



Swedish University of Agricultural Sciences
Faculty of Forest Sciences

Department of Forest Products, Uppsala

**Barriers to FSC certification for small forest owners
in Sweden**

*Utmånningar för FSC-certifiering för små skogsägare
i Sverige*

Cristopher Johansson

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Keywords: certification, FSC, PEFC, qualitative

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Abstract

The awareness of sustainable development challenges is growing. Companies are important players in society's development and in order to follow that development, action towards more sustainable business practises is required. Forests are important to the environment, and the forestry industry is largely influenced by society's demands for social, environmental and economic sustainability. In order to strengthen the reliability of sustainability efforts, many forest owners join environmental certification organizations to get their forests certified. The purpose of forest certification is to create a reliable link between consumer and forest product, that proves the product is produced responsibly in terms of social and environmental aspects.

The most commonly used certifications in Sweden are Forest Stewardship Council (FSC) and the Program for Endorsement of Forest Certification (PEFC).

Forest Stewardship Council (FSC) and Program for Endorsement of Forest Certification (PEFC) are the most common forest certification in Sweden.

Three of the four major forest owners' associations, Norra skogsägarna, Norrskog and Mellanskog do not promote FSC. Many of the small forest owners are instead attracted to the other certification scheme of PEFC. This study aims at investigating the actual and perceived barriers for private small forest owners to join FSC.

This is a case study which is a suitable method used to gain a greater understanding of this specific phenomenon. In order to identify potential barriers, umbrella organizations that offer PEFC were selected as the unit of analysis, the certification organizations were also interviewed.

The result shows that there is great awareness of social, environmental and economic sustainability. On the other hand, there is a certain difference between the views held by forest owners and representatives of certification organizations, which suggests that the perspectives differ depending on which organization one represents. The FSC and PEFC standards differ slightly, which may be a reason why small forest owners are looking for PEFC to a greater extent. The differences however are actually not that great any more, the standards of FSC and PEFC have become very similar. The differences are rather how the organizations are built up where the FSC is a top-down organization while the PEFC has more of a bottom-up structure. Regardless of certification schemes, forest owners find it costly and time consuming to be certified. The most prevalent obstacle to joining FSC is the fear that the standard develops too far away from the small forest owners' interests. The discussion focuses on what this means for the purpose of certification.

Key words: certification, FSC, PEFC, qualitative

Sammanfattning

Miljömedvetenhet i samhället ökar. Företag är viktiga aktörer i samhällets hållbara utveckling och för att följa den utvecklingen krävs åtgärder. Skogen är viktig för miljön och skogsnäringen påverkas i allra högsta grad av samhällets krav på social, miljömässig och ekonomisk hållbarhet. För att stärka tillförlitligheten på hållbarhetsarbetet ansluter sig många skogsägare till certifieringsorganisationer för att få skogsprodukterna certifierade. Syftet med skogscertifieringen är att skapa en pålitlig koppling mellan konsument och skogsprodukt, att produkten produceras på ett ansvarsfullt sätt när det gäller sociala och miljömässiga aspekter. Forest Stewardship Council (FSC) och Program for Endorsement of Forest Certification (PEFC) är de vanligaste skogscertifieringarna i Sverige.

Tre av de fyra stora skogsägarföreningarna i Sverige främjar inte FSC. Många av de små skogsägarna attraheras istället till den andra certifieringen, PEFC. Studien syftar till att undersöka vilka hinder som finns eller är förutfattade för att ansluta sig till FSC. Detta studeras genom en fallstudie, en passande metod att använda för att få större förståelse om ett specifikt fenomen. För att identifiera potentiella hinder valdes paraplyorganisationerna som erbjuder PEFC som analysenhet, certifieringsorganisationerna intervjuades också.

Resultatet visar att det finns stor medvetenhet om den sociala, miljömässiga och ekonomiska hållbarheten. Däremot framgår viss skillnad mellan skogsägarna och certifieringsorganisationerna om varför man certifierar sig, vilket tyder på perspektivskillnader som kan behöva överbyggas för nå större förståelse för varandras arbete. FSC och PEFC:s standarder skiljer sig något vilket kan vara en anledning till varför små skogsägare söker sig till PEFC i större utsträckning. Oavsett certifiering upplever skogsägarna att det är kostsamt och tidskrävande. Det mest omfattande förutfattade hindret för att ansluta sig till FSC är rädslen för att standarden utvecklas för långt ifrån små skogsägares verklighet. Diskussionen fokuserar på vad detta innebär för synen på certifieringen.

Nyckelord: certifiering, FSC, kvalitativ, PEFC

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Abbreviations

CRM – Customer Relationship Management

CSR – Corporate Social Responsibility

ENGO – Environmental Non-Government Organizations

FSC – Forest Stewardship Council

PEFC – Programme for the Endorsement of Forest Certification

PR – Public Relations

SEK – Swedish Krona

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ABSTRACT

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1 Introduction

This first chapter has the aim of giving the reader the background to the subject this thesis is addressing. The chapter shows why the subject is important and then ends with the aim and relevant questions to answer the aim.

1.1 Background

The society's concern about social and environmental development has increased during the last decades. Injustice, natural disasters and global warming are daily topics discussed over the world. Since corporations are important actors in every society in terms of social, environmental and economic matters, social pressure and corporate willingness has increased in order to affect business practices towards more sustainability and extended corporate responsibility (Hart, 1997; Porter & Kramer, 2011).

Porter & Kramer (2006) states the importance for companies to adapt to market demands, e.g. in questions of responsibility, in order to keep and maintain competitiveness. Without strong competitiveness, no company can be successful for very long in today's globalized business environment (*ibid.*). One way to which companies can increase competitiveness, and at the same time minimize the risk of bad publicity concerning responsibility, is to adapt corporate social responsibility, CSR, and promote it as a natural part of the business strategy (Du *et al.*, 2010; Porter & Kramer, 2011). The definition of CSR stated by the European Commission is: "*the responsibility of enterprises for their impact on society*" (www, European Commission, 2018). CSR is often divided into three aspects; social, environmental and economic responsibility, which all need to take equal part in order for any business to be sustainably successful (Elkington, 1998; Belz & Peattie, 2012). The three aspects need to have equal importance if the CSR is to work efficient, some companies have succeeded in applying equal importance of the three aspects, some companies do still have work to do in this field.

The importance of showing and communicating an active corporate sustainability work has increased since society imposes greater requirements in order to achieve corporate responsibility beyond financial matters (Morsing & Schultz, 2006; Polonsky, 2011). Society puts economic pressure on, and sometimes even boycotting, corporations who don't work in order fulfil the market requirements for CSR. That fact is a driving force for corporations to increase CSR-work and develop business practices in order to stay competitive (Morsing & Schultz, 2006; Porter & Kramer, 2011; Belz & Peattie, 2012).

However, by communicating CSR activities attention from both positive but also suspicious stakeholders are drawn towards the company. This means that it's crucial that the CSR communication is solid and reliable in order to achieve positive outcome (Du *et al.*, 2015). Common ways to communicate CSR efforts without compromising the reliability is to let someone else, a third party, do the communication. This can be done in many different ways, one of which is to join a standard from organizations like the ISO and thereby work according to the standards set by that organization. This can lead to more reliability in the communication and in the long run, hopefully create stronger legitimacy (Du *et al.*, 2015; Morsing *et al.*, 2008; ISO, 2018).

In the forest sector, much of the CSR activities are linked to how the forest management are conducted. Different stakeholders have different opinions on how forests are best to be managed. To strengthen reliability and keep legitimacy, many companies have enrolled in one

of the standard organizations available where Forest Stewardship Council, FSC, and Programme for the Endorsement of Forest Certification, PEFC, are the most common ones in Sweden (Keskitalo *et al.*, 2014; FSC, 2018; PEFC, 2018).

By means of consumer behavior like ethical buying, concerns about companies' ethical behavior are expressed (De Pelsmacker *et al.*, 2005). Growing demand for assurance of environmental and social responsible manufacturing can be beneficial for companies that can prove that their supply chain operates to conform those standards sought for. Potential advantage of increasing market shares can be gained by differentiating towards a more sustainable and responsible niche (Kotler *et al.*, 2013).

The objective of forest certification is to create a trustworthy link between consumers and forest products produced in a responsible manner in terms of social and environmental aspects (Caberle *et al.*, 1995).

By joining one of the forest certifications forest owners agrees to manage their forests according to the standard set by the certifier. These standards include goals of sustainability, indigenous rights, biodiversity and social concerns for local societies. Manufacturing companies within the forest industries can choose to use raw material exclusively from certified forests and by that show consumers and stakeholders an active sustainability and CSR-agenda. One example of this is IKEA, a large consumer of round wood, who has a goal that means that by the year of 2020, 100% of the round wood they use should be recycled or FSC certified.

Forest certification is a voluntary commitment for forest owners. The implementation of FSC certification among private small forest owners in Sweden has slowed down. Three out of the four major forest owner associations, who works as clusters of private small forest owners, in Sweden are not promoting FSC and instead the other certifying scheme are used (PEFC, 2018), Forest owners are attracted differently to the different certifications, why?

1.2 Problem

Minimizing negative impact on social and environmental matters are crucial tasks for corporations (Porter & Kramer, 2011). Forest industries are processing vast amounts of round wood in order to meet market demands of sustainable forest products. While doing this, forest industries are also risking negative impact on other stakeholders for example by effecting livelihoods for endangered species, which could damage the biodiversity. CSR and sustainability work has gained importance during the last decades (Mikkilä, 2006). By using third-party certifications, the stakeholder demand for CSR-communication and sustainable, traceable forest products can be met (Toppinen *et al.*, 2013).

The demand for FSC certified forest products are increasing (Estep, 2015, Irland, 2007). Take the example of IKEA again, if they are to meet their goals of 100% certified or recycled round wood the supply of certified round wood need to increase. In order to continuously meet the demand, the amount of certified round wood needs to increase. To do this, certified forest areas in Sweden do also need to increase, and more forest owners will have to join one of the certifying schemes available if the forest companies are to meet the market demands of certified forest products.

As mentioned in the introduction, three out of the four major forest owner associations in Sweden are not promoting FSC. Why? Is this due to how the different certification systems

are built? Or is it perhaps because of monetary differences in the member fees? Why haven't more of the private forest owners adopted the FSC? In order to identify the reasons to why not all private small forest owners in Sweden are using FSC I will also look in to the certifier that in higher grade are used by this category of forest owners, PEFC.

1.3 Aim

The demand for certified forest products are increasing. Forest Stewardship Council have more difficulties to attract private small forest owners than PEFC, Sweden's other certification organization. The aim with this study is to identify potential barriers to FSC for private small forest owners in Sweden.

Research questions:

- How is the FSC system built and how does it differ from PEFC?
- Why do forest owners get certified?
- What is the role of communication for attracting more forest owners to become certified?

1.4 Delimitations

The empirics in this thesis are limited to Swedish organizations that are offering certification for forest owners. More especially is this thesis limited to those organizations that are not offering the FSC certification but instead other types of forest certification. The forest owner association Norra, Norrskog, Mellanskog and also the forest industry company AB Karl Hedin have been included. The exception is the forest owner association Södra which offer both the FSC and PEFC-system to their members, Södra are included in this study in order to give the perspective of a organization that have chosen to use both systems.

The study design used for this thesis can also lead to limitations. A case study does only research the actual case within certain circumstances. This means that the result from this case study can be difficult to compare with results from other cases, and by that not be generalizable in a broader field. However, this study design was the best suitable way to answer the aim of this thesis. By interviewing respondents with insight in the different certification systems the knowledge needed to identify the barriers to FSC certifications was gathered. The difference between this case study and a total investigation is actually a thin line because of the high proportion of certifiers included in this study.

2 Theoretical perspective

Chapter two provides the reader with theories that are used to analyze the aim of this thesis. The main idea with forest certification is to assure responsibility towards stakeholders, CSR and communication is therefore part of the theories, marketing theories does also qualify in this chapter.

2.1 Corporate Social Responsibility, CSR

The term CSR was first recognized and defined somewhere around 1980, however; further corporate responsibility then financial matters have been discussed since the beginning of the twentieth century (Carrol, 1991). CSR is now used in many different contexts where the mutual aim is to convince companies with the benefits of voluntarily apply further social, environmental and financial responsibilities than legislation demands. Klettner *et al.* (2014, p.146) defines CSR:

“as a commitment to operating in an economically, socially and environmentally sustainable manner”.

This definition strongly suggests the voluntarily part of a business practice with regard to social, environmental and financial responsibility. Other definitions such as that stated by the European Commission pushes more on the duty of corporations to work with CSR:

“The responsibility of enterprises for their impact on society” (www.europa.eu, European Commission, 2018).

This study uses the definition of CSR stated by the European Commission because of its clear and definite meaning.

The three legs of CSR; social, environmental and economic responsibility origins from Elkingtons (1998) *triple bottom line*-model where he describes the equal importance of the three legs as a necessity for a successful corporate responsibility. Social responsibility can include good working conditions for employees and fair manners towards local communities. Environmental responsibility often includes matters such as waste management and emission control, and economic responsibility can include goals of sustainable investments and business practices (Belz & Peattie, 2012; Elkington, 1998).

Since corporations are integrated as parts of society they can and most likely will have impact on societies no matter how sustainable their business practice are. This fact is therefore one of the main reasons why stakeholders and not only shareholders are allowed to have demands on corporate business practice (Bauman & Sitka, 2012). However, corporations and societies will gain more from a proactive CSR work than they would from a defensive, reactive such (Porter & Kramer, 2011).

There are numerous reasons why CSR are beneficial for corporations. Carroll & Shabana (2011) provide four reasons to why corporations should have active CSR work:

- Strategic risks and costs can be reduced
- It gives stronger competitiveness
- It will have positive influence on the company PR

- Finally will CSR provide indirect benefits for the company due to societal benefits created when conducting CSR.

Other reasons can be that companies that do conduct CSR often get ranked and can get nominated to lists such as the top 100 sustainable businesses, and by that become subject to investment from growing ethical funds.

Porter & Kramer (2006) discusses similar reasons but argue that the most valid reason is the moral responsibility that corporations do have towards the society, see Figure 1. This includes the corporate obligation to strive for fair action towards stakeholders, environment and societies in every aspect of the business behavior. There are three more arguments discussed by the same author: Need to keep and develop stronger legitimacy, avoidance of economic sub-optimization, development of reputation and PR.



Figure 1. Triple bottom line by Elkington (1998) (picture new leaf llc.).

The legitimacy can be strengthen by involvement in locally important projects and cooperation and communication with stakeholders such as environmental non-government organizations, ENGO's, on local levels, however the CSR is not a defensive mechanism against stakeholders, the own motives for value creation still need to take place in the corporate actions. Avoidance of economic sub-optimization, a short-thinking economic behavior can in the longer run be expensive if faulty decisions are made and the company needs to repair older mistakes such as bad investments.

The last reason for CSR presented by Porter (2006) is the reputational one, this is somewhat linked to the legitimacy. It can be hard to gain better PR or corporate reputation by only conducting CSR, however, the negative reputation caused by lack of responsibility can be devastating for the company especially if it concerns social or environmental responsibility (Du *et al.*, 2010).

2.2 The marketing mix

The company means for achieving competitiveness within marketing are often referred to as the marketing mix (Kotler *et al.*, 2013). The classic model of a marketing mix is the 4P-model that is used to define where, in terms of marketing, a product is placed on a market (*ibid.*).

The four P's stands for Product, Price, Promotion, Place and are all focused on the actual selling of a product.

2.2.1 The 4P model

According to Kotler *et al.*, (2013):

Product:

The product refers to the item or service that is sold in order to satisfy the customer needs. A product can be *tangible*, have the shape and form of an actual product, or be *intangible*, i.e. in case of a service or experience. Typical attributes of a product that marketers have to decide are; *design* – the quality and feature of the product. *Branding, Packaging and Labeling, Warranties and Complementary services*.

Price:

The price of a product refers to the amount of money a customer is paying for a certain product. The price is in direct relation to the customer perceived value, where the perceived value determines how much the customer is willing to pay for the product. The price includes both monetary and psychological aspects of the sacrifice, e.g. time or effort, a customer are willing to make in order to acquire a certain product. The total consumer cost includes these different aspects and combined they make the price of a product. The marketer needs to take in to account aspects of *Price tactics, Payment terms and methods, Price-setting and Possible discounts*.

Place:

Refers to where the consumer can acquire the product, it can be a physical location e.g. a store, but it can also be a catalogue or a distribution channel that is used to reach markets. A place can also be a virtual place such as a website. All these examples refer to provide the customer convenient access to the products. In this case the marketer needs to consider the *Location, Market coverage, Inventory, distribution strategies, Transport and Logistics*.

Promotion:

The promotion refers to the marketing and communication that is used to increase customer awareness and make offers in order to raise interest among potential customers. This includes advertising and sales promotion. The marketer needs to take in to account *Message strategy and frequency, Communication channels, the balance of PR, Sales promotion and Direct marketing/sales*.

2.2.2 The 4C model

The former marketing director of International paper, Bob Lauterborn (1990) gives critique to the 4P's for being outdated and to product oriented with little regard to the consumer. He formulated another model, 4C that he claims is more consumers oriented with strive to cooperate and communicate with consumers to fulfill their needs rather then selling them products by bulk (*ibid.*). The 4C-model consists of Consumer needs, Cost, Communication and Convenience.

Consumer needs:

In order for the company to offer what the consumer specifically wants, there is a need to study consumer behavior to achieve the understanding needed to attract the consumers. This

also requires cooperation with consumers in order to succeed and really fulfill the consumer needs.

Cost:

In Lauterborn's model (1990) the cost includes more than the price of the product. The total cost of ownership refers to cost of conscience and time in acquiring the product or service. It also includes costs that are harder to measure such as cost of guilt for or for not consuming and the cost for not choosing the products from another supplier.

Communication:

Instead of *promotion* that Lauterborn (1990) argues have undertones of consumer manipulation, he uses the term communication. He argues that communication refers to dialogue on equal terms between consumers and suppliers. This is done in order to achieve the understanding needed to fulfill the actual consumer need. Communication can still include advertising through various channels, PR and direct selling but the goal is to fulfill a need rather than selling a product.

Convenience:

In order to fulfill consumer needs it is important to understand how and where consumers are shopping. In this era of phone applications and Internet consumers can go basically anywhere to satisfy their wants and needs. Marketers do need to understand how, when and where the consumers prefers to buy in order to be there and offer ease and convenient information about products and where to buy them (Lauterborn, 1990).

2.3 Communication

All communication is due to the need for spreading of information and knowledge. It's a sort of social interaction where information gets transported and distributed between people (Belz & Peattie, 2012). Communication isn't just spoken words or written text but all the signals sent which include body language, behavior, or even lack of behavior. The only way for companies to influence the public relations and the general opinion about itself is through some sort of communication (*ibid.*). In order to increase the effectiveness of communication the process can and should be studied to achieve better understanding of how to best reach the communication goals (Fiske, 1990). Sustainability communication has not been studied enough and according to Kim (2017) and Keskitalo & Liljenfeldt (2014) its necessary to do so in order for companies to spread the desired message about sustainability work.

2.3.1 *The communication process*

Back in 1949 Shannon & Weaver described the communication process and created a model that still today is used as a simple yet schematic model on the different phases of communication. The model consists of a sender and transmitter that sends encoded messages through a communication channel to a receiver where the messages gets decoded and interpreted by the receiver. On the way from the transmitter to the receiver the messages gets exposed for *noise* that may disturb the message and affect the interpreting at the receiver. The last phase of the communication process is the feedback phase where the receiver gives feedback of some sort to the transmitter, the feedback can consist of a return message or any kind of reaction which lets the transmitter know that the message has been received (Shannon & Weaver, 1949). Figure 2 shows a schematic picture of both the one-way and the two-way communication.

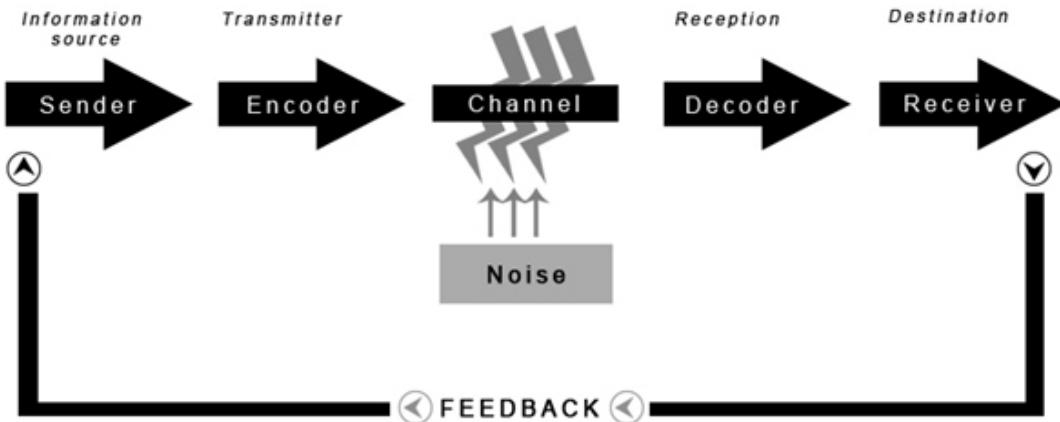


Figure 2. The Communication model from Shannon & Weaver (1949, pp. 3).

2.3.2 One-way communication

As the name implies, in one-way communication messages are only going one way e.g. from the sender to the receiver without any answer, response or feedback from the receiver. The message can still be affected by noise with the risk of changes in the message so that the original intention with the message doesn't reach the receiver. Since the communication is a one-way only the sender has no opportunity to see the results of the messages, meaning that there's little chance for the sender to evaluate and improve the communication, typical examples of one-way communication can be advertisements (Nowak & Wärneryd, 2001).

2.3.3 Two-way communication

The two-way communication on the other hand admits messages to travel both directions and by doing so this process gives the sender opportunity to control the outcome. This type of communication is more like a continuous conversation where both the sender and receiver takes part and can contribute which leads to, hopefully, the reaching of consensus (Nitsch, 1998). The sender can control how the message has been interpreted by simply asking the receiver to repeat the message or to observe the reactions created when the receiver gets the message (*ibid.*). This gives the sender opportunity to adjust and improve the next message so that the outcome becomes better and gives the effect the sender wished for. The biggest difference between one-way and two-way communication is that while the one-way aims to transport a message between sender and receiver, the two-way aims to create consensus and greater understanding between two parts by conversation (Fiske, 1990; Häggqvist *et al.* 2014). According to Belz & Peattie (2012) the two-way communication is more suitable than the one-way when a company wants to communicate with stakeholders regarding sustainability.

2.4 Perceived value

The value perceived by customers can be described as the difference between the cost of acquiring the product and the usefulness it provides for the user. Costs can include the obvious monetary price, but it also includes the time and energy spent by the customer on acquiring the product. The perceived value given by a product or a service is related to the direct usefulness it provides for the consumer in terms of solving a problem. If the product solves a big problem for the consumer the chance is high that the perceived value increases. The direct usefulness does not need to be the solving of a real problem, it can also be a personal or imagined cause of some sort. Examples of personal causes can be that a certain product increases the personal image in certain ways. Customers are trying to maximize the

value and the satisfaction of buying a product or service, and the satisfaction and perceived value are connected to the customer expectations prior to acquiring a product or service. If a business can exceed the customers expectations the total experience and the perceived value will increase, this can help to satisfy customers and lead to more business in the future (Kotler *et al.*, 2013).

The customer value can be increased if a company gains knowledge about what certain customers demand (Ravald & Grönroos, 1996). The preferences and need among customers differ due to personal values and so does also the perceived value of products. If a company does not have the knowledge about personalized demand the risk is high that the promoted values are not the ones that are the most valuable for customers. One way of adding value to a product is by offering services connected to the product. According to Kotler *et al.* (2013) these types of services does not necessarily need to be connected to one specific product, instead it can add value by giving the customer a certain image, which might be the case when consumers are buying forest certification.

2.5 Obstacles for effective collaboration in supply chains

In order to increase effectiveness within a supply chain the different links need to collaborate. One way of doing this is to make sure that information regarding the supply chain is spread across all of the participating links. Its also necessary for each link to care for the other links in order to increase the effectiveness of the whole supply chain (Chopra & Meindl, 2013).

The same authors describe five different obstacles that all have negative impact of increasing efficiency within supply chains:

- Incentive obstacles is the first one and is due when separate parts of the supply chain gains incentives to work in ways that doesn't lead to overall increase of effectiveness.
- The next category of obstacles is called informational flow that means that if the information about e.g. demand and supply doesn't reach all of the participating links the costs are likely to increase while the product availability can decrease.
- The third obstacle presented is called operational obstacles, meaning that actions carried out individually within the different links may damage the collaboration between the links.
- Price obstacles are the fourth category that might decrease collaboration. If pricing varies within the supply chain the flow of products and size of orders may vary and lead to uneven and irregular flows that would not be the case with a fixed pricing.
- The fifth and last obstacles described are behavioral meaning that traditions and business cultures may have negative impact on supply chain collaboration. All described obstacles can be avoided depending on how the supply chains are built and how well the information can be spread across and within the supply chain (Chopra & Meindl, 2013).

2.6 Theoretical framework

The theories presented above do all contribute to the theoretical framework of this thesis. The framework has been used to collect data by making the foundation of the questions asked during the interviews. The framework has also been used to analyze the data and therefore it is such a central part of this thesis. The aim and research questions of this thesis are seeking to identify the mains barriers to FSC-certification, models of communication does therefore have a big role in this framework. So do the marketing models since FSC is actually selling a service of forest certification. Table 1 gives a summary of the theories and also their connection to this thesis.

Table 1. Summary of the theories and their connection to this thesis

Summary	Connection
CSR, Corporate Social Responsibility refers to the extended responsibilities companies have to minimize negative impact on their surroundings caused by their business practise. CSR typically consist of environmental, social and economic responsibilities. Carroll (1991), Elkington (1998), Porter <i>et al.</i> (2006, 2011).	Increasing awareness about environmental issues and e.g. climate change has driven demand towards more sustainable business practices. In todays changing world its no longer possible to endlessly increase production without regard for other aspects. Its no longer possible to exclusively value profit and prices on products, but other values do need to take place in modern business. This is especially important for companies engaged in natural resources, such as forestry.
Marketing mix , In classic marketing one model often referred to is called 4P after: Price, Product, Place, Promotion. Which is used to conduct basic marketing strategies with a product dominant logic. In the service dominant logic the marketer assume a service dominant logic and 4C: consumer needs, cost, convenience, communication act as complement to 4P. Kotler <i>et al.</i> , (2013), Lauterborn (1990).	The market demand seems to be higher then what the companies can offer. This can be seen as if the companies are in the product dominant logic of 4P, while the market and consumers are in the service dominant logic of 4C. This will definitely lead us to the importance of communication which is even more necessary if the parties have different standing points and opinions.
Obstacles for a effective collaboration within a supply chain consist of five different factors that will need to work within the supply chain in order for it to be effective. Chopra & Meindl (2013).	The supply chain in this case is everything from the forest to the finished forest product. If the different links have different values and opinions – perhaps even different sized rings in the CSR-model, there will inevitable be unbalance in the overall supply chain.

Table 2. Continuation of Summary of the theories and their connection to this thesis

Communication is spreading of knowledge and information between human beings. The classic way of describing communication is the journey of a message from a sender via some sort of channel to a receiver. On the way the message can be object for distortion known as noise. The communication channel can be a dialogue, a letter or email for example. Belz & Peattie (2013); Kim (2017); Shannon & Weaver (1949); Nowak & Wärneryd (2001); Nitch (1991).	Communication is crucial in every relationship, business or other. The forest companies are using certification as one way of communicating to the market and stakeholders their stance in various questions. The communication between the forest companies and the certifiers does also need to work in order to receive a working relationship.
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These tables summarizes the theories used in this thesis and also explains the connection between the theories and this study.

3 Method

This chapter presents and argues for the choices of research method that have been used in this study.

3.1 Case study

To choose which study design that would be best suitable for this thesis we have to look back on the aim. The aim states that the purpose of this study is to examine the barriers for FSC-certification in Sweden. This means that the studied phenomenon is limited to a narrow field in a specific sector, which Eisenhardt (1989) and also Robson (2011) suggests as a definition for a case study design. In this specific area, there are not many studies done to examine the phenomenon. Yin (2013) states that a case study design is a good method to use when someone wants to create a larger understanding of a specific phenomenon by doing empirical studies in that special field. The case study design was chosen because that was found to be the best option to fulfill the aim of this study.

However, since case studies often involve people e.g. interviewees the ethical duty of the researcher needs to be considered. Apart from the obvious, to report results and the research process honestly, the risk of negative impact on the interviewees need to be considered, both during and after the research process.

3.1.1 *Strategy for data collection*

Methods are tools used to answer research questions, their suitability are dependent and connected to the questions asked. The aim for this study was to identify barriers for FSC-certification, which led to the choice of a qualitative method. With qualitative data it is possible to do a description of the specific phenomena that is studied (Christensen *et al.* 2010). That's so because of the nature of qualitative data, which in general is based on examples of a deeper, more descriptive kind than what would be the case with quantitative data. Another aspect of the qualitative data is that it requires fewer, but deeper, measurements than the quantitative strategy. In this case it is searched for the depth within the data rather than the actual amount of measurements (Fahy & Jobber, 2012).

The choice of a qualitative strategy was made for this study because of the aim of identifying the phenomenon causing forest owners to not choose FSC. This choice of strategy is supported by Bryman (2011) who claimed that the qualitative strategy is preferable when the aim is to explain or describe a certain phenomenon.

3.2 Choice of case and unit of analysis

3.2.1 *Unit of analysis*

Private forest owners in Sweden can get their forest certified by joining one of the many umbrella organizations offering certification. This is the most common way to get certified if you're a private forest owner, meaning that the options of choosing certifier is limited to which of the FSC / PEFC schemes that are offered in that specific region. In some regions both the FSC and PEFC are offered, but not everywhere. To grasp the phenomenon causing organizations and forest owners to choose other certifying schemes than FSC the unit of analysis in this study was decided to be Swedish umbrella organizations offering PEFC, the other forest certification existing on the Swedish market. This choice was made in order to

answer the aim with this thesis of identifying the barriers and to better visualize the reasons to why some forest owners in Sweden are using other kinds of certification than the FSC.

3.2.2 Respondents

There are different methods for choosing respondents to include in a study. Jacobsen (2002) explains the difference between probability sampling, where all respondents have the same probability to be included in the study, and non-probability sampling where respondents are carefully chosen by the researcher in order to best answer the aim of the study. To conduct a non-probability sampling, the researcher needs certain criteria for the included respondents in order to choose the most suitable respondents. The non-probability sampling was used in this study. This was due to the qualitative aim where the researcher sought for deeper understanding of the phenomenon causing forest owners to not use the FSC. To be able to choose the respondents it was needed to investigate the whole population of umbrella organizations who are using other certification schemes. Scanning the databases of FSC and the PEFC to identify umbrella organizations did this. After the umbrella organizations was identified possible respondents within each organization was contacted and asked to participate in this study. The CEO of each organization was initially contacted and asked to participate, in all cases but two they also did, in two cases the CEOs referred the participation to other persons within their organizations because of their deeper knowledge in this specific field. The two persons who was not the CEO had the position of Member manager respectively Sustainability manager.

The two certifying organizations of FSC and PEFC was also interviewed in order to create better understanding of the subject and to be able to visualize the potential challenges. Both CEOs from FSC and PEFC participated in this study, Table 3 presents the interviewees.

Table 3. Respondents included in this study

Name	Organization	Title	Date for interview	Date for validation	Type of Interview
Sture Karlsson	Mellanskog	CEO	April 24 2018	June 6	Telephone
Jonas Eriksson	Norra skogsägarna	Member manager	May 4 2018		Telephone
Olov Söderström	Norrskog	CEO	April 27 2018	April 29	Telephone
Fredrik Nilsson Marnefeldt	AB Karl Hedin	CEO-Sawmill	May 4 2018	May 28	Telephone
Tomas Rahm	Södra skogsägarna	Sustainability manager	May 3 2018	May 5	Telephone
Lena Dahl	FSC	CEO	May 22 2018	May 24	Telephone
Christina Lundgren	PEFC	CEO-National secretary	May 17 2018	May 21	Telephone

Table 3 presents the interviewees, their titles, the way they were interviewed and when the interview was validated.

3.3 Data collection

3.3.1 *Interviews*

The most suitable method to answer the research questions was considered to be a case study with qualitative approach. In order to gather the empirics needed seven semi-structured interviews were held. Since the geographical distance was large the choice was made to conduct the interviews over phone to save time and resources from expensive travels. Robson (2011) clarifies that there are some potential downsides when doing interviews over phone, for example it is hard to identify non-verbal signs such as body language and mimics presented by the interviewee. On the other hand it can be easier to ask questions and get constructive answers about so called hot topics over the phone without creating negative tension, the reason for this according to the authors is because the person leading the interview and the interviewees cannot see each other (Bryman & Bell, 2013). The fact that the interviewees were spread all over Sweden did help to make the decision of doing the interviews on telephone.

In order to assure quality the interviews were recorded with consent from the interviewees. This was done to enable transcription from the recorded material as one part of the validation process. The transcript was then sent out to the interviewees to give them opportunity to add comments or do changes to the transcription. A guide for the interviews was made with thematic topics from the theoretical framework, see Appendix 1. This simplified handling of the gathered data in that way that it was already sorted into a sort of rough themes which connected the data to the theories.

3.3.2 *Data analysis*

In order to analyze the data gathered from the interviews a thematic analysis was conducted. The thematic content analysis is a widely used analytic method for qualitative research that is used to identify, analyze and report patterns within the data (Braun & Clark, 2006). Given the diverse and complex nature of qualitative approaches the thematic analysis can be seen as a foundation in mastering the analysis of qualitative data (Holloway & Todres, 2003). Due to its theoretical freedom, this tool gives flexibility as well as potential of detailed and rich outcome, which makes it a suitable method for analyzing qualitative data such as interview transcripts (Braun & Clark, 2006). The same authors argue that the theoretical freedom of thematic analysis distinguish the method from other, such as grounded theory, discourse analysis or narrative analysis, and doesn't necessarily require the same level of detailed technological and theoretical knowledge of approaches like the grounded theory and discourse analysis does. The thematic analysis typically consist of six different phases, however those phases are not to be seen as steps in a linear process, the thematic analysis are more of a recursive process where the researcher move back and forth between the phases during the process (*ibid.*). The six phases stated by Braun & Clark (2006) are presented below.

Phase 1: Familiarizing yourself with the data

If the researcher collected the data, he or she may already have some prior knowledge and initial thoughts. Even if so, the researcher need to immerse in the data to fully grasp the content and the depth in the content. Active and repeated reading of the transcript typically does this, while the researcher at the same time is searching for patterns and meanings. For this study the data was listened to during transcription and then again during the writing of results and analyze.

Phase 2: Generating initial codes

The second phase is to start coding the data, which is not the same as creating themes, coding includes reading the data (again) and start sorting it in groups e.g. by highlighting different parts and so called value words. The thought with coding is to identify features of the data that may be of interest for the researcher. This phase started while transcribing, during the transcription the researcher highlighted sentences with different colors in an attempt to structure the whole dataset into embryos of themes.

Phase 3: Searching for themes

When the data have been coded and the researcher have a list of different codes, the search for themes begins. This starts when the researcher organizes the different codes into potential themes, the researcher usually starts to re-focus on a broader level and starts to analyze the data. The different codes are clustered together and themes are formed which then will be compared with the theories. This was done by collecting all of the data in one single document while starting to separate the different color markings and sorting them into initial themes.

Phase 4: Reviewing themes

This phase involves refinement of candidate themes. Once again the data is read in order to sort the material into patterns and later into defined themes. The next step in this phase is to consider the individual themes in relation to the data set and whether the meaning of the themes reflects the meanings in the whole data set. The initial themes were revised during this phase and through critical reading of the themes were some of them changed and spread to other themes.

Phase 5: Defining and naming themes

At this point the researcher have already made a satisfactory thematic map of the data, this phase is about refining and define the themes meaning identify the essence of the themes. What is each theme about? By the end of this phase its important that the researcher have well-defined versions of the different themes, one way of testing this is to try to describe the scope and content of each theme with just a couple of sentences. If this cannot be done, the refining needs to start over. This phase was actually not a big problem, the themes were well defined and the naming of them wasn't very hard since the data had been read over again numerous times.

Phase 6: Producing the report

The tasks of the last phase are to write-up the thematic analysis and convince the reader of the validity and merit of the analysis. This means that the researcher needs to provide more than just the data. Extracts and examples need to be embedded in order to tell a compelling story that goes beyond description of the data. This might have been the most difficult task during this study, the researcher cannot count the times he asked himself the question: "*how the heck do I make a compelling story out of forest certification...?*"

3.4 Ethical aspects

Ethical aspects are, and should be, regularly discussed in all fields of research, especially those where humans are involved in one way or the other. Ethics need to be considered and a plan of how to handle, possibly, ethical dilemmas need to include the stages before, during and after the study is finished. Kvæle & Brinkmann (2014) describes four different considerations which all have been included in this study.

Informed consent:

The participants and interviewees included in the study needs to be informed about the aim, goal, and other information regarding their participation. The participants will also need to have the opportunity of not participate, or whenever during the study, withdraw their participation.

Confidentiality:

Information should always be handled in a way that makes it possible for the participants to remain anonymous. The alternative is to inform the participants that their anonymity cannot be guaranteed, leaving them the option of withdrawal their participation.

Consequences:

The third consideration that needs to be accounted for is the potential consequences for the participants. Those need to be identified and cut down to a minimum, e.g. by conducting of risk analyses where the participants get to know the results.

Role of the researcher:

The fourth and last consideration is the researchers role. Given the researchers subjectivity, there is always a possibility of that somehow affects the researcher. The ethical compass is personal and can possibly interfere with the research leading to bias. This need to be considered in the planning, during and after the study is finished.

At this stage it is needed for the researcher to acknowledge his or hers own standing and values in relation to the method and design of the study. In this case the researcher does not subscribe to any view of qualitative research as a tool for giving voice to subjective opinions. The researcher doesn't either have bias towards any of the two certification schemes. Even though full objectivity due to human nature can never be fully guaranteed, efforts have been made in order to conduct this study and present it in a objective way from a standing point beside the two certifying organizations.

3.5 Quality assurance

3.5.1 Reliability

The quality assurance has a important role in order to achieve legitimacy in a study. One of the aspects that needs to be considered is the reliability, which is the value of the overall consistency in the gathered data, i.e., to which degree can the study be repeated with the same results (Bryman, 2011). In statistics and quantitative measurements the reliability shows how the researcher handles the risk of random errors within the data. High reliability is achieved when there are no random errors in the dataset and the same data can be collected again with the same results in a later measurement (Christensen *et al.* 2010).

In qualitative methods the collection of data can vary depending of who conducts the gathering and the interaction between the researcher and the interviewee. This fact has been widely discussed and is one of the critics towards qualitative methods (Yin, 2013). To increase legitimacy and avoid bias, the steps in a qualitative study need to be described in order to create transparency for the reader (Christensen *et al.* 2010). For this study the same interview guide has been used for all interviews in attempt to standardize the data collection, however, the data consists of the interviewee's personal and professional opinions at the time for the interview, and those opinions are not equal to objective facts (Yin, 2013). This needs to be, and have been, accounted for in the design of this study.

Another way of assuring quality is to tape the interviews and from the recording do a transcript. This is time consuming but assures a safe and sound handling of data and enables the later analysis. All interviews in this study have been recorded and transcript with the consent of the interviewees.

3.5.2 Validation

If a study is valid or not depends on the link between the research questions and the actual study, does the study investigate what was meant to? If it does, it has a strong validation, and if not, it lacks validation (Yin, 2013; Robson, 2011). To achieve strong validation in this study the aspects that Riege (2003) states as important for quality assurance of case studies have been considered. These aspects include:

- Oral validation of data, which have been conducted directly following the interviews.
- Copies of the transcript have been sent out to the interviewees to enable comments and potential changes in the transcript.
- Triangulation of information has been made during the literature review and prior to the choice of method.
- All sources used in this study have been stated in the list of publications.
- Delimitations for this study are defined and stated in the introduction.
- The university has been supervising and acted as opponents of this study during the whole process.
- A theoretical framework has been used for the analysis of data (Christensen *et al.* 2010).

The previous pages have described and motivated the method used in this study, the next chapter will give a background the empirical part of this thesis.

4 Background for the empirical study

This chapter gives a background to this study. It shows different standardization systems and especially the two biggest organizations for forest certification.

4.1 Forest certification in Sweden

The most common way for any forestry company to show an active CSR- and sustainability work is to join one of the forest certifications available (Toppinen *et al.*, 2013). The two available certification systems in Sweden is the FSC and the PEFC which both started in the very end of the twentieth century as a response to a growing public demand for more sustainable business practices within forestry (Weslien *et al.*, 2009). A number of organizations did react to, what they saw as, a lack of national laws and a common global goal of sustainable forest management. The idea of forest certification grew fast and Sweden was one of the countries who did adapt the idea of voluntarily create business practices with further regards to sustainability then legislation demands (Cashore *et al.*, 2003; Overdevest, 2010). Both the fact that companies can take further responsibility the legislation demands, but also the fact that the certification organizations are third-party organization with objective by-standing roles helps the forest companies to increase legitimacy and create higher trustworthiness for their business (Toppinen *et al.*, 2013; Vlosky & Ozanne, 1998).

The forest owners who chooses to become certified need to manage his/her forest according to the requirements set by the certifier. This typically means to have an active forest management plan and follow the planned activities. The forestry standards differ somewhat between the two major certifiers in Sweden but the overall requirements that certified forest owners need to fulfill are about the same.

For private non-industrial forest owners the most common way to become certified is to join one of the existing umbrella organizations that offer certification, typically a forest owner association or processing company. Other ways for forest owners to become certified is by joining the certifier directly; industrial forest owners with large forest areas normally do this. When applying to become certified the forest owner volunteer to follow the standard set by the certifying organization, this typically include that the forest owner need to have an updated forestry management plan where the planned and conducted actions are documented. Other typical commitments is to put aside a certain percentage of the forest land for conservational matters, to only hire entrepreneurs educated and certified by the same certifying organization (PEFC, 2018c ; FSC, 2018e). In Sweden there are about 15,8 million ha PEFC-certified forests and almost 12 million ha FSC-certified forests (FSC, 2018d; PEFC, 2018) Table 4 below shows more data about the two certifying organizations in Sweden.

Table 4. Area and number of certified forests in Sweden in 2017

	Certified area, total ha	Certified industrial forest owners, ha	Certified small forest owners, ha	Number of certified small forest owners	Number of industrial forest owners
FSC	11 937 386	9 062 018	2 875 368	27 511	10
PEFC	15 815 694	10 177 998	5 637 696	45 290	6

Table 4 gives us the number of certified forest area by the two different certifying organizations in Sweden. The table does also show the number of certified forest owners by the two different organizations in Sweden for the year of 2017.

4.2 Forest Stewardship Council

The FSC, Forest Stewardship Council, origins from North America where environmental organizations, human rights organizations and forestry organizations in 1990 attended a meeting to discuss negative impacts from deforestation and other forms of unsustainable forest management. Three years later, in 1993, the first FSC meeting was held in Toronto, attended by organizations from 25 different countries. This was the start for FSC and the different organizations agreed to develop FSC into a market driven tool to enhance and promote methods for a globalized sustainable forest management. The original issues that FSC addressed was in many ways connected to tropical forestry and threats as deforestation, extinction of rare species and indigenous rights. (FSC, 2018c).

The FSC International headquarter are localized in Bonn, Germany and the FSC General Assembly which is the highest decision-making body of the FSC, gathers every third year. The general assembly is like the rest of FSC organized in three different chambers. The chambers are one economic, one social and the environmental where the three have equal weight in votes, however they do need to reach consensus between the three chambers in order to make a decision. Within the chambers the votes in the general assembly are weighted to give equal authority between the north- and southern hemisphere to ensure shared influence between different stakeholder groups and regions (FSC, 2018b).

The national FSC organizations are runned independent from the FSC International. However, the national FSC organizations share the same values and do work towards the same goals as the FSC international, all national FSC organizations do need to fulfill the ten basic principles about forestry that the international FSC have decided. FSC international states on their webpage (FSC, 2018e):

“Before a forest owner or manager can certify their forest, they must meet the ten FSC principles for responsible forest management. These rules apply to all forest types and are in place to ensure environmentally appropriate, socially beneficial, and economically viable forest management. The FSC 10 principles are presented below.”

1. The Organization shall comply with all applicable laws, regulations and nationally-ratified international treaties, conventions and agreements.

2. The Organization shall maintain or enhance the social and economic wellbeing of workers.
3. The Organization shall identify and uphold Indigenous Peoples' legal and customary rights of ownership, use and management of land, territories and resources affected by management activities.
4. The Organization shall contribute to maintaining or enhancing the social and economic wellbeing of local communities.
5. The Organization shall efficiently manage the range of multiple products and services of the Management Unit to maintain or enhance long term economic viability and the range of environmental and social benefits.
6. The Organization shall maintain, conserve and/or restore ecosystem services and environmental values of the Management Unit, and shall avoid, repair or mitigate negative environmental impacts.
7. The Organization shall have a management plan consistent with its policies and objectives and proportionate to scale, intensity and risks of its management activities. The management plan shall be implemented and kept up to date based on monitoring information in order to promote adaptive management. The associated planning and procedural documentation shall be sufficient to guide staff, inform affected stakeholders and interested stakeholders and to justify management decisions.
8. The Organization shall demonstrate that, progress towards achieving the management objectives, the impacts of management activities and the condition of the Management Unit, are monitored and evaluated proportionate to the scale, intensity and risk of management activities, in order to implement adaptive management.
9. The Organization shall maintain and/or enhance the High Conservation Values in the Management Unit through applying the precautionary approach.
10. Management activities conducted by or for The Organization for the Management Unit shall be selected and implemented consistent with The Organization's economic, environmental and social policies and objectives and in compliance with the Principles and Criteria collectively" (FSC, 2018e).

By March 2018, the total area of FSC-certified forest land was just over 200 million ha spread over 85 different countries (FSC, 2018c).

4.2.1 FSC Sweden

The Swedish FSC organization was first formed in 1996 to create a version of the forest management standard to fit the Swedish conditions. The Swedish FSC is independent from other FSC organizations. The standard for the Swedish forest management certification originates from the international goals and values of FSC but are adjusted to fit the conditions for forestry in Sweden. This means that the Swedish FSC can adjust the standard for how FSC certified forests in Sweden are to be managed, but it needs to follow the international principles and the FSC International do need to approve of the standard in order for it to be valid. Besides the standard for forest management certification FSC Sweden also have a *controlled wood certification* for manufacturing companies who are using wood from both certified and uncertified sources in their production. There is also a chain-of-custody certification that regulates how to make certain that the supply chain of certified wood are valid and not mixed with other sources of raw material that are not certified (FSC, 2018b).

4.3 Programme for the Endorsement of Forest Certification

The PEFC, programme for the endorsement of forest certification, was first founded in 1999 to answer the need of a forest certification for small- and non-industrial forest owners. PEFC is contrary to the FSC organized in a “bottom-up” way where each national PEFC organization creates their own rules and standards depending on the conditions in that specific area, there is however a set of international benchmarks which every national forestry standard need to fulfill. Auld *et al.* (2008) claim that one reason to why the PEFC was created as alternative to the FSC is due to the governance within the different organizations. The initiative to create the PEFC came mostly from stakeholders within forestry who thought that the FSC didn’t fit their needs as a forestry certifier (*ibid.*).

The national members (or “National Governing Bodies”) are independent organizations that are established to implement and develop the PEFC within each country. There are also “International stakeholder members” that include NGO’s, industries and other stakeholders who are interested in PEFC principles (PEFC, 2018b).

The General Assembly, GA, is the highest decision making body of the PEFC. To the GA every national member and international stakeholder member are represented by one person each who do have the right to vote and present questions and material to the GA (PEFC, 2018b).

The PEFC is today the largest forestry certifier globally with a total of 313 million ha certified forests (PEFC, 2018d).

4.3.1 PEFC Sweden

The Swedish PEFC was formed in 2000. It’s a member organization where companies, stakeholders and other organizations with interests in sustainable forest management can become members. The Swedish PEFC organization is led by a board and a CEO and their aim is to provide certifying services to the members regarding forestry-, forest entrepreneurship (forest management businesses), and chain of custody certificates. Other services include marketing and spreading of information as well as representing the Swedish PEFC in the larger PEFC General Assembly.

Every organization that is interested in sustainable forest management can apply to become member in the Swedish PEFC. The members are divided into three groups:

Group 1, Forestry including transport of lumber between the source and industry.

Group 2, Companies with processing of forest raw material including distribution and sales of forestry related products to consumers.

Group 3, Organizations working for social, environmental and cultural causes with connection to sustainable forestry.

5 Results

This chapter presents the data gathered through the interviews with employees within the forest sector, and respondents from the certifying organizations. The chapter follows the same order as the interview guides that is presented in Appendix 1&2. The results are describing the respondent's thoughts and standing points about forest certification and FSC in particular. The results are also showing some of the quotes captured during the interviews.

5.1 Reasons for forest certification

The first questions during the interviews were formulated to achieve understanding about the reasons to why the respondents organizations have chosen to get certified. The questions were:

- “*How long have your organization been certified?*“ and
- “*What were the main reasons for you to get certified?*”

5.1.1 *Representatives from the forest sector*

The representatives from both the forest owner associations and the forest industry company AB Karl Hedin answered that the main reason for them to get certified was because of the third-party proof of quality the certification gives. All respondents claims that they are striving to increase the three legs of sustainability within their organizations and that the certification both gives tools to work with to achieve this while at the same time increase legitimacy for their businesses. Other reasons for these organizations to become certified are the expected market demands on certified products. The vast majority of respondents state a belief that the importance of being able to offer certified forest products may increase in the future. The forest owner associations does also tell us that their members, the forest owners, are increasingly asking for certification, not just the manufacturing companies or the end consumers. The main reason however seem to be to use the certification as a tool to communicate the sustainability work that is conducted by the forestry companies, and at the same time receive frameworks to increase this work and strengthen legitimacy.

“The certification was one way for us to visualize the environmental work we do in the forests, it was a type of signal to the market. We did increase our work with environmental- and conservational matters in the early nineties and as a natural continuation to that did we join the certification in order to create a stronger signal to the market. It strengthens legitimacy when there is someone else who audits and can give a sort of testimony that we do follow the certification standard” (Personal message, Rahm, 2018).

The quote stated above clearly shows the market drivers of the forest certification systems.

Note the difference between actual market demands and expected demands, none of the respondents revealed any real “forcing” market demands for certification but there was described a belief that this might be the case in the future. Benefits towards competitors who are not certified and a strengthen legitimacy for the respondents sustainability work was the two major reasons for the organizations to get certified.

5.1.2 Representatives from certifiers

The certifiers claim that it's both a philanthropic reason for forest owners to certify their forest, but there's also a monetary value because of the premium they get when they sell certified round wood. Besides this do the representatives from the certifiers tell us that the certification gives a framework for the forest owners that they can work from to increase their sustainable forest management. At the same time can the forest owners feel a form of prouddness from the acknowledgement they get and the common good that the sustainable forest management creates.

“In most cases the forest owner do get a premium, a better price, on their certified round wood, I do also believe that the forest owners who knows about the certification sees it as a sort of acknowledgement, one can feel proud about the good job and at the same time appreciate the acknowledgement. The forest owner does also get a form of framework for further development of their forest management, both regarding environment but also regarding economic and social aspects of the forestry” (Personal message, Lundgren, 2018).

“There are a couple of main reasons that I have heard of and that are recurring. One is connected to the fact that there's someone who contacts the forest owner and tells about certification and is interested in purchasing certified round wood. Someone who offers the forest owner a membership in any certification umbrella, and where there is a demand on certified round wood. There are both forest owners associations who offers certification, but also group certificates and forestry industry companies that do this” (Personal message, Dahl, 2018).

5.2 Benefits of forest certification

The question was asked in order to understand which benefits the forest certification gives the respondents during the time for this study. The question was simply formulated as:

- “Which benefits do you see with forest certification today?”

5.2.1 Representatives from the forest sector

To work in a sustainable manner seems obvious for the respondents in this study according to their answers to this question. All respondents are describing the certification scheme as a framework for them to use in order to create sustainable business models. Using the certification allows them to organize the work within their own company and keep track of what is actually a sustainable business practice and what is not. The next benefit is that the certificate is a transparent framework that lets all stakeholders look in to what the companies are doing. The respondents also describes that certification increases the legitimacy of their work as described in the previous question and that this facts is one of the key benefits with forest certification today.

“The benefits of forest certification consist of two parts. The first is the market benefits, in many business discussions today it is seen as a form of hygiene factor that you are certified. It does differ a bit between the markets for sawn wood and market pulp but its still a bottom line requirement” (Personal message, Rahm, 2018).

This quote shows the importance of certification for the companies who are marketing forests products.

“The second part is connected to the forest policy. The Swedish forest management law from 1993-94 equated the value of environment and production in forestry and the forest owners received freedom with responsibilities. The certification has been one way to both achieve but also visualize what the balance between environment and production actually is. The certification is a good and strong driver and I don’t think that we had come as far as we have done in terms of conservational matters without it. The certification has for sure pushed everything in terms of environmental work in the right direction, that’s my opinion” (Personal message, Rahm, 2018).

Meaning that forest certification does actually help to increase environmental work while at the same time being a good marketing strategy.

5.2.2 Representatives from the certifiers

The certifiers says that in the long run will forest certification contribute to increased legitimacy for the forest sector due to the fact that the certification gives a sort of quality proof for business practices within forestry. The more forest owners who carries that quality proof the easier it gets to show the public and the society in general that the forest owner do take a common responsibility to increase and develop the sustainable forest management. There's also benefits that are easier to grasp such as price premiums on the certified round wood and a willingness from the forest owner to contribute to a sustainable forest management.

“There has been offers of some kind of prize premium on certified round wood from quite a few buyers throughout the time I have worked with forest certification. The premium is not big but it is still there and acts as a benefit for the forest owners. Then I've found that when I've talked to forest owners, they usually have a long-term perspective on their forest ownership, they want their forests to sometime be inherited by their children. And by that can I see a connection to sustainable use, I think that there is both a practical economic explanation and some kind of emotional link. If you do own a forest, you probably have some kind of emotional connection to your land ownership, and because of that would you want to do something good with it, it's simply human” (Personal message, Dahl, 2018).

5.3 Downsides with forest certification

In an attempt to receive any negative sides about forest certification this question was asked to every respondent.

- “Do you see any downsides with forest certification?”

5.3.1 Representatives from the forest sector

Downsides presented by the respondents consist of both the bureaucracy connected to the certification and the fact that it can be expensive. To be certified, no matter which certifying scheme one choose there will be some sort of bureaucracy involved. The companies do need to make sure that they are up to date with the latest version of standards and that they document their work according to the standard and the rules that comes with it.

The time-consuming and sometimes costly audits required by the certification schemes are also described as a downside to forest certification. One of the respondents states that a quick

calculation of the time needed to maintain and fulfill the requirements in the standards are increasing by 30% every third year.

“The workload is increasing. For every third year the number of days needed to fulfill the certification are increasing by 30%, that’s my own quick calculation, and this of course leads to increasing costs” (Personal message, Marnefeldt, 2018).

Meaning that the indirect costs to be certified are also increasing over time.

Potential downsides, meaning that they are not existing today but can come to exist in the future were also described. Depending on how the standards within the certification develop some of the respondent does see risks of upcoming downsides. One respondent states the importance of solid connection between reality and the requirements in the standard, he describes a scenario that if the requirements goes out of hand in one way or the other so that the connection between the requirements in the standard and the people performing the work in the forest gets lost, the legitimacy for the certification may decrease.

“There has to be a distinct need between what you do and the effect it causes, there need to be some sort of causality between the requirements and the utility with them” (Personal message, Söderström, 2018).

Meaning that the respondent sees a risk of lower thrust for certification among forest owners if the standards develop to far from what is possible to handle within a sustainable forest management for non-industrial forest owners.

5.3.2 Representatives from the certifiers

The main downsides with forest certification that the certifiers see are the time and effort the forest owners need to put in to become certified. The certification requires quite much time to study and understand and this time will lead to indirect costs for the forest owners. Other downsides that's described by the certifiers is the potential development of the certification systems, especially if there wasn't two different systems competing with each other. If the certification systems would develop and put further requirements on the forest owners this might lead to increasing costs for the forest owners to become and be certified. That's a potential downside due to the uncertainty of the future development according to the certifiers.

“It depends on what you want with your forest, it is a commitment to become certified and it can be perceived as a disadvantage if you simply do not want to make that commitment. In a broader perspective, one might think that certification can be very much to take in and we do actually have two certification-systems in Sweden. I think it is important to weigh the dynamics between the market and the diversity in the forest, perhaps the certification can get too much impact and that might lead you to become uncritical to the systems. Should we only have one system could we end up in a dominance / monopoly situation, it could mean getting someone who is quite far from the practical forest to control the system, and we end up with a certification that has lost its connection to reality, I do not think that PEFC is such a system, but the aspect of what I just mentioned can be a disadvantage, I’m not just thinking about forestry, this applies to all types of certifications, even in other industries. It is about communication to consumers, but what if the consumer is for example in Holland and not at all aware of Swedish forestry and our conditions, this means there are

dangers built-in to the system. Partly if we do not have a competitive situation on the market for certification, or if you do not understand what the certification is about. This may not be at forest owner level, I'm more thinking about decision makers and major actors within forestry.” (personal message, Lundgren, 2018).

“The systems can be perceived as complicated and there’s also some costs to be certified, although its indirect costs for smaller landowners, there are still costs of being certified and maintain compliance with the rules and so on. One can see that as a disadvantage, but I can not see any direct practical disadvantages. I can imagine that some people find that they are stuck in a way if you join an umbrella, that you are expected to sell lumber exclusively to those who have the umbrella, I think one can experience that they are locked in a way. I can definitely imagine the trouble that many people feel, maybe you want to decide on your own how to manage your forest or do something that you want with it. There is actually a lot to do for FSC, both to simplify the rules, but also to develop better information and educational materials, brochures or web courses etc” (personal message, Dahl, 2018).

5.4 Major differences between the two forestry standards

This question was asked in order to gain knowledge about the respondents understanding of how the two forestry standards differ. This question is important to be able to identify the major obstacles and barriers for forest owners to join either one of the certification schemes.

- “*Do you see any remarkable differences between the two certifying systems?”*

5.4.1 Representatives from the forest sector

The two differences presented by all of the respondents are connected to property rights. They all claim that the FSC has stricter rules about consideration for reindeer herding and key-habitats of rare and endangered species. The respondents are describing uncertainty about the key-habitats, and that the future development may lead to economic losses for forest owners. The difference between the two standards regarding key-habitats is according to the respondents that the FSC has a bit stricter rules for their conservation. PEFC on the other hand does also have strict rules about conservation of key-habitats, actually as strict as the FSC but with the difference of a small “emergency exit” where the forest owner can get a permission from the PEFC to harvest if he or she doesn’t get compensated by the state for the conservation of key-habitats that exceeds 5% of the forest owners total land area.

“One important thing which we see as a potential problem is the connection between key-habitats and the certification where you can get “lock-in effects” without any compensation for the forest owner. Its one thing to have voluntarily deposits of forest but if that increases because you have key-habitats on your land there is a big economic loss for the forest owner. That’s one of the reasons to why we did chose PEFC – because within PEFC there is still a way to harvest in key-habitats through permission from the PEFC-board, and still be able to mark the lumber as PEFC-certified, this is not possible within the FSC” (personal message, Marnefeldt, 2018).

Meaning that the differences regarding key-habitats in the PEFC and FSC standards may cause different outcomes for forest owners. According to the respondent do the FSC have stricter rules about key-habitats and that may lead to greater economic losses for the forest

owners. In the longer run this will also effect the forest industries that are buying certified round wood due to the simple fact that there is less certified round wood available.

One of the respondents differs from the rest in his opinion about the key-habitats. He claims that there is actually no big difference between the two certifications when it comes to key-habitats. The only difference is that the PEFC do have this “emergency exit” as he calls it, where forest owners can get a permission by the PEFC-board to harvest inside a key-habitat if the forest owner doesn’t get compensated by the state within two years from reporting the issue:

“One can discuss the key-habitats, if you read the two standards you will find that in FSC all key-habitats shall be exempted from harvesting. But PEFC does also write that key-habitats shall be exempted, with the small difference that there’s a small emergency exit if there’s more than 5% key-habitats and the forest owner doesn’t get compensated by the government he or she can get permission to harvest. In the reality it has only been a few cases like that in the last couple of years so I would say that there’s very little difference between the two systems, it’s only that small emergency exit in the PEFC-system which is not present in the FSC-system. Despite this, the main opinion is that this question differs considerable between the two systems, but if you just objectively read what the standards are actually saying you will find that PEFC is almost as strict and that you are to exempt the key-habitats within the PEFC as well as in the FSC” (personal message, Rahm, 2018).

Meaning that this respondents opinion is that there’s not much real difference between the two systems in the question of key-habitats.

Other differences described are the way that the two standards are built. The PEFC has its origin in family forestry while FSC origins and was built mainly for large-scale forestry. This gives some differences between the two that forest owners will have to adjust to. One difference described is that PEFC has the forest management plan as a central part of the requirements, PEFC does also certify forest entrepreneurs and requires the forest owners to only hire certified entrepreneurs for their forest management. FSC on the other hand seems, according to respondents, to put more of the demands on the forest owner him-/her self or the umbrella organization. The respondents also mention the accreditation as a difference between the certification systems. According to the respondents do PEFC have a stronger auditing and accreditation process since they are using a third-party for this. The FSC on the other hand have a system were they do their own audits and accreditation that leads to weaker legitimacy according to the respondents.

One difference that continuously occurs among the respondents is the way decisions are made within the different certification organizations. Three of the respondents state a lack of balance between the different stakeholders within the FSC as a problem. They are describing a unequal situation during the negotiations within the FSC where the forest owners and organizations from the forest sector are the ones who are taking all the costs and the ones who are being limited by the standards. The reason for this they claim to be the structure of how the FSC are built, three chambers with equal strength in votes. The chamber of environmental and social stakeholders does not, according to the respondents, have to offer anything during the negotiations, however do they demand stronger and stronger requirements in the discussions that the forest sector will have to adapt to. The respondents are describing this

situation as unequal because of the ongoing win-lose situation where the forest sector is on the losing team.

“There is no balance or cost as I described, the one who is paying for the discussion is someone else then the one who is demanding it”. (personal message, Karlsson, 2018).

This quote refers to the situation the respondents claim to be unequal within the decision-making process of the FSC.

5.4.2 Representatives from the certifiers

The certifiers are describing some of the difference between the two systems such as organization, how they are built up, how they accredit their certificates, and the process of making and development of standards.

The PEFC claim to have a stronger connection to ISO and that they are applying the ISO-way of decision making meaning that consensus have priority, but in cases when consensus aren't reached there is a voting in order to move forward and make the decision. This procedure are helping to reduce stalling and ensures the decision making process to proceed according to PEFC.

Another difference is the way that PEFC and FSC accredit their certificates and processes. The PEFC are using external organizations to do the accreditation and the whole process is presented at a webpage for everyone to follow. The FSC has another way to accredit their work, they are using an integrated company, Accreditation Services International, (ASI), to run the accreditation process of the certifying bodies. The FSC does also have a transparent process that stakeholders can follow. Within the FSC can and are the accreditation companies members of the organization and the economic chamber, which makes them stakeholders to FSC according to the respondents.

“The accreditation process is different between the two systems, PEFC have international accreditation (in Sweden, Swedac, which is an authority), while FSC has a subsidiary ASI, which is managed through ISEAL (a global association for credible sustainability standards). We think that PEFC have a more independent accreditation. In PEFC, the certification companies can not be members or have economic interests in PEFC. In FSC, the accreditation organizatios are members of the economic chamber, one can discuss independence of that, how does that affect the influence in the economic chamber for the forest owners side? And how does it affect the forest companies? One can also discuss whether simplified regulation really is a strong driving force when accreditiation companies are members of the economic chamber” (personal message, Lundgren, 2018).

Interpreted as that PEFC do think that their way of running accreditation creates more trustworthiness and legitimacy then the way FSC are running their accreditation.

“I think that the factor that is most important when such a decision is to be taken is the knowledge and support from the round wood buyer, that is, the one approaching the forest owner and sells the certification. That can be a problem sometimes, for FSC anyway. I would say that PEFC has been better at spreading information to these people, in many cases there is also a closer link between PEFC and the forest

owner associations than we have at FSC. Sometimes it's also possible, sometimes wrongly and sometimes completely, that the PEFC system is easier to work with and that is the image that comes from the buyer and others to the private forest owner. It has been more true (complicated with FSC) than it is now and there will be even minor differences with the simplifications planned in the new standard. So it's both true but also a bit false that it's easier to work with PEFC, but it still sells in that way and that obviously affects the choice of systems.

The big differences are not what the standard looks like, it is instead how the systems are built and who has the power over the rules. Perhaps that's more of a philosophical issue that does not affect the forest owner on a daily basis, but it affects the support for the system and the credibility of the system in the community debate" (Personal message, Dahl, 2018).

Meaning that the personal link between the forest owner and the one offering the certification can have an effect when a decision of certification is to be made. And the organization of the systems may have a bigger role when choosing than the details in the standard does.

5.5 How do you communicate with FSC today?

The reason for this question is an attempt to identify the respondent's source of information regarding the FSC. At the same time it's a way to clarify how the communication works between the FSC and their potential new members.

- “How would you describe your communication with FSC?”

5.5.1 Representatives from the forest sector

All respondents who are not certified to FSC say that there is no actual contact between their organization and the FSC. They do however have the FSC Controlled Wood certificate but the communication is done strictly with the certifying bodies and not with FSC. The respondents claim that they get the information about FSC through other channels such as webpages, and by discussions and networks with other forestry companies.

The one exception is the respondent from Södra Skogsägarna who are actually certified by FSC, he does get information directly from FSC because of his work at the FSC board. He also mentions that FSC sends out letters to their members on a regular basis.

There were a couple more questions about the communication between the forestry organization and the FSC. But since the respondents claim that there is no contact at all, and that they never actually have had any contact with the FSC, those questions didn't get any relevant answers except the fact that there is no established contact between FSC and the forestry organizations in this study.

5.5.2 Representatives from the certifiers

The certifiers do have contact with their own members, they are using different channels to keep and maintain this contact. The FSC tells about their member letter that they send to every member on a regular basis about 6-8 times a year. Besides this do they maintain contact with both members and other stakeholders through their everyday work when stakeholders and forest owners contact FSC to ask about different things regarding their certification.

Besides the member letters are the annual member meeting one of the channels both FSC and PEFC uses to spread information and keep contact with their members and stakeholders.

- “Do you have any contact with “potential” members?”

This question was asked to the certifiers in order to better understand their marketing work and how they think and work to attract new members. The PEFC claims that they are participating in different fairs and exhibition in order to get in direct contact with forest owners. They mention ELMIA, a Swedish fair especially.

“Yes we have, for example we assist the umbrellas who certify forest owners, we provide them with information and tools. We have made information films and we have just developed a web education for forest inspectors. So we do a lot to assist in the spreading of information and of course can everyone reach our material directly from us as well. We would like to work more with marketing both towards forest owners but also towards the market, a marketing in both directions, we do some of this at a national level here from the office” (Personal message, Lundgren, 2018).

The FSC are saying that they aren't having any contact at all with potential members. They do however plan to increase this contact and are at the moment doing a market survey to pinpoint potential members and do have ambition to increase their marketing towards potential new members.

“Not with individual landowners, I can not say that. But we are currently conducting a survey of "important stakeholders", as organizations and there are absolutely Norra skogsägarna, Norrskog, Mellanskog included. Our goal is to contact representatives of forest owners associations that are not yet members, both to create a kind of dialogue but also to inform them about things and see what kind of changes they would need in order to become members.

For example, we will together with IKEA and Bergs Timber, one of IKEA's suppliers, hold seminars for private landowners down in Hultsfred where Bergs Timber has decided to create a new group certificate. We will inform about what FSC is in order to increase interest among potential certificate holders and team members. That type of contacts is important to create and maintain. It's something I would like to work more with, but we do have limited resources. In this particular case, I think it's a good idea and similar things have already been done between Södra and Tetra Pak when Södra wanted to recruit members to their group certificate.” (Personal message, Dahl, 2018).

5.6 Do you believe that your organization will join FSC in the future?

This question was asked to the respondents who represent those organizations not yet certified by the FSC. The reason for this, somewhat cocky, question was to identify feelings and opinions for and against the FSC in order to distinguish them from objectivity.

- “Do you believe that your organization will join the FSC in the future?”

5.6.1 Representatives from the forest sector

The combined answers from the forest sector are not a clear yes or no, instead the answer is: “it depends”. The future developments of the FSC system are said to be crucial if the organizations interviewed in this study are to join. No one of the respondents did answer no on this question but two of them presented other options:

“I do hope that in the future there will be a ISO standard for forestry which one can fill with your own work methods and that such a standard will be such a strong proof of quality without be named PEFC or FSC” (personal message, Marnefeldt, 2018).

Meaning that a new start in the work with forest certification might lead to a new leap forward in the discussions.

“I am more interested in going the opposite direction, to get PEFC to become a standard further accepted, e.g. by IKEA. I do not believe in just one dominating organization when it comes to forest certification” (personal message, Söderström, 2018).

This quote is interpreted as that it would not be the best way forward for anyone if there were a monopoly situation on the market for forest certifications. The respondent says that sound competition is a better way and that at least two certification system should be available on the market.

“I do hope so, but at the moment it feels really distant because of the internal problems within the FSC. They haven’t been able to update their standard and the one they do have is outdated and running on far overtime. For us the question is not about how to manage the forests because in that question there is very little difference between the systems, the questions is rather about the key-habitats, control issues in governance and the reindeer question. Those are the factors preventing us from being able to join the FSC and they have been accentuated with the inventory by Swedish Forest Agency. We see risks of getting in a situation where you have to promise something without knowing what, that’s an issue when you don’t own the definition (of key-habitats). It is not the FSC who has the definition of key-habitats, it is someone else who owns that term. For us it is like saying “I promise to always agree and vote with you, no matter what your opinion or intentions” that’s how it actually works in these questions” (personal message, Karlsson, 2018).

Interpreted as it’s the uncertainty of future development within the certification system that is preventing them to join the FSC.

5.6.2 Representatives from the certifiers

The certifiers were asked the question:

- *“Do you believe that the FSC and the PEFC will approach each other and maybe even merge in the future?”*

None of the certifying organizations do believe that the two systems will merge into one in the future, they actually think its good to have two competing systems and that it may lead to a broader overall sustainability work within forestry. The differences in how the systems are

built may be two big in order to merge the two systems. They have already approached each other and their standards have become more and more similar since the start of the two.

"It depends on what our respective members and organizations, i.e. what the stakeholders want. Maybe I'm not the best to answer to this, but I think that the stakeholders want two systems that can work in parallel and at the same time. Maybe you can turn things in a few different ways. The industry companies do want it to work to be double-certified. After all, it has been tried to approach each other, both national and international, for example, there has been a forest-dove document since the 90's sometime that did not turn out well unfortunately, it was an attempt to achieve mutual recognition, but it did not work. How it will be in the future, I do not know" (Personal message, Lundgren, 2018).

"In one way, the systems have already done that because the standards are so similar right now, but I'm hesitant to ever merge the two. I know there have been discussions about it for a long time now, about mutual recognition etc. but it feels like there are too many political things in the way there. You could still find solutions where you could make these differences so that they do not complicate things unnecessarily, the system on the ground could still be quite the same. It already feels like there are so many people working like that, many of the certification companies e.g. are accredited for both and basically do an audit but write two reports. So you have almost fully integrated the systems already. It's not in the practical day to day work that the differences are present, I think its somewhere else. Sweden is a bit special in that way, there are other countries where the differences are much greater in terms of forestry rules between the different systems, in central Europe, for example" (Personal message, Dahl, 2018).

6 Analysis

This chapter presents the analysis that has been done to extract the essence of every interview conducted for this study. This chapter follows the same structure as the themes identified.

The analysis was conducted as a thematic one where all of the data collected through the interviews were transcribed, listened to and coded as a beginning of the analysis. The coding was conducted by simply highlighting sentences and quotes in different colors in an attempt to sort the dataset. The codes were then clustered to each other and the birth of initial themes was made. The initial themes were then refined and codes that didn't fit in were moved to different themes, the data was read and listened to again to pinpoint the meaning of every code and to sort them again in different themes as described in the method chapter.

The by far most overall yet distinct theme was CSR, corporate social responsibility. This theme is the one that actually frames the results and all of the respondents answers to the interview questions. The results contains all of the three parts included in CSR; the economic, social and environmental aspects of business practice, and all of the respondents have touched these aspects in one way or the other during the interviews. They have however touched them in different ways depending on which of the economic-, social-, or environmental circle they are actually standing in. It also seems to be different sizes on these three circles depending on who one talk to, the product dominant logic for example widens the economic circle while the service dominant logic in a philanthropic way widens the environmental circle. Example of this is the forest sector who states market share as a benefit with certification while the certifiers states environmental and social values as benefits. The phenomenon of widening only one of the circles seem to create shadows which are cast over the other two circles causing unnecessary tension and parallel discourses.

Within the results there was two other themes identified, these are; the factual challenges and the perceived challenges of certification, which also connects to CSR. The aim with this thesis is to identify the main barriers to FSC for private forest owners, and while looking at the results one can see that there are both factual challenges present as well as perceived or even possible challenges within the data. The three rings of CSR acts like a framework for the results in this thesis, key-habitats, governance and care for the surroundings are present throughout the results and also in the CSR-model below. However, are the three rings really equal in size and weight?

6.1 Corporate social responsibility

As Elkington (1998) stated, CSR consist of three legs that all need to have equal length in a sustainable business practice. The main reasons for the companies in this study to become certified were to show stakeholders an active sustainability work. Its described by the respondents as both a voluntarily work to do what is best for the environment, social and economic matters. It is also described as a strategic work where the goal is to place the own company in a field where the legitimacy for their business strengthens by the third-party certifier.

The environmental part of CSR gets fulfilled when the companies are following the standards that hold a set of conservational requirements, which leads to environmental improvements. The respondents claim that this is one of the reasons and also benefits gained when joining the certification.

Social part of CSR does also get fulfilled when following the standards. Both within the company due to the framework for improvements the certification gives and the fact that its connected to the ISO 14000 standard. The social benefits outside the company consists of both direct environmental values but also that it creates opportunities for work that benefits everyone from the employee to the society at large.

The economic part gets fulfilled because of the market demand that gives further reasons for the companies to join the certification. Many of the respondents claim that these market demands acted as a driver for them to actually get certified. Some of the markets where the respondents are present do require the companies to be certified in order to sell their products. The certification is a classic hygiene factor for the companies operating on those markets. This gives a direct benefit of stronger competitiveness for the certified companies which can be seen as both a direct and indirect benefit and acts as a reason to be certified. Porter & Kramer (2006) does state the own value creation as important reason for a company to work with CSR. They do also state that CSR cannot be a responsive action, a sort of defense against stakeholders and the public but instead the willingness for CSR-work does need to come from inside the company as a way to increase value creation (*ibid.*).

This can be seen as existing awareness among the companies about the significant value of conducting and showing an active sustainability work. And that doing so might lead to stronger competitiveness on their respective markets.

Even if the results are showing that both the companies from the forest sector and the certifiers do share a similar view of the importance of CSR does the reasons for why its important to become certified differ. The forest owner associations are highlighting market demands and the certification as a tool for communication as strong factors to become certified. The certifiers on the other hand are highlighting philanthropy and a form of proudness for the forest owner association to do what is “right” for everyone.

One of these reasons doesn't necessarily need to exclude the other, however one cannot deny that this difference is an interesting observation. This gives indications of two different perspectives that may lead to different views of how one can look at and work with CSR and sustainability. The marketing mix can definitely help to analyze this on another level. When the companies are talking about market demands as a strong factor to become certified, they are actually talking in a 4P-discourse. They are expressing needs to achieve competitiveness through marketing, and the marketing and communication in this case is the certification (Kotler *et al.*, 2013). This way of expressing factors for and benefits of certification clearly shows on a 4P-vision and a product dominant logic where the actual selling of a product is the center-point of discussion.

The certifiers who are expressing philanthropy and common good in a more explicit way seem to have the 4C-model as their starting point of discussion. The 4C came as a critic to the 4P and is more about filling stakeholders need then selling products (Lauterborn, 1990). The service dominant logic of 4C shows the certifiers view that forest certification is not only a marketing tool but a philanthropic way of achieving sustainable business practices which is beneficial for environmental and social aspects.

6.2 Factual challenges with certification

Challenges commonly discussed during the interviews in this study are the aspect of time required to live up to the certification. No matter which certification scheme one apply for there will always be some sort of bureaucracy connected. This requires time and effort from the forest companies and forest owners which can be discussed. Does the time required to live up to the certification really pay off for the forest owner? Or is the perceived value of certification lower than the amount of time, effort and in the end, money it costs to become and be certified? The respondents from both the forest sector and the certifiers all claim that the time needed for a forest owner to be certified are a challenge.

Another factual challenge that can be seen in the result is the governance within the FSC, and some of the details within the FSC standard. The respondents from the forestry sector mention the key-habitats as a challenge to enroll to FSC. With the current FSC-standard the rules for deposition of key-habitats may lead to economic loss for the forest owner, the small but existing “emergency exit” that’s present within the PEFC-standard gives some relief to that. Even though there have been only a handful of cases where the emergency exit actually has been used during the last couple of years. Shannon & Weaver (1949) describes noise as anything that disturbs, distorts or changes a message so that the receiver interpret something else then what the sender want. In this study there is some noise present, especially in the case of key-habitats where one respondent do have a totally different opinion than the others. There seem to be some noise amplifying the understanding that the FSC is much more strict in their requirements regarding the key-habitats. Since there’s different understanding between the different respondents, the message seems to have been different among the respondents. This can be due to noise in the communication according to Shannon & Weaver (1949).

According to Kotler *et al.* (2013) the perceived value of any product or service need to be greater than the cost in order for a customer to buy it. All of the respondents in this study represent organizations that do have forest certification. However, the vast majority of the respondents do have other forest certification than the FSC. This is not so strange – their participation in this study are due to the usage of other certifications than the FSC. Since they are using other certifications (PEFC) the value for these organizations to use FSC does obviously not exceed the cost to do so. Is this due to the emergency exit regarding the key-habitats, is that one difference so valued that forest owners chose PEFC instead of FSC? The cost can consist of both strict monetary value, which some of the respondents claim to be higher for FSC than PEFC, but it can also consist of other values such as attributes within the certification or some sort of image reason for the respondents to not choose FSC (*ibid.*). Ravid & Grönroos (1996) writes that if a company can learn about what and how their customers value products and services they can reach greater success in their marketing, which could be another sign of the parallel discourses that seem to be present in this case.

6.3 Perceived challenges to forest certification

The main challenge to FSC certification that is perceived by the forest sector is the uncertainty of the future development within the system. They claim to see risks where the FSC develop further from the reality for the forest owners. This uncertainty is perceived by the forest sector and could act as a barrier itself for small forest owners to join the FSC.

The respondents who don’t happen to work at the FSC board does all say that there is no actual communication between their organizations and the FSC. Instead they claim to get

information regarding the FSC from other organizations in their professional network through other occasion's then actual FSC gatherings. These occasions are said to be meetings with industry associations and meetings with other persons and organizations such as auditors. The auditors would in this case have the role that Kotler *et al.* (2013) call ambassadors, meaning that they are helping FSC to spread information as a regular part of their day to day work. The one respondent who actually work at the FSC board says that the FSC do send informational letter to their members on a regular basis, these letters do not reach other then actual existing members. According to Belz & Peattie (2012) the two-way communication is a better choice when the subject discussed is sustainability, this is due to the lower risk of misunderstandings, and at the same time the increase of understanding and the better way of reaching the desired effect this type of communication gives.

Without a strong connection and causality between the reality and the certification requirements the forest owners associations simply cannot feel safe investing in FSC. The unbalanced power-structure within the FSC is mentioned several times, the forest sector describes it as a never ending negotiation where there is very little to gain for them.

The supply chain of forestry products starts with the owner of a forest, he or she manage the forest in order to supply the society with ecosystem services as well as the industry with raw material to produce forest related products. The products are then to be sold to customers who value natural and climate-friendly products that are made out of forestry related material. However, if any of the links in the supply chain between the forest and the finished forest product malfunctions, the whole chain gets affected in a negative way (Chopra & Meindl, 2013). If the link of forest certification malfunctions the whole forest supply chain will suffer from a lack of certified raw material that will lead to the fact that there wont be enough certified products to satisfy the market demand.

Traces of the five different obstacles presented by Chopra & Meindl (2013) can be found in the data gathered for this study.

- The first one is the incentives, meaning that if different parts of a supply chain have different incentives to operate in ways that doesn't maximize the common effectiveness the supply chain may suffer from sub optimization. The way that the certification systems are built can be seen as a sign of this, the different stakeholders do have different incentives for their participation within the certification, which can cause loss of effectiveness according to the authors.
- Informational flow is one of the obstacles that Chopra & Meindl (2013) writes about, if information doesn't reach all links within a supply chain the overall costs are likely to increase. Since the data shows lack of communication between the certifiers and the forest sector this obstacle seem to be valid in this case.
- The operational obstacle can also be connected to this case due to the different incentives among the different stakeholders within the certification systems, the results show that especially within the FSC can the incentives for participation differ between the members.
- The fourth obstacle is the price obstacle, respondents have mentioned the high costs of enrolling to and operate within a certification system, This fact cannot be foreseen

as the opinion among the respondents seem to be that the cost of joining the FSC is greater than the cost of joining PEFC.

- Chopra & Meindl (2013) discusses the behavioral obstacles which means that business culture and traditions may have negative impact on the overall collaboration. The data gathered for this study have shown previous schisms between stakeholders within the FSC and the forest sector, could that be one of the explanations to why the communication doesn't seem to work?

The certifiers do also see the potential development of the systems as a disadvantage for the forest owners. If the certification develops in a direction where further requirements are put on the forest owner there is a risk of further increment in costs for the forest owner, both in actual money but more definitely in time and effort required to fulfill the certification. To this should be added that both the forestry sector as well as the certifiers are talking about the PEFC as perceived as the easier system to work with. Whether that's true or not is up to each one to decide but the fact is still there that no one has mentioned the FSC as the easier system to work with.

The perceived challenges can probably be due to the lack of communication between the FSC and the forest sector, all respondent but the PEFC claims that there is no two-way communication at all between them and the FSC.

7 Discussion

This chapter puts the outcome of the results and the analysis in perspective to other studies and by that creates a sort of wider frame around the findings in this study.

To start this chapter we will first remind us of the aim that started this thesis:

“The demand for certified forest products are increasing. Forest Stewardship Council have more difficulties to attract private small forest owners than PEFC, Sweden's other certification organization. The aim with this study is to identify potential barriers to FSC for private small forest owners in Sweden.“

7.1 Result discussion

The purpose with this study was to identify potential barriers to FSC certification for small private forest owners in Sweden. As the result and analysis shows can the perspective differ depending on which organization the respondent do work for. The gap between FSC and the forest owners seem to be wide when it comes to mutual understanding for each other's situation and conditions. In the same question is the gap between PEFC and the forest owners narrower. McDermott (2011) found that distrust between the stakeholders caused the implementation of FSC in British Columbia to be a slow and infectious process, and that the way the FSC is built with its chambers creates politicized governance. Shades of that have been seen in this thesis too, the uncertainty of future development are a sign of that, distrust between the parties within the Swedish FSC could be one of the reasons to why implementation of FSC among private forest owners have not been so successful as wished for.

This can be seen from another perspective with the PEFC where the “emergency exit” which shows that PEFC do have bigger understanding for the economic loss that the private forest owners may suffer should he or she have key-habitats on the property. This fact alone may have lead to the situation present where FSC attracts large and industrial forest owners. Large and industrial forest owners may suffer less from the potential economic downside of key-habitats then a small private forest owner could. There are also geographical differences due to the fact that the northern part of Sweden does have a higher proportion of key-habitats then there is in the southern part where Södra operates and FSC is actually used by small private forest owners (personal message, Rahm, 2018).

Private forest owners become certified because of factual and perceived market demands. One reason to why they are not choosing FSC is due to the fact that they are seeing the economic aspect as more important then environmental aspects, just because key-habitats don't have the same clear value as real money. The same phenomenon is discussed by Polonsky (2011) where the suggestions are that marketers need to find new tools for showing the environmental value. This could be the way forward in this case too. The forest owners are standing in a position where the economic and monetary values are seen as the main focus. Within some stakeholders in the FSC do the environmental aspects have larger meaning then it does for the forest owners due to the fact that there are three rings and chambers within the FSC. The forest owners may have ambition about equality between the three rings, but there is no possibility to run a business that isn't economic viable. The environmental value doesn't seem to be as clearly visualized as the economic value, which may lead to uneven bottom lines (Polonsky, 2011; Elkington, 1998). How the future will look is unclear, maybe the

development will lead to the fact that the environment will receive its true value and get visualized among stakeholders and the public. Maybe by then can we rewrite the three rings and let them again be equal in size.

Perceived challenges about the FSC-certification are shown in the results through the concern and uncertainty for future development of the FSC. Connected is the next challenge: the communication about this concern, which is non-existing according to the results. Why aren't visions and future work and development within the FSC communicated? Both the forest sector respondents and the certifiers are well aware of this uncertainty and the problem it creates, communication could be a possible way forward to solve this problem. Keskitalo & Liljenfeldt (2014) showed that communication do play an important role for how well implementation of forest certification will be. The information-logistics as they call it have been a challenge for the respondents in this study, maybe can increased communication be helpful to even the differences in opinions between stakeholders. Häggqvist *et al.* (2014) examined how forest owners do get information and which sources they rely on. Maybe can the certifiers studied in this thesis increase their efficiency in communication by studying how forest owners are best reached.

7.2 Method discussion

A case study was used as the method in this study. This was necessary to fully grasp the phenomenon and frame the problems that lead private small forest owners to choose other certification schemes than the FSC. The data was gathered through qualitative interviews with representatives from the four biggest forest owner associations in Sweden. The interview guide was made with a semi-structured method in order to be able to adjust the interviews depending on how they went. The questions origins from the theories and do play a role to explain this phenomenon.

Given the aim of this thesis a case study with qualitative data is a reasonable choice of method according to Robson (2011). Other methods that could have been subject to use for this study is some kind of survey study, such method could have been both qualitative and quantitative. Such a study could maybe have given a wider data if a mixed-method was used, possibly could even direct contact with forest owners have given more aspects to the phenomenon addressed in this study. Despite this was the choice made to contact executive level representatives at the forest owner association, this was due to the wish of getting their view from a decision-making perspective.

The critic that has been towards case studies is that the results from them are hard to generalize on other cases due to their specific context. This study includes the major forest owner association in Sweden that organizes more private forest owners than any other Swedish forestry organization. This doesn't mean that the results from this study can be generalized in a way that makes them comparable to other studies, it's still a case study after all. As discussed in the method chapter is the distinction between a total investigation and a case study not that big for this thesis.

Telephone interviews have been used through all the data collection for this study. Other methods could have been to conduct face-to-face interviews. The benefits of face-to-face interviews were compared to the benefits given by conducting telephone interviews. The time and resource saving factors of the later was one reason to why this method was finally decided. The reason that contributed most the decision was the fact of the respondent's availability. During the booking of interviews it was clear that the representatives on

executive level do have tight schedules. No matter how helpful they all have been can the time- and availability factor not be foreseen, they simply did not have time to set up meetings to do interviews for student projects.

The quality assurances for the data have been handled by recording of the interviews and transcription of the recordings. The transcripts were then sent out to the respondents to give them the opportunity to adjust, add or remove material from their interviews. This has increased the quality of the dataset due to the respondent's possibility to really think through their answers. However, one cannot take every respondents thoughts and answers as objective fact, they are representatives of organizations and may feel expected to answer to questions in a certain way that goes hand in hand with the organizations vision. The decision to not anonymize the data was due to the respondent's position within each organization. Due to the executive level positions there was no reason to doubt that the respondents would say anything that wasn't according to the organizations visions or official standing point, because of that did the researcher value the unanonymous answer higher due to the legitimacy it gives.

8 Conclusions

The purpose of forest certification is to create a trustworthy link between the consumer and forest products, to ensure that the product is produced responsibly in terms of social and environmental aspects. But for private small forest owners, certifications may mean less empowerment to their own forests. The function of the forest if you are in the economic discourse, may worsen when connected to FSC. This study aimed at identifying barriers between small forest owners and FSC. There are perceived obstacles such as cost and time, but the dominating barrier is the ignorance of the future development. The uncertainty of the future development is perceived by the respondents as the major obstacle for them to join the FSC. The risk of joining a standard that may end up too far from one's own reality is not worth taking today.

This thesis can be seen as a step in further investigation of the barriers between forest owners and certification organizations. It is possible to broaden the study by studying the extent of the barriers and how these can be overcome. This can be done by broadening the unit of analysis and actually clarify how communication can be used as a tool to create mutual understanding. With this thesis as a background, one cannot generalize the relationship between forest owners and certification organizations in Sweden, but it provides a foundation for discussion and increases understanding of the obstacles that forest owners experience with certification.

The aim with this study was to identify the main barriers for small forest owners to join the FSC. This study shows that the communication is not working properly between the different organizations and that may be the biggest barrier. Due to the not working communication the risk of misunderstandings and uncertainty is increased, this creates a barrier for the forest owner associations towards the FSC.

The next barrier is simply the way that the FSC is built up. The forest owners do not feel enough empowerment due to the decision-making process in the FSC. This combined with uncertainty of future development is the single most important barrier for the small private forest owners to join the FSC.

8.1 Suggestions for future research

With the results from this study in mind there is needed to do further research on the effects of how the certifying organizations are built up, and how that effects the forest owners perception of the certifier. Next suggestion on further research is about the key-habitats and how that can effect the motivation among forest owners to join the FSC.

9 Bibliography

Literature and publications

- Auld, G., Gulbrandsen, L. & McDermott, C. (2008). Certification Schemes and the Impacts on Forests and Forestry. *Annual Review of Environment and Resources*, vol. 33, pp. 187-211. DOI: <https://doi.org/10.1146/annurev.environ.33.013007.103754>.
- Bauman, W. C. & Sitka, J. L. (2012). Corporate social responsibility as a source of employee satisfaction. *Research in Organizational Behavior*, vol. 32, pp. 63-86. DOI: <https://doi.org/10.1016/j.riob.2012.11.002>.
- Belz, F. & Peattie, K. (2012). *Sustainability marketing: A global perspective*. 2nd. ed. Chichester: Wiley.
- Braun, Virginia & Clarke, Victoria (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, vol. 3 (2). pp. 77-101. ISSN 1478-0887. DOI: <http://dx.doi.org/10.1191/1478088706qp063oa>
- Bryman, A. (2011)

- Kim, S. (2017). The Process Model of Corporate Social Responsibility (CSR) Communication: CSR Communication and its Relationship with Consumers' CSR Knowledge, Trust, and Corporate Reputation Perception. *Journal of Business Ethics*, vol. 1, ss. 1-17. DOI: <https://doi.org/10.1007/s10551-017-3433-6>.
- Klettner, A., Clarke, T. & Boersma, M. (2014). The governance of corporate sustainability: Empirical insights into the development, leadership and implementation of responsible business strategy. *Journal of Business Ethics*, vol. 122 (1), pp. 145-165. DOI: <https://doi.org/10.1007/s10551-013-1750-y>.
- Kotler, P., Armstrong, G. & Parment, A. (2013). *Marknadsföring: Teori, strategi och praktik*. Harlow: Pearson.
- Kvale, S. & Brinkmann, S. (2014). *Den kvalitativa forskningsintervjun*. 3. uppl. Lund: Studentlitteratur AB.
- Lauterborn, B. (1990). New Marketing Litany: Four Ps Passé: C-Words Take Over. *Advertising Age*, vol. 61 (41), pp. 26. Access: http://www.business.uwm.edu/gdrive/Wentz_E/International%20Marketing%20465%20Fall%202014/Articles/New%20Marketing%20Litany.PDF [2018-05-27].
- McDermott, C.L. (2011) Trust, legitimacy and power in forest certification: A case study of the FSC in British Columbia. *Geoforum*. Access: https://www.oxfordmartin.ox.ac.uk/downloads/academic/McD_Trust_FSC.pdf [2018-06-06].

- C: *Facts and figures*. Access: <https://ic.fsc.org/en/facts-and-figures> [2018-03-26].
D: *Statistik och fakta*. Access: <https://se.fsc.org/se-se/fscs-betydelse/statistik-och-fakta> [2018-03-26].
E: *Svensk skogsbruksstandard*, Access: <https://se.fsc.org/preview.svensk-skogsbruksstandard-fsc.a-771.pdf> [2018-03-30].
F: *The ten FSC principles*. Access: <https://ic.fsc.org/en/what-is-fsc-certification/principles-criteria/fscs-10-principles> [2018-05-21].
ISO (2018). *Standards*. Access: <https://www.iso.org/standards.html> [2018-02-13].
PEFC (2018):
A: *Svenska PEFC*. Access: <http://pefc.se> [2018-02-13].
B: *Governance*, Access: <https://www.pefc.org/about-pefc/governance> [2018-03-29].
C: *Skogsstandard*, Access: <http://pefc.se/skogsstandard/> [2018-03-30].
D: *Home*. Access: <https://www.pefc.org> [2018-06-25].

Personal messages

Telephone interviews:

Christina Lundgren, CEO PEFC Sweden, 2018-05-17.

Fredrik Nilsson Marnefeldt, CEO AB Karl Hedin Sawmill, 2018-05-04.

Jonas Eriksson, Member manager Norra Skogsägarna, 2018-05-04.

Lena Dahl, CEO FSC Sweden, 2018-05-22.

Olov Söderström, CEO Norrskog, 2018-04-27.

Sture Karlsson, CEO Mellanskog, 2018-04-24.

Tomas Rahm, Sustainability manager Södra Skogsägarna, 2018-05-03.

Appendices

Appendix 1. Interview questions to forest sector

Background about the respondent:

How long have your organization been certified?

What are the main reasons for you to become certified?

Which benefits do you see with forest certification today?

Do you see any downsides with forest certification, how would you explain them?

Do you see any remarkable differences between the two certifying systems, how would you explain them?

How would you describe your communication with FSC?

Do you believe that your organization will join the FSC in the future?

Appendix 2. Interview questions to certifiers

Background about the respondent:

What are the main reasons for forest owners to become certified?

Which benefits do you see with forest certification today?

Do you see any downsides with forest certification, how would you explain them?

Do you see any remarkable differences between the two certifying systems, how would you explain them?

How would you describe your external communication?

Do you have any contact with “potential” members?

Do you believe that the FSC and the PEFC will approach each other and maybe even merge in the future?

Publications from The Department of Forest Products, SLU, Uppsala

Rapporter/Reports

1. Ingemarson, F. 2007. De skogliga tjänstemännens syn på arbetet i Gudruns spår. Institutionen för skogens produkter, SLU, Uppsala
2. Lönnstedt, L. 2007. *Financial analysis of the U.S. based forest industry*. Department of Forest Products, SLU, Uppsala
4. Stendahl, M. 2007. *Product development in the Swedish and Finnish wood industry*. Department of Forest Products, SLU, Uppsala
5. Nylund, J-E. & Ingemarson, F. 2007. *Forest tenure in Sweden – a historical perspective*. Department of Forest Products, SLU, Uppsala
6. Lönnstedt, L. 2008. *Forest industrial product companies – A comparison between Japan, Sweden and the U.S.* Department of Forest Products, SLU, Uppsala
7. Axelsson, R. 2008. Forest policy, continuous tree cover forest and uneven-aged forest management in Sweden's boreal forest. Licentiate thesis. Department of Forest Products, SLU, Uppsala
8. Johansson, K-E.V. & Nylund, J-E. 2008. NGO Policy Change in Relation to Donor Discourse. Department of Forest Products, SLU, Uppsala
9. Uetimane Junior, E. 2008. Anatomical and Drying Features of Lesser Known Wood Species from Mozambique. Licentiate thesis. Department of Forest Products, SLU, Uppsala
10. Eriksson, L., Gullberg, T. & Woxblom, L. 2008. Skogsbruksmetoder för privatskogs-brukaren. *Forest treatment methods for the private forest owner*. Institutionen för skogens produkter, SLU, Uppsala
11. Eriksson, L. 2008. Åtgärdsbeslut i privatskogsbruket. *Treatment decisions in privately owned forestry*. Institutionen för skogens produkter, SLU, Uppsala
12. Lönnstedt, L. 2009. *The Republic of South Africa's Forests Sector*. Department of Forest Products, SLU, Uppsala
13. Blicharska, M. 2009. *Planning processes for transport and ecological infrastructures in Poland – actors' attitudes and conflict*. Licentiate thesis. Department of Forest Products, SLU, Uppsala
14. Nylund, J-E. 2009. *Forestry legislation in Sweden*. Department of Forest Products, SLU, Uppsala
15. Björklund, L., Hesselman, J., Lundgren, C. & Nylander, M. 2009. Jämförelser mellan metoder för fastvolymbestämning av stockar. Institutionen för skogens produkter, SLU, Uppsala
16. Nylund, J-E. 2010. *Swedish forest policy since 1990 – reforms and consequences*. Department of Forest Products, SLU, Uppsala
17. Eriksson, L., m.fl. 2011. Skog på jordbruksmark – erfarenheter från de senaste decennierna. Institutionen för skogens produkter, SLU, Uppsala
18. Larsson, F. 2011. Mätning av bränsleved – Fastvolym, torrhalt eller vägning? Institutionen för skogens produkter, SLU, Uppsala
19. Karlsson, R., Palm, J., Woxblom, L. & Johansson, J. 2011. Konkurrenskraftig kundanpassad affärsutveckling för lönträ - Metodik för samordnad affärs- och teknikutveckling inom leverantörskedjan för björkämnen. Institutionen för skogens produkter, SLU, Uppsala
20. Hannerz, M. & Bohlin, F., 2012. Markägares attityder till plantering av poppel, hybridasp och *Salix* som energigrödor – en enkätundersökning. Institutionen för skogens produkter, SLU, Uppsala
21. Nilsson, D., Nylander, M., Fryk, H. & Nilsson, J. 2012. Mätning av grotflis. *Measuring of fuel chips*. Institutionen för skogens produkter, SLU, Uppsala
22. Sjöstedt, V. 2013. *The Role of Forests in Swedish Media Response to Climate Change – Frame analysis of media 1992-2010*. Licentiate thesis. Department of Forest Products, SLU, Uppsala
23. Nylander, M. & Fryk, H. 2014. Mätning av delkvistad energived. Institutionen för skogens produkter, SLU, Uppsala
24. Persson, R. 2017. Den globala avskogningen. Igår, i dag och i morgon. Institutionen för skogens produkter, SLU, Uppsala

Examensarbeten/Master Thesis

1. Stangebye, J. 2007. Inventering och klassificering av kvarlämnad virkesvolym vid slutavverkning. *Inventory and classification of non-cut volumes at final cut operations*. Institutionen för skogens produkter, SLU, Uppsala
2. Rosenquist, B. 2007. Bidragsanalys av dimensioner och postningar – En studie vid Vida Alvesta. *Financial analysis of economic contribution from dimensions and sawing patterns – A study at Vida Alvesta*. Institutionen för skogens produkter, SLU, Uppsala
3. Ericsson, M. 2007. En lyckad affärsrelation? – Två fallstudier. *A successful business relation? – Two case studies*. Institutionen för skogens produkter, SLU, Uppsala
4. Ståhl, G. 2007. Distribution och försäljning av kvalitetsfuru – En fallstudie. *Distribution and sales of high quality pine lumber – A case study*. Institutionen för skogens produkter, SLU, Uppsala
5. Ekholm, A. 2007. Aspekter på flyttkostnader, fastighetsbildning och fastighetstorlekar. *Aspects on fixed harvest costs and the size and dividing up of forest estates*. Institutionen för skogens produkter, SLU, Uppsala
6. Gustafsson, F. 2007. Postningsoptimering vid sönderdelning av fura vid Säters Ångsåg. *Saw pattern optimising for sawing Scots pine at Säters Ångsåg*. Institutionen för skogens produkter, SLU, Uppsala
7. Götherström, M. 2007. Följdeffekter av olika användningssätt för vedråvara – en ekonomisk studie. *Consequences of different ways to utilize raw wood – an economic study*. Institutionen för skogens produkter, SLU, Uppsala
8. Nashr, F. 2007. *Profiling the strategies of Swedish sawmilling firms*. Department of Forest Products, SLU, Uppsala
9. Högsborn, G. 2007. Sveriges producenter och leverantörer av limträ – En studie om deras marknader och kundrelationer. *Swedish producers and suppliers of glulam – A study about their markets and customer relations*. Institutionen för skogens produkter, SLU, Uppsala
10. Andersson, H. 2007. *Establishment of pulp and paper production in Russia – Assessment of obstacles*. Etablering av pappers- och massaproduktion i Ryssland – bedömning av möjliga hinder. Department of Forest Products, SLU, Uppsala
11. Persson, F. 2007. Exponering av trädgolv och lister i butik och på mässor – En jämförande studie mellan sport- och bygghandeln. Institutionen för skogens produkter, SLU, Uppsala
12. Lindström, E. 2008. En studie av utvecklingen av drivningsnettot i skogsbruket. *A study of the net conversion contribution in forestry*. Institutionen för skogens produkter, SLU, Uppsala
13. Karlhager, J. 2008. *The Swedish market for wood briquettes – Production and market development*. Department of Forest Products, SLU, Uppsala
14. Höglund, J. 2008. *The Swedish fuel pellets industry: Production, market and standardization*. Den Svenska bränslepelletsindustrin: Produktion, marknad och standardisering. Department of Forest Products, SLU, Uppsala
15. Trulson, M. 2008. Värmebehandlat trä – att inhämta synpunkter i produktutvecklingens tidiga fas. *Heat-treated wood – to obtain opinions in the early phase of product development*. Institutionen för skogens produkter, SLU, Uppsala
16. Nordlund, J. 2008. Beräkning av optimal batchstorlek på gavelspikningslinjer hos Vida Packaging i Hestra. *Calculation of optimal batch size on cable drum flanges lines at Vida Packaging in Hestra*. Institutionen för skogens produkter, SLU, Uppsala
17. Norberg, D. & Gustafsson, E. 2008. *Organizational exposure to risk of unethical behaviour – In Eastern European timber purchasing organizations*. Department of Forest Products, SLU, Uppsala
18. Bäckman, J. 2008. Kundrelationer – mellan Setragroup AB och bygghandeln. *Customer Relationship – between Setragroup AB and the DIY-sector*. Institutionen för skogens produkter, SLU, Uppsala
19. Richnau, G. 2008. *Landscape approach to implement sustainability policies? - value profiles of forest owner groups in the Helgeå river basin, South Sweden*. Department of Forest Products, SLU, Uppsala
20. Sokolov, S. 2008. *Financial analysis of the Russian forest product companies*. Department of Forest Products, SLU, Uppsala
21. Färlin, A. 2008. *Analysis of chip quality and value at Norske Skog Pisa Mill, Brazil*. Department of Forest Products, SLU, Uppsala
22. Johansson, N. 2008. *An analysis of the North American market for wood scanners*. En analys över den Nordamerikanska marknaden för träscanners. Department of Forest Products, SLU, Uppsala
23. Terzieva, E. 2008. *The Russian birch plywood industry – Production, market and future prospects*. Den ryska björk-plywoodindustrin – Produktion, marknad och framtida utsikter. Department of Forest Products, SLU, Uppsala
24. Hellberg, L. 2008. Kvalitativ analys av Holmen Skogs internprissättningsmodell. *A qualitative analysis of Holmen Skogs transfer pricing method*. Institutionen för skogens produkter, SLU, Uppsala

25. Skoglund, M. 2008. Kundrelationer på Internet – en utveckling av Skandias webbplats. *Customer relationships through the Internet – developing Skandia's homepages*. Institutionen för skogens produkter, SLU, Uppsala
26. Hesselman, J. 2009. Bedömning av kunders uppfattningar och konsekvenser för strategisk utveckling. *Assessing customer perceptions and their implications for strategy development*. Institutionen för skogens produkter, SLU, Uppsala
27. Fors, P-M. 2009. *The German, Swedish and UK wood based bio energy markets from an investment perspective, a comparative analysis*. Department of Forest Products, SLU, Uppsala
28. Andræ, E. 2009. *Liquid diesel biofuel production in Sweden – A study of producers using forestry- or agricultural sector feedstock*. Produktion av förnyelsebar diesel – en studie av producenter av biobränsle från skogs- eller jordbrukssektorn. Department of Forest Products, SLU, Uppsala
29. Barrstrand, T. 2009. Oberoende aktörer och Customer Perceptions of Value. *Independent actors and Customer Perception of Value*. Institutionen för skogens produkter, SLU, Uppsala
30. Fälldin, E. 2009. Påverkan på produktivitet och produktionskostnader vid ett minskat antal timmerlängder. *The effect on productivity and production cost due to a reduction of the number of timber lengths*. Institutionen för skogens produkter, SLU, Uppsala
31. Ekman, F. 2009. Stormskadornas ekonomiska konsekvenser – Hur ser försäkringsersättningsnivåerna ut inom familjeskogsbruket? *Storm damage's economic consequences – What are the levels of compensation for the family forestry?* Institutionen för skogens produkter, SLU, Uppsala
32. Larsson, F. 2009. Skogsmaskinföretagarnas kundrelationer, lönsamhet och produktivitet. *Customer relations, profitability and productivity from the forest contractors point of view*. Institutionen för skogens produkter, SLU, Uppsala
33. Lindgren, R. 2009. Analys av GPS Timber vid Rundviks sågverk. *An analysis of GPS Timber at Rundvik sawmill*. Institutionen för skogens produkter, SLU, Uppsala
34. Rådberg, J. & Svensson, J. 2009. Svensk skogsindustri framtid konkurrensfördelar – ett medarbetarperspektiv. *The competitive advantage in future Swedish forest industry – a co-worker perspective*. Institutionen för skogens produkter, SLU, Uppsala
35. Franksson, E. 2009. Framtidens rekrytering sker i dag – en studie av ingenjörsstudenters uppfattningar om Södra. *The recruitment of the future occurs today – A study of engineering students' perceptions of Södra*. Institutionen för skogens produkter, SLU, Uppsala
36. Jonsson, J. 2009. *Automation of pulp wood measuring – An economical analysis*. Department of Forest Products, SLU, Uppsala
37. Hansson, P. 2009. *Investment in project preventing deforestation of the Brazilian Amazonas*. Department of Forest Products, SLU, Uppsala
38. Abramsson, A. 2009. Sydsvenska köpsågverksstrategier vid stormtimmerlagring. *Strategies of storm timber storage at sawmills in Southern Sweden*. Institutionen för skogens produkter, SLU, Uppsala
39. Fransson, M. 2009. Spridning av innovationer av träprodukter i byggvaruhandeln. *Diffusion of innovations – contrasting adopters views with non adopters*. Institutionen för skogens produkter, SLU, Uppsala
40. Hassan, Z. 2009. *A Comparison of Three Bioenergy Production Systems Using Lifecycle Assessment*. Department of Forest Products, SLU, Uppsala
41. Larsson, B. 2009. Kunders uppfattade värde av svenska sågverksföretags arbete med CSR. *Customer perceived value of Swedish sawmill firms work with CSR*. Institutionen för skogens produkter, SLU, Uppsala
42. Raditya, D. A. 2009. *Case studies of Corporate Social Responsibility (CSR) in forest products companies - and customer's perspectives*. Department of Forest Products, SLU, Uppsala
43. Cano, V. F. 2009. *Determination of Moisture Content in Pine Wood Chips*. Bachelor Thesis. Department of Forest Products, SLU, Uppsala
44. Arvidsson, N. 2009. Argument för prissättning av skogsfastigheter. *Arguments for pricing of forest estates*. Institutionen för skogens produkter, SLU, Uppsala
45. Stjernberg, P. 2009. Det hyggesfria skogsbruket vid Yttringe – vad tycker allmänheten? *Continuous cover forestry in Yttringe – what is the public opinion?* Institutionen för skogens produkter, SLU, Uppsala
46. Carlsson, R. 2009. *Fire impact in the wood quality and a fertilization experiment in Eucalyptus plantations in Guangxi, southern China*. Brandinverkan på vedkvaliteten och tillväxten i ett gödselexperiment i Guangxi, södra Kina. Department of Forest Products, SLU, Uppsala
47. Jerenius, O. 2010. Kundanalys av tryckpappersförbrukare i Finland. *Customer analysis of paper printers in Finland*. Institutionen för skogens produkter, SLU, Uppsala
48. Hansson, P. 2010. Orsaker till skillnaden mellan beräknad och inmätt volym grot. *Reasons for differences between calculated and scaled volumes of tops and branches*. Institutionen för skogens produkter, SLU, Uppsala

49. Eriksson, A. 2010. *Carbon Offset Management - Worth considering when investing for reforestation CDM*. Department of Forest Products, SLU, Uppsala
50. Fallgren, G. 2010. På vilka grunder valdes limträleverantören? – En studie om hur Setra bör utveckla sitt framtida erbjudande. *What was the reason for the choice of glulam deliverer? -A studie of proposed future offering of Setra*. Institutionen för skogens produkter, SLU, Uppsala
51. Ryno, O. 2010. Investeringsskalkyl för förbättrat värdeutbyte av furu vid Krylbo sågverk. *Investment Calculation to Enhance the Value of Pine at Krylbo Sawmill*. Institutionen för skogens produkter, SLU, Uppsala
52. Nilsson, J. 2010. Marknadsundersökning av färdigkapade produkter. *Market investigation of pre cut lengths*. Institutionen för skogens produkter, SLU, Uppsala
53. Mörner, H. 2010. Kundkrav på biobränsle. *Customer Demands for Bio-fuel*. Institutionen för skogens produkter, SLU, Uppsala
54. Sunesdotter, E. 2010. Affärsrelationers påverkan på Kinnarps tillgång på FSC-certifierad råvara. *Business Relations Influence on Kinnarps' Supply of FSC Certified Material*. Institutionen för skogens produkter, SLU, Uppsala
55. Bengtsson, W. 2010. Skogsfastighetsmarknaden, 2005-2009, i södra Sverige efter stormarna. *The market for private owned forest estates, 2005-2009, in the south of Sweden after the storms*. Institutionen för skogens produkter, SLU, Uppsala
56. Hansson, E. 2010. Metoder för att minska kapitalbindningen i Stora Enso Bioenergis terminallager. *Methods to reduce capital tied up in Stora Enso Bioenergy terminal stocks*. Institutionen för skogens produkter, SLU, Uppsala
57. Johansson, A. 2010. Skogsallmänningars syn på deras bankrelationer. *The commons view on their bank relations*. Institutionen för skogens produkter, SLU, Uppsala
58. Holst, M. 2010. Potential för ökad specialanpassning av trävaror till byggföretag – nya möjligheter för träleverantörer? *Potential for greater customization of the timber to the construction company – new opportunities for wood suppliers?* Institutionen för skogens produkter, SLU, Uppsala
59. Ranudd, P. 2010. Optimering av råvaruflöden för Setra. *Optimizing Wood Supply for Setra*. Institutionen för skogens produkter, SLU, Uppsala
60. Lindell, E. 2010. Rekreation och Natura 2000 – målkonflikter mellan besökare och naturvård i Stendörrens naturreservat. *Recreation in Natura 2000 protected areas – visitor and conservation conflicts*. Institutionen för skogens produkter, SLU, Uppsala
61. Coletti Pettersson, S. 2010. Konkurrentanalys för Setragroup AB, Skutskär. *Competitive analysis of Setragroup AB, Skutskär*. Institutionen för skogens produkter, SLU, Uppsala
62. Steiner, C. 2010. Kostnader vid investering i flisaggregat och tillverkning av pellets – En komparativ studie. *Expenses on investment in wood chipper and production of pellets – A comparative study*. Institutionen för skogens produkter, SLU, Uppsala
63. Bergström, G. 2010. Bygghandelns inköpsstrategi för träprodukter och framtida efterfrågan på produkter och tjänster. *Supply strategy for builders merchants and future demands for products and services*. Institutionen för skogens produkter, SLU, Uppsala
64. Fuente Tomai, P. 2010. *Analysis of the Natura 2000 Networks in Sweden and Spain*. Bachelor Thesis. Department of Forest Products, SLU, Uppsala
65. Hamilton, C-F. 2011. Hur kan man öka gallringen hos privata skogsägare? En kvalitativ intervjustudie. *How to increase the thinning at private forest owners? A qualitative questionnaire*. Institutionen för skogens produkter, SLU, Uppsala
66. Lind, E. 2011. Nya skogsbasrade material – Från Labb till Marknad. *New wood based materials – From Lab to Market*. Institutionen för skogens produkter, SLU, Uppsala
67. Hulusjö, D. 2011. Förstudie om e-handel vid Stora Enso Packaging AB. *Pilot study on e-commerce at Stora Enso Packaging AB*. Institutionen för skogens produkter, SLU, Uppsala
68. Karlsson, A. 2011. Produktionsekonomi i ett lövsågverk. *Production economy in a hardwood sawmill*. Institutionen för skogens produkter, SLU, Uppsala
69. Bränngård, M. 2011. En konkurrensanalys av SCA Timbers position på den norska bygghandelsmarknaden. *A competitive analyze of SCA Timbers position in the Norwegian builders merchant market*. Institutionen för skogens produkter, SLU, Uppsala
70. Carlsson, G. 2011. Analysverktyget Stockluckan – fast eller rörlig postning? *Fixed or variable tuning in sawmills? – an analysis model*. Institutionen för skogens produkter, SLU, Uppsala
71. Olsson, A. 2011. Key Account Management – hur ett sågverksföretag kan hantera sina nyckelkunder. *Key Account Management – how a sawmill company can handle their key customers*. Institutionen för skogens produkter, SLU, Uppsala

72. Andersson, J. 2011. Investeringsbeslut för kraftvärmeproduktion i skogsindustrin. *Investment decisions for CHP production in The Swedish Forest Industry*. Institutionen för skogens produkter, SLU, Uppsala
73. Bexell, R. 2011. Hög fyllnadsgård i timmerlagret – En fallstudie av Holmen Timbers sågverk i Braviken. *High filling degree in the timber yard – A case study of Holmen Timber's sawmill in Braviken*. Institutionen för skogens produkter, SLU, Uppsala
74. Bohlin, M. 2011. Ekonomisk utvärdering av ett grantimmersortiment vid Bergkvist Insjön. *Economic evaluation of one spruce timber assortment at Bergkvist Insjön*. Institutionen för skogens produkter, SLU, Uppsala
75. Enqvist, I. 2011. Psykosocial arbetsmiljö och riskbedömning vid organisationsförändring på Stora Enso Skutskär. *Psychosocial work environment and risk assessment prior to organizational change at Stora Enso Skutskär*. Institutionen för skogens produkter, SLU, Uppsala
76. Nylander, H. 2011. Design av produktkalkyl för vidareförädla trädvaror. *Product Calculation Design For Planed Wood Products*. Institutionen för skogens produkter, SLU, Uppsala
77. Holmström, K. 2011. Viskoosmassa – framtid eller fluga. *Viscose pulp – fad or future*. Institutionen för skogens produkter, SLU, Uppsala
78. Holmgren, R. 2011. Norra Skogsägarnas position som trävaruleverantör – en marknadsstudie mot bygghandeln i Sverige och Norge. *Norra Skogsägarnas position as a wood-product supplier – A market investigation towards the builder-merchant segment in Sweden and Norway*. Institutionen för skogens produkter, SLU, Uppsala
79. Carlsson, A. 2011. Utvärdering och analys av drivningsentreprenörer utifrån offentlig ekonomisk information. *Evaluation and analysis of harvesting contractors on the basis of public financial information*. Institutionen för skogens produkter, SLU, Uppsala
80. Karlsson, A. 2011. Förutsättningar för betalningsgrundande skördarmätning hos Derome Skog AB. *Possibilities for using harvester measurement as a basis for payment at Derome Skog AB*. Institutionen för skogens produkter, SLU, Uppsala
81. Jonsson, M. 2011. Analys av flödeskonomi - Effektivitet och kostnadsutfall i Sveaskogs verksamhet med skogsbränsle. *Analysis of the Supply Chain Management - Efficiency and cost outcomes of the business of forest fuel in Sveaskog*. Institutionen för skogens produkter, SLU, Uppsala
82. Olsson, J. 2011. Svensk fartygsimport av fasta trädbaserade biobränslen – en explorativ studie. *Swedish import of solid wood-based biofuels – an exploratory study*. Institutionen för skogens produkter, SLU, Uppsala
83. Ols, C. 2011. *Retention of stumps on wet ground at stump-harvest and its effects on saproxylic insects*. Bevarande av stubbar vid stubbrytning på våt mark och dess inverkan på vedlevande insekter. Department of Forest Products, SLU, Uppsala
84. Börjegren, M. 2011. Utvärdering av framtida mätmetoder. *Evaluation of future wood measurement methods*. Institutionen för skogens produkter, SLU, Uppsala
85. Engström, L. 2011. Marknadsundersökning för högvärdiga produkter ur klenkubb. *Market survey for high-value products from thin sawn timber*. Institutionen för skogens produkter, SLU, Uppsala
86. Thorn-Andersen, B. 2012. Nuanskaffningskostnad för Jämtkrafts fjärrvärmeanläggningar. *Today-acquisition-cost for the district heating facilities of Jämtkraft*. Institutionen för skogens produkter, SLU, Uppsala
87. Norlin, A. 2012. Skogsägarföreningarnas utveckling efter krisen i slutet på 1970-talet – en analys av förändringar och trender. *The development of forest owners association's in Sweden after the crisis in the late 1970s – an analysis of changes and trends*. Institutionen för skogens produkter, SLU, Uppsala
88. Johansson, E. 2012. Skogsbränslebalansen i Mälardalsområdet – Kraftvärmeverkens syn på råvaruförsörjningen 2010-2015. *The balance of wood fuel in the region of Mälardalen – The CHP plants view of the raw material supply 2010-2015*. Institutionen för skogens produkter, SLU, Uppsala
89. Biruk, K. H. 2012. *The Contribution of Eucalyptus Woodlots to the Livelihoods of Small Scale Farmers in Tropical and Subtropical Countries with Special Reference to the Ethiopian Highlands*. Department of Forest Products, SLU, Uppsala
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93. Heikkinen, H. 2012. Mätning av sorteringsdiameter för talltimmer vid Kastets sågverk. *Measurement of sorting diameter for pine logs at Kastet Sawmill*. Institutionen för skogens produkter, SLU, Uppsala

94. Munthe-Kaas, O. S. 2012. Markedsanalyse av skogforsikring i Sverige og Finland. *Market analysis of forest insurance in Sweden and Finland*. Institutionen för skogens produkter, SLU, Uppsala
95. Dietrichson, J. 2012. Specialsortiment på den svenska rundvirkesmarknaden – En kartläggning av virkeshandel och -mätning. *Special assortments on the Swedish round wood market – A survey of wood trade and measuring*. Institutionen för skogens produkter, SLU, Uppsala
96. Holmquist, V. 2012. Timmerlängder till Iggesunds sågverk. *Timber lengths for Iggesund sawmill*. Institutionen för skogens produkter, SLU, Uppsala
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99. Höglberg, J. 2012. Vad påverkar marknadsvärdet på en skogsfastighet? - En statistisk analys av markvärdet. *Determinants of the market value of forest estates. - A statistical analysis of the land value*. Institutionen för skogens produkter, SLU, Uppsala
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103. Bengtsson, P. 2012. Rätt pris för timmerråvaran – en kalkylmodell för Moelven Vänerply AB. Right price for raw material – a calculation model for Moelven Vänerply AB. Institutionen för skogens produkter, SLU, Uppsala
104. Hedlund Johansson, L. 2012. Betalningsplaner vid virkesköp – förutsättningar, möjligheter och risker. *Payment plans when purchasing lumber – prerequisites, possibilities and risks*. Institutionen för skogens produkter, SLU, Uppsala
105. Johansson, A. 2012. *Export of wood pellets from British Columbia – a study about the production environment and international competitiveness of wood pellets from British Columbia*. Träpelletsexport från British Columbia – en studie om förutsättningar för produktion och den internationella konkurrenskraften av trälpellets från British Columbia. Department of Forest Products, SLU, Uppsala
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108. Pilo, B. 2012. Produktion och bestårndsstruktur i fullskiktad skog skött med blädningsbruk. *Production and Stand Structure in Uneven-Aged Forests managed by the Selection System*. Institutionen för skogens produkter, SLU, Uppsala
109. Elmkvist, E. 2012. Den ekonomiska konsekvensen av ett effektiviseringsprojekt – fallet förbättrad timmersortering med hjälp av röntgen och 3D-mätram. *The economic consequences of an efficiency project - the case of improved log sorting using X-ray and 3D scanning*. Institutionen för skogens produkter, SLU, Uppsala
110. Pihl, F. 2013. Beslutsunderlag för besökundersökningar - En förstudie av Upplandsstiftelsens naturområden. *Decision Basis for Visitor Monitoring – A pre-study of Upplandsstiftelsen's nature sites*. Institutionen för skogens produkter, SLU, Uppsala
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116. af Ekenstam, C. 2013. Produktionsplanering – fallstudie av sågverksplanering, kontroll och hantering. *Production – case study of sawmill Planning Control and Management*. Institutionen för skogens produkter, SLU, Uppsala
117. Sundby, J. 2013. Affärsrådgivning till privatkogsägare – en marknadsundersökning. *Business consultation for non-industry private forest owners – a market survey*. Institutionen för skogens produkter, SLU, Uppsala
118. Nylund, O. 2013. Skogsbränslekedjan och behov av avtalsmallar för skogsbränsleentreprenad. *Forest fuel chain and the need for agreement templates in the forest fuel industry*. Institutionen för skogens produkter, SLU, Uppsala
119. Hoflund, P. 2013. Sågklassläggning vid Krylbo såg – En studie med syfte att öka sågutbytet. *Saw class distribution at Krylbo sawmill - a study with the aim to increase the yield*. Institutionen för skogens produkter, SLU, Uppsala
120. Snögren, J. 2013. Kundportföljen i praktiken – en fallstudie av Orsa Lamellträ AB. *Customer portfolio in practice – a case study of Orsa Lamellträ AB*. Institutionen för skogens produkter, SLU, Uppsala
121. Backman, E. 2013. Förutsättningar vid köp av en skogsfastighet – en analys av olika köpares kassaflöde vid ett fastighetsförvärv. *Conditions in an acquisition of a forest estate – an analysis of different buyers cash flow in a forest estate acquisition*. Institutionen för skogens produkter, SLU, Uppsala
122. Jacobson Thalén, C. 2013. Påverkan av e-handelns framtida utveckling på pappersförpackningsbranschen. *The future impact on the paper packaging industry from online sales*. Institutionen för skogens produkter, SLU, Uppsala
123. Johansson, S. 2013. Flödesstyrning av biobränsle till kraftvärmeverk – En fallstudie av Ryaverket. *Suggestions for a more efficient flow of biofuel to Rya Works (Borås Energi och Miljö AB)*. Institutionen för skogens produkter, SLU, Uppsala
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125. Magnusson, D. 2013. Investeringsbedömning för AB Karl Hedins Sågverk i Krylbo. *Evaluation of an investement at AB Karl Hedin's sawmill in Krylbo*. Institutionen för skogens produkter, SLU, Uppsala
126. Fernández-Cano, V. 2013. *Epoxidised linseed oil as hydrophobic substance for wood protection - technology of treatment and properties of modified wood*. Epoxiderad linolja som hydrofob substans för träskydd - teknologi för behandling och egenskaper av modifierat trä. Department of Forest Products, SLU, Uppsala
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130. Thiger, E. 2014. Produktutveckling utifrån nya kundinsikter. *Product development based on new customer insights*. Institutionen för skogens produkter, SLU, Uppsala
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132. Eriksson , F. 2014. Privata skogsägares betalningsvilja för skogsförvaltning. *Non- industrial private forest owners' willingness to pay for forest administration*. Institutionen för skogens produkter, SLU, Uppsala
133. Hansson, J. 2014. Marknadsanalys av douglasgran (*Pseudotsuga menziesii* [Mirk.] Franco) i Sverige, Danmark och norra Tyskland. *Market analysis of douglas fir (*Pseudotsuga menziesii* [Mirk.] Franco) in Sweden, Denmark and northern Germany*.
134. Magnusson, W. 2014. *Non-state actors' role in the EU forest policy making – A study of Swedish actors and the Timber Regulation negotiations*. Icke statliga aktörers roll i EU:s skogspolicy – En studie av svenska aktörer i förhandlingarna om timmerförordningen. Department of Forest Products, SLU, Uppsala
135. Berglund, M. 2014. Logistisk optimering av timmerplan – En fallstudie av Kåge såg. *Logistical optimization of the timber yard – A case study of Kåge såg*. Institutionen för skogens produkter, SLU, Uppsala
136. Ahlbäck, C.H. 2014. Skattemässiga aspekter på generationsskiften av skogsfastigheter. *Fiscal aspects of ownership succession within forest properties*. Institutionen för skogens produkter, SLU, Uppsala
137. Wretemark, A. 2014. Skogsfastigheters totala produktionsförmåga som förklarande variabel vid prissättning. *Forest estate timber producing capability as explainable variable for pricing*. Institutionen för skogens produkter, SLU, Uppsala

138. Friberg, G. 2014. En analysmetod för att optimera skotning mot minimerad körsträcka och minimerad påverkan på mark och vatten. *A method to optimize forwarding towards minimized driving distance and minimized effect on soil and water*. Institutionen för skogens produkter, SLU, Uppsala
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142. Odlander, F. 2014. Att upprätta ett konsignationslager – en best practice. *Establishing a consignment stock – a best practice*. Institutionen för skogens produkter, SLU, Uppsala
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144. Larsson, J. 2014. *Market analysis for glulam within the Swedish construction sector*. Marknadsanalys för limträ inom den svenska byggbranschen. Department of Forest Products, SLU, Uppsala
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148. Gemmel, A. 2014. *The state of the Latvian wood pellet industry: A study on production conditions and international competitiveness*. Träpelletsindustrin i Lettland: En studie i produktionsförhållanden och internationell konkurrenskraft. Department of Forest Products, SLU, Uppsala
149. Thorning, A. 2014. Drivkrafter och barriärer för FSC-certifiering inom försörjningskedjan till miljöcertifierade byggnader. *Drivers and barriers for FSC certification within the supply chain for environmentally certified buildings*. Institutionen för skogens produkter, SLU, Uppsala
150. Kvick, L. 2014. Cellulosabaserade textiler - en kartläggning av förädlingskedjan och utvecklingsprojekt. *Cellulose based textiles - a mapping of the supply chain and development projects*. Institutionen för skogens produkter, SLU, Uppsala
151. Ahlgren, A. 2014. *A Swedish national forest programme – participation and international agreements*. Ett svenskt skogsprogram – deltagande och internationella överenskommelser. Department of Forest Products, SLU, Uppsala
152. Ingmar, E. 2015. *An assessment of public procurement of timber buildings – a multi-level perspective of change dynamics within the Swedish construction sector*. En analys av offentliga aktörer och flervåningshus i trä – ett socio-tekniskt perspektiv på djupgående strukturella förändringar inom den svenska byggsektorn. Department of Forest Products, SLU, Uppsala
153. Widenfalk, T. 2015. Kartläggning och analys av utfräkter vid NWP AB. *Mapping and analysis of transport of sawn good at NWP AB*. Institutionen för skogens produkter, SLU, Uppsala
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155. Knutsson, B. 2015. Ägarkategorins och andra faktorer inverkan på skogsfastigheters pris vid försäljning. *The effect of ownership and other factors effect on forest property's price at the moment of sale*. Institutionen för skogens produkter, SLU, Uppsala
156. Röh fors, G. 2015. Däckutrustningens påverkan på miljö och driftsekonomi vid rundvirkestransport. *The tire equipment's effect on environment and operating costs when log hauling*. Institutionen för skogens produkter, SLU, Uppsala
157. Matsson, K. 2015. *The impact of the EU Timber Regulation on the Bosnia and Herzegovinian export of processed wood*. Effekterna av EU:s förordning om timmer på exporten av träprodukter från Bosnien och Herzegovina. Department of Forest Products, SLU, Uppsala
158. Wickberg, H. 2015. Kortare timmer till sågen, en fallstudie om sänkt stötmån. *Shorter timber to the sawmill, a case study on reduced trim allowance*. Institutionen för skogens produkter, SLU, Uppsala

159. Gräns, A. 2015. Konstruktörers syn på trä som konstruktionsmaterial - Utbildning och information. *Wood as a construction material from the structural engineer's point of view - Education and information*. Institutionen för skogens produkter, SLU, Uppsala
160. Sydh Göransson, M. 2015. Skogsindustrins roll i bioekonomin – Vad tänker riksdagspolitikerna? *The forest industry's role in the bioeconomy – What do Swedish MPs think of it?* Institutionen för skogens produkter, SLU, Uppsala
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163. Nordgren, J. 2015. Produktkalkyl för vidareförädla produkter på Setra Rolfs såg & hyvleri. Product calculation for planed wood products at Setra Rolfs saw & planingmill. Institutionen för skogens produkter, SLU, Uppsala
164. Rowell, J. 2015. Framtidens påverkan på transport- och hanteringskostnader vid försörjning av skogsbränsle till kraftvärmeverk. *Future Impact on Transport- and Handling Costs at Forest fuel Supply to a Combined Heat and Powerplant*. Institutionen för skogens produkter, SLU, Uppsala
165. Nylander, T. 2015. Investeringskalkyl för lamellsortering i en limträfabrik. *Investment Calculation of lamella sorting in a glulam factory*. Institutionen för skogens produkter, SLU, Uppsala
166. Mattsson, M. 2015. Konsekvenser vid förbättrad leveranssäkerhet och avvikelerapportering för timmerleveranser. *Consequences of improved delivery reliability and deviation reporting of log supplies*. Institutionen för skogens produkter, SLU, Uppsala
167. Fridell, P. 2016. Digital marknadsföring av banktjänster mot yngre skogs- och lantbruksintresserade personer. *Digital marketing of banking services to younger forestry and agricultural interested persons*. Institutionen för skogens produkter, SLU, Uppsala
168. Berntsson, K. 2016. Biobaserat mervärde i förpackningsindustrin. *Bio-based added value in packaging industry*. Institutionen för skogens produkter, SLU, Uppsala
169. Thelin, I. 2016. Stillestånd för rundvirkesbilar utan kran – En studie i effekter och orsaker till icke-värdeskapande tid. *Production shortfalls for log transportation companies without crane – A study of effects and causes for non value-creating time*. Institutionen för skogens produkter, SLU, Uppsala
170. Norrman, M. 2016. Kundnöjdhet vid jord-och skogsaffärer – Fallet Areal. *Customer satisfaction in agriculture and forest property conveys – the case Areal*. Institutionen för skogens produkter, SLU, Uppsala
171. Paulsson, A. 2016. Biobaserad marktäckning i svenska jordbruk och trädgårdsnäring – en behovsanalys. *Biobased Mulching in Swedish Agriculture and Horticulture – a Customer Need's analysis*. Institutionen för skogens produkter, SLU, Uppsala
172. Stenlund, A. 2016. Kommunikation av hållbarhetsarbete inom svensk skogsindustri – en fallstudie av Södra Skogsägarnas Gröna bokslut. *Communicating Corporate Social Responsibility – a case study approach within Swedish forest industry*. Institutionen för skogens produkter, SLU, Uppsala
173. Gyllenstierna, L. 2016. Framtidens kompetensförsörjning till jordbruksföretag – Tillgång och efterfrågan på framtidens ledare mot svenska jordbruksföretag. *Future supply of labour to the agricultural industry – Supply and demand of the future managers within Swedish agricultural companies*. Institutionen för skogens produkter, SLU, Uppsala
174. Arén, E. 2016. Investeringsbeslutsunderlag för Certifierad Målad Panel (CMP) genom LCA-analys. *Investment basis for Certifierad Målad Panel (CMP) by LCA-analysis*. Institutionen för skogens produkter, SLU, Uppsala
175. Abrahamsson, S. 2016. Värdeskapande i en kooperativ förening - En fallstudie om Skogsägarna Mellanskog ekonomiska förening. *Value creation in a Cooperative - a Case study within Mellanskog*. Institutionen för skogens produkter, SLU, Uppsala
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178. Alström, F. 2016. Likviditetsmodell för analys av skogsbruksfastigheter. *Liquidity Model for Analysis of Forest Properties*. Institutionen för skogens produkter, SLU, Uppsala

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181. Lagergren, C. 2016. Berättelse som berör - Kan storytelling bidra till att säkra den framtida kompetensförsörjningen inom Sveaskog? *Stories that affects - Can storytelling contribute to ensure the future competence skills for Sveaskog?* Institutionen för skogens produkter, SLU, Uppsala
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184. Samuelsson, J. 2017. Tjänsteutveckling i skogssektorn – En fallstudie av Södras ekonomiska rådgivning. *Service development in the forest sector – A case study of Södra's economic advice.* Institutionen för skogens produkter, SLU, Uppsala
185. Gynnerstedt, E. 2017. Faktorer som skogsägare efterfrågar hos skogsföretag och virkesinköpare – En fallstudie för ATA Timber. Factors that forest owners demand from forest companies and wood purchaser – A case study for ATA Timber. Institutionen för skogens produkter, SLU, Uppsala
186. Jönsson, F. 2017. *Cost-based model for international logistics – Case-study with IKEA Industry's supply chain in Russia.* Kostnadsbaserad modell för internationell logistik – Fallstudie för IKEA Industrys värdekedja i Ryssland. Department of Forest Products, SLU, Uppsala
187. Skovdal, A. 2017. Skogsindustriell råvaraanskaffning – Hurdan är skogsinspektörernas arbets situation? *Raw material procurement for the forest industry.* Institutionen för skogens produkter, SLU, Uppsala
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191. Sjögren, C. E. 2017. *Wooden products supply chain to India – A study on glue board planks and finished products.* Försörjningskedjor för träprodukter till Indien – En studie på limfog, sågat virke och färdiga produkter. Department of Forest Products, SLU, Uppsala
192. Granberg, J. 2017. Sågverksprocesser för ökat värdeskapande – En fallstudie om möjligheter till ökat värdeskapande inom skogsägarföreningen Norrskogs försörjningskedja. *Sawmill processes for increased value creation – A case study on opportunities for increased value creation within the forestry association Norrskog's supply chain.* Institutionen för skogens produkter, SLU, Uppsala
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194. Langell, F. 2017. Skogliga bioinnovationer för ett fossilfritt jordbruk – En jämförande livscykkelanalys på en bio- och fossilbaserad marktäckningsduk inom svenska jordbruk. *Forest based bio-innovations towards a fossile free agriculture – A comparative Life Cycle Assessment on a bio- and fossile based mulch film in Swedish agriculture.* Institutionen för skogens produkter, SLU, Uppsala
195. Johansson, C. 2017. Hållbarhetskommunikation – Hur marknadsförs värdet av hållbarhet? *Sustainability communication – How is the value of sustainability marketed?* Institutionen för skogens produkter, SLU, Uppsala
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198. Olsson, M. 2017. *Analyse of the early effects on the Ukrainian forestry sector as a result of the Log Export ban. An interview study with economic analyses, including theories about trade and export.* Analys av de tidiga effekterna på Ukrainas skogssektor som ett resultat av exportförbud på timmer. En intervjustudie med ekonomiska analyser, inklusive teorier om handel och export. Department of Forest Products, SLU, Uppsala
199. Mellström, F. 2017. Skoglig rådgivning utifrån kundvärde – En fallstudie om hur Södra kan effektivisera och kvalitetshöja skogsrådgivningen genom implementering av Lean Production och Service Dominant Logic. *Forest advisory based on customer values – A case study of how Södra could streamline and improve quality based on the theory of Lean Production and Service Dominant Logic.* Institutionen för skogens produkter, SLU, Uppsala
200. Luther, A. 2018. Optimeringsmodell för sågverksindustrins logistikval vid export – en fallstudie av SCA Rundviks export till USA. *Model for optimization of logistic decision for export markets regarding sawmills – A case studie of SCA Rundviks export markets in USA.* Institutionen för skogens produkter, SLU, Uppsala
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