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Customer perceptions of equipment rental – Services for a circular economy

Kunders uppfattning av maskinuthyrning – Serviceutbud och cirkulär ekonomi

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Summary

Sustainability, consumption, and management of finite resources has become a global topic of discussion. Circular economy [**CE**] is presented in FN´s global goals agenda 2030 as an alternative model of consumption and a solution to move away from unsustainable development. Offering service-based products, renting, and leasing are promoted as business activities that contribute to a circular economy. Of all the industries, the construction industry has one of the largest climate impacts in the world. The Swedish construction industry represents almost a fifth of Sweden's total emissions. CE is still a relatively new topic in the construction industry. However, the equipment rental industry is a sector within the construction industry which claims to contribute to CE. The main argument why customers chose to rent construction equipment is economic factors. Customers express concerns of the environment but their concerns are not reflected in their consumption. Therefore, it would be interesting to investigate customers' attitudes about renting green products.

The aim of this study was to explain factors that influence customer request for green equipment rental using a multidisciplinary research method and Social Practice Theory [**SPT**]. The research has a flexible design and consists of a case study of the phenomenon of renting, a literature review, and multiple sources of empirical data. Data was collected via interviews, either in person, via telephone or via video, as well as an interview-based questionnaire and secondary data. Further, data was analysed with a thematic approach with the help of concepts, theories, and a developed conceptual framework.

The results of the study indicate that the environmental aspects are rarely considered during the rental process. The main aspects that influence customers to rent are economical and practical aspects. If environmental aspects are considered, it is due to legislation or sponsor´s requirements. Further, customers are positive to green products but are not prepared to sacrifice high performance and efficiency to increase environmental performance. The study correlates with the current trend regarding product attributes in the market and concludes that customers perceive renewable energy sources as most valuable. Moreover, a gap was identified between customers' perception of rental and the economic and practical aspects. This gap seemed to depend on the customers' working role. Customers working in head offices perceive rental as a solution to avoid maintenance costs, stockholding, and logistics. On the other hand, customers working on construction sites perceive rental, apart from access to modern equipment, to contribute to unforeseen events and reduce the workers´ dependency.

In order to influence customers to consider sustainable renting, the study suggests increased availability of information, customer relationship, and communication. An environmental certification system for equipment is suggested as a solution to simplify a sustainable renting process.

Finally, the study contributes to the current research of SPT by adding a new element of practice, *i.e.* communication. The new element might ensure a connection between the elements (meaning, materials and competence) and may enable practices to change towards a sustainable development.

Keywords: *green products attributes, practices, renting vs buying, servicification, sharing-ecocnomy, social practice theory, use-oriented services*

Sammanfattning

Världen över råder en global diskussion gällande hållbarhet, konsumtion och användandet av ändliga resurser. I FN:s globala mål och Agenda 2030 presenteras cirkulär ekonomi [**CE**] som en alternativ modell av konsumtion och anses som en lösning för en hållbar utveckling. Affärsmodeller så som service-baserade produkter, uthyrning och leasing är modeller som anses bidra till CE. Byggindustrin är en av de industrier som har stört klimatpåverkan i världen. I Sverige står byggindustrin för ungefär en femtedel av landets koldioxidutsläpp. Hur som helst, inom byggindustrin så är CE fortfarande ett relativt nytt begrepp. En bransch inom byggindustrin som däremot marknadsför sig som bidragande till CE är maskinuthyrningsbranschen. De största anledningarna till att kunder väljer att hyra byggmaskiner idag är på grund av ekonomiska faktorer. Kunder uttrycker att de bryr sig om miljön, ändå speglas det inte i kundens köpbeteende. Frågan är, hur ser kunders ställer sig kunden till att hyra gröna produkter?

Syftet med denna studie är att, genom en tvärvetenskaplig forskningsmetod och Social Practice Theory [**SPT**], förklara faktorer som påverkar kundens efterfrågan av maskinuthyrning. Studien har en flexibel design och innefattar en fallstudie fenomenet ”att hyra”, en litteraturundersökning samt empiriskdata baserat på multipla källor. Den empiriska datan är baserad på personligkontakt, telefon- och videointervjuer samt en intervjubaserad enkät och sekundärdata. Data analyseras sedan enligt en tematisk metod med hjälp av de begrepp, teorier och det teoretiska ramverket som är presenterat i studien.

Studiens resultat visar att miljöaspekten sällan tas i åtanke av kund i hyrningsprocessen. Vidare visar resultatet att de huvudsakliga aspekterna som påverkar kund i hyrningsprocessen är ekonomiska och praktiska aspekter. Om miljöaspekten tas i åtanke är det endast på grund av lagkrav eller krav från beställaren. Utöver detta, visar studien på att kunderna är positiva till gröna produkter, men att kund inte är beredd att offra attribut så som prestanda och effektivitet mot en mer miljövänlig produkt. Vad gäller gröna produktegenskaper överensstämmer studiens resultat med den rådande trenden i byggindustrin där kunder värdesätter maskiner med förnybara drivmedel. Vidare visar studien att beroende på kundens arbetsroll kan en skillnad vad gäller uppfattningen av ekonomiska och praktiska aspekter identifieras. Där kunder som arbetar på huvudkontoren anser att hyrning är ett bra alternativ för att slippa kostnader vad gäller underhåll, lagerhållning och logistik. Medan kunderna som arbetar på byggena anser att bortsett från tillgång till moderna maskiner så bidrar hyrning av produkter till oförutsedda händelser och binder kunderna till uthyrningsföretaget.

För att influerar kunderna till hållbart hyrande föreslår studien att ökad tillgänglighet av information, kundkontakt och kommunikation är av stor vikt. Ett miljöcertifieringssystem för byggmaskiner är ett förslag på lösning som skulle möjliggöra och förenkla en hållbar hyrningsprocessen.

Slutligen, studien bidrar till nuvarande forskning inom SPT med förslag på utveckling av SPT modellen genom tillägget av elementet Kommunikation. Genom Kommunikation kan kopplingarna mellan elementen stärkas och därmed möjliggöra för nya tillvägagångssätt och en hållbar utveckling.

Nyckelord: *användarorienterade tjänster, delningsekonomi, gröna produktegenskaper, hyra vs köpa, tjänstefiering*

Abbreviations

CE – Circular Economy, p. 1

ERA – European Rental Association, p. 2

PSS – Product Service System, p. 7

SPT – Social Practice Theory, p. 4

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1 Introduction

This chapter provides a description and background of the thesis. Further, the chapter presents the thesis aim and research questions together with the thesis delimitations. The chapter ends with a visual presentation of the roles of chapters in this report.

Sustainability has become a major topic of discussion around the globe, especially regarding the increasing consumption and management of finite resources (Earth Overshoot Day, 2019). Alternative models for consumption have been presented as a solution to move away from what is seen as unsustainable development. An alternative model is Circular Economy [**CE**] which is presented in Goal 12 as a system for "Responsible consumption and production" in FN´s global goals agenda 2030 (Global Goals, 2019). The target of Goal 12 is to ensure sustainable management and efficient use of natural resources reduce the waste generation, and encourage companies to adopt sustainable practices, *etc.* (*ibid.).* The idea behind CE is to move away from a linear understanding of the economy, with a cradle-to-grave perceptive, and towards a circular economy with a cradle-to-cradle perspective (Ellen MacArthur Foundation, 2013). A cradle-to-cradle perspective takes the responsibility of the product even after end consumption. CE can be seen as a framework of resource management with the idea of resource loops, where waste does not exist but where materials are reused, recycled, or repaired to be kept in use as long as possible. Business activities such as offering service-based products, buy/sell used products, restore used products, and renting and leasing are promoted to contribute to a circular economy (*ibid.*).

1.1 Problem background

According to the literature, the construction sector puts a significant pressure on the natural environment, since the construction industry consumes 40% of the materials entering the global economy (Leising, *et al*., 2017, p. 977). The Swedish construction industry has a major part of the national emissions and climate impact; in 2017 the emissions by the construction industry represented 19% of Sweden´s total emissions (Boverket, 2020, p. 1). The construction sector is also an industry, after the mining industry, that generates the most waste in Sweden (Svenska MiljöEmissionsData, 2018). A transition to CE may seem fundamental, but authors argue that while the concept gained traction in business and academia, CE is still a relatively new topic in the construction industry (Lesing, *et al*., 2017).

Partial solutions to the climate impact from the construction industry are seen in choices of construction materials, methods for using and reusing materials but also in the use of technical equipment in construction processes (Boverket, 2018; Lesing, *et al*., 2017). The equipment rental industry is a sector within the construction industry with the capacity to find new solutions. At the annual construction convention (2019) it was pointed out that future avenues are associated with "Rental – A Sharing Economy" (Allen, 2019, p.6). This statement is very much in line with what is argued by the influential Ellen MacArthur Foundation (2013) stating that rental is a business activity that contributes to a CE. Rental means that the customer[1] has the possibility to use a product without ownership (Cambridge Dictionary, 2019) – a product can be rented for an hour, days, months, or longer periods in exchange for money (European Rental Association, 2019a). Rental may be favorable for the customer since it reduces the need for heavy investments, reduces fixed costs, minimizes the financial risk, increases flexibility

[1] In this study, the concept of customer is used when literature and models mention the concept of consumer (See chapter 2. Theory)

and it minimizes the environmental impact by sharing and resource efficiency since many use the same product (European Rental Association, 2010).

The construction equipment rental market in Europe grew with 15% in 2017 and the Nordic countries have reached record levels since then (European Rental Association, 2019b, p.17). In Sweden, the construction equipment rental industry had a turnover of over 1,6 billion EUR in 2019 (European Rental Association, 2019b, p.16). ERA, the European Rental Association [**ERA**] states that "sustainability is becoming increasingly important to the long-term strategy of the rental industry" (European Rental Association, 2015a, p.3). The equipment rental industry and its sustainable rental practices are largely driven by the requirements of their customers, and those of their customers´ customers (European Rental Association, 2015b).

In order to change current production and consumption patterns the concept of CE proposes the reuse of "waste" and resources, but also slowing down resource loops by developing *long-lasting reusable products* and *sharing products* (Bakker, *et al*., 2016; Ellen MacArthur Foundation, 2013). Goods that are most commonly shared are so-called "Shareable goods" (Frenken & Shor, 2017), for example, a washing machine or tools. These goods provide owners with excess capacity since the owner does not consume the product all the time. The excess capacity creates an opportunity to lend or rent out the goods (*ibid.).* Renting is favorable to the customer because of economic factors (European Rental Association, 2010), but it also contributes to sustainable development and CE since it increases product efficiency and reduces consumption and the carbon footprint (Ellen McArthur Foundation, 2013; Frenken & Schor, 2017).

ERA states in their recent research report "Carbon Footprint of Construction Equipment", that construction equipment rental compared to owning, approximately reduce 30-50% of the carbon footprint (European Rental Association, 2019, pp. 21-27). In a report from the National Board of Housing, Building and Planning (Boverket, 2018) it is argued that in order reduce the Swedish construction industry´s emissions, it is one of the requirements to change the production of construction equipment and its attributes. The literature states further that development of green products is necessary to achieve sustainable development (Dangelico & Pontrandolofo, 2010), and the customers' demand of sustainable products are the main driver behind the development of CE (Bechtel *et al.*, 2013; Hekkert *et al.*, 2017; Hillary, 2004). Green products are defined by The Commission of the European Communities as "products that use less resources, have lower impacts and risks to the environment and prevent waste generation already at the conception stage" (Dangelico & Pontrandolfo, 2010, p. 1609). In other words, products that are designed and conceptualized to contribute to a circular economy.

Despite the political call for sustainable development (Global Goals, 2020), CE (Ellen McArthur Foundation, 2013) and new business models (Bakker *et al.,* 2016; Ellen McArthur Foundation, 2013), the changes to more sustainable procedures is associated with challenges (Blok *et al*, 2015; Hargreaves, 2011). One of the major challenges concerns customer perspectives. Customers express concerns for the environment, but their expressed attitudes are not always reflected in the consumption (Englis & Phillips,2013 Hahnel., *et al*., 2014; Luzio & Lemke, 2013; Ottman, 2011; Salo, 2020; Young., *et al.,* 2010). Several studies argue that customers do not purchase green products since they do not consider green product attributes (De Groot & Schuitema, 2015). Customers´ appeal to purchase green products might be limited by forced trade-offs on important attributes compared to conventional products, such as price, quality, and performance (Olson, 2013). De Groot and Schuitema (2015) on the other hand argue that customers do consider and are influenced by green product attributes, but they tend

to not be as much expressed as regarding conventional products. CE as a means to reach sustainability goals calls for more research concerning our understanding of customer´s attitudes and behaviors (Hahnel., *et al.,* 2014; Ribeiro & de Medeiros, 2017; Young., *et al.,*2010).

1.2 Problem

Marketing deals with satisfying customer needs. A traditional perspective has placed much attention on physical products, as means to meet needs, and create value. This is referred to as a product dominant logic (Vargo & Lusch, 2004). In product-dominant logic, tangible outputs and transactions are central. The producer and customer are viewed as separated, and the customer is not included in the production of value. However, alternative perspectives are offered in the so call service-dominant logic. In a service-dominant logic, the exchange of processes and relationships is in focus, where the customer always is involved in the production of value (*ibid.*). In other words, value is co-created and determined through value-in-use and not only in the production process and point of transaction (Vargo & Lusch, 2006). Authors argue that in order to understand co-creation a deeper understanding of customer consumption and behaviour is required (Echeverri 2012*;* Grönroos, 2008; Ng *et al.*, 2011; Vargo, *et al*., 2008). Much of the existing research is not focused on the customer perspective but on service systems from the company´s point of view, which calls for customer understandings in a service-dominant logic perspective (Day, *et al.,* 2004; Heinonen, *et al*., 2010; Payne, *et al*., 2009).

It can be assumed that the rental industry contributes to CE and sustainable development (Ellen McArthur Foundation, 2013), but the main argument why customers chose to rent construction equipment is because of economic factors (European Rental Association, 2010). Several studies consider green product attributes and customers lack motives for *purchasing* green products (De Groot & Schuitema, 2015; Hahnel, *et al*., 2014; Ribeiro & de Medeiros, 2017; Young., *et al.,* 2010), but what about customers' attitudes about *renting* green products? Researchers indicate the need for further research in the area in order to increase the understanding attitudes also for 'green renting' (Blok, et al., 2015; Ribeiro & de Medeiros, 2017; Vergragt, 2014). The literature study points to a scarce body of literature that explains customer behavior and demand for green product attributes regarding equipment rental in the context of CE.

1.3 Aim and delimitations

The aim of this study is to explain the factors that influence customer request for green equipment rental.

- What are the reasons for customers choice of rent equipment?
- What kind of sustainable product (equipment) attributes and services do the customers value?
- How can a sales agent and service provider influence the customers to consider rental as an alternative to purchasing?

The study is based on a flexible design and includes a single case study of the phenomenon of equipment rental in Sweden. The focus is on B2B and how customers perceive rental in the Swedish equipment rental industry. A B2C perspective is not chosen since B2B is the Swedish equipment rental´s major customer segment is the construction industry (Cramo, 2020a; Ramirent, 2018). Equipment rental consists of many different product segments, for practical reasons this study will include all of them.

Many possible theoretical perspectives may serve as a toolkit to understand rental. Theoretical delimitations are made to focus on use-oriented services and customer perspectives. To achieve the purpose of this study Social Practice Theory [**SPT**] is chosen as the foundation of the theoretical framework and is used to guide the analysis. SPT focuses on practices as the phenomenon, in this case, rental. It takes both individual, spatial, and environmental aspects of behavior into consideration (Shove *et al*., 2012).

1.4 Outline

This thesis consists of seven chapters (Figure 1).

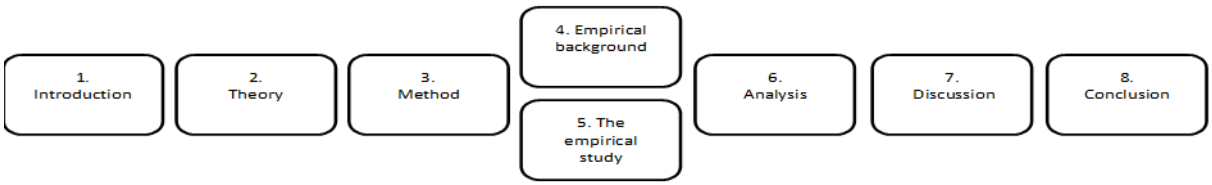

Figure 1. Illustration of the outline of the study.

The thesis starts with an introduction (Chapter 1) which presents a background, the research problem and how this study aims to address it. It provides a description of the study´s aim, research questions, and delimitations. Further, Chapter 2 presents the conducted theories from existing literature regarding servicification, social practice theory, and green product attributes, which leads to this study´s conceptual framework. Chapter 3 describes the choices regarding the methodological approach, how the empirical data was conducted, and actions taken regarding ethical aspects and to ensure the quality of the research. In order to give the reader a better understanding of the empirical background, Chapter 4, presents previous research about customer behavior and demand to rent green products. The study´s empirical results are presented in Chapter 5. Through the study's theoretical framework (presented in Chapter 2) the study´s result is analyzed in Chapter 6. Further, in Chapter 7 the study´s results are discussed with regards to previous research (Chapter 4). In the final chapter (Chapter 8), conclusions and main findings are presented together with suggestions for future research.

2 Theory

This chapter introduces theoretical perspectives relating to service marketing and the demand for green equipment rental. The chapter presents concepts that are commonly used to create an understanding of value creation in B2B and B2C, such as creating value through sales and through services, customer behavior and the classical Marketing Mix. Since this study aims at explaining customer perceptions of equipment rental and the environmental aspects connected to it, this study uses Social Practice Theory to develop an understanding of practical implications, need oriented services, related to the actual use of rental services. Further, the literature regarding green product attributes are presented. The chapter concludes with a conceptual framework.

2.1 Creating value through sales

Historically, most of our understanding of marketing was largely developed during the nineteenth century, when the focus was on the efficient production of tangible outputs (Vargo & Lusch, 2004). In other words, traditional marketing has a product dominant logic, based on the exchange of tangible goods, manufactured output. In order to develop maximum manufacturing efficiency, the producer and customer are viewed as separated. Value is determined by the producer, embedded within goods during the production process (*ibid.*). The product dominant logic views the "'producer,' as a creator of value, and a 'customer,' as a destroyer of value" (Vargo & Lusch, 2017, p. 48). The focus is on the transaction, where the change of ownership of goods was considered as the common denominator (Vargo & Lusch, 2004). As Ng *et al.,* (2011, p. 420) argues, "the manufacturer's responsibility for value creation ends upon transfer of ownership since the 'exchangeable' unit produced is purchased through a transaction with the customer". Therefore, most communication with the market occurs through mass communication, a one-way communication with offerings to either the whole or segments of the market (Vargo & Lusch, 2004). Manufacturers and marketers want to capture the customers and started to "*segment* the market, *penetrate* the market, and *promote to* the market all in the hope of attracting customers" (Vargo & Lusch, 2004, p. 2). In other words, the traditional marketing view value as the exchange of value where an offering only is considered as valuable when it is exchangeable for something else, for example money, (Ng *et al.*, 2011).

The industrial economy in combination with traditional marketing creates a linear model of resource consumption (Ellen McArthur Foundation, 2013). It contributes to a "take-make-dispose" pattern where companies only focus on harvesting resources in order to create products and sell to customers. When the product no longer serves its purpose, the customer discards it (*ibid*.).

2.2 Adding value through services

In order to move away from the linear model and towards a circular model of resource consumption, services are proposed as a solution (Ellen McArthur Foundation, 2013). The concept of services has traditionally been difficult for the researcher to define (Lovelock *et al.,* 2015). Freeman widely defines services as "Services are anything sold in trade that could not be dropped on your foot" (Freeman, 1989, p. 329 cited in Charter and Polonsky, 2017, p. 97). Lovelock *et al.,* (2015, p.8) on the other hand define services as "economic activities between two parties, implying that value is created for both seller and buyer". However, Hockerts (1995 in Charter and Polonsky, 1999) argues that services and material goods are closely linked, for example order groceries and get it delivered to the door together with recipes. Services are

dependent on its customer and therefore must providers establish contact with their customers (*ibid.*). This relationship can be described as a service-dominant logic (Vargo & Lusch, 2006). Service dominant logic implies that value always is co-created with the customer (Ng *et al.*, 2011). In other words, the customer and the firm are jointly involved in the creation of value, and the value of an offering is achieved in-use instead of at the exchange of ownership (*ibid.*). Co-creation of value is only achieved when customers participate during the production, delivery, and consumption of the service (Lovelock *et al.*, 2015).

Services usually consist of both tangible and intangible elements. Today few services exist without any tangible elements just as goods seldom are without any service component (Lovelock *et al.*, 2015). In fact, as the manufacturers started to add services to their tangible products the distinction between services and goods has become blurred (*ibid.*). Hockerts has combined the elements of institutional arrangements and interaction and identified three typical service concepts (Charter and Polonsky, 1999) (Figure 2).

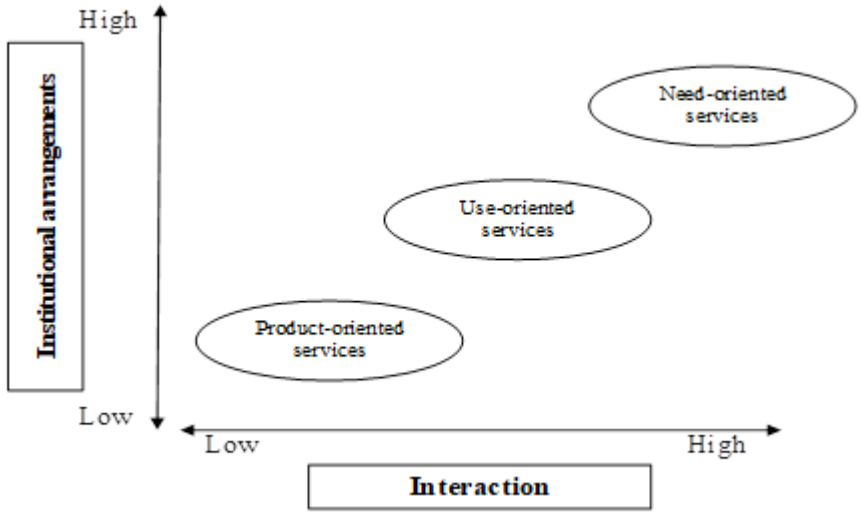

Figure 2. Three service concepts (Hockerts 1995, p. 31 cited in Charter & Polonsky 1999, p. 98 with minor modifications).

The matrix defines three service concepts; Product-oriented services, Use-oriented services, and Need-oriented services. Product-oriented services offer services that are added to a sold product (Charter and Polonsky, 1999). This service requires a low level of interaction and intuitional arrangements, whereby the provider offers expertise through training and consulting, maintenance, and disposal services. With Use-oriented services the provider no longer sells a product but the use of a product, for example renting, leasing, or pooling options. This approach requires a higher level of interaction and institutional arrangements. It encourages the service provider to increase the service life of a product and reduce costs regarding maintenance and replacements. Need-oriented services are based on that the service provider guarantees a certain result rather than a physical product. In other words, the service is no longer connected with a product (*ibid.*). Hockerts presented this model as early as 1999 since then the model has been developed by Hockerts himself as well as other researchers such as Rexfeld and Ornäs (2009).

According to the literature is the manufacturing industry being “servicified” (Lodefalk, 2013; National Board of Trade, 2010). It means, as mentioned earlier, that services are added to a concept (for example a physical product) to increase the value of the offer. The trend can be explained as an increase in the exchange of services and value rather than the exchange of

complete goods (*ibid.*). In existing research, authors have different views on servicificaiton. Some argue the importance of a liberalization of trade (Lodefalk, 2013; National Board of Trade, 2010) while others state that manufacturers must adapt to customization in order to stay competitive (Sundin, *et al*., 2009). According to Lodefalk (2013) servicification is achieved by vertical integration and specialization. Rexfelt and Ornäs (2009), on the other hand, perceive the trend of servicification as the selling of functions. The trend of servicification develops closer and longstanding contacts between firms and customers, which may be kept over an entire lifetime (Lodefalk, 2013). Researchers' different views on servicification are described in Table 1.

Table 1. Different views on Servicification

Definition	Description	Author (year)
Vertical integration and specialization	Firms focus on integration and keeping activities and sources in-house. Specialization, firms focus on services while outsourcing other activities to external actors	Lodefalk (2013)
Mass customization	Add services to customized products	Sundin, *et al*. (2009)
Functional sales	Describes revivification as the selling of functions	Rexfelt & Ornäs (2009)

Lodefalk (2013) discusses how vertical organizations adapt their activities to servicification. A vertical organization can either integrate or specialize their activities and sources. It can be a form of insourcing, where activities are expanded or kept in-house. Integration downstream has, on the other hand, been recognized in manufacturing firms, where manufacturers not only produce products but offer service packages such as technical support, maintaining, installing, *etc*. With Vertical specialization firms outsourcing some of its activities to external suppliers (E.g Nike which focuses on services such as design and marketing while the manufacturing is outsourced to external contractors). Such a specialization may change the character of the manufacturer to be more of a service firm (*ibid.*). Both Lodefalk (2013) and The Swedish National Board of Trade (2010) represent a trade policy perspective. That suggest that servicification increase the importance of liberalizing trade, since the interdependence between services and merchandise increase.

Other authors argue that the growing need to provide services to customers because it creates a good opportunity for the industry to combine the needs of servicification and mass customization (Sundin, *et al.,* 2009). It can be enabled by an integrated product-service engineering approach where companies add services to customized products.

Rexfelt and Ornäs (2009), on the other hand, view servicification through the lens of product-service systems [**PSS**] and functional sales. The authors state that a function consists of goods and services, or a combination of them. They describe the trend of servicification as the selling of functions. Further, Rexfelt and Ornäs (2009) argue that in order to change the focus of producing by refining materials towards value creation for customers, a shift in ownership towards co-consumption is required.

Despite differences in interpretation of the servicification concept, researchers agree that there is a shortage in knowledge about servicification (Lodefalk, 2013; Rexfelt & Ornäs, 2009), especially regarding the customers´ perspective (Rexfelt & Ornäs, 2009). Rexfelt and Ornäs (2009) mention that firms struggle to understand customer needs and requirements since "not understanding customer requirements is the main cause of service failure" (Hollins, 2007 in Rexfelt & Ornäs, 2009, p. 678).

2.3 Customer behavior

A shift towards a customer-oriented approach in marketing means "that knowledge of consumer behavior is becoming increasingly important" (Jensen, 1996, p. 60). Consumer behavior in this case is not just purchasing behavior but rather related to customer needs and practices. Historic understandings of customer behavior have been developed since the 1950s (Erasmus *et al.*, 2001; Fullerton, 2013; Sirakaya & Woodside, 2005) (Table 2).

Table 2. Historic understandings of customer behavior

Period	Characteristics	Author (year)
1950s	Economics and psychology. Rational thinking and maximizing utility.	Erasmus *et al.*, 2001; Fullerton, 2013; Kassarjian,1982
After the post World War II era	Psychology – motivation research.	Fullerton, 2013; Kassarjian, 1982; Parson & Maclaran, 2009
Late 1960s	Developed The grand models, which are based on a cognitive and rational approach.	Erasmus *et al.*, 2001; Kassarjian, 1982; Sirakaya & Woodside, 2005
1980s	Fast and slow thinking. People´s selective perception and memory shape their minds before decisions and choices.	Kahneman (2012); Shleifer (2012)
Today	Traditional marketing is outdated. A shift from focus on the individual to the community. Focusing on customer needs and their practices.	Ottman (2011)

In the early years, the research field was characterized by other disciplines, such as economics and psychology (Erasmus *et al.*, 2001; Fullerton, 2013; Kassarjian,1982). At first, the research regarded individuals as entirely rational and making decisions based on maximizing utility (Erasmus *et al.*, 2001; Fullerton, 2013). After the post World War II era, the researchers were inspired by psychology and researchers such as Freud and Adler (Fullerton, 2013; Kassarjian, 1982). They wanted to answer questions such as "why does a customer buy or not buy a product?" (Fullerton, 2013, p.213). At that stage, the early research within customer behaviour consisted mostly of motivation research (Fullerton, 2013; Parson & Maclaran, 2009). Further, a number of researchers such as Nicosia (1966), Engel, Kollat and Blackwell (1968), Howard and Seth (1969) and Gilbert (1991) introduced the most influential models and theories of decision making and customer behaviour (Kassarjian, 1982; Sirakaya & Woodside, 2005). These models are called the "grand models" of customer behaviour (Erasmus *et al.*, 2001; Kassarjian, 1982; Sirakaya & Woodside, 2005).

In the literature, the "grand models" of customer behavior are often referred to as the five-step classification of the customer decision process (Erasmus *et al.*, 2001; Sirakaya & Woodside, 2005). The five steps consist of: *problem recognition*, *information search*, *alternative evaluation, choice, and outcome evaluation* (*ibid.*). These models are described as cognitive models, which means that they are based on a rational approach to customer decision making (Erasmus *et al.*, 2001). Solomon (1996, p. 268 cited in Erasmus *et al.,* 2001, p. 83) described the approach as "a rational approach to customer decision-making refers to the careful weighing and evaluation of utilization or functional product attributes to arrive at a satisfactory decision". These models are designed to explain decision-making relating to tangible products (Sirakaya & Woodside, 2005), individual behaviors, attitudes, and preferences (Parson & Maclaran, 2009).

Other researchers argue that human decisions are not always perfectly rational (Sirakaya & Woodside, 2005). Kahneman´s (2012) Prospect Theory is an alternative to the standard theory of choice under risk. Kahneman (2012) argues that decision making is based on two systems, *Fast thinking* which is intuitive, unconscious, and automatic and *Slow thinking* is conscious,

controlled, and statistical. During the 1980s when the theory was introduced, Prospect theory was found to be quite radical and influenced to new experiments (Shleifer, 2012). The theory states that during decision making "highly selective perception and memory shape what comes to mind before we make decisions and choices" (Shleifer, 2012, p. 1089). In other words, a choice or judgement is based on Fast thinking. It is reactive and automatic based on how people perceive the situation and environment and recall information from memory associated with the perception. It is not optimizing. So, people make decisions, at the moment, based on what they have in mind. It might be optimal at the moment but maybe not given available information from the outside world (*ibid.*).

In line with Kahneman´s (2012) ideas, Ottman (2011) argue that traditional marketing may be outdated. Ottman (2011, p. 44) mentions that today´s customer´s consciousness "cannot be addressed with conventional marketing strategies and tactics". Customers should no longer be viewed as mere "customers", but as human beings with different lifestyles. In the new paradigm of marketing it is no longer about the individual, it is about communities and the power of word to mouth (*ibid.*). Modern marketing theories take in to account different kinds of decisions (purchasing, using, and disposal) relating to the needs and means to satisfy customer needs, in various contexts, focusing on practices.

With the new modern marketing, customer behavior is viewed to be shaped by the customers' practices and their performance (Ottman, 2011; Shove & Pantzar, 2005). Customer behavior is no longer focused on the attitudes, choices, and behaviors of individuals but on how individuals and groups form, reproduce, and recruit practices and performances (Hargreaves, 2011).

2.4 Social Practice Theory

Social Practice Theory [**SPT**] has origins from Social Theory. Researchers struggled to find the balance between focusing on the agent or the structures of society as a unit of analysis (Shove, *et al.,* 2012). Therefore, authors such as Bourdieu, Giddens, Schatzki, and others developed SPT (Reckwitz, 2002; Shove, *et al.,* 2012).

SPT can be seen as a subcategory to culture theory. In contrast to other social and cultural theory perspectives SPT does diverse the attention towards the practice itself instead of the individuals who perform the practice (Hargreaves, 2011; Reckwitz, 2002). In other words, practice becomes the core unit of analysis. Social Practice Theories have mostly focused on so-called classic social phenomena, such as shared understandings, meanings, norms, and practical consciousness (Shove, *et al.,* 2012).

So, what is practice? Researchers have diverse views on practices and the role of the elements in practice theory. Schatzki defines a practice as "a temporally and spatially dispersed nexus of doings and sayings" (Schatzki, 1996, p.89, cited in Shove, *et al*., 2012, p.15). Reckwits (2002, p. 249) defines a practice as a behaviour created by interconnected elements such as "forms of bodily activities, forms of mental activities, 'things' and their use, background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge". A practice can be a way of consuming, eating or driving a car. People are the agents and the "carrier" of a practice (Reckwitz, 2002). According to Reckwitz (2002, p. 250), a practice is social since "it is a 'type' of behaving and understanding that appears at different locales and at different points of time and is carried out by different body/minds". This calls for methodological awareness in collecting and interpreting data since the data is bound to a context.

Shove and Pantzar (2005) combines the ideas by Schatzki and Reckwitz in their article "Consumers, Producers, and Practices: Understanding the invention and reinvention of Nordic walking". Shove and Pantzar (2005) has a practical approach of consumption and define a practice as "the active integration of materials, meanings, and forms of competence" (Shove & Pantzar, 2005, p.45). To describe a practice, Shove *et al.* (2012) created a simplified model consisting of the elements "images (meanings, symbols), skills (forms of competence, procedures) and stuff (materials, technology) that are dynamically integrated by skilled practitioners through regular and repeated performance'' (Hargreaves, 2011, p.83) (Figure 3).

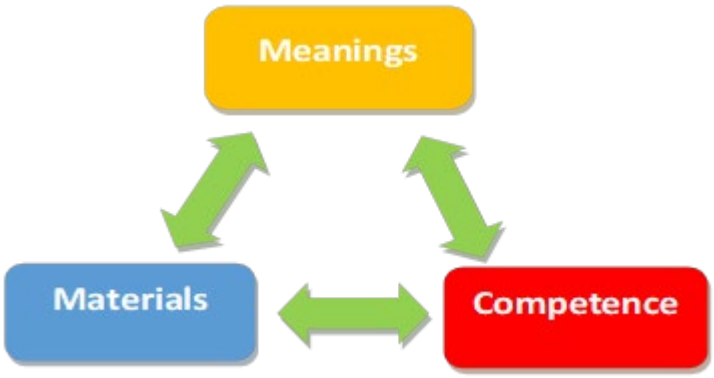

Figure 3. Elements of practice (Shove et al., 2012, p. 25 with minor modifications).

The model describes how practices are done by interdependent relations between the elements; Materials, Competence, and Meanings (Shove, *et al*., 2012). All three elements must exist to conduct a practice.

- *Materials* – include tangible physical entities such as the human body itself, technologies, objects, tools, *etc*. (Shove, *et al*., 2012). For example, in order to play football is materials like a ball, field, and a goal needed. However, "products alone have no value" (Shove & Pantzar, 2005, p.57), value is created when the product is combined with practice, competence, and meaning (Shove & Pantzar, 2005).
- *Competence* – consist of know-how, skill, and technique (Shove, *et al*., 2012). In order to play football a practical consciousness is needed; you need to know how to play football. However, know-how is not only about knowing the skill required to perform the practice, but also knowing how to evaluate the performance.
- *Meaning* – include "symbolic meanings, ideas and aspirations" (Shove, *et al*., 2012, p.20) and social significance of participation. It is a simplification of what Rechwit´s describes as "mental activities, emotion and motivational knowledge" (Shove, *et al*., 2012, p. 25). Meanings are a combination of experiences, associations, values, and socially shared senses (Shove & Pantzar, 2005). Regarding the meaning, a practice can be considered as either "right", "fitting" or "not fit" (Spotswood, *et al.,* 2013). For example, the meaning and acceptance of football play a quite diverse roll in different countries regarding gender and culture.

Practices change, they are born and die when linkages between the elements are created or broken (Shove, *et al*., 2012). The integrations between the elements are therefore mutually transformative. SPT change the perspective from individual attitudes to instead focus on how practices are reproduced, stabilized, and maintained (Hargreaves, 2011). It focuses on how to recruit and encourage practitioners to practices in order to maintain and strengthen the performance of more sustainable practices.

New practices contribute to new forms of production and consumption (Shove & Pantzar, 2005). Warde (2005, p. 137) states that "consumption is not itself a practice but is, rather, a moment in almost every practice". Since consumption is a part of practices, practices become important for sustainability (Spurling, *et al*., 2013). It is clear that there is a need for education or persuasion to alter customer practices for a sustainability transformation (*ibid.)*. An individual who gains a positive experience by performing a certain practice will increase its engagement and develop experience (Shove *et al*., 2012; Warde, 2005). It is the level of engagement that explains the consumption, not any personal decisions regarding the course of conduct (Warde, 2005). Practices start to evolve and change meaning when the number of engaged practitioners increases (Shove, *et al.,* 2012). In other words, sources of changed behavior depends on the development of practices (Warde, 2005).

SPT works as an analytical framework for understanding customer behavior and consumption since it uncovers phenomena usually concealed in cultural analysis (Warde, 2014). Further, SPT is an effective tool to identify how practices are created, developing, and fade (Hargreaves, 2011). Practices develop and changes as the links between the element's changes, and when the population who carry the practice changes (Watson, 2012). Further, Watson (2012, p. 491) states "a practice can therefore change as neighboring practices change".

Critics against SPT claim that the theory has not developed any set of tools for managing behavior change (Spotswood, *et al.,* 2013). Environmental problems present societal challenges often called Socio-technical transitions (Geels, 2011). The concept involves alterations regarding the configuration of energy, transport, and food systems, and entails consumer practices, infrastructure, policy, technology, scientific knowledge, and cultural meaning (*ibid.*). However, SPT contributes with a multidisciplinary view on social marketing and might provide tools to build sustainable practices such as; legislation, diverse social marketing, and infrastructure change (Spotswood, *et al.,* 2013). Further, SPT is criticized for its complex ontology which may increase the need for trade-offs regarding generalization, accuracy, and empirical operationalization (Geels, 2011). Geels (2011, p. 38) explains that SPT and its descriptive approach cannot be used to analyze transitions that "goes beyond the empirical mapping of individual cases". Spurling *et al*. (2013) on the other hand, argue that an SPT perspective encourages a change towards sustainability. It is possible to replace practices with sustainable alternatives by finding substitutes, change how practices interlock or re-craft elements.

2.5 The Marketing Mix

One of the traditional and widely used models of marketing is the Marketing Mix and the Four P model (Brassington & Pettitt, 2013; Grönros, 1994; Kotler, 2000). The Marketing Mix consists of four different marketing variables: *product*, *price*, *place,* and *promotion*. The purpose of the model is to optimize the profit function (Grönros, 1994). However, the model has been criticized since it reflects a product-oriented approach of marketing instead of the new paradigm of a market- or customer-oriented one (*ibid.*).

The Marketing Mix has since its introduction been modified regarding changes in customer and organizational approaches (Londhe, 2014). Researchers have presented alternative labels to the original Four P model and some researchers have added the number of Ps or added new labels (Yudelson, 1999). Lauterborn adjusted the Four P model with new labels regarding the paradigm shift in marketing, from a product approach towards a customer approach (Yudelson, 1999). He changed the model from Four Ps to Four Cs with the elements,

- *Consumer wants and needs* – only sell products focusing addressing customer demand.
- *Cost to satisfy* – the cost of a product is not only connected to the price, opportunity cost and cost of conscience should also be included.
- *Convenience to buy* – the customer should have easy access to the product.
- *Communication* – create an open dialogue and collaboration with customers based on their needs and wants (Londhe, 2014; Olsson & Györei, 2002; Yudelson, 1999).

Several researchers have developed Lauterbon´s labels further, for example, Londhe (2014) has adjusted the mix to a focus on values and Yudelson (1999) emphasize the importance of relationship and communication. To summarize, the model has moved from a product-oriented approach towards a service-oriented approach with a focus on creating customer value (Londhe, 2014; Yudelson,1999).

2.6 Product and services

Independent of if a product is purchased, rented, or borrowed, the product attributes play an important role in the performance of a practice. It has to do with the characteristics of the product in use. In this project, the product attributes are divided into six factors based on a literature compilation (Table 3). Each of the factors, *Materials & Production, Energy, Price, Pollution, Services*, and *Efficiency,* is further explained below the table.

Table 3 An overview of product attribute factors

Factor	Description	Author
Materials & Production	In production, use recycled materials, natural materials, reused materials, chemical content. Ensure reusability.	Dangelico & Pontrandolfo (2010), Ellen MacArthur Foundation (2015), Lusch *et al.* (2010), Young *et al.* (2010
Energy	New energy source, renewable energy, energy efficiency.	Dangelico & Pontrandolfo (2010), Ellen MacArthur Foundation (2015), Young *et al.* (2010)
Price	The price of the product.	Kotler et *al.* (2014), Peattie (1995), Young *et al.* (2010)
Services	Implement and develop new services and new technology. Share products.	Ellen MacArthur Foundation (2015)
Efficiency	Increase product life by reuse and recycle the product, repairability. Energy efficiency. Implement new technology.	Dangelico & Pontrandolfo (2010), Ellen MacArthur Foundation (2015), Lusch *et al.* (2010), Young *et al.* (2010)
Pollution	Emissions, chemical content, environmentally safe, health issues.	Dangelico & Pontrandolfo (2010), Lusch *et al.* (2010), Paul & Rana (2012), Young *et al.* (2010)
Ethical aspects	Social concerns and acceptance, environmental concerns, health aspects.	Lusch *et al.* (2010)

Dangelico and Pontrandolfo (2010) identify green product attributes with the Green Option Matrix [**GOM**]. GOM is a three-dimensional matrix and works as a framework that integrates the different dimensions of green products and how the different types of green products contribute to sustainability. GOM is used to analyze different features of green products. The matrix consists of three phases related to use; 1) *before use* – including materials, production processes, transportation process etc. 2) *use* - efficiency and 3) *after use* – end of life. Further, the matrix consists of three different environmental contribution categories. The first category is ***materials*** that means using less amount of materials, use recycled or natural materials, designed to be reused/recycled or dissembled. The second category is ***energy*** that includes energy efficiency, use energy from renewable resources or produces energy from renewable

sources. And the third category ***pollution*** regards to products that are less pollutant, does not pollute, reduces pollution caused by other products (Dangelico & Pontrandolfo, 2010).

Ellen MacArthur Foundation (2015), on the other hand, has a slightly different perspective than Dangelico and Pontrandolfo (2010). This perspective is reflected in a model to generate circular strategies and products (Table 4).

Table 4. ReSOLVE (Ellen McArthur Foundation, 2015, p. 21 with some modifications)

Regenerate	Shift to *renewable energy sources* and *materials*
Share	*Share products*, *increase product life*
Optimize	Increase the *product efficiency*, *minimize waste*
Loop	*Reuse and recycle*
Virtualize	*Create services* and online services
Exchange	implement new technology and create new types of products/*services*

The model, ReSOLVE, identifies six business actions; Regenerate, Share, Optimize, Loop, Virtualize, and Exchange. Ellen McArthur (2005) state that all these actions shift resource use from finite to reusable resources, increase utilization, and product life. Further, all these factors should be taken into consideration while developing green products and business strategies. Furthermore, Young *et al.* (2010) have through a decision process approach identified certain factors customers with environmental concerns take into consideration before a purchase. Those factors are: ***product environmental performance*** (energy efficiency, fuel type and consumption, energy ratings *etc.*), ***product manufacturing*** (recycled material content, chemical content, and repairability) and *second-hand availability*. Barriers that affect the customer´s purchasing decision-making concerning the environment are *limited research time*, ***price***, and *lack of available* ***information*** (*ibid.*). Several authors argue that customers with increased education are more likely to purchase environmentally friendly products (Dettmann & Dimitri, 2010; National Geographic & Globescan, 2014).

Price is a product attribute that reflects an equilibrium between demand and supply (Kotler, *et al*., 2014). Kotler *et al.* (2014) state that "price is the sum of all values that the customers give up in order to gain the benefit for having or using a product or service". Price has historically been the main factor affecting buyer choice (*ibid.*). Peattie (1995) argues that a product´s environmental impact affects the price and demand of the product. Some argue that the price should include the cost of the product´s environmental impact, but the producers/manufacturers do not believe the customer is willing to pay for it *(ibid.*).

Other identified attributes are **health aspects** (Paul & Rana, 2012) and **ethical** and gentleness-related attributes (Lusch, *et al.,* 2010). Health aspects are, according to Paul and Rana (2012), one of the main reasons why customers choose to purchase green products. Health aspects include attributes such as environmentally safe such as **less pollutant** and environmentally friendly packaging and technology (*ibid*.). Lusch *et al.* (2010) argue that **ethical attributes** influence on customer perception and product preference. Ethical and gentleness-related attributes such as **social concerns**, less pollution, and **resource efficiency** affect customer´s overall perception of the product, and "other attributes of sustainable products will be viewed more positively as well" (Lusch, *et al*., 2010, p.19). But sustainable products are not always perceived as positive by the customer. In situations where gentleness-related attributes are compared to strength-related attributes, customers often perceive that sustainable products are not as effective and strong as conventional products (*ibid.*).

The product attributes mention in the literature above can be summarized into six factors; *Materials, Energy, Price, Production, Services,* and *Efficiency* (See Table 2). Gershoff & Frels (2015) argue that depending on the product category the product belongs to and which attributes that are central to the product, affect the perception of the greenness of the product. "We find that if a central attribute offers a green benefit, the product is perceived as more environmentally friendly compared with when a peripheral attribute provides an identical environmental benefit" (Gershoff & Frels, 2015, p. 107).

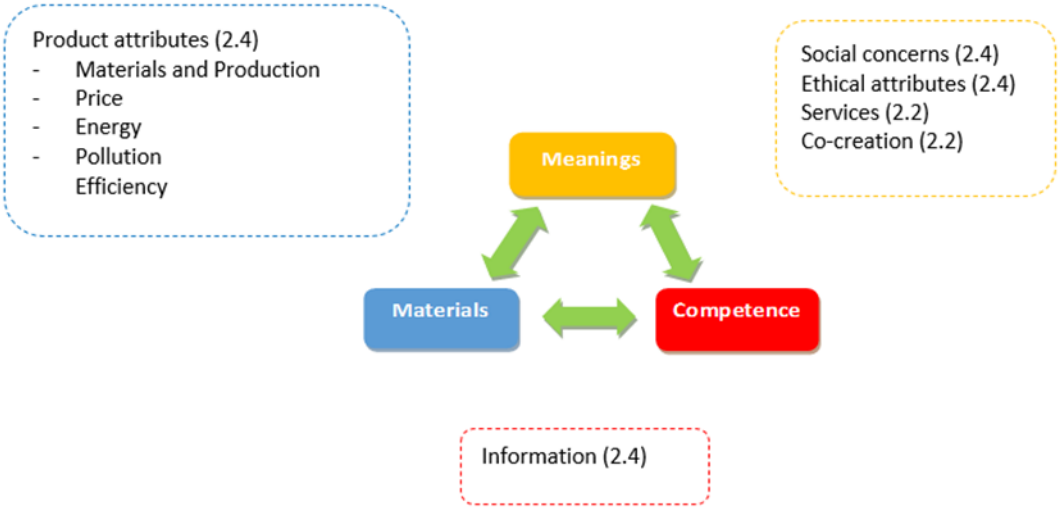

Figure 4. A conceptual framework for the project focusing on SPT.

2.7 A conceptual framework

The aim of this study is to explain factors that influence customer request for green equipment rental. In order to answer the study´s research questions, an understanding of customer behavior is needed. Reckwitz (2002) argues that the best way to understand behavior is through practices. SPT describes how practices are done by interdependent relations between the elements Meanings, Materials, and Competence (Shove *et al.*, 2012). The model has been acknowledged by researchers as applicable and helpful regarding studies within the field of marketing and customer behavior (Hargreaves, 2011; Spotswood *et al.*, 2013). Further, SPT suits as the core of a conceptual framework for understanding customer behavior and consumption, since it uncovers phenomena usually concealed in cultural analysis (Warde, 2014). However, practices and its components can be affected by interventions (Spurling, *et al*., 2013). Since practices change when the linkages between the elements change, or when the people carry the practices changes (Shove *et al.*, 2012). The conceptual framework, based on SPT, is illustrated in Figure 4.

Schatzki *et al.* (2001, p. 3 cited in Shove *et al.*, 2012, p. 16) state that "understanding specific practices always involves apprehending material configurations". With other words, just as Reckwitz (2002) mention, in order to play football, both a ball and a goal is required. To explain the practice of renting equipment and the materials that it requires, concepts and theories about product attributes (2.4) can be used.

In order to perform a practice, to play football, some kind of competence is necessary (Shove *et al.*, 2012), the skill to handle a ball. Authors have identified available information (2.4) as an important factor regarding customer´s purchase decisions (Young *et al.,* 2010), since customers

with increased education are more likely of purchasing environmentally friendly products (Dettmann & Dimitri, 2010; National Geographic & Globescan, 2014).

Meanings represent "the social and symbolic significance of participation at any one moment" (Shove *et al.*, 2012, p. 25). To specify, meanings include symbolic meanings, ideas, and aspirations (Shove *et al.*, 2012) as well as previous experiences and socially shared values (Shove and Pantzar, 2005). Hockerts (1995 in Charter and Polonsky, 1999) argues that services and material goods are closely linked. Services (2.2) are dependent on its customer (*ibid.*), the customer and the firm are jointly involved in the co-creation (2.2) of value. Today´s marketing is about communities and the power of word to mouth (Ottman, 2011) and practices might change if neighboring practices changes (Watson, 2012). Therefor social concerns (2.4) and ethical aspects (2.4) are of relevance in customer decision making (Lusch, *et al*., 2010).

The model presented in Figure 4 serves as this study´s conceptual framework and summary of the literature review. The model attempts to describe the interconnections between the elements and how different concepts of marketing theories and product attributes may function together, and how it affects the elements of practice. The model is applied in chapter 3 as a framework for the interview guide. Further, the conceptual framework is used in chapter 6 as a tool to analyze factors that influence customer requests for equipment rental.

3 Method

In this chapter, all methodological choices are presented. Further, the relevance of the choices is discussed with reference to the study´s aim and the research problem. To ensure transparency and consistency the consequences of the chosen approach are discussed together with ethical aspects. This study is based on a flexible design and builds on a literature review and a case study, consisting of multiple sources of data such as semi-structured video, phone, and personal interviews, an interview-based questionnaire, and secondary data.

3.1 Research design

This thesis will identify and explain factors that influence customer demand for sustainable equipment rental in Sweden. The study deals with the complex phenomena of understanding customer behavior and consumption. Consumption can be explained as a part of a practice (Warde, 2005). Practices develop and change as the links between the elements; meaning, materials, and competence change, and when the one carries the practice changes (Watson, 2012). The author aims to capture customers´ subjective thoughts about social reality, the respondent's own reflections, and thoughts about sustainable equipment rental and demand for green product attributes. Therefore, a constructivist position will be used since constructivism see the social phenomena as continually being built by social actors (Bryman & Bell, 2015). The study operates in the real world (an open system) and qualitative data are collected. In an open system, it might be challenging for the author to decide and predict the process of the study (Robson, 2011). Flexible design allows the author to shape the research design and reconsider frameworks and tools during the process. Furthermore, a flexible design suits the study since it commonly used when both qualitative and quantitative data is collected and allows the researcher to interpret the data.

The author´s interpretations, reflections, and thoughts about the subject (Bryman & Bell, 2015), is vital in the flexible design. By adapting an abductive approach, the researcher may avoid the risk of missing out diverse explanations of data (Robson, 2011). With an abductive approach the interpretation of the data is made successively during the project and reconnected with the theory, empirics, and analysis (Bryman & Bell, 2015). A flexible design with an abductive approach typically uses multiple qualitative data collection techniques, it provides the opportunity to use triangulation and ensure the trustworthiness of the research (Robson, 2011; Yin, 2009). A fixed design with a quantitative approach has been rejected since it would not capture the respondent's interpretations. In order to answer the study´s research questions this study builds on a Flexible design with an abductive approach, including a literature review and a case study.

3.2 A literature review

A literature review has been made continuously during the research process and acts as the foundation of this study. The aim of the review was to create an understanding of the research field and subject, theories, and methodological choices. A literature review helps the researcher to identify the main gaps and patterns in previous literature regarding the topic of interest (Bryman & Bell, 2015; Robson, 2011).

This study has used a method called a narrative review while setting up a literature review. The purpose of a narrative review is to create an understanding of the chosen subject area (Bryman & Bell, 2015). Bryman and Bell (2015) argue that a narrative review suits a study with a

qualitative approach since it creates an overview of existing literature. A narrative review suits the study since it has a broader search spectrum and is less focused than a systemic review. A systematic review has been rejected since its explicit search of literature would constrain the research. To achieve the study´s aim and regarding the selected subject, theories and concepts, a broad literature review is required and suits the purpose.

The main part of the literature in the study consist of scientific articles, books, and other published literature relevant to the subject. The literature search is conducted from academic databases such as Google Scholar, Web of Science, and Primo. In the search the most frequent key themes that have been used are: green product attributes, social-practice theory and behavior change, circular economy, product- and service-dominant logic. Further, the most frequently used journal is Journal of Cleaner Production, Journal of Marketing, and Journal of Consumer Culture. To ensure the trustworthiness of the literature review have peer-review articles been selected to the greatest possible extent. Further, most of the included articles are considered not only reliable but are discussed and well-cited in their fields of the subject.

Overall, the literature review indicates that a lot of literature exists which touches upon the subject of customer behavior, servicification, and green product attributes. However, it was clear that there is a lack in the existing literature regarding the customer perspective of green products within rental. The literature review contributed to the decision regarding which theories and concepts that will be used in the study to analyze and evaluate data and findings of customer demand for green product attributes within the rental industry.

3.3 Case study

Dubois and Gadde (2002, p. 554) argue that "the interaction between a phenomenon and its context is best understood through in-depth case studies". A case study involves a real-life phenomenon and an investigation consisting of multiple sources of evidence and tools (Robson, 2011). Case studies are commonly used in the need for understanding complex social phenomena (Yin, 2009) since the aim of the study is to create an understanding of customers perspective of green equipment rental as a phenomenon, a case study becomes a vital part of the strategy. Furthermore, with its ability to be loosely designed and flexible, a case study aligns with this study´s flexible design.

Some identified risks with case studies are; premature conclusions (Eisenhardt, 1989), limited findings because of subjective biases (Robson, 2011; Yin, 2009), and that researches fail with creating a suitable framework (Dubois & Gadde, 2002). However, it is possible to avoid these risks. In case studies, the researcher may collect and analyze data simultaneously (Eisenhardt, 1989). Furthermore, a flexible design and abductive approach allow the researcher to jump back and forth in the research process (Dubois & Gadde, 2002). The researcher has the chance to modify both research questions and the theoretical framework to respond to unexpected insights the empirical results might bring (*ibid*.). In order to minimize the risk of possible biases do Robson (2011) recommend researches to keep audit trial and the use of peer groups consisting of other researcher or students. With these good words in mind a single case study is used to collect empirical data, due to its clear relevance for the study´s purpose.

3.3.1 Choice of case and unit of analysis

The sampling in flexible design research mostly depends on the study´s purpose (Robson, 2011). This study´s purpose is to create an understanding of the customer's perspective of equipment rental in Sweden as a phenomenon. The theoretical framework of this study is based

on SPT. According to Reckwitz (2002) when SPT serves as a theoretical framework that creates consequences for research methods since SPT puts practice as the unit of analysis instead of actors or structures. With practices as the unit of analysis, the focus switch from infrastructure or individual´s qualities, to people's actions and how they explain them (*ibid.*).

A focus on practices in this project points to that the choice of unit of analysis for the empirical study refers to selecting a suitable context for these practices. In this study a Swedish, well-established corporation that has a strong market position was selected. The reasons for selecting a well-established company are based on the understanding that testing a new marketing model (rental services instead of just sales of physical products) assumes resources to do so.

The selected corporation, Cramo, is one of Sweden´s leading companies in equipment rental (Cramo, 2020b). The corporation is selected as a unit of analysis since it suits the study´s criteria. The rental firm has a network of 300 depots in the Nordic countries, Central and Eastern Europe, and provides a wide variety of products and related services. The company serves both the private and public sectors, construction companies, and the manufacturing industry. At the beginning of 2020 Cramo promoted its shift towards a circular economy (Cramo 2020c). Due to the company's recent actions regarding rental and circular economy, Cramo is a suitable unit of analysis regarding collecting empirical data. Representatives from Cramo have an interest in the subject and have an interest to participate in the study.

3.3.2 Data collection

Research with a flexible design is advised to use triangulation as a tool to ensure the study´s credibility (Yin, 2009). With that in mind and in order to create an understanding of a practice, with regards to both individuals and service providers, multiple sources of information are used. The empirical data consists of semi-structured interviews, both personal, video, and phone interviews (Table 5). In addition to interviews an interview-based questionnaire was conducted as well as several secondary sources, such as webpages, reports, and newspapers *etc*.

Semi-structured interviews are commonly used in flexible design research (Robson, 2011). According to Robson (2011) are semi-structured interviews appropriate to use when the interviewer, in this case, the researcher, is closely involved with the research process. Semi-structured interviews are a combination of structured- and unstructured interviews. The method gives the interviewer freedom regarding the sequencing of questions, the amount of time given to different topics and there is no need for exact wording (*ibid.*). The interviewer has an interview guide consisting of the topics to be covered and the wording of the questions can be modified due to the flow of the interview. Unplanned questions may be asked if the interviewer has the need to follow up. Semi-structured interviews allow greater freedom for the respondents while answering the questions (Bryman & Bell, 2015) and has the potential to provide rich details and explanations of the problem (Robson, 2011). Interviews are a great technique to use as a short cut to understanding behavior.

In this study, semi-structured interviews are used in order to create a deep understanding of the context and to capture the respondents' subjective thoughts. The respondents were sampled through a convenience sample, through the author´s contacts and with the help of Cramo. According to the existing literature is the customer segment most likely to contribute to the service economy younger adults (Owyang *et al.,* 2014). However, other authors argue that costs are the main reason for buying services (Black & Cracau, 2015) and that a variety of people, young as old, take a part in the service economy (Godelnik, 2017). With regards to previous research and to contribute to a wide understanding of the subject, rental customers of different

ages, from different types of companies and with different reasons to rent are chosen as respondents. The number of respondents needed was not decided *ex ante* in the study. When empirical saturation was achieved, no further perspectives and respondents considered needed. "Saturation" is considered achieved when further data collection adds no or little knowledge of what has already been mentioned (*ibid.*). In this study, semi-structured interviews (Table 5) are used to gain a deeper understanding of the respondents' behavior and thoughts regarding the problem.

Table 5. Interviews with customers and service providers

Respondent	**Role**	**Type**	**Interview conducted**	**Transcription sent**	**Validation completed**
Maria Karlsson	VP Sustainability, Cramo	Video interview	2020.03.31	2020.04.01	2020.04.16
Eva Lindqvist	Sustainability specialist, JM	Video interview	2020.04.04	2020.04.08	2020.04.14
Daniel Pehrson	Developer, JM	Video interview	2020.04.21	2020.04.21	2020.04.23
Eddie Andersson	Carpenter, JM	Telephone	2020.04.21	2020.04.22	2020.04.24
David Bergschöld	Site manager, Bergschöld & Holm	Telephone	2020.04.24	2020.04.24	2020.04.24
Johan	Project Manager	Telephone	2020.04.29	2020.04.29	2020.05.12
Fredrik Helander	Project Manager, H2Entreprenad	In person, at the work site	2020.04.29	2020.05.02	2020.05.04
Anders Sjömalm	Construction work, SMT AB	Telephone	2020.04.29	2020.05.02	2020.05.03
Caroline Sundqvist	Sustainability Manager, Zengun	Telephone	2020.05.04	2020.05.04	2020.05.04
Stefan Sivegård	CEO, Tumba Riv & Sanering AB	Telephone	2020.05.06	2020.05.06	2020.05.18

The interviewer's job is to get respondents to talk freely and openly, and the interviewer's own behavior has a major influence on the respondent's willingness to do so (Robson, 2011). The interviewer must, therefore, show good rapport and be well prepared (Leech, 2002). To ensure validity requires rigorous care from the researcher and results should be documented cautiously (Robson, 2011).

Due to Covid-19 during the time the project was conducted (January – May 2020), most of the interviews were conducted by video or by phone. However, telephone interviews might reduce the in-depth discussion and the interviewer cannot notice visual or nonverbal signals which might generate data (Novick, 2008). But, the advantages of telephone and video interviews suits the situation regarding Covid-19. In addition to time savings, telephone and video interviews increase privacy and decreased social pressure, which affects the respondent to feel more relaxed (*ibid.*). Several semi-structured video interviews and one interview at the respondent´s work site is considered to complement the results regarding visual and verbal insinuations since the interviewer got a chance to view the respondent's reactions and environment. To ensure the quality of the study was trust and rapport established by introducing the purpose of the study, the fact the interview is being recorded and the management of personal information. Due to some of the respondents who wish to be anonymous, personal information such as last name and company name is not presented in the study. The information together with the interview guide (Appendix 1) was presented to all respondents before the interview.

During the interviews the respondent´s native language, Swedish, was spoken in order to avoid possible misinterpretations. To not miss vital details, all interviews are recorded and

transcribed. The transcription was translated to English by the author and was translated as accurate as possible with regards to limitations due to the language's vocabulary. The translation should not have any negative effects on the results since the transcription captured the whole picture of every interview. Since this study´s purpose is to create an understanding of customer behavior and their perception of rental as a phenomenon, a denaturalistic approach was used to transcribe the interviews. It is a technique which purpose is to capture the perceptions and meanings during the interview (Oliver *et al.*, 2005). In the process of transcription was interview noise like pauses removed, grammar corrected, and accents standardized. To validate the data, a transcription was sent to all respondents for confirmation. The confirmation is vital in order to reassure that the interviewer understood the answers right as well as the respondents have a chance to elaborate certain statements.

An *interview-based questionnaire* was developed in order to complement the semi-structured interviews. With an interview-based questionnaire the respondent does not fill in the questionnaire by themselves, the interviewer interviews the respondent and fills in the questionnaire (Robson, 2011). An interviewed-based questionnaire was chosen since it fits the purpose of the study and according to Robson (2011) can lead to a better quality of data compared to self-completion questionnaires. Furthermore, well planned person-to-person questionnaires often increase the response rate (*ibid*.). The questionnaire consisted of seven questions, some questions were fixed but the majority of the questions were open-ended (Appendix 2). The questionnaire was conducted April 27th at a Cramo depot in Södertälje during the rush-hours of customers picking up and leaving products. Due to the location and time duration of conducting the questionnaire, the sampling of respondents was conducted through the so-called convenience sampling of customers visiting the depot. During an interview-based questionnaire, the interviewers interviewing skills, differences, or similarities regarding ethnic origin, gender, age, status *etc*. between the interviewer and the respondent might have a negative influence on the respondent's answers (Robson, 2011). In order to avoid misinterpretations and the interviewer´s influence on the respondent´s answers the respondent's native language Swedish was spoken during the questionnaire. Further, to both increase the quality of the questionnaire and to prepare the interviewer, the questionnaire was tested before usage. The questionnaire was reviewed by the authors' supervisor as well as tested on one test-respondent. During the test, the interviewer got a chance to practice interviewing skills as well as some questions were slightly modified to increase the quality of the questionnaire.

Documents provide access to a wide range of data, both regarding qualitative- and quantitative data, and are therefore relevant to case studies (Yin, 2009). This study uses secondary data, documents, such as; reports, websites of relevant organisations, newspapers, and internal documentation. The documents are used to support the primary data as well as provide background information about the problem.

To summarize, this study is based on multiple methods to collect data; semi-structured personal, video and phone interviews, and secondary data to provide information. The chosen data methods complement each other.

3.3.3 Quality assurance

To achieve validity and reliability are a vital part of a study´s trustworthiness (Riege, 2003). A flexible design´s trustworthiness is a subject of debate (Robson, 2011), therefore it is important that the researcher is aware of this critique and take action to ensure quality (Yin, 2009). However, with a framework of previous literature Riege (2003) presents various techniques that

can be used to assure high validity and reliability of the data in a case study. The application of these techniques within this study is presented in Table 6.

Table 6. Application of techniques for establishing validity and reliability (based on Riege, 2003:78-79; modified by the author)

Case study design test	Case study techniques	Application in this study
Construct validity	Use multiple sources of evidence.	Triangulation via different data sources and different interview techniques.
	Establish chain of evidence	All interviews have been transcribed and secondary data is documented.
	Have key informants review draft case study report	Respondents have reviewed and made a validation of the interview transcripts.
Internal validity	Do explanation-building	Illustrations from theoretical framework are used in the data analysis phase.
	Assure internal coherence of findings and concepts are systematically related	The findings are crosschecked by the theoretical framework in this study.
External validity	Define scope and boundaries of reasonable analytical generalisation for the research.	Done in chapter 3.1 where the research design is defined.
	Compare evidence with extant literature	An abductive approach has been used and the empirical data have been analysed using the theoretical framework.
Reliability	Give full account of theories and ideas	The research process, including identification of concepts and theories is accounted for in the method chapter.
	Assure congruence between research issues and features of study design.	In chapter 3, research methods and design are defined and motivated by the purpose of the study.
	Use a case study protocol.	A case study protocol was developed with continuous notes in the process.
	Record observations and actions as concrete as possible.	All interviews and observations are recorded, documented and transcribed.
	Record data mechanically.	Interviews are recorded.
	Assure meaningful parallelism of findings across multiple data sources.	The same framework has been used on all sources of data. The results from the different sourced of data was explained and compared/connected with each other.
	Use peer review/examination	Seminars with peers and opposition for the seminar draft.

The design tests presented in Table 6; Construct validity, Internal validity, External validity, and Reliability can be both applied to quantitative and qualitative research. Case studies often involve close or personal contact with people and organizations (Eisenhardt, 1989; Riege, 2003). To construct validity the researcher must refrain from subjective judgments during data collection (Yin, 2009.). In order to ensure construct validity in this project, multiple sources of data are used. The data consist of both phone and personal interviews with different actors and different types of secondary sources. All interviews were transcribed, and the respondents have the chance to make a validation of the transcript.

In a case study, the meaning of Internal validity is to establish the phenomenon in a credible way (Reige, 2003). In this project trace patterns of similarities and differences between the respondent's experiences and perspectives have been carefully documented. To ensure internal

validity all sources of data, interviews, and secondary data, have been analysed with the same framework and graphic models and tables are used to ensure consistency.

External validity is achieved by an analytical generalization with the purpose to create an understanding of how the findings connect with broader theory (Reige, 2003; Yin, 2009). In this project, this is achieved based on what is presented in chapter 3, the study´s design and chosen methods are defined with regards to the study´s boundaries and scope. Furthermore, the chosen approach contributes to a continuous matching of data with the theoretical framework.

The replication of findings can be difficult in case studies (Eisenhardt, 1989; Reige, 2003). Reliability is used to ensure the study´s ability to be possible to repeat by other researchers (Yin, 2009). The operations, procedures, and techniques must, therefore, remain consistent (*ibid.*). To achieve reliability in this project, a number of different techniques have been used; developed a theoretical framework; assure congruence between the problem and the study design; developed a case study protocol (Appendix 3); all interviews have been recorded and transcribed; the same framework has been used while analysing all sources of data; and the study has been peer-reviewed.

3.4 Data analysis

When analysing qualitative data, the researcher must put serious and detailed attention to the principles of the analysis (Robson, 2011). Qualitative data primarily consists of the form of words, like language and text, but it can also appear as images (Miles *et al.*, 2013). The collected words are based on documents, observations, and interviews. In order to analyse such kind of data is some type of processing required, such as taking notes and transcribe recordings. However, qualitative data analysis is a continuous process. Already at the start of the data collection, the researcher interprets meanings and make vague conclusions (*ibid.*).

Therefore, in this study, the semi-structured interview guide is based on the theoretical framework. Further, the results, based on both interviews, interview-based questionnaire, and secondary data, are analysed with a thematic approach. With a thematic approach, all data are coded in order to identify possible patterns and themes (Robson, 2011). The thematic approach and as long as the data collection proceeds, allows the researcher to move back and forth between data and the analysis, comparing data with previous codes and themes (*ibid.*). In this study, in order to capture different perspectives between practitioners and providers, the data are divided and analysed in two groups; customer respondents in one group and service provider respondents in another group.

3.5 Contributions from this study

This study is based on a single case study, consisting of both semi-structured interviews, an interview-based questionnaire, and different sources of secondary data. Empirical generalizations cannot be made from a single case study (Yin, 2009). However, the reader may transfer the understandings from this context-bound case study to a different setting, assuming he or she has the insights to so do.

The chosen method may be assumed as best suited for the study´s purpose since “the interaction between a phenomenon and its context is best understood through in-depth case studies” (Dubois & Gadde, 2002, p. 554). Further, case studies are a commonly used method for understanding complex social phenomena (Yin, 2009). Secondly, the validity and reliability of interviews can be questioned because of its lack of standardization and its lack of measuring

objective facts (Robson, 2011). On the other hand, interviews are a good method to create an understanding of respondents' behavior and how the respondent perceives the world (Yin, 2009). To end with, this study is a snapshot in time of the current phenomenon and can therefore not be considered as a longitudinal study.

3.6 Ethical considerations

When doing real-world research, participants often are involved (Robson, 2011). There is a chance that the research might cause harm, anxiety, stress, or other negative effects for respondents. It is therefore crucial that the researcher give serious thoughts about the study´s ethical aspects (*ibid.*). In order to minimize the risk of harm, therefor respondents should be informed about the aim and purpose of the study and that their participation is voluntary, and they can withdraw at any time (Robson, 2011). The respondents will be informed about the purpose of the study and the management of personal information is promised to only be used for research purposes. Therefore, the respondents are asked to sign a paper of informed consent. To minimize stress, unfamiliar concepts to the respondents were explained during the interviews. The researcher must mention aspects that may change the respondent's willingness to participate (Robson, 2011). In addition to ensuring willingness to participate in the project, consideration has also been given to the possible effects that the participation might lead to. With regards to one respondent´s wish to be anonymous, only the first name and working role of the respondent was presented. Respondents may withdraw from participation in the study at any time. The respondents were able to receive the recordings and the collected information afterward and had the opportunity to change their answers.

Ethical considerations and its consequences should not only regard the participants but also how the results are presented (Robson, 2011). The studied field in this study is customer behavior and practices, phenomenons which is explained by SPT and the author´s perception of the subject. The use of SPT do not include any set of tools managing behavior change (Spotswood *et al*., 2013) and might increase trade-offs regarding empirical operationalization (Geels, 2011). Due to these circumstances, it is of highest importance to present accurate and transparent data (Bryman & Bell, 2015). Therefore, these consequences have been acknowledged and taken in mind by the author during the research process.

4 Background for the empirical study

The following chapter presents a review of previous research within the topic of the study, servicification, and various forms of rental. The chapter provides an empirical background that is used in chapter 7 and its discussion. Further, trends within the construction industry and the industrial structure are introduced. Lastly, the case company is presented.

4.1 Previous research

Previous research in the area of service products can be divided according to themes: servicification, rental, machinery cooperation, and various forms of rental. A summary of previous research is presented in Table 7.

Table 7. A summary of previous research

Key rental concept	Industrial context	Main findings	Author (year)
Servicification	Global value chains	The manufacturing industry is being servicified. Services are traded through the movement of people, capital or goods.	Lanz & Maurer (2015)
PSS	Construction sector	The customer buys a service to gain the functionality or performance of products. The construction industry has the potential to offer Product Service Systems [**PSS**].	Sakao *et al.* (2011)
PSS	The retail sector	Two vital factors of consumer acceptance of PSS: uncertainty reduction and relative benefits.	Rexfält & Ornäs (2009)
Machinery cooperation	Agriculture	Machinery cooperation reduce the total costs of machinery. The social aspects have a vital part of the benefits.	Johansson *et al.* (2011)
Peer-to-Peer Sharing	Urbanized cities	Customers value utilization and efficiency rather than sustainability concerns.	Edman & Lilliecreutz (2019)
B2C Leasing	Solar power systems	Customers often feel uncertain emerging new technology. Leasing might be a better option than purchasing since it reduce the customers perceived risks.	Shih & Chou (2011)
Equipment rental	Construction /Pipelining	If it is beneficial or not to rent depends on the size of the project. For larger projects, it is more beneficial to buy than rent equipment.	Dahlin & Forsgårdh (2019)
Equipment rental	Construction/Energy efficiency	Customers chose to not rent energy efficient equipment because of increased costs.	Englund (2015)
Increase PSS offerings	Construction machine industries	To increase customer acceptance of PSS focus should be on solutions regarding *perceived complexity*, *unknown needs* and *cost/prices*.	Schmidt *et al.* (2016)

The manufacturing industry is being servicified and the services industry accounts for 70% of world GDP, but only approximately 20% of world trade (Lanz & Maurer, 2015, p. 1). Services can either be traded as direct services or indirect services (i.e. services embodied in goods) or through capital, people, or goods. The authors identify that services are increasingly being produced in networked arrangements. In their study, Lanz and Maurer (2015) analyze services networks with a trade perspective and use the film industry as a case study. The film industry is an excellent case due to its international production process, consumption patterns, and involvement of several different

services supply. Further, the authors highlight the importance of how services are defined, whatever it should be defined through intermediate inputs or a network structure. Lanz and Maurer (2015) conclude that a service network can involve a lot of different services and that the value chain might be affected by technological change, distribution, or policy.

In some industries, efficiency and product availability are vital. In such cases pooling and sharing are common as well as services such as repair, system maintenance, spare part provision, user training and renting *etc.* are needed to secure efficiency (Sakao *et al.*, 2011). With the construction sector in mind, Sakao *et al.* (2011) argue that the industry has the potential to offer Product Service Systems [**PSS**]. The concept PSS is used to combine products and services, to integrate the two concepts in the whole lifecycle such as planning, development, delivery, and use. In other words, the customer buys a service to gain the functionality or performance of products. In their research, Sakao *et al.* (2011) use a manufacturer with production in Sweden to investigate methods of PSS offerings. The others conclude that the nine dimensions in the PSS Layer Method are sufficient to have an effective PSS.

Rexfält and Ornäs (2009) mention the lack of business to consumer (B2C) solutions regarding PSS. In an empirical study, Rexfält and Ornäs (2009) aim to identify consumer acceptance of PSS. The authors conclude that two factors are vital regarding consumer acceptance of PSS; uncertainty reduction and relative benefits. A transition from goods to PSS changes and affects how customers pay and which activities it engages in. For example, "several of the participants in the studies commented changing needs as a reason for short term rental of products, avoiding ownership" (Rexfält & Ornäs, 2009, p. 687). However, PSS might also contribute to conflicts. From a financial view, some customers prefer fixed costs instead of continuous payments regarding access. While others find fixed costs as a negative obligation. A driver towards ownership less consumption is the customer's relief from everyday maintenance. But Rexfält and Ornäs (2009) also mention that the transition to PSS might also come with new underlying responsibilities which creates a conflict with the customer´s freedom from responsibilities.

Some industries are affected by high machinery costs, machinery cooperation is a solution which might reduce the costs and increase efficiency. Johansson *et al.* (2011) investigate the economic benefits of machinery cooperation within the agricultural sector. The authors conclude that overall, machinery cooperation reduces the total costs of machinery. However, the social aspects of machinery cooperation were mention as a benefit and a vital part of the cooperation. Through the cooperation the farmers created new networks and increased the opportunity of knowledge exchange.

Another solution to solve the utilization of products is the concept of sharing. A trend within urbanized cities is car-sharing. The model of car sharing is a type of car rental where vehicles are rented out on a per hour basis. In their research Edman and Lilliecreautz (2019) study peer-to-peer (P2P) car-sharing and how to create customer value. The main findings show that the company providing the service should focus on value co-creation with their customers and focus on utilitarian benefits and efficiency rather than sustainability concerns. The authors conclude that car owners' main reason to rent out their cars was because of economic benefits while car rentals mainly value convenience and easy access and not any environmental factors.

While P2P sharing often includes short-term access, leasing is another PSS solution that offers long-term access to a product. From a B2C point of view, Shih & Chou (2011) study customer´s willingness to pay for the leasing of solar panels. Shih & Chou (2011) mention that customers are uncertain regarding emerging new technology, like renewable energy sources. The findings

show that leasing rather than purchasing might reduce customer´s worry and perceived risks. Furthermore, Shih & Chou (2011) correlate lease-time and willingness to pay with the customer´s level of uncertainty. A more uncertain customer is prepared to pay more for a shorter leasing-time to increase flexibility and avoid risks.

In the construction industry are machine availability highly demanded and requires huge investments in machinery and equipment. Dahlin and Forsgårdh (2019) investigate when and if it is advantageous for a pipelaying entrepreneur to buy or renting equipment. The authors conclude that the calculation is depending on the size of the project and how often the equipment is used. In larger projects that are longer than 127 days, and if the equipment is used every day, it is more cost-efficient to invest in buying equipment than renting. However, that calculation changes when the actual use of equipment changes.

In a case study of the construction company Skanska AB and the equipment rental company Skanska Maskin, Englund (2015) analyses construction sites´ energy efficiency. Englund (2015) mention that Skanska Maskin offers more sustainable and energy-efficient equipment for renting, but customer tends to rent traditional equipment instead because of economic factors. For example, a more energy-efficient hut costs approximately 30% more than a traditional hut to rent, but an energy-efficient hut has lower energy costs which reduce the total costs in the long run. This information is not presented for the customer and Englund (2015) argue that it might be a reason why customer tends to not rent those huts.

To increase customer acceptance of PSS, Schmidt *et al.* (2016) state that focus should be on solutions regarding *perceived complexity*, *unknown needs,* and *cost/prices*. Based on those factors and with the construction machine industries as a case study, the authors developed a successful PSS framework. Previously, the cost of purchase was mentioned as the only factor influencing a purchase. When adapting the new PSS framework with a bottom-up perspective, based on asking the customer about its needs, the sales department found new ways to find and create customer value. However, the model is not always easy to adapt, and the authors argue for the need for further research (*ibid.*).

4.2 Trends within the construction industry

The trend indicates an increasing amount of sustainable construction projects (Ramboll, 2019). In their latest Sustainable Buildings Market Study 2019, Ramboll (2019, p.5) states that "sustainability is becoming mainstream", probably due to governments´ new legislation regarding a net-zero carbon future. In 2017 the Swedish government initiated the project "Fossilfritt Sverige 2045" with the aim of net-zero carbon emission by 2045 (Fossilfritt Sverige, 2018). The construction industry is influenced by the approach towards a circular economy and sustainable construction (Byggindustrin, 2019) as well as economic factors such as resource and production efficiency (DiGital, 2019; Högberg, 2019). Some of today's major trends in the construction industry are *modular construction/offsite manufacturing* (DiGital, 2019; Högberg, 2019), *environmental certification* (Byggindustrin, 2020), *digitalization* (DiGital, 2019; Högberg, 2019; Wihlborg, 2020) and *life cycle analysis and circular material flows* (DiGital, 2019; Ekman, 2018). The change towards modular construction even called "offsite manufacturing", increase production efficiency, and reduce costs since it enables parallel work (Högberg, 2019). Digital solutions are viewed as a key factor to increase resource efficiency and enable efficient and functional programs for life cycle analysis and circular material flows (DiGital, 2019). Researchers argue that digitalization will increase construction companies' productivity since a central ERP connects all different parts and processes within the company (Högberg, 2019). The trend of environmental certification has recently gained popularity and

contributes both to economic as well as environmental aspects (Byggindustrin, 2020). The certification works as a receipt of the construction companies' sustainability investments and activities (*ibid.*). Further, the construction industry will be affected by upcoming laws such as energy efficiency regarding buildings and new regulations regarding waste management of construction materials (Byggindustrin, 2019).

4.3 The industrial structure

In Sweden, the construction equipment rental industry consists of 248 registered rental companies (Swedish Rental, 2018, p. 8). In 2019 the industry had a turnover of over 1,6 billion EUR (European Rental Association, 2019b, p.16). According to statistics from 2018, the five largest rental companies in Sweden are Cramo AB, Ramirent AB, Lambertsson Sverige AB, Skanska Rental AB and Stavdal AB (Dustcontrol, 2020; Appendix 5). During 2019, some changes have affected the market structure. Ramirent AB has bought Stavdal AB and is now in the lead regarding market shares in Sweden (Höök, 2019). Furthermore, the two biggest players in the Swedish market now belongs to European company groups. Ramirent now belongs to the French rental company Loxam, united, the companies create the largest equipment rental distributor in Europe (TT, 2019). And since the beginning of 2020, Cramo is a part of the Dutch Boels group of companies (Cramo, 2020f).

All of the top five largest rental companies in Sweden market their sustainability work on their websites (Cramo, 2020c; Lambertsson, 2020; Ramirent, 2020; Skanska Rental, 2020a; Stavdal, 2020). In general, all of them have sustainability goals based on Agenda 2030 and the global goals. The shift from the use of fossil fuels towards energy sources based on electricity seems to be a trend among all of the companies. Cramo AB, Ramirent AB, and Skanska Rental AB has taken the sustainability work a bit further and the aim to contribute to a circular economy (Cramo, 2020c; Ramirent, 2020; Skanska Rental, 2020b). Sustainability work and environmental focus are also managed by the European Rental Association (European Rental Association, 2015a, 2015b, 2019b, 2019c). In their recent research report with the aim to answer the question "How does equipment rental contribute to avoiding carbon emissions?", ERA started the project to develop a carbon calculation tool (European Rental Association, 2019c, p. 5). Today, ERA offers a Total Cost of Ownership [**TCO**] tool which helps the user to calculate the costs between buying or renting equipment (Swedish Rental, 2020). Further, the aim is to release a tool in order to be used to calculate situations where rental is the best option according to an environmental and carbon impact perspective (European Rental Association, 2019c).

The Swedish equipment rental´s major customer segment is B2B within the construction industry (Cramo, 2020a; Ramirent, 2018). Worth to mention is that some of the rental firms are owned by large construction companies, for example Lambertsson is owned by Peab (Peab, 2020a) and Skanska Rental is a part of Skanska Sverige (Skanska Rental, 2020c).

In the Swedish construction industry, was 107582 companies registered in 2019, it corresponds to 9% of the total amount of registered companies in Sweden (Byggföretagen, 2020, p. 1). The industry is divided into five areas of activity:

1) construction and civil engineering
2) demolition and groundwork firms
3) building stallers such as electricians and plumping
4) firms for finishing work like flooring and glazier firms
5) specialized construction and civil engineering contractors such as tinsmiths and roofing firms.

About 87% of these companies have less than four employees (*ibid.*), however, the industry is influenced by a few but large companies. The 5th largest construction companies in Sweden are Peab, Skanska, NCC, JM, and Veidekke (Byggföretagen, 2018). All of these companies market their sustainability work and strategies on their websites. Peab, Skanska, NCC, and JM are all members in the project "Fossilfritt Sverige 2045" regarding the goal of a fossil-free fuel society (Fossilfritt Sverige, 2020). The trend among those companies is that most of the companies have projects regarding sustainable and fossil-free constructions (JM, 2020; NCC, 2020; Peab, 2020b; Skanska, 2020). JM (2020) and NCC (2020) have even taken it a bit further with environmental certifications such as Svanen *etc.*

5 The empirical study

The chapter presents the empirical results of the study. The results are based on interviews, an interview-based questionnaire, and documents. The chapter starts with information about the case company Cramo and follows with Cramo´s perspective on the subject. Further, the customers´ perspectives and opinions regarding the subject are presented.

5.1 Cramo

The history of Cramo dates back to 1953 when the company began operating in Finland, at that time under the name Rakentajain Konevuokraamo Oyj (Cramo, 2020b). The foundation of today's group and Cramo AB was formed during 1992-1994 and the group´s name was changed in 2006 to Cramo Plc. The group´s parent company Cramo Oyj is quoted on Nasdaq Helsinki Ltd stock exchange (Cramo, 2020d). Since the beginning of 2020 the company belongs to the Dutch rental company Boels (Cramo, 2020f). Today, Cramo is one of Europe, and Sweden´s largest and prominent equipment rental companies (Cramo, 2020d). The company is operative with over 300 depots in 13 countries in Scandinavia, Central- and Eastern Europe and had 2018 a turnover of 632 million euros (Cramo, 2020d, p. 1). Cramo provides modern rental solutions with everything from short time leasing of construction machinery to a general contractor of large projects, equipment, and rental services. The rental fleet can be divided into the segments; Tools, Plant, Lifting, Generations & Heating/Cooling, Fencing and Edge Protection, and On-site constructions. The firm serves both the private and public sectors, construction companies, and the manufacturing industry. Cramo offers different types of services to simplify the customers renting process. The customer can either place the order with personal contact with a depot or digitally through Cramo´s website or application. Depending on agreement offers Cramo delivery of the equipment or the customer can choose to pick it up by themselves at the depot.

The company has since the beginning worked with health and safety questions, but since 2018 Cramo made progress regarding its sustainability activities (Cramo 2020c). With their new "Cramo Nxt Strategy 2023" Cramo integrated sustainability step by step into their strategy based on the values of Credibility, Creativity, and Commitment (Cramo, 2020e). The company´s vision is to be "Your productivity partner in rental and beyond" (Cramo, 2020e, p. 1). At the beginning of 2020 Cramo advanced and promoted that through the Cramo Nxt Strategy they are moving towards circularity (Cramo 2020c). In order to contribute to a circular economy and achieve circularity, Cramo (2020c) states in their annual report of 2019 that their strategy is:

1) by replacing the concept of a consumer with that of a user reduce the demand for non-renewable resources and enable even more efficient use of equipment.
2) replacing non-renewable fuels and increase the use of renewable energy with the target to have 90% of the fleet being electrically powered by 2023.
3) improve their sustainable souring by working with original equipment manufacturers to further decrease the environmental and social footprint of rental equipment.
4) Increase the life span of rental units by ensuring periodic maintenance and refurbishment of equipment and site huts.

Cramo´s annual report (2019c) states that sustainability work serves as enabling customers responsible conduct. Further, Cramo´s Vice President of Sustainability mentions that they can identify an increased trend of their customer´s interest in sustainability (pers.com., Karlsson,

2020). However, to reach sustainability targets, Cramo is dependent on its customers. As cited in their annual report 2019, “Our biggest impacts occur beyond our direct control” (Cramo, 2020c, p. 1).

5.2 Interview with the Vice President of Sustainability at Cramo

In this section is Cramo´s Vice President of Sustainability´s perspective of the subject presented. The data is presented according to the study´s conceptual framework, Meanings, Materials, and Competence.

5.2.1 Meanings

Karlsson (pers.com., 2020) has identified a shift in the industry, from focusing on work safety and work environment towards a focus on sustainability. The trend is not consistent among all customers, but especially the larger firms. However, the sustainability factor might not have the largest influence on decisions yet, but its importance is increasing. Karlsson (pers.com., 2020) argue that after all, the sustainability factor creates customer value.

Cramo´s new sustainability strategy “Moving towards circularity” is included in the whole rental process, from order to transportation and at last disposal of old products (pers.com., Karlsson, 2020). Cramo encourages customers towards more sustainable choices by providing services to reduce their emissions and present more sustainable alternatives to conventional products, logistic services, and increase the rental process efficiency. Besides the pure environmental aspects of the “Moving towards circularity” strategy, gender equality, and work safety is also two important factors within the strategy. Overall, Karlsson (pers.com., 2020) mentions that the plan regarding their sustainability work is to be able to decide on long-term sustainability goals, not only three but maybe 15 years from now.

Since the first sustainability strategy from 2017, the company has focused on the goal to increase co-creation and strengthen the relationships with their customers as well as suppliers and other branch organizations (pers.com., Karlsson, 2020). Today, Cramo has several different kinds of collaborations with both customers and suppliers regarding topics such as fossil-free construction sites and gender-equal construction site facilities. Further, Cramo collaborates with the branch organization ERA regarding sustainability issues. In the future, Karlsson (pers.com., 2020) believes that the equipment rental companies will not only be viewed as suppliers but as collaborators.

5.2.2 Materials

Today, Cramo offers both conventional and more sustainable alternatives to products and services. However, Karlsson (pers.com., 2020) mentions the difficulty of visualizing their green assortment of equipment and machinery since the supply is too small. During the rental process, the customer makes a deliberate choice of hiring a conventional or another sustainable alternative. The green products within their equipment fleet are in general focused on energy efficiency and sustainable energy sources, for example electricity, battery, or fossil-free fuel. A lot of conventional equipment, especially in the light machinery category, is already driven by electricity. Approximately 85% of Cramo´s equipment is fleet driven on electricity. However, Karlsson (pers.com., 2020) argues that the challenge remains. In some equipment and machinery categories, for example construction equipment, the market does not supply batch production of electrical driven equipment. The inaccessibility of batch production of green products influences the availability and of course the price. Karlsson (pers.com., 2020) argue that to invest in such equipment is a question of economy, the price will either affect the rental

company or the customer. But money is not the only challenge; some of the already existing green products have lower performance and efficiency degrees than conventional products, which also reduces the customer´s willingness to rent those products. Due to the situation, Karlsson (pers.com., 2020) emphasizes the importance of further collaboration between rental companies and their suppliers to find innovative solutions. Further, Karlsson (pers.com., 2020) mention digital solutions as an opportunity to help customers increase their sustainability efforts.

In 2019 did Cramo an extensive review regarding their suppliers' attitude towards fossil-free fuels (pers.com., Karlsson, 2020). Karlsson (pers.com., 2020) and her team members found out that some of their suppliers do not approve their products to be driven by fossil-free fuels. Despite some of the supplier's negative attitudes, Cramo has decided that all their equipment can be driven on fossil-free fuels (*ibid.*). Karlsson (pers.com., 2020) sees an opportunity where Cramo as standards procedure always refuel their equipment with fossil-free fuels.

So, what happens with products at their end life, how does Cramo handle the disposal? Karlsson (pers.com., 2020) mention that they rarely handle the final disposal of products by themselves. Cramo usually sells their old equipment and machinery on second-hand markets. However, Karlsson (pers.com., 2020) mentions the negative aspect of not handle the final disposal by themselves since it reduces their control to ensure circularity and closing the loop.

5.2.3 Competence

During the implementation of their new sustainability strategy, Karlsson (pers.com., 2020) has focused on increasing the sustainability competence within the organization. All different departments at the company have created their own sustainability goals and Karlsson (pers.com., 2020) emphasizes the importance of every department's commitment to the subject. Overall, Karlsson (pers.com., 2020) has perceived a positive response from colleagues and she believes that the general competence about sustainability within the organization has increased.

On the customer side, on the other hand, has Cramo focused on informing their customers about their sustainability offerings through their usual marketing channels, key account managers, and the sales department. Karlsson (pers.com., 2020) see the opportunity to increase their influence on customers regarding the sustainability subject through digital solutions. However, she does not believe that the company is ready for it yet, but absolutely in the future.

5.3 Interviews with customers

A summary of the interviews with customers and equipment rental users are presented in Appendix 4. The table is divided according to this study´s conceptual framework and includes the general questions from the interviews with a summary of the identified opinions of the subject. Further, the data connected to each component, Meanings, Materials, Competence, in the conceptual framework is presented in detail in three separate tables (Table 8, 9, 10).

5.3.1 Meanings

Table 8 presents the detailed data connected to the element Meanings. The table summarizes the respondent's symbolic meanings, previous experiences, values, and socially shared senses *etc*. connected with equipment rental (Respondent list in Table 5).

Table 8. Meanings

Question	Answer	Respondent
Why do you rent?	Economic reasons	*Bergschöld, Helander, Lindqvist, Pehrson, Sivegård, Sjömalm, Sundqvist*
	Reduce costs regarding maintenance & stockholding,	*Bergschöld, Helander, Lindqvist, Pehrson, Sundqvist*
Pros with rental	Economic reasons	*Bergschöld*
	Reduce costs regarding maintenance & stockholding	*Helander, Pehrson*
	Knowledge exchange	*Andersson*
	Access & modern technology	*Johan, Sivegård, Sjömalm*
Cons with rental	Requires knowledge	*Helander, Pehrson*
	Unforeseen events & delivery	*Bergschöld, Helander, Pehrson*
	Difficulties to negotiate terms	*Lindqvist*
	Requires commitment	*Johan*
	The Price	*Bergschöld, Sjömalm*
Have you considered the environmental aspects of renting?	Believe buying is more sustainable than renting	*Andersson, Bergschöld, Johan, Sjömalm*
	Agree but do not consider environmental aspects in their work	*Helander, Sundqvist*
	Agree but not always economically sustainable	*Pehrson*
	Agree and consider it in their work	*Lindqvist*
What aspects influence the choice of equipment rental provider?	Relationship/collaboration	*Andersson, Johan, Pehrson*
	Price	*Bergschöld, Helander, Sivegård*
	Delivery time	*Andersson, Helander, Sivegård, Sjömalm*
	Close to a depot	*Andersson, Helander, Sivegård*
	Functioning equipment	*Sjömalm*
	Great service	*Bergschöld, Sjömalm*
What kind of requirements do you have on equipment rental firms? (apart from law requirements)	Delivery of functioning equipment	*Pehrson, Sjömalm*
	The Swedish Transport Administration´s environmental requirements	*Lindqvist*
	Depending on sponsors requirements	*Helander*

The answers to the question of why firms rent equipment was almost identical between all respondents. The major reason is economic aspects and the second reason are practical aspects, such as the reduction of maintenance costs and stockholding. Most of the firms both rent and buy equipment (pers.com., Bergschöld, 2020; pers.com., Helander, 2020; pers.com., Sivegård, 2020; pers.com., Sjömalm, 2020) while larger firms such as JM and Zengun almost rent almost all equipment and machinery to their buildings sites (pers.com., Andersson, 2020; pers.com., Lindqvist, 2020; pers.com., Pehrson, 2020; pers.com.,Sundqvist, 2020). One commonality is that all firms usually buy light equipment such as hand drills *etc*. since those do not require huge capital investments and are used frequently. The firms who both buy and rent equipment usually rent equipment that requires large capital investments, are used less frequently or as complement to their own equipment fleet during large projects. The size and time horizon of the project, and how frequently the product is used to influence whatever it is most economical to either buy or rent equipment.

Except for the economic and practical aspects of rental, the respondents mention easy access to new modern technology and products as the main advantage of renting equipment. Knowledge

is both mentioned as a benefit and a challenge with rental. The knowledge exchange at the depot is useful and to rent equipment through the rental firm´s online services are considered as difficult since it requires experience. Pehrson (pers.com., 2020) argues that fewer mistakes are made during order with personal contact with the depot than online. Further, the main negative aspect of renting is unforeseen events and the delivery of new equipment in these situations. The respondents argue that it is difficult to plan for unforeseen events such as machinery that breaks *etc.* time is money and new equipment is needed fast, which is not always possible to get. Helander (pers.com., 2020) mentions that in these cases, the delivery of new machinery is sometimes more expensive than the actual rent of the product. Except for the fact that renting sometimes are perceived as more expensive than buying equipment, renting equipment also requires commitment. Johan (pers.com., 2020) argues that just like owing equipment, rental equipment requires responsibility for example regarding logistics and collecting all products when it is time to return. Furthermore, Lindqvist (2020) perceives it is more difficult to negotiate terms with rental firms than direct suppliers since rental firms only are the "middlemen".

Regarding the environmental aspects of rental, the majority of the respondents answered that they believe buying equipment is more sustainable than rental. Johan (pers.com., 2020) argues that equipment that owned equipment are handled more gently than rental equipment. Others add an economic aspect of the situation and argue that rental cannot be more sustainable since, in the long run, it is more expensive than buying equipment.

The delivery time is considered as the most influential factor regarding the choice of rental provider. The short delivery time of equipment is considered as vital. Further, short delivery time often requires access to a depot in the local area and enables the availability of picking up equipment themselves. The price and economic factors also have a huge impact on the choice of rental provider. However, a good relationship and collaboration between the respondent and the rental firm are considered as an important factor as well as good service and functioning equipment.

In general, only a few respondents had any specific requirements on their rental providers apart from law requirements. The most fundamental part for the respondents was the delivery of functioning equipment since non-functioning equipment affects the project with time delay and extra costs regarding the delivery of new equipment. The ones with environmental requirements are especially regard emissions and The Swedish Transport Administration´s environmental requirements. Some mention that the requirements may vary between the projects and are depending on the sponsors´ requirements.

5.3.2 Materials

Table 9 presents detailed data connected to Materials. The table present the respondents´ perspective of technologies, objects, tools and equipment with regards to equipment rental (Respondent list in Table 5).

Table 9. Materials

Question	Answer	Respondent
When renting, what kind of product attributes do you require?	Ergonomic aspects	*Andersson, Helander, Pehrson, Sundqvist*
	The Swedish Transport Administration´s environmental requirements	*Lindqvist*
	High performance & efficiency	*Andersson, Bergschöld, Helander, Sivegård, Sjömalm*
	Price	*Bergschöld, Johan*
	Energy source	*Lindqvist, Sundqvist*
If considering green products, which attribute do you value?	Energy source	*Lindqvist, Sundqvist*
	Depending on the sponsors requirements	*Helander*
	The Swedish Transport Administration´s environmental requirements	*Lindqvist*
	Must have de same level of performance & efficiency as conventional products	*Andersson, Sjömalm*

The required green product attributes are depending on the sponsor´s requirements, but the most vital factors regarding required product attributes are high performance and efficiency. As Bergschöld (pers.com., 2020) mentions "it has to do the job". Furthermore, the products ergonomic aspects are taken into consideration. Andersson (pers.com., 2020) that works as a carpenter emphasizes the importance of the ergonomic aspect "when you work 40 hours a week with a screwdriver, it must feel comfortable to work with". Once again, the price of the product is mentioned as an important part of product attributes and product requirements. A few respondents mentioned the energy source as a requirement.

On the other hand, the type of energy source was one of the most influential aspects when choosing green products. However, some of the respondents did not consider the type of energy source since they usually only work with conventional products that already are electrically driven. Helander (pers.com., 2020) mentions that the type of work and access to electricity of course affect the type of energy source. Fossil free fuels and electrical driven equipment was mostly considered. Anyway, the respondents emphasize that to even consider a green product, it must have the same efficiency and level of performance as conventional products.

5.3.3 Competence

Table 10 presents detailed data connected to Competence. The table summarizes the respondent's perception of know-how, technique, and skills connected to equipment rental. Further, the table includes the respondents´ evaluation of the practice with regards to equipment rental (Respondent list in Table 5).

Table 10. Competence

Question	Answer	Respondent
When renting, is information regarding environmental aspects provided?	Not interested in the information	*Bergschöld, Helander, Pehrson, Sjömalm, Sivegård*
	Information available if asked for	*Sundqvist*
	Great access to information	*Lindqvist*
Do you ever consider that the usage of a product affects the products environmental impact?	Do not take it to consideration during the usage of the product, care about the economic aspect of usage	*Bergschöld, Helander, Sjömalm, Sivegård*
	Believe it is difficult to control how the products are used	*Johan, Lindqvist*
Potential improvements and ideas for future collaborations	Increased collaboration	*Andersson, Johan, Pehrson*
	Provide complete sustainable services that resolves needs	*Lindqvist, Sundqvist*
	Environment certification system of equipment	*Helander*
	Increased information of new products and assortment	*Sjömalm*
	Visually present more sustainable alternatives	*Sundqvist*

The majority of the respondent answered that they are not interested or do not consider information regarding environmental aspects. In either case, the respondents do however not look for or have not been presented information regarding environmental aspects. Sundqvist (pers.com., 2020) mentions that there is available information about environmental aspects, but only when asked for while Lindqvist (pers.com., 2020) perceive the availability of information as great.

A product`s environmental impact is mainly affected by the usage of the product. In general, the respondents mention that the environmental impact is not taken into consideration during the usage of the product. If any consideration is taken regarding the usage of the products, the respondents mention the economic aspect. It is costly to maintain and repair equipment. Two respondents mentioned the difficulty to control the usage of the products. For example, a company has standards regarding how products should be used, such as idle of machinery. However, it is difficult to follow up. A construction site worker mention that the colleagues are informed about the company´s environmental policies. But the respondent perceives that how well it is followed and the interest for environmental aspects varies among the colleagues and in the company in general.

Increased collaboration is the respondents' most frequent answer regarding potential improvements. Johan (pers.com., 2020) emphasizes the importance of increased collaboration and long-lasting relationships between customers and suppliers to increase efficiency. He mentions that it is ineffective to "reinvent the wheel at every new project". Further, the respondents mentioned access to complete sustainable services that resolve needs as the second potential improvement. For example, provide sun panels when renting huts or help customers with other customized and complete sustainable services. Overall, increased availability of information on both new modern equipment available on the market as well as to visually present environmental aspects is suggested by the respondents. The respondents perceive that it sometimes is difficult to keep updated regarding new products and technology available on the market. Furthermore, Sundqvist (pers.com., 2020) believes that to visually present environmental aspects and key indicators of a green product vs conventional products would

increase the customers´ comprehension as well as ease the decision process. Another suggestion is to introduce an environmental certification system of equipment. For example, a similar certification system like the ones used for construction products such as “Sunda hus” or “Byggvarubedömningen”. The equipment is reviewed according to several different aspects and rated with either letters or colors. Helander (pers.com., 2020) argues that such a system would make it easier for the customer to create an understanding of the product as well as it easy to follow and to implement into the business.

5.4 Interview-based questionnaire

In this section, a summary of the data from the interview-based questionnaire is presented. The data is based on the responses to the interview-based questionnaire of n=2 customers visiting the Cramo depot in Södertälje. The questionnaire contained both fixed and open-ended questions and the data was coded with a thematic approach.

Half of the respondents answering the questionnaire worked as carpenters (50%) and the second half worked with groundwork (50%). Among those, 50% answered that they rent equipment frequently, approximately once a week while 50% answered that this was their first-time renting equipment. All (100%) of the respondents answered that they work with environmental issues and sustainability goals at their worksite. Regarding the question of why the respondents chose to rent equipment, all (100%) of the respondents mentioned the factor “to supplement existing equipment fleet”. Apart from renting as a supplement, the respondents either rent because of economic aspects or choose to rent because of the assortment of equipment. The most important product attribute was considered by all (100%) the respondents to be “modern technology”. Except for modern technology, the respondents either require functional equipment or considered the price and economic factors of the product. When asked which attribute is most important regarding green product attributes all (100%) of the respondents answered electrical driven equipment. Further, 50% of the respondents believe they will rent more frequently in the future while 50% answered that their rental frequency will not change.

6 Analysis

In this chapter the empirical findings are analyzed with help of the theories and this study´s theoretical framework presented in Chapter 2. The analysis is presented with regards to SPT and its three elements, Meanings, Materials and Competence. First, the customers meanings, different perspectives and influencing aspects are examined. Then, the analysis focuses on Materials, and customers perspectives on product attributes and green product attributes. Finally, the analysis ends by examine Competence and customers perception of information and possible improvements.

6.1 Meanings

In this section, customers' different perspective of renting and identified aspects that influence the practice of renting are presented.

6.1.1 Different perspectives of renting

Authors recognized that people want goods because they provide services and that the "importance of physical products lies not so much in owning them as in obtaining the services they render" (Kotler, 1977, p. 8 see Vargo & Lusch, 2014 p. 9). But, Vargo & Lusch (2014) mention that people often purchase goods since "owing them, displaying them and experiencing them […] provide satisfactions beyond those associated with the basic functions of the product" (p. 9). The results show that both statements are partly true. Yes, customers rent equipment because of the service they render, but in general the results show that the customer rent because of economic and practical factors, not because they do not want to own the product. However, just like Spootswood *et al.* (2013) mention that the meaning of a practice can play a quiet diverse roll between different practitioners, the question regarding ownership differs among the respondents. Further, it is possible to connect the respondent's roles with their perceived meanings of renting. The respondents with roles in the headquarters seem to, in a higher degree, emphasize renting rather than ownership compared to the respondents that work on the construction sites. If the respondents on the worksites could, they would have bought almost all the equipment. Both groups rent because of economic and practical reasons, but the perspective on economic and practical aspects seems to differ. The respondents that work on the construction sites argue that with ownership, the equipment is more taken care off and it is more economical in the long run. By owning the equipment, the negative effects of unforeseen events are reduced due to the workers reduced dependency on the rental firm and therefore increase their own control of the situation. On the other hand, the respondents from the headquarters prefer renting since it reduces maintenance costs and especially logistics and stockholding. In other words, to own huge equipment fleets are costly and requires workforce. As one respondent from the headquarters mentioned "we should focus on what we are good at - building houses - not on stockholding equipment" (pers.com., Lindqvist, 2020). To conclude, the workers on the construction sites value dependency and control while the headquarters value efficiency and to maximize utility.

Due to the discussion above, it might be possible to draw the conclusion that the same difference regarding the meaning of renting is adaptable to the size of the firm. The results show that smaller firms are more likely to both rent and buy equipment and smaller firms do not have the same challenges regarding logistics and size of equipment fleet. Further, smaller firms do not have the same distinction between headquarters and the construction sites which enables the construction workers´ perception of renting to influence the culture and decision making at the firm.

6.1.2 Aspects that influence the practice of renting

The new service-dominant logic "enables firms to approach customers in fundamentally different ways" (Grönroos & Gummerus, 2014, p. 207). Equipment rental firms offer use-oriented services and the general idea and services might be the same among all equipment rental firms. However, Cramo has chosen to follow the environmental trend and want to contribute to circularity by offering green alternatives and switching focus from manly work safety towards sustainability. But, as Hockerts (1995 in Charter and Polonsky, 1999) argues, services are dependent on their customers. The statement is applicable to the results where Karlsson (pers.com., 2020) perceives that Cramo might offer sustainable alternatives, however, the sustainability factor does not have the largest influence on decisions yet.

Historically, the price has been seen as the main factor affecting the buyer's choice (Kotler *et al.,* 2014). However, when choosing a rental firm, the respondents mentioned delivery time and closeness to a depot as the most vital factors. As one respondent mentioned – the time is money. The price is mentioned as the third most vital factor when choosing a rental firm. In other words, it is not a surprise when the customers value great services and close relationships since delivery and closeness to a depot are such vital parts in the process. This phenomenon can be explained by the marketing mix and its 4C´s. Just like Louberton mention, customers value convenience, and other costs than the price, such as opportunity costs (Londhe, 2014; Yudelson,1999). In other words, customers value easy and fast services without complications on the way. To increase customer convenience, Cramo has developed online services, which enables a fast and easy renting process. According to the literature, digital solutions are viewed as a key factor to increase resource efficiency and increase construction companies' productivity (DiGital, 2019; Högberg, 2019). However, the results conclude that customers prefer personal contact during the rental process and argue that to order online requires knowledge and therefore increase possible mistakes and unforeseen events. The respondents wish for increased personal contact and closer collaboration with the rental firms. Worth mentioning is that according to the results, the majority of the customers do not take environmental aspects into consideration when renting equipment.

So why not considering environmental aspects? Shove and Pantzar (2005) mention that the meaning of a practice is based on ideas, socially shared values, and previous experiences. Overall, the results show that the respondents perceive benefits of renting equipment, such as access to modern technology and knowledge exchange, but the aspect of reducing their environmental impact is not perceived as a benefit. According to Watson (2012) is a practice influenced by the people carrying the practice. The phenomenon might therefor be explained by studying the market - sustainability is not mainstream yet. The results of the study identify a focus on work safety and sustainable materials such as environmentally friendly concrete *etc.* The progress regarding sustainable materials is probably the result of developed certification systems such as Svanen and Byggvarubedömningen. The certifications systems are mentioned by the respondents to be easy to follow and to adapt into the working process. Furthermore, since environmental aspects are not taken into consideration when renting, the aspect is rarely taken into consideration regarding the requirements the customers have on the rental firms. When required, it is often depending on requirements from the sponsor. However, when the customers try to negotiate terms regarding environmental aspects, it is perceived to be more difficult to negotiate terms with rental firms than with suppliers. This issue contradicts Watsons (2012) argument about individuals' influence of the practice. Apparently, circumstances out of the practitioners control affect the practice.

Just like the previous section regarding different perspectives of renting, it is possible to draw a parallel between company size and aspects that influence the practice of renting. Warde (2005) argues that it is the level of engagement that explains the consumption, not any personal decisions regarding the course of conduct. Clearly, larger firms, if not by personal engagement, are forced to include environmental aspects into considerations due to legislations and market demand. However, smaller firms may not be as affected by environmental legislation and market demand. According to the results, these firms only consider environmental aspects when sponsors do or because of the employee's personal interests. This is a perfect example of Watson (2012) statement that a practice can change if neighboring practices changes. It also emphasizes the importance of these firms (small and large) which start (forced by law or not) to include environmental aspects into their decision processes.

6.2 Materials

This section presents customers perspective on product attributes and green product attributes.

6.2.1 Product attributes

The academic literature offers starting points for understanding product attributes. Schatzki *et al.* (2001, p. 3 cited in Shove *et al.*, 2012, p. 16) state that "understanding specific practices always involves apprehending material configurations". Further, Dangelico and Pontrandolfo (2010) argue that three phases are taken into consideration regarding the use of a product; 1) before use – including materials, production processes, transportation process *etc*. 2) use - efficiency and 3) after use – end of life. To add, Young *et al.* (2010) state that in the decision-making process, customers with environmental concerns consider product environmental performance (energy efficiency, fuel type, and consumption, energy ratings) and product manufacturing (recycled material content, chemical content and reparability).

In the empirical study, Cramo, as an equipment rental provider, takes consideration of all three phases, including environmental performance and product manufacturing. Karlsson (2020) mentions the first and the third phases as challenges. One of Cramo´s environmental goals is to increase electrical driven equipment, but all sorts of equipment are not available on the market in batch production. Peattie (1995) argues that a product´s environmental impact affects the price and demand of the product. Which this case is a great example of. Karlsson (2020) mentions that it is costly to buy non-batch produced products and the cost will either affect the rental firm or the customer. Further, Peattie (1995) argues that the price should include the cost of the product´s environmental impact, but the results show that neither the customer nor Cramo is prepared to pay. This creates a dilemma since no part is prepared to take the cost it may reduce the availability of green products. Furthermore, to connect with Young *et al.* (2010) and product manufacturing, no one of the respondents ever mentioned any interest in the production phase of the product.

With regards to phase three, Cramo has difficulties to ensure correct disposal of the equipment since old equipment is being sold before the end of use. To contribute to circularity, it is vital to ensure a slow or closed loop of resources (Ellen McArthur, 2005). Karlsson (pers.com., 2020) is aware of the challenge and mentions that Cramo tries to find new solutions. Anyway, since Cramo sells old equipment on the second-hand market, it is arguable the company at least contributes to a slow loop since the equipment is given a "second chance". While mentioning the challenge of control, it is arguable that Cramo has difficulties with phase two, use, as well. As mentioned in Cramo´s annual report 2019, their biggest impact occurs beyond their direct control. In other words, it is difficult to control how customers use the product. According to

the study´s results, customers tend to take better care of their own products than hired products. Which of course affects the level of damage on rental equipment and the product life. A product with a short life might not contribute to a slow resource loop.

According Lusch *et al.* (2010), sustainable products are not always perceived as positive by the customer. In situations where gentleness-related attributes are compared to strength-related attributes, customers often perceive that sustainable products are not as effective and strong as conventional products. The results show that the product attributes the customers' value the most are just high performance and efficiency. However, the majority of the respondents already work with electrically driven equipment and are positive regarding green products. On the contrary to the negative aspects of more sustainable energy sources, the respondents perceived improved performance and efficiency. Worth mention is that according to the results, the respondents do not choose electrical driven equipment because of environmental aspects. Health aspects is, according to Paul and Rana (2012), one of the main reasons why customers choose to purchase green products. The study proves previous research, apart from high performance and efficiency, the customer value ergonomic aspects the most.

6.2.2 Green product attributes

But what about green products, which attributes does the customers´ value then? According to Young *et al.* (2010) the customer with environmental concerns takes product environmental performance into consideration during the decision-making process. Anyway, according to the results in this study, customers rarely take product´s environmental performance into consideration. But green product attributes are taken into consideration, the type of energy source is perceived as most vital. Furthermore, with regards to Lusch *et al.* (2010) statement, the customers are not prepared to sacrifice high performance and efficiency to a more sustainable but weaker alternative. The results reflect the trends within the industry, with a focus on renewable energy and fossil-free fuels.

6.3 Competence

This section presents customers perception of available information and possible improvement.

6.3.1 Information

In order to perform a practice, competence and know-how are required (Shove *et al*., 2012). Spurling *et al.* (2013) argue that to alter customer practices for a sustainability transformation, education, or persuasion is needed. However, the barriers that affect decision-making concerning the environment are limited research time, price, and lack of available information (Young *et al*., 2010). According to the 4C´s model, the company should create opportunity for an open dialogue with customers, in order to fulfill their needs and wants (Londhe, 2014; Olsson & Györei, 2002; Yudelson, 1999). It is arguable that Cramo, by market the sustainability work at their website and offering an assortment of green products, contributes to an open dialogue with customers. A one-way communication (web page) may serve as a start of a two-way dialogue. Despite this information, a challenge is identified since the results show that customers in general are not interested in information regarding environmental aspects. Several authors argue that customers with increased education are more likely of purchasing environmentally friendly products (Dettmann & Dimitri, 2010; National Geographic & Globescan, 2014). This might be true, but it is difficult to educate customers who do not care about the subject. The interesting part is that customers from larger firms are more likely to ask for information regarding environmental aspects. Again, most likely due to legislation. Another

possible aspect, that Karlsson (pers.com., 2020) identified, is that larger firms usually have more money and therefore larger "muscles" to take environmental aspects into consideration.

The usage of products has been discussed in the previous section. To summarize, most of the customer does not take environmental aspects into consideration during the usage of a product. However, just as Karlsson (pers.com., 2020) mentions Cramo´s challenge regarding their lack of control during the usage phase, some respondents perceive the same challenge internally. Worth mentioning is that the respondents work at the headquarters. They perceive it as difficult to control how the products are used and if internal standards are followed. Larger firms do not only have larger muscles, it is also arguable that their internal work regarding permeating the environmental aspects in the whole firm might more challengeable. Furthermore, Lusch, *et al.* (2010) argue that social concerns influence the customers' decision making. Social concerns might be an explanation of why people do not want to consider environmental aspects. As mentioned earlier, sustainability is not mainstream yet and as all branches the construction industry has its cultural traditions. For an employee, it might be difficult to think or do different and follow new trends, like environmental aspects.

6.3.2 Potential improvements

So, how can customers be persuaded to take environmental aspects into consideration? Ottman (2011) argues that today´s marketing is about communities and the power of word to mouth. And communication is a tool to promote the advantages of products and services (Brassington & Pettitt, 2013). According to the results, customers wish for complete sustainable services that resolve needs. It includes everything from sustainable hut constructions with solar panels to increased information about new products and environmental aspects in negotiations. Furthermore, Sundqvist (pers.com., 2020) mentions the need for more visual information, she argues that it would ease the renting and decision-making process. Some respondents have mentioned it difficult to rent through online services as well as to understand the differences between a green and conventional product. Sundqvist (pers.com., 2020) believes that the information can be presented in a better way by for example visualizing key figures, present comparisons with other products or the calculated actual costs *etc*. Another example of visualizing is developing a similar environmental certification system like Byggvarubedömningen but for equipment. Helander (pers.com., 2020) argues that such a system would make it easier to understand the differences between products´ environmental impacts and is an easy system to adapt into the decision-making process.

According to the literature, are digitalization and digital solutions great tools to increase efficiency (DiGital, 2019; Högberg, 2019). However, the results show that customers value personal contact and close relationships. When visualizing information, it may be necessary to complement with personal contact and take advantage of the power of word to mouth. After all, "the purpose of communication or information is to influence or encourage" customers to enter into a relationship (Yudelson, 1999, p. 65). And practices start to evolve and change meaning when the number of engaged practitioners increase (Shove, *et al.,* 2012). But in order to engage practitioners, their practices must change. Practices change when linkages between the element's changes (Shove, *et al.,* 2012). According to the study´s results, customers value a close relationship and collaboration. By taking advantage of communication and close relationships, it might be possible to influence and create new linkages between the customers' elements. Shove *et al.* (2012) state that all three elements must exist to conduct a practice. But it is arguable that to only "exist" is not sufficient enough since the results show that information regarding environmental aspects are available but not taken to consideration by the practitioners. Instead, it is arguable to emphasize not only the existence but also the *connection*

between the elements. This identifies a gap, where the rental firms have an opportunity, through communication and close relationships, to influence customers´ practices towards green practices.

The elements of practice are connected through interdependent relationships of one another (Shove *et al*., 2012). Clearly, customer relationship and communication are two vital factors to influence the customer to choose environmental practices and services. To empathize with this correlation the SPT model might be slightly modified. It is possible to integrate the SPT and 4C-model, but they represent different starting points in terms of logic. The 4C model has its origin in product dominant logic and the SPT focuses on service dominant logic that originates in consumer needs. The marketing mix has developed towards increased customer communication and collaboration (Londhe, 2014; Yudelson,1999), and the SPT model might have to do the same. Maybe it is not sufficient enough to just illustrate the relationship between the actual elements, maybe a fourth element, Communication, most be added to integrate the other parts in social practice theory in order to understand grounds for practices (Figure 5).

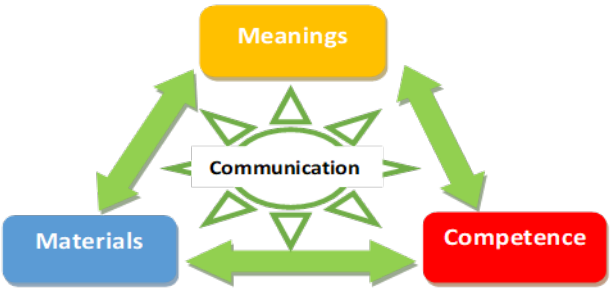

Figure 5. Contribution to the elements of practice.

By strengthening the relationship between the elements in the SPT (materials, meanings and competence) with Communication, it secures the *connection* between the elements. In practical terms it may relate to educational efforts, how to book a machine and tailor the rental to the needs, sensitivity to customer contexts with regards to availability for user support, and feedback on the environmental effects that rental may offer compared to purchasing. The element Communication includes the power of word to mount as well as personal contact, and customer relationship. The new element thighs all the elements together and enables the development of environmental practices.

7 Discussion

This chapter consists of a discussion regarding the results of this study and how it relates with previous research. The discussion is based on the research questions presented in Chapter 1. In the end, several additional discussion points, appearing during the analysis, are also discussed.

7.1 Reasons why customers chose to rent

With the use of multidisciplinary research and a conceptual framework based on SPT, the results of this study show that environmental aspects are not taken into consideration when customers chose to rent. According to the results, the main reasons why customers chose to rent is because of economical and practical aspects. The customer rent to avoid huge capital investments and handle logistics and maintenance of the equipment fleet. The results correspond with previous research by Edman and Lilliecreautz (2019), which conclude that customers rent because of economic aspects and convenience. However, a difference between the customers´ perception of economic and practical aspects has been identified. Depending on the customers' role, working at the office, or at the construction site, the customers perceive the benefits of rental differently. The results contribute to Rexfält and Ornäs (2009) statement of how PSS might contribute to conflicts since customers perceive costs differently. This study results show that the construction site workers believe it is more economically efficient to buy than rent equipment. While the office workers see other costs related to owing equipment regarding maintenance, stockholding, and logistics and argue rental is a better alternative. However, according to the results, renting equipment does not relieve customers from everyday maintenance of equipment and responsibilities like renting the right sort of equipment and requires logistics to avoid unforeseen events. The identified gap corresponds with Rexfält and Ornäs (2009) argument that ownership-less consumption does not only relieve customers from everyday maintenance, it might also come with new underlying responsibilities which creates a conflict with the customer´s freedom from responsibilities.

Furthermore, the results of this study indicate that the reasons for renting are probably influenced by the size of the customers firm. Larger firms tend to rent almost everything while smaller firms both rent and buy equipment. It corresponds with Dahlin and Forsgårdh (2019) conclusion that the size of the project and how often the equipment is used influences the benefit of renting.

An interesting finding is that the results from this study partly correlate and partly contradict with Rexfält and Ornäs (2009) argument that the customers' acceptance of PSS is depending on uncertainty reduction and relative benefits. To summarize, customers do perceive the relative benefits of renting equipment, but the benefits are perceived differently among customers, depending on their roles and firm size. Further, as the group of customers with roles as the head office perceive reduced uncertainty when renting because of the reduced need for maintenance, logistics, and stockholding, while the construction workers perceived renting increasing uncertainty. When renting equipment, the construction site workers´ are dependent on the rental firm and its deliveries. The dependency increases unforeseen events beyond the construction site workers control. According to the results, the construction site workers preferred owing than renting equipment, due to increased control. The results of the study, therefore, support Rexfält and Ornäs (2009) argument that uncertainty has an effect on the customers' acceptance of PSS.

7.2 Valued product and service attributes

According to this study´s results, customers rarely consider renting sustainable products. However, then renting green equipment the source of energy is vital in the decision-making process. The results partly contradict with Shih and Chou´s (2011) statement that customers are uncertain regarding emerging new technology, like renewable energy sources. The results show that customers in the construction industry already in high degree use electrically driven equipment and perceive renewable energy sources as positive attributes. Anyway, to connect to Shih and Chou (2011), the results also show that regardless of the customers' perception of renewable energy sources, the customers are not prepared to sacrifice the vital attributes of high performance and efficiency. The study´s results seem reasonable since it correlates with current trends in the construction industry.

Apart from attributes such as high performance, efficiency, and renewable energy sources the results show that the price is always taken into consideration. The results identify a challenge, since nor the customers or the rental firms want to pay extra for green product attributes. This is in line with previous research and Englund´s (2015) conclusion that customer tends to rent traditional equipment instead of green equipment because of economic factors.

Regarding services, the results show that customers demand complete sustainable services that resolve needs. Schmidt *et al.* (2016) state that the focus when developing PSS should be on solutions regarding perceived complexity, unknown needs, and cost/prices. Except for the identified factor of complete environmental services this study´s results correlate more with Johansson *et al.* (2011) and the focus on the social aspects of machinery cooperation, networks, and the opportunity of knowledge exchange. According to the results, customers demand increased collaboration and customer relationship with the rental providers. Increased personal contact seems to reduce unforeseen events and increase knowledge exchange.

7.3 Arguments for rental as an alternative to purchasing

The results from this study contribute to the research of pro-environmental behavior from an SPT perspective. In contradiction to DiGital (2019) and Högberg (2019) studies, this study´s results correlate with Lanz and Maurer (2015) argument that a service network´s value chain might be affected by technological change, distribution, or policy. The results show that customers do not perceive the digitalization of services as beneficial but wish for increased personal contact and collaboration. Furthermore, this study concludes that increased visual information and customer relationship is vital to contribute influence the customer towards environmental practices. Development of environmental certification of equipment has been proposed as a possible solution to simplify the decision-making process and increase customer awareness of environmental aspects. This study supports current research by Spurling *et al.* (2013), and their arguments regarding how an SPT perspective can be used and how it may need to require re-crafted elements to develop the understandings of sustainable practices further. This study proposes a suggested modification of SPT implementing a fourth element, Communication, to enable environmental practices. The modification can be criticized using the logic of Spotswood *et al.* (2013) for not being a part of a set of tools for managing behavior change. However, it is clear that by adopting the element of Communication, it is possible to in higher degree influence the practitioners to consider environmental aspects of their practices, such as renting.

7.4 Motives for change

The analysis of this study contributed to the appearance of additional discussion points. To begin with during the analysis, the question of why the focus on sustainable materials has been developed in such a higher degree than the equipment was raised. The results show that when considering environmental aspects, customers tend to focus on materials and sustainable substitutes. Maybe it has to do with historically bad material choices such as asbestos *etc*. which has raised the question. It probably has to do with economic aspects as well, or has the industry regarding construction materials just been faster in the development? It was maybe easier to start at that end.

However, to move back to this study´s subject, equipment rental, their focus cannot be on construction materials – it has to be on the equipment. As this study shows, a lot of light machinery is already driven on electricity. Approximately 85% of Cramo´s equipment is fleet is driven on electricity (pers.com., Karlsson, 2020). Yes, the largest rental firms have started to consider environmental aspects and market their sustainability work, but is this situation an explanation of why the progress is so slow? With regard to FN´s global goals and Agenda 2030, the rental industry should have enormous possibilities. According to the results do rental firms have difficulties controlling all stages of a product´s life cycle, and there are probably even more, still unidentified, challenges ahead. Further, customers' requirements have according to ERA (2015a; 2015b) larger influence of the market. It raises the question whatever the rental firms might take advantage of the perception that rental as a concept is considered sustainable? They already contribute to Agenda 2030 and Goal 12 "Sustainable consumption" without any effort taken. The question is, if not taking advantage of their situation and start developing their sustainability work even further – will the rental industry fall behind or still be able to basically rely on the business idea?

8 Conclusions

This last chapter presents the main finding and conclusions from this study, answer the study´s aim and research questions. Further, practical implications and a methodological reflection are addressed as well as suggestions for possible future research.

The aim of this study was, through a multidisciplinary research method and Social Practice Theory, explain factors that influence customer request for green equipment rental. To be able to answer the aim, thee research questions were formulated. What are the reasons for customers choice of rent equipment? What kind of sustainable product (equipment) attributes and services do the customers´ value? How can a sales agent and service provider influence the customers to consider rental as an alternative to purchasing?

8.1 Main findings- rental as an alternative

The study found that the main aspects that influence customers to rent are economical and practical aspects. The study identified a gap between customer´s different perceptions of the economic and practical aspects of rental. To conclude, customers working in the head offices perceive rental as a solution to avoid maintenance costs, stockholding, and logistics. On the other hand, the customers working on the construction sites perceive rental, apart from access to modern equipment, to contribute to unforeseen events and reduce the workers´ dependency.

The study´s main finding is that environmental aspects are rarely considered during the rental process. If considered, it is due to legislation or sponsor´s requirements. Regarding green product attributes, the study correlates with the current trend in the market and conclude that customers perceive renewable energy sources as most valuable. Further, customers are positive to green products but are not prepared to sacrifice high performance and efficiency to increase environmental performance. To influence the customer to consider sustainable renting the study suggest increased availability of information, customer relationship, and communication. To develop an environmental certification system for equipment is suggested as a solution to simplify the sustainable renting process.

Finally, the study contributes with a new element, Communication, to the elements of practice and SPT. The new element might ensure the connection between the elements and may enable practices to change towards sustainability.

8.2 Practical implication and methodological reflection

This study is based on B2B and the customers' perspective on equipment rental. Due to practical aspects, the perspective of only one rental firm was considered in the study. Companies have different sustainability strategies and the choice of only considering one firm might influence the results since it only reflects one firms' perspective of the subject. Further, SPT is a tool to examine behavior and practices. Due to Covid-19 most of the interviews were conducted through phone or video interviews, which might limit the researcher's ability to examine behavior, surroundings, and the respondent's characteristics. However, with regards to the circumstances telephone and video interviews were the best alternative. Due to the circumstances the authors perceived it difficult to get in contact with respondents. The respondents were therefore sampled by convenience, with the help of Cramo and the authors' contacts. A convenience sample might affect the results, however, since the author was not aware of the respondent's perspectives on rental before the interview, it may not have affected

the study´s reliability. The conduct of data with regards to the interview-based questionnaire can be questioned. Due to unforeseen circumstances the sampling of respondents was difficult, and the response rate was bad. Anyway, low response rates are considered as common challenges (Robson, 2011). The questionnaire was still conducted as planned and the answers can be considered trustworthy.

To summarize, SPT provides a framework to examine and improve practices. This study is based on SPT and considers the perspectives of both customers (practitioners) and rental firms, which has not been done previously in a similar scope. Further, the data was conducted through multidisciplinary methods such as personal meetings, telephone and video interviews, and an interview-based questionnaire. Due to the multidisciplinary data collection, an extensive set of empirical material could be analyzed and enabled for a deeper understanding of factors that influence customers to request for equipment rental.

With the results in mind, it is possible to reflect regarding the choice of theories in this study. Since the results show that the practice of renting is mainly affected by economic and practical aspects, it is arguable that a theory such as Total Cost of Ownership [**TCO**] (Chopra & Meindl, 2013) would have been an alternative theoretical framework. TCO might have given a better understanding of the actual costs of renting, including costs such as logistics, storage, and maintenance that affect the customer choice and rental process. However, TCO is criticized for being difficult to adapt (Bhutta & Huq, 2002; Ferrin & Plank, 2002) and often fails to consider behavioral aspects (Ferrin & Plank, 2002). Therefore, it is arguable that TCO may have been difficult to use and might not have enabled the same understanding of customers' perceptions and the meaning of renting.

8.3 Future research

This project contributes to the research of SPT and how practices develop and change. The theoretical contribution of this study is that in order to increase customers' environmental concerns when renting, increased customer relationship and communication is needed. The study proposes a modification of the elements of practice by adding an element, Communication. It can be questioned whatever any other element should be adapted instead, however with regards to this study´s results and within the context of equipment rental, the element of Communication fits.

To develop an even deeper understanding of the subject and take several perspectives into consideration. For further research including several rental firms and customers in the research is suggested. Since this study has developed a basic understanding of the area, further research might adapt a quantitative method to reach a larger number of respondents. Furthermore, a pure supplier (rental firm) perspective might be of interest, and research answering questions of how to develop sustainable rental solutions.

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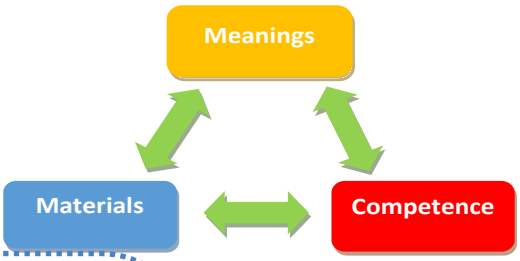
Appendicies

Appendix 1. Interview guide

Interview guide (in Swedish): service provider

uktion:
tta lite om din roll på Cramo. Hur länge har du haft den rollen?
al anses vara mer hållbart än att äga – hur ser Cramo på det antagandet?
upplever ni kundernas efterfrågan på hållbarhet? Vad efterfrågar dom?
efterfrågan på miljö/hållbarhet förändrats över tiden?

- I eran årsrapport 2019 nämner ni att hållbarhet är med i eran affärsmodell och strategi – vart i affärsmodellen/uthyrningsprocessen har ni integrerat hållbarhet?
- Hur har organisationen anpassats för att integrera hållbarhet i affärsmodellen?
- Hur planerar ni att utveckla er affärsidé med avseende till hållbarhet och kundefterfrågan?



- Vid utveckling av produktsortimentet, ställer ni krav mot hållbara produkter?
- Har ni någon strategi för att på sikt ha en mer miljövänlig uthyrningspark?
- Ni har gjort en satsning mot digitalisering för att effektivisera och förenkla kundens hyrningsprocess. Hur ser möjligheten ut för kunden att hyra mer ”hållbara” maskiner/verktyg?
- För att öka produktens liv nämner ni att ni ökar effektiviteten, reparerar samt

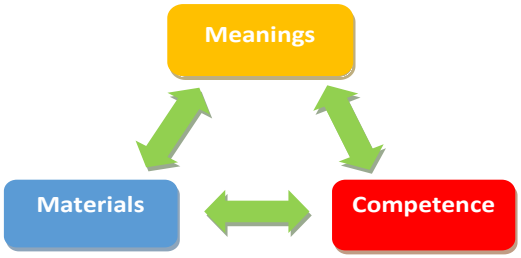
- Hur är inställningen samt kunskapen om miljö/hållbarhet inom organisationen?
- Ni nämner att ni samarbetar med kunder vad gäller era hållbarhetsmål – kan du ge ett exempel?
- ” Our biggest impacts occur beyond our direct control” (Annual Review 2019) – vilka åtgärder gör ni för att få en positiv förändring?
- Hur genomsyras eran marknadsföring av er hållbarhetsstrategi?

Interview guide (in Swedish): customer

uction:

- Introduktion - Berätta lite om din arbetsroll. Hur länge har du haft den rollen?

- Varför hyr ni verktyg/byggmaskiner?
- Vad anser du är för- och nackdelarna med att hyra framför att köpa?
- Rental anses vara mer hållbart än att äga – hur ser du på det antagandet?
- Vilka aspekter anser du är viktigt när ni väljer företag att hyra ifrån? (T.ex. utbud, service, samarbete m.m.)
- Hur ser ni på framtiden – vilka krav kommer ni eventuellt ställa på



- Vilka produktegenskaper anser du är viktigt vid valet av verktyg/byggmaskin?
- Hur ser du på användandet av mer miljövänliga produkter? T.ex. eldrivna maskiner, förnybara material m.m.

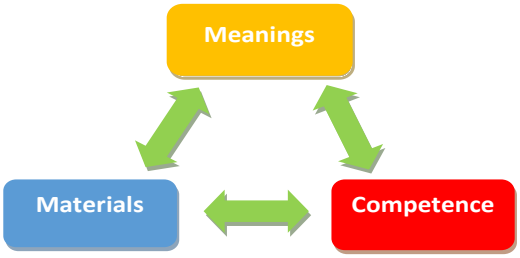
- När ni hyr produkter – hur ser tillgängligheten ut av information gällande produkters miljöpåverkan? Presenteras alternativa mer miljövänliga produkter?
- En produkts miljöpåverkan styrs till stor del på hur produkten används - hur ser ni på det?
- Tror du att ett samarbete med ett uthyrningsföretag kan förbättra ert arbete samt hjälpa er att nå miljömål? Hur skulle ett sådant samarbete se

Interview guide (in English): service provider

uction:

- Where do you work? Please, explain your main job tasks/responsibilities.
- Have you considered the environmental aspects of renting vs buying? (Help: In what ways may equipment rental have effects on the environment?)
- How do you perceive customers request for sustainable

- In the annaual report of 2019, sustainability is mentioned as a part of your business model – where in the business model can sustainable aspects be found?
- How has the organization adapted the new business model?
- How are you planning to deliver your service and value for the customer in the future? How are the environmental aspects taken into consideration?



- When deciding the equipment fleet – do you take any certain product aspects into consideration? (Help: for example, functionality, price, energy source, efficiency, materials, pollution *etc*.).
- How is the strategy to achieve an sustainable equipment fleet?
- Cramo market new digital solutions to increase the renting process, how can the customer find the "sustainable" equipment?

How do you take care of old

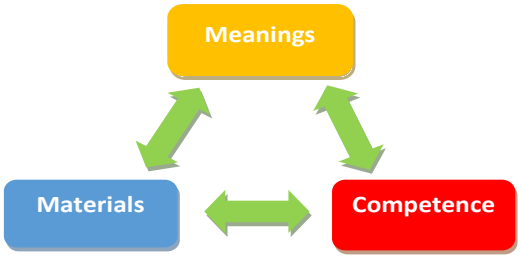
- How is the engagement and education level regarding sustainable aspects in the organization?
- You mention that Cramo help customers to reach their sustainability targets - How does a collaboration with customers look like? Please explain with an example.
- " Our biggest impacts occur beyond our direct control" (Annual Review 2019) – what is your strategy to decrease negative impacts
- How do you market your sustainability work?

Interview guide (in English): customer

uction:

- Where do you work? Please, explain your main job tasks/responsibilities.

- Why do you rent equipment? (Help: Why do you rent instead of buying equipment?)
- What is your experience of renting? (Help: what are the negative and positive aspects you experienced with renting equipment?)
- Have you considered the environmental aspects of renting? (Help: Do you believe that renting equipment have any effect on the environment?)
- According to you, what aspects influence the choice of rental firm?
- What kind of requirements do you have on rental firms? Will the



- What aspects of renting equipment motivates you to rent? (Help: for example, functionality, price, energy source, efficiency, materials, pollution *etc*.).
- What do you think about green products and sustainable equipment?

- When renting, do you believe that more information regarding the renting process and/or environmentl aspects of the specific product is needed?
- A product´s impact on the environment depend on the usage of the product – do you ever consider it?
- Do you believe a collaboration with a rental firm can help you achieve you sustainability targets?

Appendix 2. Interview-based questionnaire

Interview- based questionnaire (in Swedish)

Kort kundintervju: Rental och Hållbarhet

Den här intervjuns syfte är empirisktunderlag för en masteruppsats. Svaren är anonyma. Jag kommer inte att samla in några personuppgifter. Kryssa i de alternativ som passar in bäst (det är okej att kryssa i flera alternativ) eller skriv ditt egna svar på den streckade linjen.

Fråga 1: Vad arbetar du med?

Svar:_____

Fråga 2: Hur ofta hyr du redskap och maskiner?

Svar: _____

Fråga 3: Arbetar ni med hållbarhetsmål på din arbetsplats?

Ja Nej Vet inte

Fråga 4: Varför hyr ni redskap/maskiner?

Ekonomiskt Effektivt Bättre för miljön

Kunskapsutbyte

Tillgång till moderna redskap/maskiner Tillgång till helhetslösningar/service

Annat:_____

Fråga 5: Vilka aspekter anser du är viktigt vid val av verktyg/maskin att hyra?

Svar: _____

Fråga 6: När ni hyr (eller skulle hyra) en mer miljövänlig produkt - vilka produktegenskaper eller serviceutbud värdesätter ni då?

Svar:_____

Fråga 7: Vad tror du om framtiden – tror du att du kommer hyra en större eller mindre andel av ditt maskinbehov?

Mer Mindre Oförändrat

Interview- based questionnaire (in English)

A short customer interview: Rental and sustainability

The interview is conducted as empirical data to a master thesis. The answers are anonymous. I will not handle any personal information about the respondents. Mark the alternatives you believe fits best for the question (it is okay to mark multiple alternatives) or write down your own answer.

Question 1: What do you work with?
Answer:_____

Question 2: How often do rent equipment?
Answer:_____

Question 3: Do you work with sustainability targets at your work site?
Yes No I don´t know

Question 4: Why do you rent equipment?
Economically Efficient Better for the environment
Knowledge exchange Access to modern equipment
Other:_____

Question 5: What kind of product attributes do you value?
Answer:_____

Question 6: Considering green products, what kind of product attributes do you value then?
Answer:_____

Question 7: In the future – will you rent more or less frequent than today?
More Less Unchanged

Appendix 3. Case-study protocol

According to Yin (2009) a case study protocol should consider the procedures for contact with respondents, preparations and field work arrangements, ethical considerations with regards to the respondents as well as a frame of questions used in the interviews.

Case study
The phenomenon of renting. The rental firm Cramo and rental customers.

Case study background
Provided in chapter 3 and 4.

Research questions
Presented in Chapter 1.

Data collection methods/sources
Semi structured interviews, face-to-face, telephone and video interviews. Interview-bases questionnaire.

Data collection procedure and history
March 12, 2020 – Approached Maria Karlsson, Vice President of Sustainability at Cramo.

March 26, 2020 – Arranged time for interview with Maria Karlsson.

March 28-30, 2020 – Examined sustainability report and other documents and websites of relevance to the interview. An interview guide was developed.

March 31, 2020 - Video interview with Maria Karlsson. Recording saved. Transcribing interview.

April 1, 2020 – Transcription sent to Maria Karlsson for validation. Approached customer Eva Lindqvist, Sustainable Expert at JM.

April 3, 2020 - Arranged time for interview with Eva Lindqvist.

April 4, 2020 - Video interview with Eva Lindqvist. Recording saved.

April 6, 2020 - Transcribing interview.

April 8, 2020 - Transcription sent to Eva Lindqvist.

April 15, 2020 – Approached customers; Eddie Andersson, David Bergschöld, Johan and Daniel Pehrson.

April 16-20, 2020 - Arranged time for interviews with Eddie Andersson, David Bergschöld, Johan and Daniel Pehrson.

April 21, 2020 – Video interview with Daniel Pehrson. Telephone interview with Eddie Andersson. Transcriptions sent to Daniel Pehrson

April 22, 2020 - Transcription sent to Eddie Andersson.

April 23, 2020 - Approached customers; Fredrik Helander and Anders Sjömalm. Arranged time for interviews.

April 24, 2020 - Telephone interview with David Bergschöld. Transcription sent.

April 27, 2020 – Conducted interview-based questionnaire at the Cramo depot in Södertälje.

April 29, 2020 - Telephone interview with Johan. Personal interview with Fredrik Helander. Telephone interview with Anders Sjömalm. Transcription sent to Johan.

April 30, 2020 - Approached customer Caroline Sundqvist and arranged time for interview.

Maj 2, 2020 - Transcribing interviews. Transcription sent to Fredrik Helander and Anders Sjömalm.

Maj 4, 2020 – Telephone interview with Caroline Sundqvist. Transcription sent. Approached customer Stefan Sivegård and decided time for interview.

Maj 6, 2020 – Telephone interview Stefan Sivegård. Transcription sent.

Ethical considerations
The respondents are informed the purpose and usage of data in the study.
The respondents agreed to be recorded.
The respondents gives their informed consent to participate in study.

Interview guide
Appendix 1.

Special preparations
Interview guides was emailed to the respondents before the interview.
Phone and computer for phone and video interviews.
Ipad for recording the interviews.

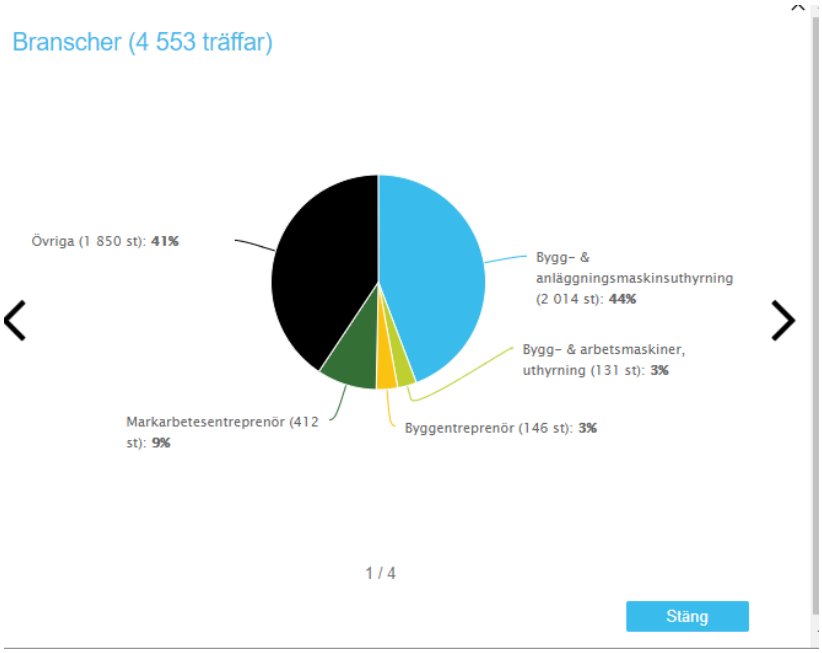
Full list of interviews
The full list is provided in Chapter 3.

Appendix 4. A summary of interviews with customers

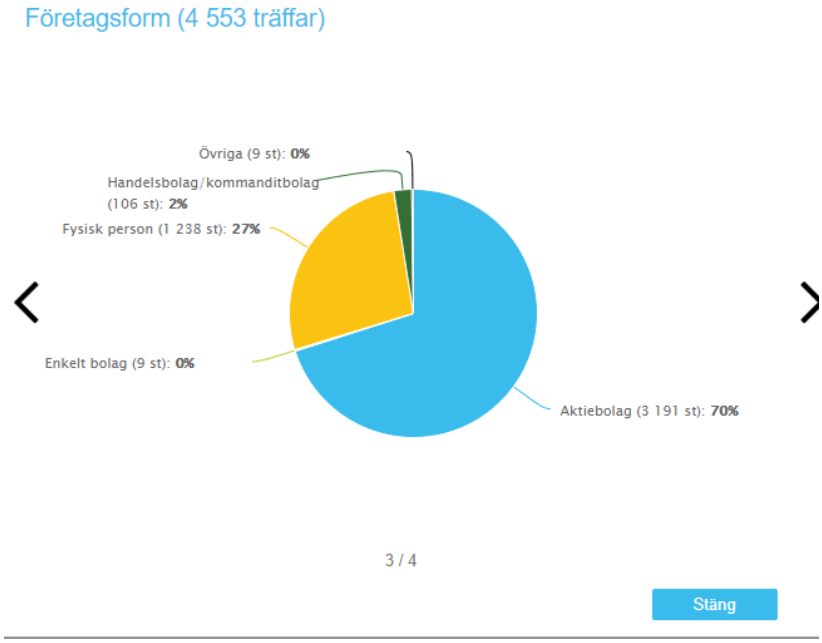
	Question	Answer
Meanings	Why do you rent?	Economic reasons, reduce costs regarding maintenance and stockholding,
	Pros and cons with rental	Pros: Economical reasons reduce costs regarding maintenance & stockholding, Knowledge exchange, access & modern technology Cons: Requires knowledge, unforeseen events & delivery, Difficulties in negotiating terms for the service, requires commitment, The price
	Have you considered the environmental aspects of renting?	50% of the respondents believe buying is more sustainable. 2 respondents agree but do not consider it in their work, 1 respondent agree but Not always economically sustainable and 1 respondent agree and consider it.
	What aspects influence the choice of equipment rental provider?	Relationship/collaboration, Price, delivery time, close to a depot, functioning equipment, great service
	What kind of requirements do you have on equipment rental firms?	Apart from law requirements, Delivery of equipment that works, The Swedish Transport Administration´s environmental requirements
Materials	When renting, what kind of product attributes do you require?	Ergonomic aspects/work environment, equipment that works, The Swedish Transport Administration´s environmental requirements, Price,
	If considering green products, which attribute do you value?	Depending on the sponsors requirements, energy source, must have same efficiency as a conventional product
Competence	When renting, is information regarding environmental aspects provided?	The majority of the respondents are not interested in the information, while a few got the information when asked or perceived the information as well presented.
	Do you ever consider that the usage of a product affects the products environmental impact?	The majority of the respondents do not take it to consideration during the usage of the product, care about the economic aspect of usage. A few respondents believe it is difficult to control how the products are used.
	Potential improvements and ideas for future collaborations	Increased collaboration & customer relationship, sun panels, environment certification system of equipment, increased information of new products and assortment, provide sustainable and complete services that resolves needs, visually present more sustainable alternatives.

Appendix 5. Branch statistics

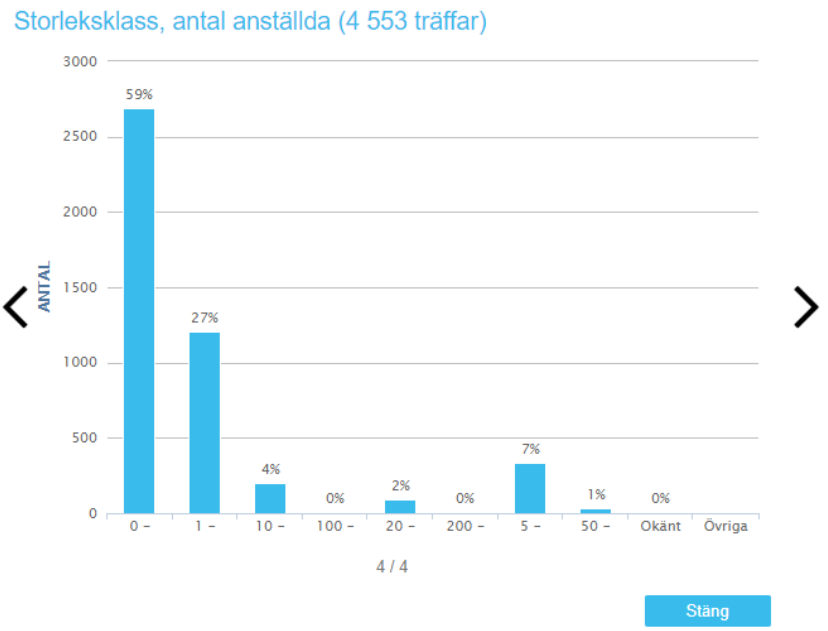
Branches



Type of enterprise



Number of employees



0 employees	2688 companies
1-4 employees	1209 companies
5-9 employees	339 companies
10-19	204
20-49	90
50-99	31
100-199	10
200-499	3
500 -	3

Company name	**Turnover 2018**
Cramo AB	3180000000
Ramirent AB	2562437000
Lambertsson Sverige AB	1297226000
Skanska Rental AB	921534000
Stavdal AB	676628000
HLL Hyreslandslaget Stockholm AB	333926000
Rivners AB	217258000
Renta AB	172547000
Perssons Hyrmaskiner AB	138971000
Wangeskog Hyrcenter AB	130835000
Herok Rental AB	107845000
Tholmarks Uthyrning AB	105952000
Wangeskog Hyrcenter	103793000
Hyrex AB	101657000
BKJ Maskinuthyrning AB	95093000
Wangeskog Hyrcenter Syd AB	93285000
Wangeskog Hyrcenter	91703000

Examensarbeten / Master Thesis
Inst. för skogsekonomi / Department of Forest Economics

1. Lindström, H. 2019. Local Food Markets - consumer perspectives and values

2. Wessmark, N. 2019. Bortsättning av skotningsavstånd på ett svenskt skogsbolag - en granskning av hur väl metodstandarden för bortsättningsarbetet följts

3. Wictorin, P. 2019. Skogsvårdsstöd - växande eller igenväxande skogar?

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