links between actors that are not a direct part of the focal companies supply chain, but than indirectly affect it would be non-member process links. This could for instance be when to companies share the same supplier and in that way compete for the supplier's resources.

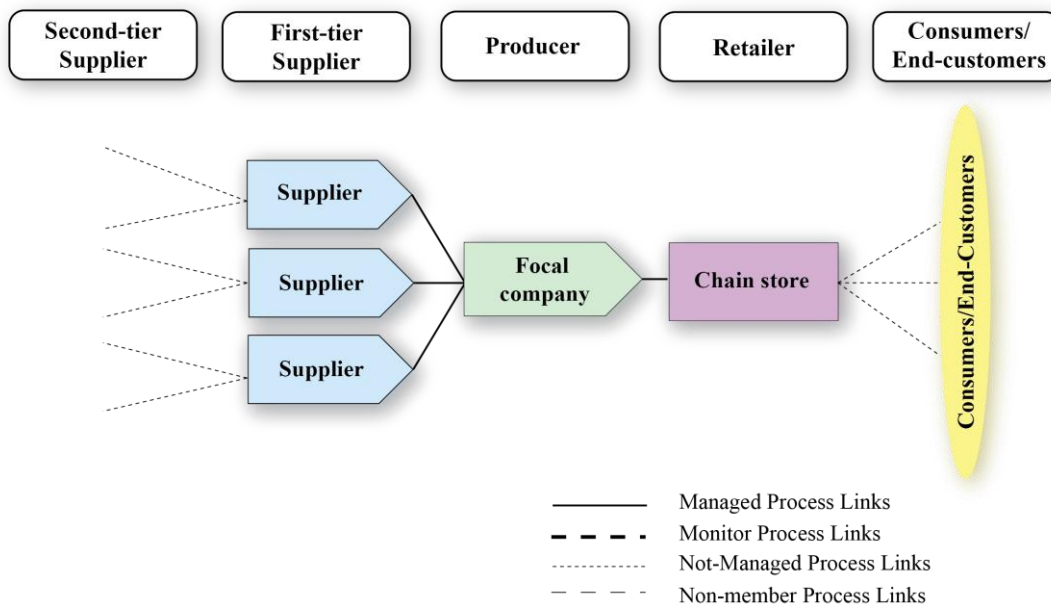


Figure 15: A generalized supply chain network structure with business process links. Adapted from (Lambert & Cooper, 2000, p. 75).

If the different companies themselves are to perform this full analysis they might have to include more tiores, both upstream and downstream in the supply chain. The

furniture manufacturing companies all have different supply chains networks, but there are of course also similarities such as many of them needing material from the same categories.

What is evident from the interviewed companies is the varying degree of complexity in their supply chains. One result from the interviews we conducted is that most companies have single sourcing with only one supplier within each product category, but at the same time they are aware of which suppliers operates in the market. One company operates with plural sourcing within all product categories. This implies that their sourcing strategies are essential for what their supply chain look like, and how they choose to manage the network. A simplified illustration of the how the network structure with business process links for one of the companies is presented in figure 16 below. The simplification lies in that the first-tier suppliers are shown as categories rather than individual supplier companies, and that actors outside the manufacturing companies and the first-tier suppliers are not fully included.

We have looked at the spend analysis that shows main purchasing categories to investigate the structural dimensions of the supply chain related to purchases. This was as mentioned earlier only conducted by the member companies of Norwegian Rooms. Even though there are only production companies in the cluster, these companies produce different products, such as a wide variety of furniture for both private homes and office buildings, beds, mattresses and fireplaces. There is a varying degree regarding which the companies consider their purchasing groups as strategic or non-strategic. When talking to the companies, there does not seem to be consensus for the background of the categorizations. Lambert & Cooper (2000) divides the structural dimensions into horizontal structure, vertical structure and the focal company's horizontal position within the supply chain. As figure 16 illustrates, the different suppliers in tier one are pictured vertically; the number of tiers horizontally is in this illustration limited a few main categories. In this example, the production company have several suppliers within each category, illustrated by the arrow-shaped boxes located behind each other in the first-tier supplier category. Due to the focus of this thesis, we will not go into detail of how one focal company's position is relatively to other companies. But considering that we know that several companies share several suppliers, they would be placed underneath each other, as illustrated as the

slightly transparent green arrow-boxed shape in figure 16, and by the dotted vertical line underneath the focal company. As mentioned in chapter 2.4, all the companies are located close to the end consumer in the supply chain, either selling directly or through retailers.

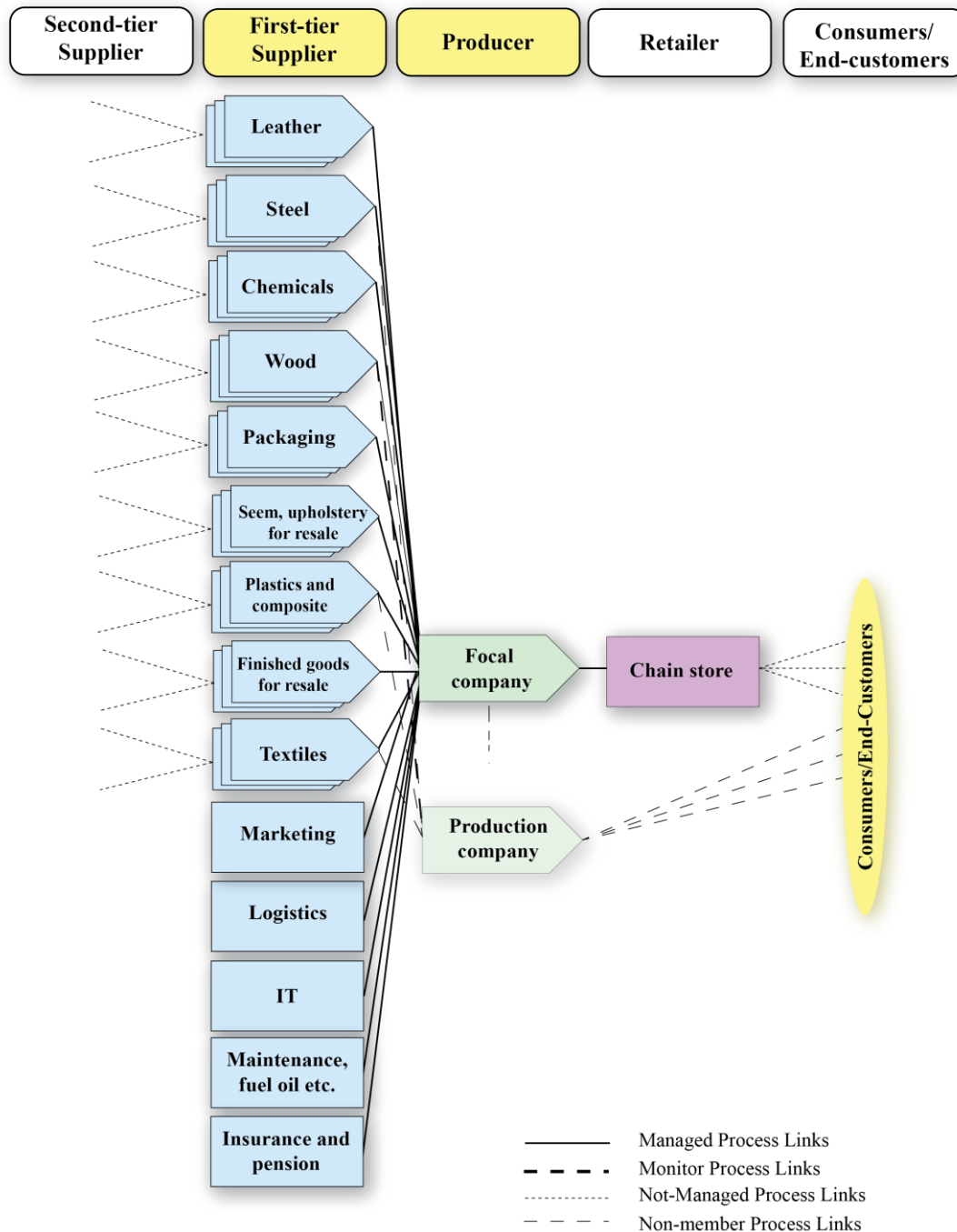


Figure 16: Illustration of a simplified supply chain network structure with business process links – An example from a furniture production company

Using Lambert & Cooper’s framework for business process links, all the companies

we spoke to have managed process links only to their first-tier suppliers upstream. The exception was Wonderland that actively helped one of their suppliers with the negotiation and contracts with their suppliers. This however cannot be called managed process links, as they are not the ones that make decisions regarding whom to source from nor the ones managing the links. Regarding monitored process links, there were few companies that audited how the process links further back in the supply chain network were integrated and managed. LK Hjelle was one exception here, because they ascertain that their suppliers upstream in the supply chain follow environmental standards required by their ISO certification. All of the companies will necessarily have not-managed process links with the suppliers that are not managed nor monitored. It is not a concern in this thesis to look further in detail into these types of links, nor was it something the companies talked about on their own initiatives. All companies were aware that their suppliers also supplied other furniture production companies, thus making them aware of the non-member process links. In fact, many of the companies interviewed were aware of several other companies sharing many of their suppliers. These suppliers were Norwegian suppliers located in the Sunnmøre-area. From the focal firm's perspective, the links between their suppliers and other production companies (placed underneath the focal company in figure 16) would be classified as non-member process links. Thus, their supply chains are influenced by decisions in other production company's supply chains.

6.1.2 Supply chain business processes

As we have seen, the furniture manufacturing companies all have different supply chains, with varying degree of complexity, process links, and of what they have categorised as strategic direct material or indirect purchases. The next step would be to look at the supply chain business processes. Since the manufacturing companies and their suppliers are the concern of this thesis, the business process 'Procurement' will be analysed in the following. Cox's (2004) model for identifying sourcing options will be used here (fig. 7).

By looking at the level of work scope with supplier and supply chain we see that all manufacturers only concerns themselves with the first-tire supplier with few exceptions, and that they do not interfere with whom their first-tire supplier choose to

buy from. The exceptions of not being involved are Wonderland that is helping one of their suppliers with getting a better deal when purchasing raw material, and LK Hjelle that are concerned with the environmental certification of the suppliers upstream in the supply chain due to their ISO standards. With this as background it is justified to say that the level of work scope is 'First-tire' and not 'Supply chain'.

When looking at the focus of the buyer-supplier relationship there is more variation between the different companies. Since the level of work scope has already been identified as 'First-tire', the focus of buyer relationship with supplier can be classified as either 'Supplier selection' which are relatively short-term contracting relationships where the buyers work arm's-length, or 'Supplier development' where the buyer and supplier will, jointly make dedicated investments in the relationship and create technical bonds and relationship specific adaptations (Cox, 2004). Most of the companies have stated that they do not go around shopping for each product they buy, but that they rather try to keep the same suppliers over a long period of time as long as that supplier deliver as they are supposed to. They seek long-term relations so to speak. There are of course exceptions here as well, such as Slettvoll purchasing interior pieces to include in their line, were they say that they go out shopping in the market to find the products they want. However, when they do this they purchase an already designed product, and don't select a supplier for one of their own designs.

However, wanting long-term relationships are not sufficient for this to be categorised as supplier development, since this also require them to jointly make dedicated investments, creating technical bonds and/or making specific adaptations as previously mentioned. Some of the manufacturing companies have given examples of investments made, such as SB Seating investing time on giving their suppliers feedback, and helping them with the improvement process if they are not meeting the set criteria regarding delivery time, quality and so on, and the supplier is incapable of managing this process by themselves. They also have invested in the tools the suppliers use to make the products needed. These investments in time and tools are common for many of the furniture manufacturing companies, although not all seems to have such a structured approach regarding feedback to the suppliers were they also provide aid in the process of improving when it is needed. Participation in the Leverandørforum 2015 is also a form of joint investment in the relationship.

Here we can see that the companies are investing time and resources in the relationships, but we can question if the focus is more reactive or proactive. Since the feedback and follow-up is to ensure that the suppliers meet the set standards and monitor that they don't do anything wrong, and not necessarily to develop them further, this could be said to be more of a reaction than it is proactive development. But at the same time this is enabling the suppliers to develop and keeping the contracts, instead of just switching supplier, and on this basis it could also be considered a proactive focus rather than a reactive one.

Although the furniture manufacturing companies of course have their differences in their approach to sourcing, we see that they mostly are just touching within the category 'Supplier development' as they, from what we have found, are more often than not keeping their suppliers long-term instead of having short-term contracts. However, supplier development seems to be one aspect were the companies still could do a lot if they want a closer, more strategic relationship with their suppliers.

As previously mentioned, the business process 'Procurement' concerns the development of strategic plans or strategic alliances with a small core group of suppliers (Lambert & Cooper, 2000). When asked about the classifications of strategic and non-strategic in the spend analysis, and if they have different types of relationships with their suppliers based on if they are strategic or not, most companies responded that did not. This tells us that the companies might not be sufficiently aware of how, or able to select which suppliers to form strategic partnerships with. According to Lambert and Cooper (2000), the development of such strategic plans or alliances would support both the manufacturing flow process and the development of new products, as including the suppliers early in the design cycle can lead to reductions in product development cycle times.

At the same time some of the companies answered that they involve some of the suppliers when developing new products, such as Slettvoll were the designers are involved with their supplier of fabrics in designing the fabrics and colours of the textiles. This suggests that the companies at least to a certain degree are able to integrate this process, which according to Lambert and Cooper (2000) should reduce

time to market for new products.

Some of the companies such as SB Seating have mentioned flexibility as a very important factor as they need to respond quickly to changes in demand. Since integrating the business process 'Procurement' and making strategic alliances with core suppliers will support the 'Manufacturing flow management process' this could also help as changes in this process lead to shorter cycle times, which in turn means improved responsiveness to customers (Lambert & Cooper, 2000).

6.1.3 Summary

As can be seen here, the different furniture manufacturing companies all have differently configured supply chains. There is however some similarities, where the most prominent one is that they are all concerned only with the first-tire suppliers, and that these are the only managed process links. None of the companies interviewed manage links upstream past this first tire, regardless of whether they are considered a large or a small company. This could be due to lack of resources or because of trust, were they rely on the suppliers are able to manage these links by themselves. Regardless of why the managed process links are only found with first-tire supplier, it can be concluded that the companies are currently either selecting or developing suppliers, not supply chains.

6.2 Research question 2

What kind of relationship does the companies have with their suppliers?

The results regarding relationships will be discussed here. The different subjects 'Information and knowledge sharing', 'Power', 'Governance' and 'Culture' will be analysed and discussed. Lastly, these will be related to 'Supply chain management components' from the 'Supply chain management framework' (fig. 8).

6.2.1 Information sharing

6.2.1.1 Information sharing between manufacturing companies and suppliers

As previously mentioned, information sharing means distributing useful information

for systems, people or organizational units (Lotfi et al., 2013). Two dimensions that affect information sharing is connectivity and willingness. Both of these are important for an information-sharing capability to be developed.

One of the results from our interviews, literature and document studies and informal talks is that there has historically been a low degree of information sharing between production companies in the furniture industry and their suppliers beyond required specifications. Some reasons for this that the interviewees mentioned were the companies' attitude towards suppliers and the cultural aspects connected to sharing information. The attitude some companies have had towards their suppliers is that they are someone who just supplies the company with different materials or services. The suppliers have historically to a large extent only received orders with concrete specifications that they have produced and delivered. Today, this attitude seems to be changing. Especially at *Leverandørforum 2015* and the *Interiør+Møbelkonferansen 2015*, they emphasized the need to involve suppliers in product development at an early stage in order to increase competitiveness. These aspects are connected to their willingness to share information, which we can presume has historically been on a low or intermediate level, beyond specific requirements.

Considering the connectivity dimension of information sharing, when asked about which channels the companies shared information, they answered that it went through both formal and informal channels. Some of the companies monitored their suppliers, and some were in the middle of getting these processes up and running. But to our knowledge, none of the companies had integrated joint information sharing systems with their suppliers. In order for both a manufacturing company and a supplier to invest time and money in asset specific information sharing systems, theory suggests that a close relationship would be to prefer (Bradach & Eccles, 1989). Since none of these companies interviewed both inside and outside the cluster mentioned such systems when asked about channels they shared information, it is reasonable to believe that they don't have such systems, and/or that they don't consider them to be important. This undermines our belief that the relationship between production companies and their suppliers is not of a professional close relationship, rather a personal close relationship.

The connectivity dimension is not just about information sharing systems, but such information technologies play a central role in supply chain management that enable decision makers to take better and more collaborative decisions (Sprague & Watson, 1979 according to (Fawcett et al. (2007))). Even though the companies are communicating with their suppliers and vice versa, it seems like sharing of information is much on the manufacturing companies premises. The connectivity channels is both formal and informal, but it happens through different systems that does not reach through whole chains.

When we asked the companies if they thought it was more difficult to contact the suppliers being located closer geographically, none of the interviewed company said there was a difference. The threshold for contacting suppliers located close or distant was not notably different. This finding supports what Tallman et al. (2004) mention when talking about the significance of geographic location of companies due to global electronic connectedness. However, what several companies emphasized was that it was convenient to have the suppliers close, especially when creating new models or developing products.

As mentioned, the companies say they have a good relationship with their suppliers, and explain this as a more close personal relationship. There is a varying degree of both the amount and frequency of information sharing between companies and their suppliers. All share what is absolutely necessary for production, and most also share more than is strictly required. A result that emerged is that there is a relationship between how much the production companies share information, and how much they get in return. This seems to have a connection with the relationships the companies have with their suppliers, which is in line with Rashed et al. (2010) and how different types of relationships facilitates information sharing. The companies that have a partnership type of relationship with their suppliers share more information than those having a relationship with characteristics of arm's-length relationships. We believe that the dimension of trust plays a central role to how much information is shared. This is in line with what (Fawcett et al., 2007) found in an article that studied among other things, barriers to sharing information. Thus, the relationship between the manufacturing companies and their suppliers are connected to both the connectivity and the willingness to share information.

6.2.1.2 Information sharing between manufacturing companies

The aforementioned dimensions for sharing information; connectivity and willingness are also applicable for information sharing between manufacturing companies. One finding from our results is that the manufacturing companies have had a rather adversarial relationship, and have not shared much information with each other. This will be discussed later in knowledge sharing as it is important for both sharing of information and knowledge; the culture for sharing have not historically been present to a notable degree. The willingness dimension of sharing information is connected to the company culture for sharing, and as previously mentioned, it is the willingness to exchange information that determines the extent of the sharing that takes place (Fawcett et al., 2007).

Oddbjørn Hatløy in Norwegian Rooms said that he experienced a low degree of trust between the companies initially when Norwegian Rooms started facilitating meetingplaces. Now, after some meeting places has been initiated and they have had time to develop more trust, the companies share a bit more, and some companies exemplified sharing information such as sales numbers, trends and market information. It was also mentioned in several interviews that there has been no or few natural meetingplaces other than voluntary annual meetings or conferences. The meetingplaces arranged by Norwegian Rooms help facilitate the connectivity between the companies. Outside the cluster, both companies we spoke to had no formal collaboration or cooperation with other similar actors within the industry.

In the supplier forum Leverandørforum 2015 arranged by Norwegian Rooms, one of the lecturers present discussed the need for not only cooperation but collaboration. According to Fawcett et al. (2007), information sharing systems can help companies make more collaborative decisions by connecting managers across organizational boundaries. In Norwegian Rooms, connecting companies across organizational boundaries is one of their main tasks, as mentioned in chapter 2.4. As of today, there is no such information sharing system to our knowledge between the companies in Norwegian Rooms.

6.2.2 Knowledge sharing

As previously mentioned, even though there is an important distinction between information and knowledge and the sharing thereof, they are still connected to each other; this was shown among others by Rashed et al. (2010), where they found that information sharing is a pre-requisite for knowledge sharing.

6.2.2.1 Knowledge sharing between manufacturing companies and suppliers

As the last section showed, the two dimensions allowing the development for information sharing are connectivity and willingness. For information sharing, the connectivity in the furniture industry are influenced by both the relationship the companies have with their suppliers, asset specific investments and information sharing systems. The willingness dimension connected to culture has historical roots which has not completely vanished, but the attitudes towards working closer with their suppliers from the production companies side is increasing. This dimension of information sharing is also affected by the culture in the industry.

Connectivity and willingness is relevant dimensions also when it comes to knowledge sharing, but since sharing of knowledge requires sharing of information to some extent, these two dimensions can be argued to be present in order to share knowledge. Specifically for knowledge sharing, Matusik (2002) explains that the ability to absorb knowledge through partnering is a function of three considerations; the nature of the knowledge, the nature of the partnership and firm attributes. All of the interviewed companies expressed that they wanted a partnership type of relationship to some of their suppliers, and thus the framework can be applied to the furniture production companies. These aforementioned considerations are connected to each other, and will be discussed in the following.

The distinction of different types of knowledge used in this thesis is between explicit and tacit knowledge. As previously mentioned, explicit knowledge is easier to transfer and absorb than tacit knowledge, which tend to be held in individuals minds and is hard to communicate. One reason for this is due to its origin from learning by doing, trying and failing, and thereby adaptation of knowledge by individuals or groups. When asked openly about knowledge sharing, the answers we got varied both in terms of areas they focused on and their view of sharing knowledge. Examples mentioned of

knowledge sharing by the companies were communication, e-commerce, new production methods and new design methods. Considering the nature of this type of knowledge, the fact that the companies these examples stem from did not have difficulties listing these examples, and the nature of the visits these companies have with their suppliers; the knowledge is likely to be of more explicit nature that is easier to communicate and explain, than tacit. While some companies had no trouble listing knowledge they shared, others focused on the difficulties arising when attempting to share knowledge. Generally, it does not seem like there is much tacit knowledge being shared or developed. Where this knowledge sharing may seem to appear is at more operational levels such as design or material departments.

The second consideration in knowledge sharing through partnering is the nature of the partnership. This consideration is closely connected to the type of knowledge being shared, as mentioned above. The types of relationship companies have with their suppliers and the similarities between them can facilitate knowledge transfers (Rashed et al., 2010; Matusik, 2002). As mentioned, the relationship the companies have with their suppliers vary. Many have close personal relationships, but at the same time there is a low degree of collaboration with many of them. Further, the companies does not find it harder to contact the companies being located in other countries than those being located close. According to Matusik (2002), similarities between the companies in the partnership such as knowledge bases or skills, organizational structures and dominant logic can affect the ease of transfer. Based on the fact that many of the production companies located in the Sunnmøre-area has emerged from other similar companies in the same area, one could assume that knowledge bases or skills, organizational structures and dominant logic would be more similar compared to companies in other countries, or even other areas in Norway. However, it is not within the scope of this thesis to investigate the detailed nature of the partnership in this regard between the companies and their suppliers in detail.

The firm attributes are the final consideration in Matusik's framework applied here (2002). The central point is the firm's ability and intent to absorb knowledge, which is dependent on both the human capital the firm possesses and the past outsourcing decisions that contribute to form the firm's knowledge base. Adopting Mayer et al.'s

(2012, p. 1313) definition of knowledge as “...expertise and skills embedded within the human capital of the firm’s employees”, they further divide human capital into three groups sorted after areas of applicability and ability to transfer, from widest to most narrow; occupational, industry-specific and firm-specific.

Most of the companies we spoke with produce some components themselves and also order some things or components from suppliers, which are reflected in their supply chains. Many companies that still exist today have owners or managers that are grown up in the period elaborated of initially in this thesis when there was a highly contested area of furniture production companies and suppliers. Since the employees in these companies often had worked for several other similar companies, they may have developed an industry specific human capital in addition to the firm-specific human capital that they used and developed every day. The companies that still exists today is the ones that is competitive in some area, and that is likely to also have developed occupational human capital, at least among top management, in order to position themselves in the market. The suppliers that supply the furniture industry consists of a large variety of industries such as textile, wood, steel and aluminium, and one cannot generalize all of these industries considering which human capital they possess. However, many of these suppliers also supply other industries, and they are therefore likely to possess a degree of both industry and occupational human capital (Mayer et al., 2012). Where the manufacturing companies and their suppliers shared knowledge, were as mentioned at a more operational level, which may translate into industry-specific human capital. Following both Castanias and Helfat (2001), and Mayer et al. (2012), this type of human capital is located at an intermediate level of both scope of applicability and also transferability between firms. It was mostly in relationships where products were developed with the suppliers these type of knowledge transfers occurred.

As mentioned, the ability to absorb knowledge also depends on the nature of the partnership and specifically the differences in the management of skilled employees. This aspect is also relevant within supply chain theory relating to organizational structures and level of integration between companies and more specifically cross-functional teams. Selecting a similar partner considering knowledge bases or skills, competence, organizational systems etc., means it may be easier to absorb knowledge

from that partner (Matusik, 2002). It is not within the boundaries of this thesis to conduct an investigation of how these knowledge bases or skills, competences and organizational structures etc. look like in the furniture production companies and their suppliers. In order for companies to get more benefits from research within this area, it may be appropriate for the companies to perform such an investigation internally. What we do know is as previously mentioned that there is a varying amount of knowledge sharing, and where this is shared, it is mostly explicit knowledge. The instances mentioned by the companies of tacit knowledge sharing are at a more operational level, and based on explanations and interpretation; we would categorize this as industry-specific human capital. Some reasons why it is difficult to share this type of knowledge could be because suppliers don't want to share this type of knowledge due to fear of vertical integration by the production companies, and because it is difficult due to its sticky nature, causal ambiguity, and proprietary technology, to name a few (Mayer et al., 2012). Lastly, transferring or developing industry-specific human capital between the manufacturing companies and their suppliers may also be difficult due to the length of visits some of the companies have with their suppliers. The industry specific human capital is located at an intermediate level of transferability in comparison to firm specific and occupational human capital. Thus, there is a potential for sharing knowledge, but it may require more interaction and involvement than is present today.

6.2.2.2 Knowledge sharing between manufacturing companies

As previously mentioned, a result from interviews and literature studies, the manufacturing companies has not historically shared much information or knowledge with each other. Connectivity and willingness is as mentioned important to share information and knowledge (Fawcett et al., 2007). But as knowledge can be more valuable and actionable than information (Kogut & Zander, 1992), sharing of knowledge also depends on the type of knowledge, type of relationship between parties and the firm attributes.

As opposed to knowledge sharing between the manufacturing companies and their suppliers where they communicate with each other through both formal and informal channels and now want to have a closer relationship to some of their suppliers, the

picture of knowledge sharing between manufacturing companies looks a bit different. Håvard Fanum in Gagn Consulting mention that it may be easier for the manufacturing companies to be open and share experiences with the suppliers rather than other manufacturing companies. This is also a general impression we have from the interviews with the companies. Thus, it may be that the willingness to share knowledge between the manufacturing companies is not present.

With the establishment of Norwegian Rooms, they have as already mentioned initiated some actions such as facilitating meeting places for the companies. Looking at this action through the applied framework of Fawcett et al. (2007), it is linked to the connectivity dimension of sharing knowledge. Thus, the connectivity dimension is to some extent established due to Norwegian Rooms, but the dimension of willingness to share and to be open is to a larger extent dependent on the companies. GCE Maritime said in their interview as mentioned in results that even though the companies today in their cluster have a culture for sharing knowledge with each other, it took many years to build up trust between them that made them able to sharing knowledge.

Even though the dimensions of connectivity and willingness is necessary to share information and knowledge, considerations for knowledge sharing is as previously mentioned also dependent on three considerations; the nature of the knowledge itself, the nature of the relationship and the firm attributes. However, Matusik's (2002) framework containing these considerations is based on the ability to absorb knowledge *through partnering*. As previously mentioned, the manufacturing companies in the Norwegian furniture industry have not had a close relationship, and have historically been "closed" for outsiders, and it can hardly be said that the companies have a partnership relation. Even though they now in more recent years have realized that they need to cooperate more in order to enhance their competitiveness, the process of being more open towards each other, is likely to take time. Culture has as previously mentioned, been noted as a possible and important barrier for openness in the Norwegian furniture industry. Looking at business culture as a form of tacit knowledge in group settings (Nelson & Winter, 1982), it may be, as discussed in this thesis, hard to share and even be aware of. Thus, the considerations for knowledge sharing through partnering may not be appropriate to apply Matusik's (2002) framework on the knowledge sharing between the companies at this time.

6.2.3 Power structure

The 'Power matrix' (Cox, 2004) presented in figure 8 will be used in the following for analysing and discussing the power structure in the relationships.

Looking at only the Norwegian market there might not be that many buyers nor suppliers in this industry, but because of the globalisation, the possibilities are not limited to just Norway. Including suppliers in Europe, Asia and so on, the furniture manufacturers will have many suppliers to choose between. At the same time, this will also mean that the suppliers across the world have more buyers to sell to, and when competing against international companies the Norwegian furniture manufacturers might not be the most attractive account for the suppliers. As have been presented in the results, there might be a tendency of the smaller Norwegian manufacturers choosing local suppliers because this will make them a larger customer, which might also make them more attractive. The larger companies are likely more attractive customers also for the international suppliers.

Although it seems that the companies want to be a large customer and have a large share of their suppliers total market, they have also made it clear that having a large share will make the survival of the supplier dependent on them and this is not a desired situation. Even if they have expressed that this is not the desired situation, this is indeed the current situation in some of the buyer-supplier relationships. The suppliers being dependent on the companies for revenues and survival will give the manufacturing companies some power in the relationship. However, if the companies for any reason need to reduce their purchase of the products those suppliers deliver to them, this can result in suppliers going bankrupt since they are vulnerable. This of course is a worst-case scenario, but it can make the manufacturing companies reluctant to switch supplier or decreasing their purchases, as they do not want the suppliers to suffer. If the supplier does go bankrupt without the companies having a backup this can result in them not being able to produce and deliver to their customers.

Another important element is whether the supplier is offering a standard commodity.

According to the spend analysis most of the purchases made are non-strategic, making up for almost half of the total spend. This should imply that a lot of what the suppliers offer are indeed standard commodities or products, and that the buyers easily can find either a direct or indirect substitutes. This would also give the manufacturing companies power over these suppliers. On the other hand, a fairly large amount of spend is also on what is classified by the companies as strategic. Since there are slight differences in the explanations as to why it was classified as strategic, we cannot say conclusively that these products or commodities are not standard off the shelf. However, all the explanations suggested that these were important goods and commodities, but this could be because they cannot produce if they do not have it and not necessarily because it was not a standard commodity. That being said, there are also many examples where there are only one real alternative supplier at least in the short run, giving those suppliers power over the manufacturing companies, at least temporarily. The same goes for the cases where the suppliers have patents or rights to a design making it much more difficult for the companies to switch supplier or moving production in-house.

Search costs and switching costs were not mentioned in particular by everybody, but most of the companies mentioned that they make sure to keep updated in regards to the supplier market in case they need to change supplier, and also in order to benchmark their current supplier ensuring they pay the right price and so on. However, some also implied that because they are a rather small company they do not presently have the resources to search the supplier market in order to have back up suppliers ready if needed. For those that multi- or dual source, that could lower the switching and search cost if they only need to move orders from one current supplier to another current supplier. Furthermore, many mentioned the fact that searching for and switching supplier is time consuming. Time is a scarce resource and spending time on changing the supplier is also a cost in that sense. The companies all said that they for the most wanted long term relations with the suppliers, suggesting that they would not take lightly on changing the suppliers. SB Seating and Wonderland are examples of companies that would spend time on helping the suppliers improve if needed which should imply that changing the supplier would cost more than helping them improve. If this were the case, it would be possible to say that the switching costs are indeed high.

As presented in the results all companies consider there to be a mutual dependence in the cases where they are dependent on the supplier. In other words, that there is an interdependence. According to Cox (2004), the relationship should be managed differently considering both the sourcing approach discussed above and the power and leverage circumstances, which means that if the relationships are indeed interdependent then there are many different ways to manage these, which we will look into in the following.

6.2.4 Governance

As explained in chapter 3 it is important to choose how to manage the relationship based on what is appropriate for that particular circumstance (Cox, 2004). The power regime in the relationship will for instance affect this. As we saw in the previous part, the companies all have (with VAD as an exception) many different suppliers with whom they have different types of relationships with in regards to power. There is also a variation in whether the products or commodities purchased from the different suppliers are considered strategic or not. In other words, there are many different relationships and many different circumstances. This means that there are not one way of managing the relationship that is suited for all, but that the companies must evaluate each relationship and what they want to achieve when deciding how to proceed. The companies seem to be aware of which suppliers are more strategically important to them, but it is not conclusive that they are able to implement the appropriate governance structure for each buyer-supplier relationship.

More or less all the companies have expressed that the contracts are not used for governing the relationship, but is rather something they have as a base and that is important in case something were to happen. But only some of the companies said explicitly that they had a more arm's-length type of relationship with the suppliers of non-strategic material or indirect purchases. Having more arm's-length relationships with the suppliers that are not strategically important to them can be said to be appropriate.

It seems that even though the companies state to have a close relationship with their

suppliers, it tend to be cooperative rather than collaborative in most cases, meaning that they are not fully able to gain the advantages that can come from a collaborative relationship, such as knowledge sharing. As explained in the theory it is not about having a collaborative relationship with all suppliers, but to have this where it is appropriate.

Lastly, most companies also say that the relationships they have with the supplier are non-adversarial, either explicitly or because the way they describe the relationship doesn't characterize it as adversarial. This would place them in between non-adversarial arm's-length and non-adversarial collaborative relationship in Cox's (2004) relationship portfolio analysis (fig. 10). If there are an interdependence as discussed above, then a non-adversarial management style is appropriate both for supplier selection and supplier development, but this would change if the power balance changed. For instance would it be more appropriate with a buyer adversarial/supplier non-adversarial style if the relationship had buyer dominance (Cox, 2004).

This is, as mentioned previously on an aggregate level, and each company must consider this for each of their buyer-supplier relationships. Based on what we have found regarding governance, we would say that the companies to some extent are able to separate and adjust the way they govern the relationships based on the nature of the relationship and what they want to achieve. This is especially the case for the relationships where an arm's-length relationship is appropriate, but there is still a way to go when it comes to the suppliers they want a collaborative relationship with where they mutually share knowledge, and learn together and from each other.

6.2.5 Supply chain management components

Information sharing, knowledge sharing, power, and governance in the buyer-supplier relationships has now been analysed and discussed. This is relevant to the supply chain management components as 'information flow facility structure' and 'power and leadership structure' were presented in chapter 3.1.4 as two of the management components that should be integrated and managed at the appropriate level, with the appropriate supply chain members (Lambert & Cooper, 2000).

Findings suggest that the companies to a varying degree share information through both formal and informal channels with their suppliers. As for knowledge, there is also here a varying degree of sharing between companies and their suppliers. When sharing occurs, it is mostly explicit knowledge that is easily transmittable through various mediums. Tacit knowledge sharing is apparent to a certain extent, and occurs at more operational levels. These findings in both information and knowledge sharing can undermine the low professionalism in the business relationship. The difficulty or reluctant stance to knowledge sharing can also imply the existence of knowledge that is more sticky, proprietary or consciously strategic for either party. Also, although the companies and the suppliers frequently communicate with each other, there is to our knowledge a low degree of integrated information sharing systems today. According to Lambert and Cooper (2000), the information flow facility structure is often the first management component to be integrated, as the information sharing is key for an efficient supply chain.

Furthermore, it is evident that there are a lot of different types of buyer-supplier relationships with different power regimes. The companies seems to be well aware of their standing with the different suppliers, regarding were there is a dependency, if they have a large percentage share of the suppliers total market, the search cost, switch cost and so on. That they have an adverse or more arm's-length relationship with the suppliers of non-strategic material or indirect purchases shows some degree of appropriateness in the governance of the relationships. Having this type of relationship suggest a low level of integration with these suppliers. However, the same level of appropriateness is not present in the relationships that can be classified as strategic. A wish to take a bigger part in the suppliers knowledge, and having closer collaboration have been expressed, but for most of the companies it seems to be more limited to information sharing rather than knowledge sharing, and cooperation rather than collaboration. In other words, they have not been able to integrate these processes at the appropriate level at this point in time.

Lastly, the management component 'culture and attitude' must also be included here. This component was not initially intended to be included in the analysis, but during the data collection it was so prominent that it could not be left out. According to

Lambert and Cooper (2000), the compatibility of culture and attitude must not be underestimated, as it is necessary to integrate it at some level for the supply chain to perform. The attitude towards sharing information and knowledge with their suppliers has already been mentioned. The cultural aspect of sharing information and knowledge between manufacturing companies and their suppliers does not seem to be as uniform as the attitude aspect historically have been, due to the variety in inclusion and thereby openness between them. The culture and attitude towards sharing information and knowledge with other furniture manufacturing companies, will not be further elaborated in this research question, but will be included in the discussion in research question four.

6.2.6 Summary

Just as the companies have many different supply chains, they also have a variety of different relationships with their suppliers. However, there are certain aspects that are common between the companies in regards to the relationships. For one, the companies all express that they have good relationships with their suppliers. Most also describe this as close and non-adversarial, and that they desire to have closer collaboration with the suppliers. Presently, there seems to be more of cooperation rather than collaboration.

With respect to the information sharing, it seems trust and culture plays a role here, and that although the companies share information that is necessary for the supply chain to function with all their suppliers, they also share somewhat more with the suppliers they have a closer relationship with. This implies that sharing is connected to the connectivity and willingness. The location of the suppliers, and hence their physical closeness does not seem to have any considerable impact on the sharing. Between the companies in Norwegian Rooms, there has been an improvement in sharing of information, but there are improvements to be made both in terms of how the companies are able and willing to share information. Knowledge sharing requires more of both the companies and their suppliers than information sharing, but should also be more rewarding if managed properly. At the time being, sharing of knowledge does not seem to be strongly present, and were it is found it seems to be more explicit than tacit knowledge being shared. Regarding knowledge sharing between

manufacturing companies, even though they have realized that they need to open up to each other, some basic dimensions such as connectivity and willingness are not fully in place for this to be facilitated. There may be several reasons for this, where culture may be one of the largest hinders for knowledge sharing. Considering competitive collaboration, it is not meant that the companies should share information and knowledge uncritically, but that they are able to consider what is appropriate.

There are a number of different power structures, as all relationships are unique. There is also a difference with regards to some of the companies being large and having a more well-known brand name, while other are smaller and less familiar. This will affect their leverage possibilities with the suppliers. The companies are aware of the different relationships, but less aware of either the need to, or how to govern the different relationships in different ways depending on both the power structure as well as the desired outcome of the relationship. This could be connected to the lack of formal education in the supply chain field in the furniture industry. None the less there is what is called appropriateness to a certain degree in the relationships, mostly with the arm's-length relationships where there are supplier selection rather than supplier development. The same is not shown to be present in the relationships where collaboration is desired.

6.3 Research question 3

What changes might be necessary to improve the supply chains?

Here, the findings from research question 1 and 2 will be discussed and compared to the theoretical possibilities presented in chapter 3.1 Supply chain and 3.2 Relationships in order to identify potential changes. The expressed challenges and wants presented in chapter 5 will also be included in this discussion.

Low professionalism and competence regarding supply chain and supply chain management among the suppliers as well as the companies themselves was expressed to be a challenge. This can be related to the lack of formal education regarding supply chain in the furniture industry, where most only have what can be called experiential competence, often from purchasing and procurement. According to Oscar Kipperberg

(interview, April 9th 2015), when he asks students at lecturers how many are planning on working in the furniture industry after graduation he gets zero affirmative answers. This can possibly be related to the industry's reputation as a sunset industry. If the industry managed to attract graduates as well as highly competent employees from other industries, this would bring new competence and hopefully also increase the professionalism. However, it seems like the industry have failed so far in this. To attract and develop (formal) competence should therefore be focused on, both in the companies themselves and with the suppliers. This is linked to supplier selection and supplier development, and the different governance options, which might imply that they should focus on developing those suppliers they seek a strategic partnership with, or that is strategically important to them. As for the other suppliers this might not be the right use of resources.

Closer collaboration with the suppliers has also been mentioned as a wish for the future. Integration of the procurement process and developing strategic plans together will also support the manufacturing flow process and the development of new products (Lambert & Cooper, 2000), hence closer collaboration can result in a more efficient supply chain as well as enhanced innovation. Seen in the light of appropriateness, it is assumed that this closer collaboration should be with the suppliers that are strategically important to the companies, as well as where there is a power regime that allows for this type of relationship, which is in accordance with Cox's (2004) theory regarding power regimes and supply chains. If the power regime is not in favour of such close collaboration where this is desired, then it might be so that it is the power regime that must be altered. Altering the power regime can also be done to affect the relationships where arm's-length rather than close collaboration is desired. Altering the power regime is not considered to be easily done, but measures that can be taken in order to achieve this to at least a certain degree should be investigated. It has been uttered that it is harder for the smaller companies with less known brand names to gain power in the buyer-supplier relationship, so this might be especially important for them.

Vulnerable suppliers have also been mentioned by several of the companies as a potential problem. Some of the smaller suppliers are dependent on the manufacturing companies for survival, which makes the manufacturing companies vulnerable as well

because they risk losing their suppliers as they can go bankrupt if they don't have enough business. If one of the companies for some reason must lower their purchase from one supplier and they are a large part of that suppliers market, then this is a real possibility. This means that the suppliers must be strengthened if the manufacturing companies want to have more robust suppliers that is not dependent on them to the degree of survival.

Closer collaboration can also be related to the information and knowledge sharing aspect; the lack of close collaboration between the manufacturing companies and their suppliers also underpins the low degree of knowledge sharing between them. As we have seen, information sharing is a prerequisite for knowledge sharing (Rashed et al., 2010), and knowledge sharing among factors such as trust, joint learning and problem solving is best achieved through strategic partnerships (Slack et al., 2010). As previously mentioned, the type of relationship the companies have with their suppliers can facilitate sharing of information and knowledge, but the information and knowledge being shared can also further affect the relationship, making these factors interdependent. Some companies have expressed a wish for taking a bigger part in their suppliers' know-how than they do today. This is also connected to some company's efforts to lift their suppliers professionally. It can thus seem like these companies are attempting to create a more transparent supply chain by knowing how their suppliers operate. Increased transparency in the companies' supply chain is another wish from several people with managing positions connected to Norwegian Rooms.

As previously mentioned, the information flow facility structure is often the first management component to be integrated, as the information sharing is key for an efficient supply chain. Combining this fact with the companies' wish to have a closer collaboration to some of its' suppliers, information sharing systems can function as both communication tools in order to make the supply chain more transparent, and they can also signal trust due to the relationship-specific investment characteristics. As previously mentioned Bensaou (1999) found that there is a correlation between the level of specific investments made by either partner and the practices associated with collaborative relationships. In order for information sharing systems to be integrated in a network, both or several parties need to invest resources to be able to use the

system, may it be time, money, key management etc. In theory this could work, but there is also insecurity among some of the companies affecting their level of commitment due to the future of the cluster organization.

It seems like the relationship-specific investments in information sharing systems can enable the companies to both taking a bigger part in their supplier's know-how, make the supply chain network more transparent and help facilitation closer collaboration between the companies and their suppliers. Investments such as these is as mentioned one of the things that lack in order to make today's relationship between the companies and their suppliers more of a close partnership, rather than close personal relationship.

With regards to the culture and attitude towards sharing information and knowledge, this is something that could potentially hamper the other changes if it is not aligned with the necessary changes. This is in other words something that the companies must work on together with their suppliers.

6.3.1 Summary

In order to increase the professionalism the companies should make changes to attract and develop competency. Since the professionalism and competence should be increased both within the companies as well as with their suppliers, they should also consider developing the suppliers they consider strategic.

In order to enhance collaboration with the suppliers it might also be appropriate to make changes with regards to how the relationships are governed. Competence in supply chain and supply chain management can be seen as a prerequisite for this, as the companies must know how to do this, hence these two are connected. So can the power structure, as this will affect which type of governance is appropriate for the relationships. The power structure will also affect the relationships where an arm's-length or adversarial approach is more appropriate, so this must also be considered.

Information and knowledge sharing is also important in this respect as this sharing is fostering a strategic partnership and vice versa. Due to this the companies should also

consider integrated information flow systems. Such integrated systems could also increase the efficiency of the supply chains. Information and knowledge sharing is also an important factor for innovation. A more focused and systematic sharing of information and knowledge could hence have many positive effects such as increased collaboration and closer strategic partnerships, a more efficient and transparent supply chain, and innovation.

Since some of the suppliers are vulnerable, supplier development might remedy this. But other changes that could strengthen the suppliers should also be considered; such as assuring that they are more robust and not dependent on one customer alone for survival.

The culture and attitude can, as mentioned, hamper (or strengthen) the changes and must therefore also be considered.

6.4 Research question 4

In what ways can cluster participation make a difference?

In order to answer research question 4, the findings from research question 3 above will be compared and discussed up against cluster theory and the results found regarding clusters. As these are all closely related it is close to impossible to discuss one without also discussing essential parts of the others, thus the discussion will often melt together. Before starting the discussion regarding in what way cluster participation can make a difference, Norwegian Rooms will be defined as a cluster.

As previously mentioned, cluster organization Norwegian Rooms consists of companies located in both the Sunnmøre-area and the Oslo-area. Regarding the type of cluster, it possesses more characteristics of an industrial cluster rather than a regional cluster. This is mainly because of the geographical distances between the furniture manufacturing companies, as seen in figure 2. Even though there is two areas the companies are located in Norway, there are still large distances between the companies today even within each of the regions. And even though the term of geographical location also can vary in terms of absolute distances or boundaries, the

companies in the cluster is neither very close located to each other within the two regions, and the regions is very far from each other. The term regional clusters emphasize some benefits companies can reap by being in a regional cluster, and by looking at the companies in the cluster today, benefits such as reduced transportation costs is not as relevant for this cluster as a whole, only for some of them. Being an industry cluster would traditionally imply that the entire value chain is represented in the cluster, which is not the case for Norwegian Rooms. To exemplify, neither suppliers, retailers nor other institutions such as universities are represented in the cluster. It might also be seen as an industry cluster in the sense that the members are all from the Norwegian furniture industry. Considering the definition of cluster organisations made by Lagendijk in 2000 (according to (Benneworth et al. 2003)) as presented in table 1, Norwegian Rooms can be considered a cluster organisation.

Lack of professionalism and low (formal) competence in supply chain management have been mentioned above as one of the challenges the companies are facing, and the furniture industry have not succeeded in attracting graduates and expertise from other industries. According to Universum (2015), the Norwegian Business student's top three attributes for future employees are: 1) Professional training and development, 2) Leaders who will support my development, and 3) Attractive and exciting products and services. This can imply two things: The first is that professional training and development is important to attract new employees, while it is also necessary in order to increase the competence and professionalism within the companies. The second thing is that the furniture industry should become better at branding and employer branding, in order to show that they do in fact have attractive and exciting products, and that they are in fact an interesting employer. As Universum's annual report shows having attractive and exciting products is also on the top three attributes of future employers, and is thus also important for the industry to attract new competence. It will of course be possible for each of the companies to ensure professional training and development, and branding on their own. However, participating in the cluster means that they have the possibility to organize training and courses together and hence share the expenses rather than doing everything by themselves. These courses can also become arenas for knowledge sharing, which we will get back to later. It is also possible to let suppliers participate in such courses considering that lack of professionalism with the suppliers also was mentioned as a challenge. Lastly,

increasing the reputation of the Norwegian furniture industry through branding with emphasis of being a *Norwegian* furniture company might make it a more attractive industry to work in. This was mentioned by Oscar Kipperberg in Innovation Norway as one of the benefits achievable through participation in a cluster (Interview, April 9th 2015). Achieving this might not be easy for one company alone, but this is something the cluster can contribute to. Norwegian Rooms and The Association of Norwegian Furniture Industry have already made a national strategy to improve the reputation and are starting the work to achieve this from here on (Lauritsen, 2015).

Closer collaboration with the right suppliers was also mentioned as a point for change, as they have not yet succeeded completely here. One aspect that might have hampered success here can be lack on competence related to how to achieve this, as the companies would need to know not only which sourcing options they have got, but also which sourcing option and governance structure is appropriate under the different circumstances (Cox, 2004). This is related to how to increase competence, as already discussed above.

Collaboration is also dependent on the information and knowledge sharing (Rashed et al., 2010). The cluster organization can provide different initiatives and arenas that can enable the companies to interact and open up to each other. Trust can, as previously mentioned, be difficult to establish and take time to develop. Both the fact that competitive collaboration is risky (Connell & Voola, 2013) and considering the existing culture for information and knowledge sharing between manufacturing companies, the type of trust underlying the relationship they have with each other will require investments from all parties involved. Some of the companies interviewed pointed out that the cluster is new and that they did not know what would happen in a few years or if the cluster will still exist, which could make them hesitant to invest in joint systems or agreements.

That the cluster can create arenas for information and knowledge sharing can be positive in other regards as well, as the arenas also can be used for networking. One potential problem was as mentioned vulnerable suppliers, whose survival is dependent on few companies, which is not a desired situation. By creating arenas for networking where the suppliers are also included there is a possibility for the suppliers to meet

new potential customers. If the suppliers gain more customers, the total market share one customer have should decrease (unless the new customer only takes over for another customers demand, leaving the total picture unchanged). However, decreasing ones own percentage share of the market is also a potential problem. Since high percentage share of the suppliers total market is one of the elements giving the companies power in the relationship according to Cox (2004), decreasing this will necessarily mean that the power over the supplier could also decrease. These potential new relationships would be what Lambert and Cooper (2000) refers to as non-member process links, which might also imply that the suppliers allocate their resources to the production of the other companies goods or services. This is also linked to the power structure in the relationships, and it is therefore important not to become too small a customer.

Some of the factors mentioned that are giving the buyer power in the buyer-supplier relationship was having a high percentage share of the suppliers total market, and that the buyers account is attractive to the supplier (Cox, 2004). Many of the furniture companies are relatively small, and by joining forces they could become a larger customer to the suppliers, which could give them an advantage in the cases were collaboration is not necessary and the relationship could be adversarial. One activity a cluster organisation could do (Lagendijk, 2000, according to (Benneworth et al., 2003, s. 513)) is the making of a joint purchasing agreement. As mentioned in the context of this thesis, such purchasing agreements have been carried out previously. Here, furniture-manufacturing companies purchased materials that represented large costs. The reason the project did not survive more than a few years was due to the larger companies in the agreement that wanted to negotiate prices and keep that knowledge themselves. According to the companies, having such a joint purchasing agreement today could be difficult, especially with regards to the strategically important purchases or direct material. However, framework agreements on the indirect purchases or material not considered strategic should be possible and could hence be administered by Norwegian Rooms. Such purchases might include transportation, packing, office supplies and so on. This type of agreements might not be possible at the time being, but as the cluster matures this might become more relevant.

Regarding sharing of information, there seems to be consensus among several sources

that the cultural aspect is perhaps the main reason for the historically low degree of information sharing. Especially regarding the Sunnmøre-area and the emerging number of furniture production companies and suppliers in the last century, many of these small and medium sized companies decided to start for themselves after having learned how someone else produced. In more recent years, there have also been some instances of copying products that have been successful in the market, so the companies have wanted to keep to themselves and not share much valuable information. All of these factors are affecting the willingness to share information, and more specifically the openness aspect. But as several interviewees mentioned, the companies has understood that they need to be more open and work together to a larger degree than they are today.

The fact that the initiative for Norwegian Rooms came from manufacturing companies and not to mention that they organized a limited company before they got any financial support from the government show that they want a change. This process signal an asset specific investment from the companies' side, and is an important step towards building trust and thus facilitate information sharing, which again is a pre-requisite for knowledge sharing. As previously mentioned, being a part of the Arena-program created a framework divided into phases for both how to initiate, implement, operate a cluster organization and lastly to make changes. The Arena-program has clear goals, amongst them, which is particularly relevant for this cluster, is to strengthen the interaction between participants (Innovation Norway, 2014).

As discussed previously, another asset specific investment that can integrate the suppliers more in the manufacturing companies' supply chain is information sharing systems. Since the buyer-supplier relationship seem to be such an important topic for not just the companies but for other managing functions as well, it could be an idea for the cluster organization to facilitate activities that could help the companies to integrate such systems, if requested by the companies.

6.4.1 Summary

Participation in a cluster can make a difference in a few different ways. First of all,

the cluster can facilitate training and courses for the companies as a whole instead of the companies each having to organize. This should not only make it less expensive for each company, but it might also increase the frequency. Since employees from different companies will participate rather than employees from only one company this could also increase the learning-outcome, as the participants would be able to share experiences.

Secondly, the cluster can create arenas for networking as well as information and knowledge sharing. The networking aspect is important with regards to avoid to vulnerable suppliers. While creating arenas for information and knowledge sharing should help to increase such sharing. Participation in a cluster can also foster trust, which is essential in changing the attitude towards such sharing and potentially hampering it.

Lastly, the cluster can also help the companies reduce their cost through framework agreements or joint purchasing agreements, although this cluster might not be ready for this yet.

7. Conclusion

The purpose of this study was to explore in what ways the Norwegian furniture industry can improve their supply chains through participation in an industry cluster. Although all the companies have their separate supply chains and are individual entities, the cluster can be seen as a facilitator working around the different companies/supply chains (fig.17). Suggestions to measures will now be presented along with an explanation to which changes they are related to and how this is linked to improvements in the supply chains. Further, there will be a short discussion around what we originally expected to find based on the theory and our prior assumptions and suggestions for future research.

The first measure is courses and training programs. This can contribute to the companies increasing the competence level in supply chain and supply chain management, to increasing the level of professionalism, and to attracting graduates/expertise from other industries. Having the right competence is important to ensure an efficient supply chain, which is interlinked with having the right governance structure/mode. Since the degree of competence regarding supply chain and supply chain management, as well as formal education is considered low in the furniture industry there is a need for developing the current employees. This can be done through courses and training programs. If this is arranged through the cluster this mean that the cost of planning and arranging will be shared by the participants and not fully charged the companies individually. Furthermore, if there are participants from the different companies in the furniture industry, and possibly also from the suppliers, then this will also contribute to them developing a common language and understanding, which in turn can facilitate enhanced information and knowledge sharing. Selecting those suppliers that are strategically important were strategic partnerships and supplier development is appropriate will be important. Increased competence together with a common language and understanding should also result in enhanced professionalism. Since the top two attributes for Norwegian Business graduates ‘are professional training and development’ and ‘leaders who will support my development’, having a focus on development and training can be an important factor for attracting graduates with needed competence and formal education to the

industry. Through the Arena-program, the cluster should also have a better opportunity to gain access to the competence relevant for arranging such courses and programs than the individual companies in the furniture industry.

The second measure is branding/employer branding. In order to attract graduates and expertise to the furniture industry it is important to sell the image of this industry as having interesting and attractive possibilities. Training and development has been mentioned as important above, but this will not attract new employees unless they are aware of these opportunities. Hence, employer branding is needed. Since the third of the top three attributes of future employers for the Norwegian Business graduates is 'attractive and exciting products and services' branding is also important to show that the Norwegian furniture industry indeed have many exciting and attractive products as well as many different companies with focus on tradition, innovation and design. As mentioned above, attracting graduates and expertise from other industries are important steps towards increasing the competence in supply chain and supply chain management as well as increasing the professionalism.

The next measure is framework agreements. Although there is some scepticism or adverse attitude towards joint purchasing agreements, a large share of the total spend is for purchases considered non-strategic, such as freight/logistics/transportation, packing, and IT. Since such joint purchasing agreements might not be possible, at least not for the time being, framework agreements for the purchasing of non-strategic and/or indirect purchases might be the way to go, as these make up for a large part of the total spend. If such framework agreements were negotiated by the cluster as one large customer instead of each company single-handedly, this should affect the power structure in the buyer-supplier relationship and they should hence be able to lower the cost for each individual company through economies of scale. This might have more of an effect for the smaller companies that are a small customer and hence will have less leverage compared to the larger companies that might accomplish good price deals and economies of scale by themselves.

The last measure is arenas for information sharing and networking. There are many reasons why this is important. As has already been established, information sharing is a prerequisite for an efficient supply chain as well as for knowledge sharing. While

knowledge sharing is also important for an efficient supply chain through the influence on decision-making. Since the information sharing referred to as buzz has not been found present, and the degree of information sharing and knowledge sharing in general has also been found to be low, it is important to make arenas that facilitate information sharing among the companies in the industry as well as with their suppliers. Information sharing beyond what is strictly necessary for production is also important in terms of collaboration. Since collaboration has been expressed to be desired, facilitating information sharing is important also in that respect. This type of arena is also important for networking. On one side this would enable the companies to meet new potential suppliers and interact with colleagues, but it will at the same time enable the suppliers to meet potential customers. As has been mentioned there is a challenge with some suppliers becoming too dependent on one or two companies for survival. This is not a wanted situation, and poses a potential problem. If the suppliers are able to find more customers through networking, this should also lessen the dependency on the individual customer companies and make the suppliers less vulnerable.

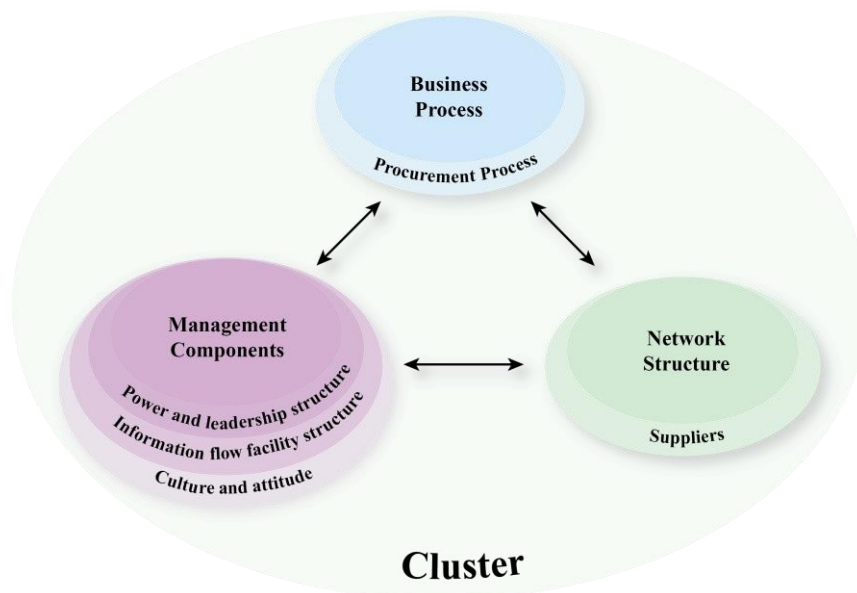


Figure 17: Framework for supply chain management within a cluster

7.1 In retrospect

Although Norwegian Rooms is not a regional cluster, we had expected to find a stronger presence of ‘buzz’, particularly a difference between the companies that are

located in closer proximity to each other and their suppliers, and the companies that are not. Reasons as to why could be many, but these underlying reasons have not been a focus in this study. Time constraints has been mentioned, but it could also be that the informants were not aware of this type of information sharing, nor the importance of it and hence have not paid attention as to whether this in fact is present in their company or the industry in general.

The second thing we had expected to find, were more integrated supply chains. When we first contacted the cluster, it seemed that the companies were very particular in this being *their* supply chains, and this was also the impression given during the interviews. In addition the integration of processes are in focus both in supply chain theory as well as cluster theory (cluster supply chains), thus we anticipated that they would have more control over the up-stream links and processes in the chains. However, they do not manage the supply chains past the first-tire supplier. In retrospect this is not at all that surprising, at least not for the smaller companies, as they might not have the resources to manage more than the relationship with the first-tire suppliers. Also, if the companies trust their suppliers, managed process links beyond the first-tire might not be expedient.

7.2 Future research

It would be interesting to repeat the study again in a few years to see how things has evolved as the cluster has had time to mature. It would then be possible to see if and how the measures taken by the cluster have effected the information and knowledge sharing. If and how this sharing has effected the supply chain could be included in such a study, which in turn could be used to promote further actions towards strengthening the industry and the competitiveness of the individual firms. Such a study would also be interesting for future clusters in other industries.

Another interesting topic to study would be the whether the decision to only include companies from one part of the chain e.g. only the manufacturing companies and not suppliers, retailers etc. will have a positive or negative effect on the assumed advantages of being in a cluster.

Since most cluster theory and studies are based on regional clusters, the effects of being in a cluster that is not geographically closely located would also be an interesting topic. It would then also be interesting to study if close strategic collaboration can outweigh not being geographically close.

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Appendix 1

Category	Company name	Interviewee	Title	Place, time and date of interview	Interview guide	Size of company - Numbers from 2013
Part of Norwegian Rooms: Member companies	Ekornes ASA	Geir Balsnes	Group ICT Director (CIO) and Group Procurement Director	Ålesund, 09.04.15, 07:30 a.m.-08:30 a.m.	#2	Ekornes ASA* #of employees: 1576 EBT in NOK: 334'' J.E Ekornes AS** #of employees: 1069 EBT in NOK: 209 537'
	Scandinavian Business Seating AS	Boye Nickelsen	Vice President, Purchasing Department	Ålesund and Oslo (Skype), 09.04.15, 12:00 p.m.-13:00 p.m.	#2	#of employees: 270 EBT in NOK: 106 766'
	Wonderland AS	Per Olav Fredly	Director Sourcing, Logistics & IT	Åndalsnes, 08.04.15, 10:00 a.m.-11:00 a.m.	#2	#of employees: 97 EBT in NOK: 4 217'
	Slettvoll Møbler AS	Karoline Hole Fløtre	Quality Development Leader;	Ålesund, 07.04.15, 09:00 a.m.-10:30 a.m.	#2	#of employees: 68 EBT in NOK: 15 766'

			Previously: Master Scheduler - Marine Purchasing at Rolls-Royce Marine AS			
Part of Norwegian Rooms: Management	Norwegian Rooms AS	Oddbjørn Hatløy	General Manager	Stavanger and Oslo (Skype), 26.03.15, 09:00 a.m.-10:00 a.m.	#3	
Not part of Norwegian Rooms: Furniture companies	LK Hjelle Møbelfabrikk AS	Dag Hjelle	General Manager	Sykkylven, 07.04.15, 14:00 p.m-15:00 p.m.	#1	#of employees: 26 EBT in NOK: -646'
	VAD AS	Håkon Vad	General Manager	Stavanger and Stordal (telefon), 30.04.15, 14:30 p.m.-15:30 p.m.	#1	#of employees: 9 EBT in NOK: 1 487'
Not part of Norwegian Rooms: Others	GCE Blue Maritime	Per-Erik Dalen	Chief Executive Officer	Ålesund, 08.04.15, 15:00 p.m.-16:00 p.m.	#6	
	Gagn Consulting AS	Håvard Fanum	Senior Advisor Consulting Head of steering	Oslo, 24.04.15, 13:00 p.m.-14:00 p.m.	#4	

			committee for Supply chain and sourcing in Norwegian Rooms			
	Innovation Norway	Oscar Kipperberg	Special Advisor	Ålesund, 09.04.15, 09:00 a.m.-10:00 a.m.	#5	

* Ekornes ASA is included Ekornes Beds AS (Svane) and Ekornes Contract AS (sales company). Ekornes has since acquired IMG.

** J.E. Ekornes AS is Stressless® and Ekornes® Collection

Appendix 2

Interview guide #1: For furniture manufacturing companies not part of Norwegian Rooms

1- Supply Chain

- a. Kan du fortelle oss om deres supply chain / hvordan den er bygget opp?
- b. Hvordan mener dere at deres supply chain fungerer i dag?
 - i. Hva fungerer bra?
 - ii. utfordringer?
 1. Hvis noen, har dere gjort tiltak for å forbedre disse utfordringene?
- c. Hvem vil du si er deres viktigste leverandører? (vil kanskje ikke svare på dette?)
- d. Samarbeider dere med andre bedrifter når det gjelder innkjøp?

2- Relasjoner

- a. Hvordan opplever dere relasjonen / forholdet mellom dere og leverandørene deres?
 - i. Informasjonsdeling
 1. Buzz
 - ii. Kunnskapsdeling
 1. Tacit / taus kunnskap /know-how
 2. Explicit
 - iii. Maktforhold
 1. Hvem har størst påvirkningskraft eller innflytelse (makt)?
 2. Er dere avhengige av de leverandørene dere har i dag eller vice versa?
 - iv. Samarbeid eller konkurransepreget?
 - v. Hvordan styrer dere forholdet til leverandørene deres (governance)?
 1. Er det forskjell på dette etter som de er viktige/mindre viktige – strategiske / ikke strategiske?

- vi. Hva mener dere fungerer bra?
- vii. Hvilke utfordringer ser dere?
 - 1. Har dere sett på tiltak for å møte disse utfordringene?
 - 2. Har noen av disse tiltakene blitt satt i kraft?
 - a. Hvordan har det gått?
- b. Hvordan opplever dere relasjonen / forholdet mellom dere og de andre bedriftene i bransjen?
 - i. Informasjonsdeling
 - 1. Buzz
 - ii. Kunnskapsdeling
 - 1. Tacit / taus kunnskap / know-how
 - 2. Explicit
 - iii. Maktforhold
 - 1. Har noen av bedriftene større påvirkningskraft eller innflytelse enn andre?
 - 2. Opplever dere at noen av firmaene i bransjen ”bestemmer” mer?
 - iv. Samarbeid eller konkurransepreget?
 - v. Hva mener dere fungerer bra?
 - vi. Hvilke utfordringer ser dere?
 - 1. Har dere sett på tiltak for å møte disse utfordringene?
 - 2. Har noen av disse tiltakene blitt satt i kraft?
 - a. Hvordan har det gått?

3- Klyngen

- a. Hva tenker dere om klyngesamarbeid?
 - b. Har dere vurdert å selv delta i en slik form for samarbeid?
 - i. Hvorfor/hvorfor ikke?
 - c. Har dere utfordringer dere tror kunne blitt enklere å løse / imøtekomme dersom dere hadde vært medlemmer i et klyngesamarbeid?
 - i. Hvis ja, på hvilken måte?
 - d. Ser dere noen utfordringer med slike samarbeid?
- 4- Er det noe du ønsker å utdype av det vi har snakket om?
- 5- Er det noe vi ikke har snakket om som du mener vi bør ta med oss videre?

Interview guide #2: For furniture manufacturing companies part of Norwegian Rooms

1. Supply Chain

- i. Kan du fortelle oss om deres supply chain?
- ii. Hvordan mener dere at deres supply chain fungerer i dag?
 - a. Hva fungerer bra?
 - b. utfordringer?
 - Hvis noen, har dere gjort tiltak for å forbedre disse utfordringene?
- iii. Ifølge Spendanalyse 2013 som ble gjort i forbindelse med Leverandørforumet som skal være nå i april har dere kategorisert innkjøpene deres i strategiske og ikke-strategiske, kan du fortelle mer om dette? (Hvorfor? Hva er bakgrunnen for inndelingen?)
- iv. Hvem vil du si er deres viktigste leverandører?
- v. Deler dere leverandører med de andre medlemmene i klyngen (som dere er klar over)?
 - a. Har dere noen felles avtaler for innkjøp?

2. Relasjoner

- i. Hvordan opplever dere relasjonen / forholdet mellom dere og leverandørene deres?
 - a. Informasjonsdeling
 - Buzz
 - b. Kunnskapsdeling
 - Tacit / taus kunnskap /know-how
 - Explicit
 - c. Maktforhold
 - Hvem har størst påvirkningskraft eller innflytelse (makt)?
 - Er dere avhengige av de leverandørene dere har i dag eller vice versa?
 - d. Samarbeid eller konkurransepreget?
 - e. Hvordan styrer dere forholdet til leverandørene deres (governance)?

- Er det forskjell på dette etter som de er viktige/mindre viktige – strategiske / ikke strategiske?
- f. Hva mener dere fungerer bra?
 - g. Hvilke utfordringer ser dere?
 - Har dere sett på tiltak for å møte disse utfordringene?
 - Har noen av disse tiltakene blitt satt i kraft?
 - Hvordan har det gått?
- ii. Hvordan opplever dere relasjonen / forholdet mellom dere og de andre bedriftene i klyngen?
 - a. Informasjonsdeling
 - Buzz
 - b. Kunnskapsdeling
 - Tacit / taus kunnskap / know-how
 - Explicit
 - c. Maktforhold
 - Har noen av bedriftene større påvirkningskraft eller innflytelse enn andre?
 - Opplever dere at noen av firmaene ”bestemmer” mer / har mer makt i klyngen?
 - Er dere på noen måte avhengige av klyngen?
 - d. Samarbeid eller konkurransepreget?
 - e. Hva mener dere fungerer bra?
 - f. Hvilke utfordringer ser dere?
 - Har dere sett på tiltak for å møte disse utfordringene?
 - Har noen av disse tiltakene blitt satt i kraft?
 - Hvordan har det gått?
3. Klyngen
 - i. Kan du fortelle oss om hvorfor dere har valgt å være med i klyngesamarbeidet Norwegian Rooms og hva dere ønsker å oppnå?
 - ii. Hvordan jobber dere/hva gjør dere for å klare å oppnå dette?
 - iii. Hva fungerer bra?
 - iv. Utfordringer?
 4. Er det noe du ønsker å utdype av det vi har snakket om?

5. Er det noe vi ikke har snakket om som du mener vi bør ta med oss videre?

Interview guide #3: For Norwegian Rooms (management)

1. Klyngen

- i. Kan du fortelle oss om Norwegian Rooms og hva dere ønsker å oppnå?
- ii. Hvordan jobber dere/hva gjør dere for å klare å oppnå dette?
- iii. Hvordan virker dagens tiltak?
 - a. Hva fungerer bra?
 - b. utfordringer?
- iv. Hvordan fungerer dere sammenlignet med andre klynger?
 - a. Har andre klynger oppnådd suksess med noe dere ikke er helt i mål å lykkes med eller vice versa?
- v. Kan du fortelle om rekrutteringsprosessen?
 - a. Utvelgelses kriterier?
 - b. Er det gitt/blitt mottatt noen avslag?

2. Supply Chain

- i. Du har tidligere nevnt at det har skjedd store endringer siden Møreforsknings rapport om møbelklyngen på Sunnmøre fra 2009, kan du fortelle oss mer om dette?
- ii. Rapporten og tidligere kommunikasjon mellom oss tilsier at det ikke er noen klyngemekanismer i dagens supply chains, kan du fortelle oss mer om dette?
- iii. Hvordan mener dere at bedriftenes supply chains fungerer i dag?
 - a. Hva fungerer bra?
 - b. utfordringer?
 - c. Samme leverandører?
 - d. Produserer selv/outsourcer etc?
- iv. Kan du fortelle oss om styringsgruppen for supply chain og sourcing?
 - a. Hva er målet med denne gruppen?
 - b. Hvordan jobber de?

3. Relasjoner

- i. Hvordan opplever dere relasjonen / forholdet mellom bedriftene i klyngen?
 - a. Informasjonsdeling

- Buzz
- b. Kunnskapsdeling
- Tacit / taus kunnskap / know-how
 - Explicit 3d printing: asset specificity
- c. Maktforhold
- Har noen av bedriftene større påvirkningskraft eller innflytelse enn andre?
 - Opplever dere at noen av firmaene ”bestemmer” mer / har mer makt i klyngen?
 - Er noen mer avhengige av å være med i klyngen enn andre?
- ii. Hvordan opplever dere relasjonen / forholdet mellom medlemmene og leverandørene deres?
- a. Informasjonsdeling
- Buzz
- b. Kunnskapsdeling
- Tacit / taus kunnskap /know-how
 - Explicit
- c. Maktforhold
- Hvem har størst påvirkningskraft eller innflytelse av medlemmene og leverandørene?
 - Er det store forskjeller på de forskjellige bedriftene i klyngen?
- d. Samarbeid eller konkurransepreget?
- iii. Hva mener dere fungerer bra?
- iv. Hvilke utfordringer ser dere?
- a. Har dere sett på tiltak for å møte disse utfordringene?
- b. Har noen av disse tiltakene blitt satt i kraft?
- Hvordan har det gått?
- v. Er det etablert noe samarbeid med andre klynger eller aktører?
4. Er det noe du ønsker å utdype av det vi har snakket om?
5. Er det noe vi ikke har snakket om som du mener vi bør ta med oss videre?
6. Oppsummering

Interview guide #4: For Gagn Consulting (Not part of Norwegian Rooms)

1. Klynger

- i. Kan du fortelle oss om dine erfaringer med klyngesamarbeid?
 - a. Hva fungerer bra?
 - b. Hva kan man oppnå?
 - c. Hva kjennetegner velfungerende klynger?
 - d. Typiske utfordringer?
- ii. Hvordan mener du / dere at Norwegian Rooms fungerer sammenlignet med andre klynger?
- iii. Ser du at det andre/større/mindre utfordringer med klyngesamarbeid i møbelindustrien sammenlignet med andre industrier?

2. Supply Chain

- i. Kan du fortelle oss litt om dine observasjoner fra møtene du har hatt med medlemsbedriftene?
- ii. Har du erfaring med at klyngesamarbeid kan være gunstig for medlemmenes supply chain?
 - a. Hvis ja, på hvilken måte?
 - b. Hvis nei, hva skyldes det?
 - c. Tror du dette også stemmer for møbelindustrien?

3. Relasjoner

- i. Hvordan opplever du / dere relasjonen / forholdet mellom bedrifter som deltar i klynger?
 - a. Informasjonsdeling
 - Buzz
 - b. Kunnskapsdeling
 - Tacit / taus kunnskap / know-how
 - Explicit
 - c. Maktforhold
 - Ser dere ofte at:
 - Noen av bedriftene større påvirkningskraft eller innflytelse enn andre?

- At noen av firmaene ”bestemmer” mer / har mer makt i klyngen?
 - At noen er mer avhengige av å være med i klyngen enn andre?
 - Påvirker dette samarbeidsmiljøet/informasjons- eller kunnskapsdelingen?
- ii. Mener du / dere at det er noen forskjell når det gjelder relasjonen / forholdet til leverandørene for bedrifter som er medlem i klynger og de som ikke er?
- a. Informasjonsdeling
 - Buzz
 - b. Kunnskapsdeling
 - Tacit / taus kunnskap /know-how
 - Explicit
 - c. Maktforhold
 - d. Samarbeid eller konkurransepreget?
4. Er det noe du ønsker å utdype av det vi har snakket om?
5. Er det noe vi ikke har snakket om som du mener vi bør ta med oss videre?
6. Oppsummering

Interview guide #5: For Innovation Norway (Not part of Norwegian Rooms)

1. Klynger
 - i. Kan du fortelle oss om dine erfaringer med klyngesamarbeid?
 - a. Hva fungerer bra?
 - b. Hva kan man oppnå?
 - c. Hva kjennetegner velfungerende klynger?
 - d. Typiske utfordringer?
 - ii. Hvordan mener du / dere at Norwegian Rooms fungerer sammenlignet med andre klynger?
 - iii. Ser du at det andre/større/mindre utfordringer med klyngesamarbeid i møbelindustrien sammenlignet med andre industrier?
2. Supply Chain

- i. Har du erfaring med at klyngesamarbeid kan være gunstig for medlemmenes supply chain?
 - a. Hvis ja, på hvilken måte?
 - b. Hvis nei, hva skyldes det?
 - c. Tror du dette også stemmer for møbelindustrien?

3. Relasjoner

- i. Hvordan opplever du / dere relasjonen / forholdet mellom bedrifter som deltar i klynger?
 - a. Informasjonsdeling
 - Buzz
 - b. Kunnskapsdeling
 - Tacit / taus kunnskap / know-how
 - Explicit
 - c. Maktforhold
 - Ser dere ofte at:
 - Noen av bedriftene større påvirkningskraft eller innflytelse enn andre?
 - At noen av firmaene ”bestemmer” mer / har mer makt i klyngen?
 - At noen er mer avhengige av å være med i klyngen enn andre?
 - Påvirker dette samarbeidsmiljøet/informasjons- eller kunnskapsdelingen?
- ii. Mener du / dere at det er noen forskjell når det gjelder relasjonen / forholdet til leverandørene for bedrifter som er medlem i klynger og de som ikke er?
 - a. Informasjonsdeling
 - Buzz
 - b. Kunnskapsdeling
 - Tacit / taus kunnskap / know-how
 - Explicit
 - c. Maktforhold

- d. Samarbeid eller konkurransepreget?
4. Er det noe du ønsker å utdype av det vi har snakket om?
5. Er det noe vi ikke har snakket om som du mener vi bør ta med oss videre?
6. Oppsummering

Interview guide #6: For GCE Blue Maritime

1. Klynger

- i. Kan du fortelle oss om NCE Maritime og hva dere ønsker å oppnå?
- ii. Hvordan jobber dere/hva gjør dere for å klare å oppnå dette?
- iii. Hvordan virker dagens tiltak / aktiviteter / måte å gjøre ting på?
 - a. Hva fungerer bra?
 - b. utfordringer?
- iv. Hvordan fungerer dere sammenlignet med andre klynger?
 - a. Har andre klynger oppnådd suksess med noe dere ikke er helt i mål å lykkes med eller vice versa?

2. Supply Chain

- i. Har du erfaring med at klyngesamarbeid kan være gunstig for medlemmenes supply chain?
 - a. Hvis ja, hvorfor og på hvilken måte?
 - b. Hvis nei, hva skyldes det?
- ii. Har dere det man kan kalle en Cluster Supply Chain (integreert supply chain) / vil du si at det er klyngemekanismer tilstede?
 - a. Hvordan fungerer dette hos dere?

3. Relasjoner

- i. Hvordan opplever du / dere relasjonen / forholdet mellom bedriftene som er medlem i deres klynge?
 - a. Informasjonsdeling
 - Buzz
 - b. Kunnskapsdeling
 - Tacit / taus kunnskap / know-how
 - Explicit
 - c. Maktforhold

- Ser dere ofte at:
 - Noen av bedriftene større påvirkningskraft eller innflytelse enn andre?
 - At noen av firmaene ”bestemmer” mer / har mer makt i klyngen?
 - At noen er mer avhengige av å være med i klyngen enn andre?
 - Påvirker dette samarbeidsmiljøet/informasjons- eller kunnskapsdelingen eller andre aspekter ved klyngesamarbeidet?
- ii. Hvordan opplever du / dere relasjonen / forholdet mellom medlemmene deres og deres leverandører?
- a. Informasjonsdeling
 - Buzz
 - b. Kunnskapsdeling
 - Tacit / taus kunnskap /know-how
 - Explicit
 - c. Maktforhold
 - d. Samarbeid eller konkurransepreget?
 - e. Hva mener du / dere klyngen har å si for denne relasjonen?
4. Er det noe du ønsker å utdype av det vi har snakket om?
5. Er det noe vi ikke har snakket om som du mener vi bør ta med oss videre?
6. Oppsummering