Customer Value Driven Service Innovation

Identifying service opportunities in the residential heating market based on customers’ value preferences

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Abstract

In today’s industry there is an ongoing trend, where many companies are shifting focus from only delivering products to also offering services to their customers. Services can bring advantages, such as higher margins, competitive advantage, stabilized cash flow and strengthened customer relationships. A company that traditionally has had a strong product focus, but where services now have attracted their attention is Bosch Thermoteknik AB, active as a manufacturer in the heat pump business. In the market, which has been more and more competitive and where customer requirements are extended, it could be difficult for the company to only build on technical innovations. The aim of this thesis is thus to identify service opportunities in the heat pump business based on a customer value perspective, and proposals of how integrated service concepts may look like for Bosch Thermoteknik AB are presented.

To answer the purpose, 12 semi-structured customer interviews were performed in order to identify factors contributing to customer value in the business of residential heating. Additionally, an investigation of what kind of services that are offered in the heating market was performed in order to contribute to inspiration for integrated service solutions for Bosch Thermoteknik AB.

The customer interviews show that the most important value dimensions to customers are a reliable heat pump operation generating desired comfort, a system that manage itself and not require time and effort to manage, a high quality product and low operation and investment costs. Additionally, customers value knowledge to be able to handle the system in order to reach their expectations on the heating system. Many of the identified values are fulfilled to customers, however not always the latter example, especially not to those who move in to their first house where there is a heat pump installed. Regarding the investigation of different concept in the market, leasing of boilers, pay per heat unit, monitoring contracts, customer education and heat analysis where all found and contributed with inspiration in the study. The leasing concept and pay for heat were mainly marketing as an escape of a high investment cost, but since the investment cost was not seen as a big barrier for customers in this study and they were rather afraid to lose money in the long run, these solutions were not included in the recommendations for Bosch Thermoteknik AB. However, customers agreed that both solutions have advantages, such as get rid of hassles and risks especially regarding unpredictable costs.

Three concept proposals were finally selected, which are Nyinflyttad, Tryggheten och Säkerställan. The first concept, Nyinflyttad, aims to give new house owners a secure feeling, where they helped by a service and education, get information of the condition of the system and get knowledge about how to handle it. Tryggheten, is rather targeting customers who need a new heat pump. Customers are here offered extended monitoring indicating problems in an early stage and additionally they are offered guidance to do easier measurements themselves. In the last concept proposal, Säkerställaren, customers are offered a heat analysis, in connection to the heat pump purchase, in order to take a more holistic perspective on the heating included both the heat pump and identification of heat loses from the house. Important to mention is that these proposals are only first drafts and there are still many aspects to investigate, not least the economic aspect as well as the organizational aspect, in order to provide the services.
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This mater thesis was conducted during the spring semester 2017, as the last part in our education in Design and Product Development, 300 hp, at Linköping University. The subject of the thesis was chosen with regard to guidelines for our master program in Industrial Engineering and Management, and the thesis covers 30 hp. During our education an interest, in service innovation and how a wider perspective on innovation can help companies to reach success, has grown and therefore we are grateful for having the opportunity to look deeper into the topic together with Bosch Thermoteknik AB.

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To the readers, we hope that you think the subject is as interesting as we do.

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1 Introduction

In the following chapter the background of the thesis, together with its purpose, research questions and delimitations are presented. The chapter describes why the topic is relevant and interesting to look into and further the chapter defines the scope of the thesis.

1.1 Background

Services have an important and growing role in many countries’ economy and represent for instance the major part of the gross domestic product of Sweden (Kowalkowski & Kindström, 2012). In today’s industry an ongoing trend can be seen where many companies’ focus are shifting from products to more services (Vargo & Lusch, 2008). By a service-led growth, companies can secure or even expand their market share and services are often connected to an increasing company growth rate compare to products (Kowalkowski & Kindström, 2012; Eggert, Hogreve, Ulaga, & Muenkhoff, 2014). Scholars are arguing that services are more profitable and, in general, generate higher margins than product sales (Fischer, Gebauer, & Fleisch, 2012; Olivia & Kallenberg, 2003). Further, many companies have faced a situation where it is difficult to maintain a competitive advantage based only on technology innovations and services are seen as an opportunity to differentiate themselves from competitors (Fischer, Gebauer, & Fleisch, 2012). This is important, not least, in saturated markets where small differences separate offered products from each other (Kowalkowski & Kindström, 2012). Further reasons for companies to focus on services consist of aspects such as: opportunities to stabilize cash flows, as the service business is, in general, less volatile and less sensitive to business cycles compare to the product business (Kowalkowski & Kindström, 2012; Fischer, Gebauer, & Fleisch, 2012); opportunities to strengthen customer relationships (Kowalkowski & Kindström, 2012); and opportunities to, in an easier way, protect the offer from being imitated by competitors (Olivia & Kallenberg, 2003).

Offered services can be of various nature and differ from simple to more comprehensive ones (Kowalkowski & Kindström, 2012). Many companies are integrating products and services into more extensive service offers, so-called integrated solutions, in order to meet more complex customer requirements (Kowalkowski & Kindström, 2012). Great emphasis is here placing on how to fulfil customer needs and create value for the customers (Sundin & Bras, 2005). A term closely connected to integrated solution is functional sales, characterized by, through an integration of products and services, offering customers the function and benefits of a product, rather than the product per se (European Commission, 2017). Driving forces behind functional sales are in many cases the same as for separated services (Kowalkowski & Kindström, 2012). Further, as a part of the overall trend toward services, also integrated solutions are increasing in the market place and in general customers are requesting more services and integrated solutions (Olivia & Kallenberg, 2003; Van Halen, Vezzoli, & Wimmer, 2005).

As product companies have a product specific knowledge they have an unique opportunity for growth, in a service-led way, through offering new services and integrated solutions (Kowalkowski & Kindström, 2012). However, this knowledge can often be hidden and hard to allocate in order to be a successful service provider (Kowalkowski & Kindström, 2012). Service innovation and traditional product innovation differs in several manners, where one important difference concerns the way a new offer is being
developed (Kowalkowski & Kindström, 2012). With a product focus the development mainly regards new technology and physical products, but with a service focus the development proceeds from the customers' situation, needs and behavior (Kowalkowski & Kindström, 2012). Lack of customer insight and market understanding are often the reason for unsuccessful offers, consequently these are crucial in order to develop succeeding service offers (Qu, Yu, Chen, Chu, & Tian, 2016; Kowalkowski & Kindström, 2012). Further, service innovation requires more customer involvement in the development phase of a concept (Qu, Yu, Chen, Chu, & Tian, 2016; Kowalkowski & Kindström, 2012). These are some of the challenges a company is facing while trying to overcome to develop and offer integrated service solutions. Even though there are a range of challenges by offering service solutions there are many successful examples observed on different markets and industries. An example is the energy industry, where district heating companies have for years been offering their customers integrated service solutions where the companies own the district heating unit and the customers pay for heat and domestic water.

A company acting in the heat pump business where integrated service solutions are still uncommon and where the concept of selling services rather than only products is still relatively new, is Bosch Thermoteknik AB. The company is mainly selling products and there is traditionally a strong product focus within the company. Despite this, service integrated solutions have now attracted their attention, not least in order to maintain competitiveness and to survive as a business on a market with increased competition from different actors. Bosch Thermoteknik AB, which is a division within the corporation ROBERT BOSCH B.V. and a part of the business unit Thermotechnology, does today develop, produce and provide heat pumps for the European market. Bosch Thermoteknik AB's product range comprises of all sorts of heat pumps and the company is targeting residential and medium-sized property owners as well as industry firms. The company has a prevision of a current shift in the market, in the way consumer act. Insights from other industries, such as the automotive industry, indicates that the value of a product is no longer directly connected to the product itself but rather to what the product achieves and what needs it fulfils. For example, ownership in the traditional sense becomes less important as services grow. Increased interest for car leasing is a clear example of this trend. Due to these insights, the company’s interest arouse to further investigate their prevision and see if also customers in the heat pump market can be attracted by these kind of integrated service solutions.

1.2 Purpose & Research questions

The purpose of this thesis is to investigate, identify and give example of how a manufacturer can utilize opportunities for integrated service solutions in the heat pump business based on a customer value perspective.

The research questions which will be answered by this master thesis are as following:

RQ1. What factors are creating customer value in the business of residential heating?

RQ2. How can existing services in the heating market contribute to inspiration for an integrated service solution?

RQ3. How can integrated service solutions for Bosch Thermoteknik AB be designed considering the previous questions?
1.3 Delimitations

In this study certain limitations have been taken into consideration in order to reach an appropriate scope. In the following text the limitations of the study are presented.

The integrated service solution will be designed in order to fit the Scandinavian market and its conditions. Due to that, as well as practical reasons, the customer research will be performed within Sweden. The study is primarily focusing on private consumers that already are owners of a heat pump. The reason for this is that the market with new customers requesting a totally new heating system is considered as relatively matured. Instead, since a heat pump has a limited life time, the replacement market where the customers need to change from an existing heat pump to a new heat pump is considered as very important. Further, Bosch Thermoteknik AB has two brands, IVT and Bosch. Due to the brands’ different distribution channels, where IVT’s established relationships to installers and service partners were considered as something to utilized when considering service opportunities for Bosch Thermoteknik AB, the study is mainly focusing on IVT. However, in general the study is still interesting for the Bosch brand.

A developed integrated service solution can vary in terms of scale and level of details. Thus, a clarification regarding the comprehensiveness of the developed solutions in this study is needed. The resulted integrated service solutions will be a first draft, hence parts and details will be left for future work. Further, to be a successful service provider, many internal aspects need to be considered. However, in this study internal resource and organizational aspects will not be discussed and the cooperation with other actors in order to delivering the service will only be discussed briefly.
Introduction
Theoretical framework

The theoretical framework contains relevant areas in order to contribute to understanding of the subjects, and for the authors to be able to analyze the empirical result. Thus, the theoretical framework represents an important part in order to answer the research questions within the boundary for the purpose. Discussed main areas are services and integrated solutions, customer value, services in the energy market and service innovation. The chapter ends with a presentation of the model of analysis, where it is described how different theories are related to each other and will be used in the following analysis.

2.1 Services and integrated service solutions

A service is generally perceived and defined as an activity, or action of the service provider (Tomiyama, 2001). It generally consists of three elements: objects, procedures and people and cannot be stored since it disappears immediately (Tomiyama, 2001). Services can exist in great varieties with different extents, from inspection and basic field service to more extensive customer solutions which integrates both internal and external products and services (Kindström & Kowalkowski, 2014). Further, Edvardsson (1997) writes that individual services are often formed together with other existing or new services into a system and thus creates such an integrated service solution. Such an individual service which can contribute to an integrated offer can for instance be technical support which provides the customer with advise and support through for example a call-center or a website (Kowalkowski & Kindström, 2012). Package deals or all-in-one solutions are not only an offer of products but also a provision of services including planning, financing, installing, operation, maintenance, upgrading and recycling and the products in such a solution are often more seen as a resource for the supplier to deliver the services (Lindahl, Sundin, Öhrwall Rönnbäck, Öhlund Sandström, & Östlin, 2006). According to Kindström and Kowalkowski (2014), a product-service integration is arranged in order to accomplish synergies for the value creation by developing and preserving linkages between services and products. Brady, Davies, and Gann (2005) strengthen this by admitting that integrated service providers combine products and services and develop new ways for the components to work together and thereby increase the overall value for the customer. The advantages for the customer are for instance that they do not need to integrate components themselves, but for some customers integrated service solutions can mean disadvantages, such as that all small service parts are not available individually. Thus, customers need to purchase a whole package even though they only have the need of a few of these service parts (Kowalkowski & Kindström, 2012). By providing solutions, a company usually establish long-term relationships with customers, which in turn helps the provider to avoid the costly process of reaching and capturing new customers (Brady, Davies, & Gann, 2005).

A version of product-service integration is sale of use or function which, according to Tomiyama (2001), is defined as a product’s function and action rather than the product per se. Lindahl et al. (2006) defines it as an offer of a functional solution from a life-cycle-perspective and which satisfy identified customer needs. Baines et al. (2007) write that when it comes to functional sales, the customer pays for using an asset rather than its purchase. The functional sale’s focus is often wide, including both the hardware and the services required to provide the function and it also implies a longer time perspective as the phases of both production, use and end-of-life should be comprised (Lindahl, Sundin, Sakao, & Shimomura, 2006).

2.1.1 Service concept

According to Edvardsson (1997) the term service concept refers to the description of the customer needs that should be met and how they should be met, thus a description of the service content and the design
of service package. The service concept can hence be seen as the prototype of a service (Edvardsson, 1997). The service's concept description should take both primarily and secondary customer needs into account, and the service offering should consist of and express both core and supporting services (Edvardsson, 1997). The correspondence between the customer needs and the service offer is mighty important (Edvardsson, 1997).

According to Hannon (2012), there are three different forms of product service systems, namely product-oriented, use-oriented and result-oriented, see Figure 1. The product-oriented form refers to extended offers in terms of additional services to the product offered, such as maintenance, take-back and financing schemes (Hannon, 2012). Such services mean few changes in the firm's business model, are relatively easy to implement and often bring environmental benefits (Hannon, 2012). The use-oriented form of product service systems refers to the selling of use or function of products rather than purchase and ownership of products. Hannon (2012) means that the use-oriented form often occurs in a renting or leasing concept and perhaps include some sharing or pooling for the customer states that the sale of use or function often implicates to replace the sale of a physical product with rental and lease services. This means that the service provider which also can be the manufacturer is still the owner of the physical products, the value is seen as added during the effective use of the products and the environmental impact decreases (Tomiyama, 2001). Hannon (2012) also argues that renting or leasing, including some sharing or pooling for the customer, often brings great environmental improvements, but also that these services mean a complete change of the firm's business model. Roy (2002) describes a service concept called shared utilization service, where the purpose is to share required products in order to increase the utilization of the material parts of the system. An example of such a service regards clothes cleaning and would include a commercial laundrette or a shared wash center instead of individual washing machines in each household (Roy, 2002). The result-oriented form of product service systems instead refers to a guaranty that the customers' needs will be satisfied but without definition of which materials are to be used or how they will be achieved (Hannon, 2012). An example of a service concept in terms of a functional sale is to provide the function a photocopier brings together with all required circumstances in order to function (Baines, Lightfoot, Evans, & Neely, 2007). Instead of the traditionally purchase and ownership of a photocopier, where the customer has to select and purchase the equipment from the manufacturer along with providing the consumables, monitoring performance, arrange servicing, and take responsibility for the equipment and its disposal, the service concept provider will provide and manage all these factors for the customer (Baines, Lightfoot, Evans, & Neely, 2007). Further, Hannon (2012) means that these kind of result-oriented services require radical changes of the provider's business model.

![Figure 1 - Relation between three forms of product service systems, inspired by Hannon (2012)]
2.1.2 Service process
A service is produced by a process (Edvardsson, 1997). This service process consists of a chain of activities that needs to be achieved in order to perform the service (Edvardsson, 1997). Kellogg and Nie (1995) mean that a service process refers to how a firm creates services and service packages. The service process or production of a service differs from the process or production of goods in the manner of customer participation (Edvardsson, 1997). The process of service production implicates that the customer is a co-producer and experience the activities that takes place, whilst the process of goods production occurs at a time and place, without presence or involvement of the customers (Edvardsson, 1997). The customer process, which is a part of the service process, constitutes of the activities that the customer actively or passively participates in (Edvardsson, 1997). Due to this customer participation, the customers affect the quality and added value of the result and therefore the customer’s role and responsibility need to be stressed when it comes to service production (Edvardsson, 1997). Even Tomiyama (2001) writes that it is important to consider the user behavior, as for instance a company providing car leasing should consider the drivers behavior since it influences for example the quality as well as the environment. Edvardsson (1997) means that less mistakes and higher quality can be reached as the easier it is for the customer to co-produce. Furthermore, the so-called line of visibility in the service process is an important aspect since it can influence the customer’s perceived quality (Edvardsson, 1997). The line of visibility defines which parts of a service system the customer should and should not see through the customer process (Edvardsson, 1997). An indication of when a line of visibility is wrongly drawn is for example if a customer is seeing staff taking a break behind a counter while there are long queues (Edvardsson, 1997). Further, activities of the service process can be transferred to the customers, which according to Edvardsson (1997), generates more flexibility to the customer and usually improves the productivity. An example of a transferred activity like this is when a customer handles its bank services by the ATM, 24 hours a day regardless of the bank's opening hours (Edvardsson, 1997). By transferring activities to the customer the service provider company can free the employees for other tasks (Edvardsson, 1997).

2.1.3 Value network
A value network consists of several actors in a network, which together interact and thereby enable value creation through a broader perspective (Kowalkowski & Kindström, 2012; Allee, 2008; Kowalkowski, Kindström, & Carlborg, 2016). Therefore, being a part of a value network requires exchange to generate value for the other actors in the value network. The collaboration can for example deal with disposal and delivery of a service contract and can contribute to, for instance, economic or social benefits for the actors (Allee, 2008; Kowalkowski & Kindström, 2012; Kowalkowski, Kindström, & Carlborg, 2016). Possible combinations of actors in a value network can, as an example, be suppliers, distributors and customers (Ojala & Tyrväinen, 2011). In the customer’s perspective, a value network often means that the customer itself does not need to purchase products and services from different firms and then integrate them into a whole, since it gets solved by the value network’s other interactive actors (Kowalkowski & Kindström, 2012). Further, three main elements can be seen in the foundation of a value network; roles, relations and value exchanges (Allee, 2008).

Several researchers stress the importance of collaboration and involvement of external actors in order to successfully be able to develop and provide integrated service solutions. This since a firm’s own competences and resources can be insufficient, not least in local presence, and that a firm are able to, in some sense, reach other resources within their network (Kowalkowski & Kindström, 2012; Spring & Araujo, 2012). They mean that in order to best utilize the resources within the value network, it is essential
to deeply understand the other actors’ resources and services and to treat the relationships well. In step with the customer’s transformed needs and demand a lot of the companies need to develop their existing value network or perhaps establish new formations of value networks (Kowalkowski & Kindström, 2012). By interactions in such a value network a firm’s service portfolio can extend and the firm can even reach new customer segments and markets.

Several researchers agree that value constellations exist in two approaches, where one is characterized by a lot of contact and ties across the constellation and toward the customers and the other is characterized by contact and ties mainly only via a system integrator or intermediary (Kowalkowski, Kindström, & Carlborg, 2016; Kowalkowski & Kindström, 2012). Kowalkowski, Kindström, and Carlborg (2016) call the first mentioned approach transitive and the latter approach intransitive. The system integrator or intermediary approach implies that a firm takes the role of an integrator of various subcontractors and adjusts and provides the service to the customers as the customers’ only supplier (Spring & Araujo, 2012). The benefits of such a constellation approach are a more structured system, including clear roles and responsibility areas among the actors of the constellation (Kowalkowski & Kindström, 2012). The disadvantages such an approach brings is though that it is less flexible and that the system integrator has to take great responsibilities of making sure that the activities and processes is being performed in accordance with the contract (Kowalkowski & Kindström, 2012). Furthermore, the rise of a system integrator in the value network can for the other firms mean diminished customer relationships due to the reduced contact areas towards the customers, which in turn leads to a decrease of important feedback regarding the firms’ offers. Product firms try to avoid that their intermediaries, such as distributors and service partners, get a position of a system integrator in case the intermediary lack the interest of collaboration. This, which entails a very difficult situation and to avoid it, sometimes firms take the action of trying to take the role of system integrator themselves (Kowalkowski & Kindström, 2012).

As a value network enables more extended services, it also generates opportunities for competitive advantages (Kowalkowski & Kindström, 2012). Although value networks have good opportunities to result in success, Kowalkowski and Kindström (2012) present some challenges that need to be accomplished. Interaction in a value network means increased complexity and thus a challenge is the required communication and coordination. It is also important to allocate the costs and revenues among the actors in a, by all actors perceived, fair way. The same goes for the allocation of responsibility, risks and customer contact. Furthermore, a challenge is to create incentives for all actors to be willing to contribute to and provide the solution. To together define measurements, which should be assumed in the assessment of performance is also crucial and a challenge.

The degree of dependency of the intermediary varies through different types of provided services (Kowalkowski & Kindström, 2012). For instance, product-related services as maintenance and reparation are usually done locally and thus often mean a high degree of dependency of a service partner for the achievement. The relationships within a value network can be sensitive to changes, particularly if a product firm which usually has worked toward intermediaries tries to strengthen the direct contact with the end customer and if the firm has chosen to provide more services in-house (Kowalkowski & Kindström, 2012). By doing this, the firm risks to end up in a dispute with the intermediary and partners, which becomes both the firm’s customers but also competitors. The exposed intermediary will probably react on the alteration, for instance by decrease the business with the firm and instead strengthen the collaboration with other suppliers. Thus, to establish a long-term solution, Kowalkowski and Kindström
(2012) state that a firm needs to take the intermediary as for example a retailer into account and perhaps actively involve them into the solution.

2.2 Customer value

The definition of customer value differs dependent on different perspectives and can vary from more simple definitions to multidimensional definitions (Khalifa, 2004). One common conceptualization of customer value, traditionally used by many researchers, is a tradeoff conceptualization explained as the benefits customers get in exchange for the price they pay or in exchanged for the costs connected to the offer (Smith & Nagle, 2005) (Khalifa, 2004). In the latter example cost is seen not only as the monetary price but also as other cost such as time and effort. However, some researches are still arguing that monetary costs are the most important (Khalifa, 2004). This presented definition of customer value has also, by other researchers such as Butz Jr. and Goodstein (1996), been named net customer value. Kowalkowski and Kindström (2012) mean that transactional value, which is commonly used in product centric firms, is determined in the purchase situation but are arguing some disadvantages to the concept, especially to succeed as a service provider. They mean that value cannot be predefined, instead it appears through the use process and is perceived different to different customers. Rather than transactional value, Kowalkowski and Kindström (2012) advocate another perspective, namely "value in use", where the value reflects the actual value the customer experience while using the product or service. McNeill and Mather (2016) agree and mean that the perspective should be moved from the focal firm to the customer; move from the construction of the service components to the role of the service in the life of the customer. Understanding of customer value should then be centered to an understanding of the customer as an actor in the service environment and therefore it is important with engaged input from the customers in the service creation process (McNeill & Mather, 2016).

Woodruff (1997) presents a customer driven conceptualization of customer values with different perspectives taken into account. The author explains customer value as the perceived evaluation of and preferences for product attributes and its performances as well as the consequences arising from the use of it, which in turn facilitates (or block) the customer’s goal and purpose. The conceptualization is thus incorporating both desired and received value of an offer and it links together a product, related consequences in the use situation and the goals and purposes the customer has. Customer Value Hierarchy model is used to show customer value in this different hierarchy stages, and those stages can be seen in Figure 2.
Starting from the bottom of the Customer Value Hierarchy model, the customer learns to think about a product as several attributes and performances which then form desires and preferences when purchasing and using a product. These are based on the attributes’ ability to facilitate achieving desired consequence experiences, which constitute of the next level up in the hierarchy model. Furthermore, customers learn to desire certain consequences based on their ability to help them to achieve their goals and purposes, which is a further level up in the hierarchy model. Additionally, the steps in the Customer Value Hierarchy model can be used the opposite way, starting with customers’ goals and purposes and end with product attributes and performances. The process of the hierarchy model is further used both when purchasing and evaluating products. Woodruff (1997) is focusing only on products in his article, but other researchers, such as Mentzer et al. (1997), apply the Customer Value Hierarchy model to analyze services as well.

Osterwalder and Pigneur (2010) mean that the supplier can invite customers to co-produce the service and by this potential customer value is easier to find. Further, to understand how value is created it is important to understand the interaction and relationship between supplier and customer, consisting of three different processes: the customers value creation process, the suppliers value creation process and the relationship process (Kowalkowski & Kindström, 2012). In the customer value creation process the customer use its resources to create value and fulfil its goals. In the same way the supplier uses its resources to improve its performance in the supplier value creation process. In the relationship process the customer and supplier use their resources in different collaboration activities to co-create value (Kowalkowski & Kindström, 2012).

2.2.1 Value proposition
A concept related to customer value is value proposition, which is a combination of products and services aiming to create value for a specific customer or customer segment (Osterwalder & Pigneur, 2010). Thus, a value proposition should address customer needs which can be needs, both known and unknown to the customer (Osterwalder & Pigneur, 2010; Cerasale & Stone, 2004). Value proposition consists of different...
elements effecting benefits and costs to the customer and Anderson and Narus (1998) are presenting four different types of elements: technical, economical, service and social. Some of the elements will create value to all customers within a segment, while some of them will only create value for some customers, which may be considered when combining products and service elements into solutions (Anderson & Narus, 1998).

To convince a customer about the value of an offer, customer value models can be used. They are based on assessments of costs and benefits of a specific offer in a particular customer application (Anderson & Narus, 1998). Kowalkowski and Kindström (2012) are presenting a value equation, where the value of the focal suppliers offer is compared to a competitor’s. A challenge is to transform costs and benefits into a monetary value, which is especially complex if the supplier is lacking experiences of delivering similar offers. Depending on the environment and other circumstances, a value model can be created for a specific customer or for an entire customer segment (Anderson & Narus, 1998).

2.2.2 Elements generating customer value

Osterwalder and Pigneur (2010) are presenting some general examples of elements that can contribute to customer value which are: newness, performance, customization, "getting the job done", design, brand/status, price, cost reduction, risk reduction, accessibility and convenience/usability, see Figure 3.

![Figure 3 - General elements generating customer value presented by Osterwalder and Pigneur (2010)]

To further present some of them, improving a product or service performance has traditionally been a common way to create customer value. For instance, faster PCs and more disk storage are clearly corresponding to growing customer needs. Also, by customization, where the offer is built on elements targeting a specific customer, customer value can be created and lately the concept of customer co-creation has been on topic. Value can be created by helping a customer getting the job done, which in a business market can help the customer to focus on its core activities. In further examples, customer value can be created by offering a customer the same value but to a lower price. This is especially interesting to price sensitive customers; often customers understand their own needs and therefore do not need expert advice and guidance that possible can be included in a more extensive offer (Cerasale & Stone, 2004). By selling an offer to a lower price, new segments can also be reached, including customers who earlier could not afford the product or service. Cost- and risk reduction can contribute to customer value, where the supplier helps customers to save money or taking over some risks (Osterwalder & Pigneur, 2010). For instance, a one-year service guarantee reduces the risk of breakdowns and consecutive repairs for a buyer of a used car. By accessibility, a supplier makes it possible for a customer to access a product or service that was not possible before. For instance, NetJet developed a business model around fractional ownership of Jets and customers who earlier could not afford a single ownership could thus be attracted. Kowalkowski and Kindström (2012) agree that accessibility can create value for customers for example by providing a product to customers in case they have to use it. The customers are then ready to pay for accessibility; pay for the knowledge that the product is available, even if the product never will be used. Furthermore, particularly important in a “value in use” perspective, elements can be of more abstract
nature, for instance to make sure customers are feeling secure and not questioning the supplier’s knowledge (Kowalkowski & Kindström, 2012). Cerasale and Stone (2004) mean that those customers requiring exceptional value through integrated solutions might need help with understanding their needs and explore new opportunities for value creation. The authors are also arguing that customers value the benefits provided by products but are generally less interested to take the ownership of them. Owning products make less sense in a constantly changing world where products often can be replaced or quickly need upgrades. Just various payment schemes and a prospect of different alternatives of ownership responsibility based on the product use is one of the customer benefits related to product-service systems (PSS) (Mont, 2002). More examples of benefits related to PSS systems are that customers receive a greater diversity of options in the market, maintains and repair services and better customized offers of a higher quality, in terms of product/service and the delivery of it (Mont, 2002). Further, products can often be replaced by services to create customer value, something which is possible for instance due to new and falling costs of information- and communication technology (Cerasale & Stone, 2004). Technology, such as microchips, can be embedded into a product and by connecting the product to internet, new possibilities for services arise.

When offering services there are further aspects that possibly can generate customer value. The more activities in a service process that can be transferred to the customer, the better flexibility, which can contribute to a more positive customer-experienced quality and productivity (Edvardsson, 1997). Self-service in a restaurant can be seen as an example, where in addition to reduced cost related to restaurant personnel, it can increase the customer experienced quality. Also, customers can perceive increased customer value by being offered several options. As an example customers might avoid entering a bank when realizing there is a long queue inside and instead choose to use the cash dispenser outside (Edvardsson, 1997).

2.2.3 Customer value in the energy market
In a report published by Roy (2002) customers in United Kingdom seem positive about saving energy. However, for most customers, saving cost is the only reason to actually reduce their energy consumption and factors, such as functionality, technological simplicity, brands and design are still more important than saving energy while people choosing different appliances (Roy, 2002). Therefore, it is important to energy management companies to try to keep costs low, improve functionality of products and inform and educate customers of the long term saving achievement. Van der Hoeven (2014) means that it is important with a wider perspective to value creation and investment in energy efficiency can bring many different benefits to different stakeholders. In a customer perspective it means that an investment in energy efficiency can directly reduce energy demand and associated cost, but also facilitate the achievement of other objectives, such as making the indoor environment healthier or improve industrial productivity (van der Hoeven, 2014; Roy, 2002). Here, improved insulation, heating and cooling systems, lighting and energy-using equipment can reduce energy costs and support warmer, drier and more comfortable indoor environment. These outcomes have been related to impacts such as lower risk of illness and other indirect physical health benefits, particularly to vulnerable groups such as children (van der Hoeven, 2014). Mental health can be negatively affected by cold homes, including the financial stress of high energy bill. Therefore, also energy efficiency measures can contribute to improved mental health (van der Hoeven, 2014).

Mahapatra and Gustavsson (2009) have conducted a study about heating systems and factors influencing people’s decision to change residential heating system. Peoples’ attitudes and perceptions, together with
Theoretical framework

The overall driving forces, determined the decision to change or not, and to what kind of system. Further, these factors were based on both internal and external aspects, such as socioeconomic, marketing campaigns and government subsidies (Mahapatra & Gustavsson, 2009). Doubts about attaining a desired level of satisfaction, for instance related to performance, physical or economical lifetime and availability of service and support, made some people decide not to change system. McNeill and Mather (2016) mean that if people instead enter an experience with a positive emotion, it leads to a higher satisfaction to the experience outcome. Further, the study shows that installers had an important role in meeting customers' concerns and they were according to customers the main source to information on heating systems (Mahapatra & Gustavsson, 2009).

The most common factors behind a heating system choice are according to the study annual cost of heating, investment cost, functional reliability and indoor air quality (Mahapatra & Gustavsson, 2009). In addition, system automation, low Green House Gases emission and market value of the house can affect the decisions. The importance of system automation also when it comes to energy saving is argued by Busnelli et al. (2011), meaning that customers have showed a big interest into technologies helping them automatically controlling their energy, such as sensor lighting and home automation systems. However, at the same time, some customers were concerned that offers related to energy savings, provided by energy producers, could rather bring higher energy consumption than the other way around (Busnelli, Shantaram, & Vatt, 2011).

According to the study made by Mahapatra and Gustavsson (2009), people’s age affect the decision to install a new heating system, which is in line with other researchers. People in later phases of life are in general less interested to change heating system especially due to the investment cost. Lower income and/or the fact that they do not expect to recoup the investment in the time period of their occupancy of the house, can be possible reasons. Also younger people, up to 55, seem to be more aware of sustainability, so called green consumers (Mahapatra & Gustavsson, 2009). However, younger homeowners often move from an apartment to a house and start building family. In this phase it is likely that they have less money to put on an energy-system investment, and also they are less aware of such systems. But the situation improves over time, both seen to the economical and knowledge aspect and it makes them more interested in changing heating system (Mahapatra & Gustavsson, 2009).
2.3 Services in the energy market

In the last decade a growing interest in the provision of energy services can be seen (Bertoldi, Rezessy, & Vine, 2006). Fallen energy prices brought an unsustainable business for many companies and the innovative ones understood that together with the electricity supply they had to offer related services, in order to retain competitiveness in the market (Bertoldi, Rezessy, & Vine, 2006). Also, new regulation made energy services become more attractive and what is important in the development of these services is to understand and act on opportunities connected to changing regulation (Roy, 2002). Still, the most dominant business model to satisfy customer energy demands is the volume-sales driver, where the energy company’s revenue increases with the number of units of energy they sell to its customer and the business model is therefore not satisfying customer demand in a sustainable way (Hannon, 2012). However, in the 1970s electricity suppliers realized that reducing energy demand rather than building new generating capacity, can be more economic (Roy, 2002). The idea was also spread into other utilities, such as gas and water supply and entailed new service opportunities in the markets (Roy, 2002). Obviously, there is a need for better developed business models to offer energy users integrated solutions, which better meet customers' demand, and here energy providers have an important role (Nilsson, 2016). However, in addition to energy providers, also other market actors, such as equipment manufacturers, installers and engineering companies have decided to enter this market (Bertoldi, Rezessy, & Vine, 2006). To reach more customers with energy services it is important that not only energy providers are dedicated to the topic, but also these other market actors (Nilsson, 2016). Yet, many of these companies are not seeing themselves as providers of integrated services, rather as provider of separate technical solutions, such as electric installations and VVS-technique; thus initiative for integrated services does rarely come from them (Nilsson, 2016). Still, it is important to analyze how their knowledge can be used in the value chain, from analyze to fully developed service (Nilsson, 2016). Also, it is important to investigate how different technical solutions can be packaged into service solutions and better fit market requirements and to find incentive for customers to embrace new solutions (Nilsson, 2016).

2.3.1 Service contract

Services in the energy market can vary in extent and include different activities, such as energy analysis, project design and implementation, energy management, maintenance and operations, installation, evaluating of savings and supply of energy (including heat) (Bertoldi, Rezessy, & Vine, 2006). Many of these services are focusing on how the customer can save energy; some providers are even guaranteeing energy savings (Nilsson, 2016). As an integrated service project starts, a contract between the customer and the supplier needs to be produced (Brady, Davies, & Gann, 2005). Lindahl et al. (2006) stress the importance of the service contract between the customer and the supplier, which must contain more than just the parts directly connected to the product, such as performance and services. Such a contract should contribute to and support an integrated service solution’s intention, namely to generate a win-win situation, where both the supplier and the customer will find economic benefits. Hannon (2012) is presenting two types of services/contracts offered by Energy Service Companies (ESCo), namely Energy Supply Contracting and Energy Performance Contracting. Energy Supply Contracting can for instance be arranged to supply the customer with hot water via installation of a combined heat and power district heat scheme (Hannon, 2012). Here, the ESCo will design the system depending on the consumption profile of the customer and the geographical location. They will be responsible for funding the installation, through internal and external sources and to actually install it, often via help from sub-contractors. Further, the ESCo will also be responsible for post-installation, operation and maintenance, and to bill the
customer for heat and electricity (Hannon, 2012). In Energy Performance Contracting, the company for example provides customers with the final energy service “lighting” and guarantee energy saving (Hannon, 2012). The first step would be to identify a suitable customer with a sufficiently inefficient lighting system. The idea is to cover the upfront capital cost of the energy upgrade with the energy saving it generates within the time period of the contract (e.g. 10 years) (Hannon, 2012). A demand management solution will be developed (e.g. energy efficiency bulbs, sensors etc) in order to deliver the potential savings identified in the previous steps and to satisfy customer needs. The ESCo investigates how the project can be funded (internal, external, customer investment etc), it is responsible for operation and maintenance, and to measure and verify the energy savings it generates (Hannon, 2012).

As previously described an energy service contract can be arranged and funded in different ways, which is something Bertoldi and Rezessy (2005) and Bertoldi, Rezessy and Vine (2006) are discussing further. According to Bertoldi and Rezessy (2005) a contract can be structured in numerous way and they are describing the following more in detailed: the “chauffage” contract, the “first-out” contract, the “Build-Own-Operate-Transfer (BOOT)” contract and leasing contract. A frequently used contract in Europe is the “chauffage” contract, where an ESCo takes over the complete responsibility for providing the customer with an agreed set of energy services, such as heating and lighting. If the energy supply market is competitive, the ESCo can also take over the purchase of electricity/fuel. The study performed by Bertoldi and Rezessy (2005), shows that more than two third of the participated companies stated that they could take care of purchasing the fuel or electricity, however it is not very wide spread (except in France and Italy). The fee payed by the customer in a “chauffage” contract is based on the customer’s existing energy bill minus a percentage saving (often in a range of 5 – 10 %), or the fee could be charged per square meter of conditioned space (Bertoldi & Rezessy, 2005). The provider guarantees the energy services of a reduced bill to its customer, and the more efficiently and more cheaply the provider delivers the service, the more is the earning for the firm. To provide the customer with further incentive, the contract can consist of an element of shared earnings in addition to the guaranteed savings (Bertoldi & Rezessy, 2005). Here there is no standard split between customer and ESCo, since contract period, costs, risk taking vary from different contracts (Bertoldi, Rezessy, & Vine, 2006). The “first-out” contracts mean that the provider is paid 100 % of the energy savings until the project costs (including the providers profit) is paid (Bertoldi & Rezessy, 2005). Thus, the contract period depends on the savings. A BOOT contract can involve a company designing, building, financing, owning, and operating the equipment for a defined period of time (Bertoldi & Rezessy, 2005). The idea is then to transfer the ownership of the equipment from the ESCo to the customer. Also these contracts are normally covering a long time period and the customer is charged for the service delivered. The final contract, leasing, can be an interesting alternative to borrowing since the lease payment is often lower than for loans (Bertoldi & Rezessy, 2005). The ownership of the equipment can rather belong to the lessee, whereby an installment purchase agreement is arranged, or to the lessor, where it is rented out for a fixed monthly fee. In the latter example, the risk is shifting from the lessee to the lessor, but it tends to be more expensive to the lessee (Bertoldi & Rezessy, 2005).

Bertoldi, Rezessy, and Vine (2006) mean that there is, in general, three broad financing alternatives for financing energy efficient improvements: ESCo financing, third party financing, and energy user/customer financing. ESCo financing is based on internal fund of the ESCo. Third party financing means that either the ESCo or the customer borrows the capital and customer financing means that the customer is financing with internal funds, and it is also backed up with the prospected energy savings (Bertoldi, Rezessy, & Vine, 2006).
2.3.2 Existing services

The most common projects delivered by ESCo have been in co-generation, public lighting, ventilation, air-conditioning, and energy management systems (Bertoldi, Rezessy, & Vine, 2006). Further, in many ESCo contracts the provision of “heat service” have become more common, especially in the public sector. According to a case study made by Bertoldi, Rezessy, and Vine (2006) there are some ESCo activities in Norway, the Netherlands, Portugal, Greece, Ireland, and Sweden. The authors describe Sweden as the most successful country, offering arrangements such as management agreements, energy incentive agreements (including a shared profit element), energy service agreements (a combination of different services), and function agreement (guarantee a level of costs and an overall solution) (Bertoldi, Rezessy, & Vine, 2006). The main market segments for these activities are medium-sized industry, public buildings, hotels and hospitals, and residential property companies (Bertoldi, Rezessy, & Vine, 2006). In another study, Bertoldi and Rezessy (2005) show that “Pay for heat”, a fee based service, is also provided in Spain, whereas the fee includes heat generation, distribution, operation and maintenance of the boilers’ and pumping room, and installment of initial investment made by ESCo. In Germany, energy services such as heat supply are common even to private buildings (Bertoldi & Rezessy, 2005). To mention some more examples, energy companies in USA have developed package solutions for instance to improve customers' lighting and air conditioning (Nilsson, 2016). Further, in UK an integrated solution was developed and offered to customers, where analysis, procurement, implementation, financing and installment via the energy bill was included. The program was though discontinued due to lack of interest among customers and the main reason behind this seemed to be to high expenses compare to other loans a property owner can take (Nilsson, 2016).
2.4 Service innovation

Many firms see innovation only as product development or traditional research and development, which is a too narrow view since innovation is more extensive than only product or technology innovation (Sawhney, Wolcott, & Arroniz, 2006; Lindahl, Sundin, Öhrwall Rönnbäck, Öhlund Sandström, & Östlin, 2006). A company with such a narrow view of innovation can be vulnerable to competitors with a broader perspective because the company can lose their competitive advantage as firms within the industry becomes more and more alike over time due to copies of best practices (Sawhney, Wolcott, & Arroniz, 2006). Product and technological innovation has traditionally been in focus but Hannon (2012) argues that non-technical and intangible innovations such as service product innovation and organizational process innovation deserve more attention. Windahl (2007) presents four categories of innovations, namely product/service innovation, process innovation, position innovation and paradigm innovation. Where product/service innovation refers to changes in offering, process innovation refers to changes in the production and delivery of the offer, position innovation refers to changes of the context where the offering is applied and paradigm innovation refers to changes of business models and business approaches. Further, Windahl (2007) means that integrated solutions can be connected to a few of these categorizations, for instance a product/service innovation as it changes the offering’s content or a paradigm innovation as it changes the firm’s business model and mental model. According to Sawhney et al. (2006) an innovation should be seen in a holistic view, where all possible dimensions of innovation for an organization’s business system is taken into consideration. Kindström and Kowalkowski (2014) point out that the key regarding service innovation is to build strong and aligned business model elements. These business model elements can vary seen to different perspectives but can for instance refer to revenue model, offering, development process, sales process, delivery process, customer relationships, value network and culture. Even though it is argued that there are several dimensions of innovations and business model elements that need to be taken into consideration Kindström and Kowalkowski (2014) claim that the offering is the one which traditionally is associated with service innovation. Anyhow, Sawhney et al. (2006) write that Business innovation is not about new things, but new value, and this worth is determined by the customer, since it’s all about whether the customer will pay or not. Concerning the pricing of a service, Kowalkowski and Kindström (2012) mean that in order to reach a successfully pricing it is essential to focus and understand the customers perceived value while using the service. This perceived customer value constitutes the maximal price ceiling, while the minimum price constitutes of the company’s cost for delivering the service. Therefore the price, which can be set by the company end up somewhere in the span between the customers perceived value and the companies cost. However, what is still affecting the customers’ willingness to pay is competition and price sensitivity. The opportunity for customer to compare different offerings decrease their willingness to pay as well as and for example economic conjunction.

Lindahl et al. (2006) agree to the importance of a broader view on innovation and describe two mind changes which are important while a company has the intention to offer integrated products and services and which bring innovation potentials. These changes are that the cost for use and end-of-life handling are internalized for the supplier and that the products have economic value at end-of-life. Further, Brady et al. (2005) mean that the service provider has to cater for the lifetime costs while assessing the value of providing an integrated solution to the customer.
2.4.1 Service development
When it comes to the process of developing new services it is, according to Edvardsson (1997), Rondini et al. (2016) and Kowalkowski and Kindström (2012), more or less necessary to involve customers into the process in order to understand customers' needs and wishes appropriately. Brady et al. (2005) stress the importance of the understanding of how value is created in the perspective of the customers. The integrated service providers can then, from the understood customer needs and the desired outcome for the customer, work backwards to the products and services required to satisfy those needs (Brady, Davies, & Gann, 2005). Furthermore, attractive and customer-friendly services arise from dialogs with demanding and competent customers (Edvardsson, 1997). However, Kindström and Kowalkowski (2014) point out a customer focus rather than a technology focus as a main challenge while developing services, especially for heavily engineering-driven firms. Beyond the importance of customer involvement into the development of new services, it is also important to involve staff with detail knowledge and understanding of the service system, since a lot of new services are fairly dependent on the existing conditions and system (Edvardsson, 1997). Furthermore, Kindström and Kowalkowski (2014) mean that service operators possess important knowledge also for the product development; feedback from the service operators should thus be seen as an important information source also in that sense.
2.5 Model of analysis

The theoretical framework contains different areas, which will help out to understand and analyze the empirical result in order to fulfill the purpose of the thesis, see Figure 4. The area *Services and integrated services* act as a base for the study and as a framework, which gives inspiration to all other areas. This section defines services and integrated services, its characteristics and mindsets. Further, it contains opportunities and risks with services and the role of value networks in order to deliver services. The next area, *Customer value*, describes perspectives of customer values that are of interest in the study. It further describes what elements that generating customer value, both in general and more specific in the energy market, which will help to interpret the empirical result and answer research question one. Since the purpose is about investigating opportunities for services in the heating market it is also important that customer values specific to service offerings are considered within the boundaries of the area, which can include values that are not important if only a product is delivered. The area, *Services in the energy market*, includes different examples of services and success factors and risks with those, which help to identify new service opportunities for Bosch Thermoteknik AB. The theory section regarding services in the energy market will be used in the analysis in order to answer research question two. The services in the energy market and customer value will both be analyzed before the last area, *Service innovation*, since they will give important inputs to the area. Service innovation includes parts such as service development to understand specifications for how services may be developed and result in new solutions. Also, the area concerns how focus must be placed on customers to create value, which motivates that customer value and services in the energy market are analyzed before the service innovation. The last area, service innovation, will be analyzed to answer research question three.

![Figure 4 - Model of analysis](image-url)
Theoretical framework
3 Methodology

Presented in the chapter is the overall approach of the thesis, constituting of five different phases. The initial section is then followed by an account of each phase, including a more detailed description of- and motivation for the included methods. In addition, reliability, validity and risk regarding the thesis are discussed.

3.1 Approach

The study was organized in five phases containing both qualitative and quantitative methods in order to reach a structured work and to answer all research questions, see Figure 5. The two initial phases were performed in order to provide a deeper understanding into the topic and to create a base for the future work. The following data collection phase was conducted in an iteration with analyzing methods, both with the aim to get better insight in what kind of services that are provided today and to reach a better understanding of what factors that bring customer value in the heating market. These insights were then important to the next phase, the concept development of integrated service solutions for Bosch Thermoteknik AB, which resulted in proposals of concepts. Finally, conclusion and the overall discussion were conducted.

![Figure 5 - Research phases]
3.2 Phase 1: Pre-study
In the initial phase, the pre-study, the authors collected information to get a better understanding into the topic. Articles and reports were read and interviews were held with employees at the company. About five interviews were performed with the supervisor, product manager, marketing manager, sales manager and with an after sale support employee. In addition, several informal discussions were held with employees showing interest into the topic. Further, during the pre-study a preliminary time plan including activities was created and presented to concerned parties. The phase resulted in a defined purpose and research scope, agreed by all parties.

3.3 Phase 2: Literature review
A literature review took place after the pre-study and the authors could gather even more information regarding the topic. Bohgard et al. (2015) mean that a literature review can bring extended knowledge in the research area and Martin and Hanington (2012) highlight the importance of capturing the essence of previous research as it might bring valuable insights in the current project. Articles and previous studies were collected mainly from the electronic databases Google scholar, Diva portal and in addition from databases provided by the library at Linköping University. Key words such as services, PSS, functional sales, service innovation, service innovation in the energy market, PSS in energy market, customer value, value proposition, customer satisfaction in the energy and heating market were used to find data. Many articles were found in the topics services, integrated services and PSS systems, which could act as general inputs for the thesis. However, while trying to find more articles concerning integrated services in the energy and heating market it was more difficult to find valuable inputs. The same regarding customer value, where many articles discussing the meaning and definition of it, including general examples of factors generating customer value were found. However, to find more specific customer value and satisfaction factors in the energy and heating market were much more difficult. Still, the literature review acted as an important base while entering the data collection.

3.4 Phase 3: Data collection and analysis
In the data collection the purpose was to gather information about existing services, customer values and important factors in the heating business that could bring opportunities and boundaries for the following concept development phase. Methods used in this phase were Customer Value Determination in connection with interviews, market sensing and analysis methods.

3.4.1 Customer Value Determination (CVD)
To investigate and learn about what customers value in the business of residential heating and to make the most out of it in the design of the future offer in terms of the integrated service solution a method called Customer Value Determination (CVD) was used. Woodruff (1997) presents the model as a framework of a customer value and satisfaction learning process, which was originally designed in order to help and guide managers to learn about their customers and customer values.
The Customer Value Determination process, which Woodruff (1997) presents, presumes that the target customers are identified and constitutes of five steps, see Figure 6.

1. What do target customers value?
2. Of all the value dimensions that target customers want, which are most important?
3. How well (poorly) are we doing in delivering the value that target customer wants?
4. Why are we doing poorly (well) on important value dimensions?
5. What are target customers likely to value in the future?

The first step is aiming to answer the question "What do target customers value?". To do so, techniques such as interview and analysis are encouraged to use since these are effective for drawing out customer's perceived linkages between product attributes, consequences and goals or values. In this study interviews were held with customers, which is in line with Woodruff’s (1997) recommendation. The author further recommends an approach where consequences and the linkages between attributes and consequences are particularly regarded, which can be done by asking customers to take the interviewer on a tour through use situations and occasions. This was also particularly regarded while the interviews were planned and the interview guide was developed and defined.

The second step in the Customer Value Determination process is aiming to answer the question "Of all the value dimensions that target customers want, which are the most important?". The purpose is to decrease the amount of customer preferences of attributes and consequences, since there can be too many preferences to work with at a time for an organization. This screening process is suggested to, for instance, be done by customer inputs but other screening criteria such as what is relevant and possible for the company can also be usable to reduce the amount of preferences instead of customer inputs. In this study also question two was partly regarded in the interviews considering the respondent’s opportunity to also express which values that are more important than others. Additionally, the interview analysis contributed to the answer of this question, since the frequency of the same meaning of answers could be assessed and expressions such as that it is very important for the customer could be interpreted as well as if it was relevant for the company. However, a more comprehensive screening process where customers rank values against each other was not conducted.

The third step in the Customer Value Determination process is aiming to answer the question "How well (poorly) are the company doing in delivering the value that target customer wants?" This refers to get an understanding of how customers evaluate the company and its offer at a level of consequence and attributes. Step four is aiming to answer the question "Why are they doing poorly (well) on important
value dimensions?”. An understanding of the reasons for high and low customer satisfactions is searched and qualitative techniques are recommended for this. The fifth step in the Customer Value Determination process is aiming to answer the question "What are target customers likely to value in the future?". To learn about and predict changes in customer-desired value in the future brings benefits such as lead time to respond with new customer value delivery strategies which in turn brings competitive advantages. In this study, more focus was placed on the first two steps rather than the three last once. However, still the latter steps got some attention, where expressed product attributes about today’s offer could indicate what customers are appreciating and not appreciating. Also, open future-related questions were added in the interviews as well as the opportunity to the respondents to discuss some possible future concepts.

3.4.2 Interviews
Semi structured interviews were held with end customers and aimed to create an understanding for their needs and values, and were performed in order to answer research question one. As describe in 3.4.1 Customer Value Determination (CVD), Woodruff (1997) means that interviews are an appropriate method to identify customer values and further Bohgard et al. (2015) describe interview as an appropriate method when peoples’ thoughts are requested and information regarding their experiences, values and opinions can be gained. In the semi structured interviews, which is a combination of a structured and unstructured interview, the respondents were given open questions and were therefore allowed to talk relatively freely within the boundaries of pre-defined topics. To fully take advantage of the responses from all interviews, they were recorded and additional notes were taken.

In the preparation phase, brainstorming was used in order to generate potential subjects and questions for the interviews. Woodruff (1997) highlights the importance of carefully prepared interviews and mean that brainstorming can be a good start. The authors had to make sure that the questions were in line with the purpose of the interviews and with the research question of the study. Also, it is important to already in the preparation phase have in mind how the analysis is planned to be conducted (Baxter, Courage, & Caine, 2015). Since the interviews were held in order to gain information of customer needs and important values, Sjöström (2016) writes that the intuitive way might be to directly ask the customer what they value the most. However, a risk with this approach is that customers answer what they think is the most important to them and not what actually is the most important (Sjöström, 2016). To partly avoid this problem, the first part of the interview, as mentioned in the section 3.4.1 Customer Value Determination (CVD), let people tell and reflect about course of events in earlier situations. The interview guide is presented in Appendix 1- Interview guide.

In total 12 customer interviews were conducted, both via phone and via meetings with the respondents. The interviews varied between 45 minutes to one hour. The respondents were selected based on some criteria described in the following text. They had to be users of a liquid/water heat pump or an air/water heat pump. They were in the age between 25-40 years old, except from four respondents which instead were in the age between 41-65 and they were selected since it could be interesting to find out if any differences could be seen in relation to the target group. The target group, 25 – 40 years old, was selected in consultation with the supervisor at Bosch Thermoteknik AB, partly dependent on theory found saying that younger customers have less knowledge and money to spend on a heating system, which can make them post pone a heating system change. Additionally, in the pre-study it was found that in general customers for car leasing are younger than customers buying a car. However, to see if age was an appropriate segment attribute for those services, also people in the additional segment, 41 – 65 years old,
were interviewed. Furthermore, respondents were selected to reach a geographical spread, thus respondents from both smaller and bigger cities were interviewed.

The initial contacts with the respondents were reached either by the authors social media channels or by dialing customers from the directory. Each interview was summarized and the authors had the opportunity to add important insights. Also, the records were processed and relevant parts were written down to complement the notes taken during the interviews. Before the customer interviews were conducted, an interview was held with an employee from one of Bosch Thermoteknik AB’s partners in order to get more insight in the customer’s process. The interview contributed as well with the employee’s view on what customers are appreciating. Also some internal interviews, within the organization, were conducted. These respondents were selected based on advice as these employees in some manner work with services within Bosch Thermotechnology and thus potentially could contribute to insights and knowledge. These interviews had an unstructured approach since the issue was not clear but rather searched.

3.4.3 Interview analysis

According to Sallnäs (2017) semi structured interviews in general need to be analyzed both qualitatively and quantitatively. In the customer interviews respondents were given relatively open questions and thus all answers needed to be processed and structured in order to be able to be analyzed. The model used is inspired by an analyzing process presented by Sallnäs (2017), including different steps and the once used in this study is shown in Figure 7. In the first step, data reduction, the collected material was reduced and only information that helped to answer the research question was saved. Precisely as the author means, each interview was carefully red through and key words were underlined and different codes/categories to summarize units of the interviews were added. Similar categories from different interviews were then clustered together into dimensions, given describing headlines as for instance knowledge, investment cost and time/engagement/interest. All dimensions are presented in Appendix 2 – Dimensions from interview analysis. Search patterns means that different parts of the data were tried to be understandable and interrelations tried to be found and then translated into conclusions which formed a list of identified value dimensions. In the analyzing process the importance of a specific value dimension was assessed by identify how many respondents that had mentioned the value dimension. The process was iterative, which can be seen in Figure 7, and new dimensions were formed while trying to search patterns, and insights and conclusions were examined during the whole process.

![Figure 7 - Interview analysis process inspired by Sallnäs (2017)](image-url)
3.4.4 Market sensing

In order to create knowledge about existing service concepts in the heating market and to be able to answer research question two, a market sensing was performed. To do so, a version of a benchmarking was conducted. A benchmarking is usually performed in order to identify and create understanding of state-of-the-art solutions from external companies or internally and from there use it to increase the achievements within the own company (Cook & Wilder, 1995).

To structure the market sensing in a helpful manner a matrix was designed. Camp (2017) suggests that the benchmarking process starts from benchmark parameters, which should be seen as the understanding of the best practices and for which the different solutions or companies should be compared. Therefore, the matrix was structured based on benchmarking parameters, determined to different categories that potentially can bring customer values. These specific customer value categories were chosen based on the literature review, where they were identified as important, as well as an assessment if they were relevant to investigate regarding the service concepts, see Figure 8. A traditional product concept, where the customer buys the heat pump from an installer was used as a reference and the investigated concepts were compared to that.

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost reduction</td>
<td>Price</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Time</td>
</tr>
<tr>
<td>Getting the job done</td>
<td>Other</td>
</tr>
<tr>
<td>Customization</td>
<td></td>
</tr>
<tr>
<td>No ownership</td>
<td></td>
</tr>
<tr>
<td>Convenience / usability</td>
<td></td>
</tr>
<tr>
<td>Risk reduction</td>
<td></td>
</tr>
<tr>
<td>Accessibility due to new price model</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 8 - The customer values used as the benchmark parameters*

In addition to descriptions of different innovative examples of services in the heating market, an investigation and assessment of their value propositions in terms of how they fulfill the predetermined customer value categories, compare to the traditional concept, could be presented. In those cases, the investigated concept did not regard the particular value category, the area in the matrix was left empty.

Camp (2017) means that a benchmarking usually implies measuring products, services and practices against those companies that are seen as the toughest competitors or the ones recognized as the industry leader. Inspired by that, the different services which were chosen in this version of benchmarking were selected with the criteria; innovative service belonging to the heating market which potentially could act as inspiration to an integrated service solution for Bosch Thermoteknik AB. However, the chosen firms are not seen as the main competitors to Bosch Thermoteknik AB. Furthermore, the chosen services were offered by different categorizes of providers, such as utility, installer/service provider and manufacturer. All candidates in the benchmarking were found either by searching on the internet or via a market analysis that Bosch Thermoteknik AB had ordered to be conducted externally. In the internet research Google searches on words, such as energy services, heating services, leasing and product service systems were used. Also, advises from employees regarding interesting firms and firms mentioned by articles in the
theory collection were looked up. Though, it is important to mentioned that the market sensing is not a comprehensive market mapping, rather it was a base for inspiration.

As the different concepts were described and evaluated how they fulfilled the predetermined customer values, along with the literature review, research question two could be answered. It was then used as inspiration in the analysis and proposal of integrated service solution for Bosch Thermoteknik AB as well as some kind of reality check since if the concept is offered in marketplace it indicates that it is manageable. Camp (2017) presents the view that goods and services cannot be competitive by only mimicking the past, but that the best of the new methods and practices have to be combined to provide a competitive advantage. Thus, the purpose of the inspiration of the concepts used in the benchmarking is not to be inspired of one of the concepts flat, but to get inspired by parts of concepts which can be combined among each other as well as with other ideas.

In addition to the benchmarking companies, also two of Bosch Thermoteknik AB’s main competitors on the Swedish market, Nibe and Thermia, were investigated aiming to identify what kind of service related offers they are providing.

In order to answer research question two, the investigated concepts from the market sensing together with found examples from the theory were combined into potential parts in an integrated service solution. In order to structure this and to give an overview of the different potential parts, they were visualized in a formation.

3.5 Phase 4: Concept development
In the fourth phase, the purpose was to give recommendations for integrated service solutions for Bosch Thermoteknik AB considering the answers of research question one and two, thus considering the perspective of the customers and the market. The methods used in phase four were brainstorming and morphological matrix.

3.5.1 Brainstorming
Initially in the concept development phase the method brainstorming was used to generate a spread of ideas. Seidel and Fixson (2013) mean that brainstorming helps people to come up with ideas routed deeply within themselves since it helps people stimulate each other’s thinking processes.

The brainstorming session performed by the authors started with an approach where different ideas were searched, which Bohgard et al. (2015) encourage in order to let the participants think freely. During the idea generation an uncritically perspective was used, as Wilson (2013) means brings advantages such as a lot of proposals and avoidance to get stack in discussions. Ideas were generated in two brainstorming sessions with one day between, where each session lasted about two hours. Ideas from the brainstorm session were just briefly presented on post-its to be able to save the ideas.

3.5.2 Morphological matrix
Seidel and Fixson (2013) state that the method brainstorming is well functioned along with other methods and Wilson (2013) means that the proposals generated in the brainstorming should afterwards, in a separately phase, be critically discussed and summarized and the most appropriate ideas should be selected. The brainstorming conducted in this study was integrated with a morphological matrix, which was helpful to structure the ideas. Weber and Condoor (2017) mean that a morphological matrix generates great solutions by organizing and combining alternative solutions of different functions of a
system. A morphological matrix should not be a replacement of creative thinking but rather a tool for structuring, documenting and exploring design alternatives (Weber & Condoor, 2017). Hence, the combination of brainstorming and a morphological matrix in this study was suitable. To use a morphological matrix in the context of an integrated service solution was also interpreted as adequate, not least since Tukker (2013) writes about an example where a morphological matrix was used for a product service solution, which was used as inspiration.

The format of the morphological matrix should consist of: relevant functions put into the first column list and different solutions that will achieve the function put into the rows (Weber & Condoor, 2017). The different parts from the formation in the analyze regarding research question two were put up in the morphological matrix to form the first column list. Most of the generated ideas were then placed into the rows, connected to which part in the formation they belonged to. Thereafter each idea was discussed and assessed in order to decide if it would be integrated in the finally solutions or not, based on its potential to create customer value. Except the two alternatives "interested to integrate in a service solution" and "not interested", an additional alternative was used namely "interested, but will not be integrated in a service solutions". The latter example was comprised of ideas, which were considered as interesting but not to create synergies with other ideas, and therefore they were not integrated in the finally service solutions. The same concerned some of the ideas, which were in a very early stage and had too many details that had to be defined in order to assess if the idea could be recommended in an integrated solution or not.

The brainstorming and the morphological matrix are not presented separately in the thesis, rather some of the ideas together with the assessment are presented in the analysis, more specific regarding research question three.

3.6 Reliability, validity and risk

In order to assess the quality of the study the reliability and validity are investigated and evaluated. Reliability means trustworthiness of a measurement, so that the measuring instrument, measuring method or the person who perform the measurement not cause any variations or random errors but rather so that the same result would be reached if the measurement would be repeated (Rosengren & Arvidson, 2002). In order to reach a high reliability much time have been reserved on the preparations for the customer interviews. For instance, the interview guide has been tested with different pilot respondents and a specialist within market analysis has examined the interview guide and responded with inputs, which was taken into consideration. This was done in order to form an interview guide which was as clear and understandable as possible, so that different respondents perceive and interpret the questions in the same way. As the CVD process was used in the customer interviews, where one of the CVD-stage was implemented by letting the respondent take the interviewer on a tour through the customer’s process, leads to that important information not is missed which it could be by only asking specific questions. Furthermore, it leads to that the customers not only say what they think is the most important for them but tell how they have acted in earlier situations and thereby what they actually value. This can contribute to a more reliable result. Furthermore, twelve interviews were conducted in order to reach substance in the empirical result and to be able to draw more reliable conclusions. Seen to performed interviews, even more interviews would probably not have contributed to a more reliable result since the last performed interviews did not contribute to much new information. In the interview analysis when dimensions were built, patterns were searched and conclusions was examined, not only
one of the authors assessed the data but collaboration and discussions by the authors was performed in order to minimize possible variations in the interpretation.

The respondents were selected based on that they were suitable for the thought segment, but it turned out that their behavior and what they value was distinguished in some points. Thus, the result could have been affected by such a spread segment. A more successfully segmentation could probably rather be based on for example price sensitiveness, risk inclined, level of knowledge or interest regarding heating system. However, to select the proper respondents for these kind of segmentations would have been very difficult for the authors.

The presented examples of concepts in the interviews were not very detailed but rather briefly presented and afterward the respondents' attitude to it was requested. This brief presentation could mean that it is risk that the respondents did not fully understand the concept and therefore the reliability of the result could have been affected. In addition, the respondents were asked to choose if they probably would have gone for the presented example or a traditional purchase, which answers are presented in diagrams in the result chapter. However, many of the respondents said "I would chose example X, under the premise of..". Hence, the respondents did their own assumption to be able to answer this question. One clear example concerns the price of the presented concept examples. Many respondents thought the leasing concept (example two) would be more expensive than a traditional purchase, while many thought paying for heat (example four) could be cheaper than a traditional purchase. We had some ideas of how much customers would be charged for the different examples, which was also presented during the discussion. However, respondents thought it was hard to relate to those prices and mentioned that they need more time to really compare the prices to understand which will be the most beneficial to them. In addition, as presented by Sjöström (2016), respondents do not always act as they say they will, rather it is more reliable to ask them how they actually acted. This was though not possible since the concepts are not offered to customers today and they have never had the option to choose, but still it affects the reliability of the results. Based on this discussion the result from the concept examples in the interviews has some limitations, and it is further very important for the readers to take part of the whole presented result for every example, not only to focus on the diagrams.

The market sensing where existing service concepts have been studied has partly been practiced through available information on firms’ websites. This kind of source could in some case be misleading and information that not is available on the website can lead to that relevant information is excluded. Furthermore, the reliability of the result in form of collected information could be affected since different kinds of information could have been found in different concepts since it is based on what information that was available. Therefore, the character of the information about the different concepts varies.

Validity means assuring, by an appropriate formed methodology, that what factors actually are measured are precisely the factors that are desired to be measured (Graziano & Raulin, 1989). In order to reach a high validity, further knowledge regarding customer values and the customers’ process have been acquired by the authors before the interviews were held. Not least can this be important as the interviews were semi structured and therefore the ability to ask the right follow up questions is essential. The knowledge has been acquired through the theory framework and by an interview with a Bosch partner employee. For instance, the understanding of what customers are valuing can take form in different levels, such as attribute-based, consequence-based and goal-based. These different levels have been helpful since the customers’ expressions in different levels could in some manner be transformed into the same
valuing, which led to that proper follow-up questions could be asked and the answers could be better validated.

Furthermore, also the validity increased due to that the interview guide was tested by pilot respondents, which made sure that the questions gave the answers which were requested.
4  The company Bosch Thermoteknik AB

The following chapter composes of a description of Bosch Thermoteknik AB. The company’s products and services, value chain and customer segments will be presented. Additionally, a general customer process of a heat pump purchase is presented based on an interview with a Bosch partner (IVT-center) employee.

The company’s products

Bosch Thermoteknik AB develops, produces and sells different kind of heat pumps including some accessories. In the Nordics, Bosch Thermoteknik AB is marketing two different brands, namely IVT and Bosch targeting different customer segments, where IVT is a well-known brand with a tradition of delivering high quality product to the heat pump market. Offered products can be divided into different categories, seen in Figure 9.

The heat pumps offered by Bosch Thermoteknik AB use different technologies and are suitable for different houses and circumstances. The liquid/water heat pumps use stored geothermal energy (included soil and lake) and bring a high investment cost for the customer, about 80 000 - 100 000 SEK (drill hole and installation excluded). Air water heat pumps do instead use energy in the outdoor air and also these heat pumps entail a relatively big investment for customers, about 40 000 - 80 000 SEK (exclusive installation.) Furthermore, the air/ air heat pumps and exhaust air heat pumps in generally bring a less extensive investment for customers. Except from heat pumps, Bosch Thermoteknik AB is also offering accessories in terms of add-on devices to their heat pumps, such as the applications called IVT Anywhere and WiHeat. Those applications aim to make it even cheaper and more flexible to own a heat pump.
application called IVT Anywhere enables the end customer to directly regulate its heat pump from anywhere through its smartphone, for instance regulate the temperature for the heat and hot water and do setting for extra hot water production. With IVT Anywhere the heat pump owner can also use a vacation function which means that the customer easily adjusts a date interval for which the house will be empty. The heat pump should then automatically decrease the heat till 15°C while the house is empty and increase the heat again until the customer arrives to the house, thus the end customer can save more money while away from home. Furthermore, IVT Anywhere should contribute to a higher security for the end customer by alarming for stoppages through the application. IVT Anywhere is included together with some of the IVT heat pump models and can be chosen as an add-on device for a fee to other IVT heat pump models. The application called WiHeat has more or less the same functions as IVT Anywhere and it is offered together with Bosch and IVT heat pumps. With WiHeat the end customer communicates with the heat pump via the customer’s wireless network. The application WiHeat is available for both Android and Iphone. Additionally, the company offers some solar systems, as complements to their heat pump systems.

Bosch Thermoteknik AB provides the IVT customers with product guarantees covering errors, namely six years guarantee of the heat pump and ten years guarantee of the compressor. In order to take part of the guarantee the heat pump needs to be served according to a service program which implies service of the heat pump, purchased from and performed by a service partner, after three and five years. With this guarantee there is no need to contact an insurance company if something happens with the heat pump, instead the end customer just has to call directly to a service partner which helps the end customer to solve the problem without any extra charges. Bosch Thermoteknik AB is then charged by the service partners for the spare parts used and service performed. Furthermore, during the winter (if the heat pump is covered by the guarantee) the end customer is guaranteed to be provided with heat within 24 hours if the heat pump breaks down due to errors in the heat pump. The end customer also has the opportunity to add a supplementary insurance of the heat pump after the guarantee time has passed due to Bosch Thermoteknik AB’s collaboration with an insurance company.

The company´s value chain

Bosch Thermoteknik AB acts in the middle of the value chain and uses suppliers and sub suppliers to deliver parts, which then are assembled to finalized products by the company. The two different brands, IVT and Bosch, use different distribution channels including installers/contractors, wholesalers and prefab house manufactures, before the product reach the end customer. The end customer, the user of the product, could either be a private residential customer or an industry company. Presented below, see Figure 10, is the value chain representing IVT’s distribution for the residential market.
The brand IVT’s distribution channels in the residential market in Sweden consist of installers/contractors, which in turn distributes to the user or to prefab house manufacturers. The prefab manufacturers are thereafter distributing the product to end customers. Unique for the brand IVT is that there are close collaborations with so-called IVT centers, which are IVT expert installers/contractors and which share the brand IVT with Bosch Thermoteknik AB. Based on this, Bosch Thermoteknik AB has high requirements on these IVT centers. Despite a product and spare part centralization, the company still provides some services for their partners in the value chain. For instance, Bosch Thermoteknik AB provides free education to their service partners, installers and retailers regarding the products. Further does the company provide free support to these partners, for example when installers meet problems while installing or repairing heat pumps by the customers’ resident.

Regarding the end customer/user contact it is mainly addressed to other actors in the value chain. However, Bosch Thermoteknik AB has developed a free service for end customers helping them to choose heat pump. The service is provided at the brands’ websites (and at the website of some selected installers/contractors), and sometime it constitutes the first end customer contact. Here customers add some in-data, such as type and size of house, and get a recommendation of a specific pump. The result can be forwarded to the nearest installer, which in turn contacts the end customer. The service is aiming to address customer preferences of having control of its purchase, a choice that traditionally have been especially influenced by installers. Also, Bosch Thermoteknik AB sees it as an opportunity to come closer to end customers, as well as installers and increase the chances to sell IVT or Bosch appliances over competitors. Even some mail and contact via phone with the end customer and Bosch Thermoteknik AB occurs, but still very sporadically.
In connection to a heat pump purchase, end customers are offered several additional services. For example, installers/contractors provide home visits where they investigate the circumstances of the house and the end customer's requirements in order to recommend the most suitable heat pump. Further, customers have the opportunity to finance the heat pump investment by taking a loan from the funding firm Wasa Kredit and thus instead pay a monthly cost corresponding to the savings the heat pump will bring. To take part of this alternative for financing the heat pump the end customer has to apply via one of Bosch Thermoteknik AB's contractors or retailer partners. Installers /contractors are also offering services such as dismantling and disposal of the current heating system as well as delivering and installation. Often these installers /contractors are offering customer a package deal were not only the product and the installation are included but also drill hole and help with the application for the drill hole.

Seen in Figure 10, the value chain also consists of the actor called service provider. The service provider is often the same firm as the installer firm, but can also be another firm, such as VVS-technicians. Customers are here offered services and reparations on their heat pump, something which is charged by the service provider.

The general process for the end customers

The end customers’ process generally starts with a need of a new heating system due to that the current heating system has broken. Thus, the end customers often contact the installer firm because they have to and seldom because they want to. The interviewed IVT-center employee meant that the firm does not work with outreach work, so the customers have to contact the firm via phone or mail. Many of the customers are lacking of knowledge regarding heating systems and therefore often becomes relatively dependent on a service provider. The IVT-Center employee meant that the customers’ forward planning regarding their heating system are often not good and about 90% of the customers contacting them are in acute need of a new functioning system. After the service provider has been contacted by a customer, who need to invest in a new heating system, a home visit is done. During the home visit some parameters, which are crucial for what system that is appropriate, such as consumption of heat and hot water, are looked up. Furthermore, requirements from the customers are collected. About three days after this home visit, the service provider returns to the customer with the bid, which for the service provider preferably is done face-to-face in order to be able to explain the bid. The IVT-Center employee meant that the customers generally ask different firms for a bid and compare them. Based on the bids the customers have to make a decision. There are also cases when a technician will perform a reparation on a heat pump, but is realizing that it will be too expensive and that it would be better for the customer to buy a new heat pump. In that case, if the customer admits, a short visit where some parameters are quickly checked is performed and then a bid is produced.

As a last step in the purchasing process, the customer signs several papers and in connection to that a preliminary planning, where intended dates are agreed, is done. When the dismantling and disposal of the current heating system and installation are done, the customer can choose to either be home or not, but the IVT-Center employee meant that it is good if the customer is at home when the installation is finished, since it enables a check between the customer and the technician. After about four weeks a revisit by the customer's place is done. This visit is aiming to make sure that the customer is satisfied and that everything is functioning well. The customer can get some instructions of how some adjustments, as for instance temperature adjustments, can be done and the customer has the opportunity to ask questions.
The IVT-Center employee meant that the customer does not need to engage much during the use process and the customer can call the service provider if they experience problems. Furthermore, proposal of when the customer's heat pump should go through a service in order to keep the guarantee can be sent to the customer via post or mail.
The company Bosch Thermoteknik AB
5 Market research

In this chapter the empirical result from the study is presented in different sections. The chapter includes the result from the customer interviews presented as value dimensions as well as a summary of the discussion regarding four concepts that were presented to customers. The chapter further contains the market screening, where different existing market concepts are presented and assessed, and an account of different performed internal interviews within the organization.

5.1 Customer interviews

The result of the customer interviews is presented in several identified value dimensions. In addition, the result of the last part of the interview, where the respondents were asked to give inputs regarding some concepts/scenarios, is presented separately.

5.1.1 Value dimensions

Several value dimensions were identified during the summery analysis of the customer interviews. These value dimensions are presented in Table 1, including an explanation of the dimension. Also it is mentioned if the value dimension was identified among a few, several or a majority of the respondents.

<table>
<thead>
<tr>
<th><strong>Efficiency in purchase and installation process</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Directly available price information</strong></td>
</tr>
<tr>
<td>A few respondents mentioned that it would be convenient to get price information directly via internet rather than receive different presented offers. This would facilitate the process of comparing different offers as well as that the customer would get a quick feedback.</td>
</tr>
<tr>
<td><strong>Adaption for heating system exist</strong></td>
</tr>
<tr>
<td>Several respondents mentioned that the existing heating system (heat pump including drill hole) makes the next installation more convenient, which affect the decision for a new heating system. Almost none of the respondents considered to change from their heat pump to another heating system.</td>
</tr>
<tr>
<td><strong>Supplier takes a holistic responsibility</strong></td>
</tr>
<tr>
<td>A few respondents mentioned that it is convenient to only have one contact for the whole purchase process. This contact takes responsibility for other external actors. On the other hand, some respondents want the possibility to coordinate different providers themselves.</td>
</tr>
<tr>
<td><strong>Accessibility in purchasing process</strong></td>
</tr>
<tr>
<td>A few respondents mentioned that they feel it convenient to be able to purchase the heating system whenever it is suitable for oneself, as in the evenings and during weekends.</td>
</tr>
<tr>
<td><strong>Fast delivery and installation</strong></td>
</tr>
<tr>
<td>A few respondents mentioned that they value a fast delivery and installation process, from the moment they order the product till it is installed. For example, one respondent meant that if the heat pump breaks down and need to be replaced the most important factor when deciding which provider that will be chosen is delivery time.</td>
</tr>
</tbody>
</table>
### Proactive offer
A few respondents mentioned that they would appreciate to start the decision and purchase of the next heating system, such as a heat pump, in advance before the current heat pump has broken down. One respondent expressed that an exposed situation then can be avoided. The respondent meant that it would be valuable if a firm contacts the respondent and presents a good offer when the respondent's heat pump is very old. Several respondents mentioned the risk of being without heat during a cold period.

### Functionality

#### A reliable operation
A majority of the respondents mentioned that they value a reliable operation of the heating system without stoppages. Respondents meant that this parameter is considered as one of the most important regarding the heating system. Many of the respondents seem to be very satisfied with this value dimension today.

#### Silent system
A few respondents pointed out that they appreciate a silent system. The value dimension was mentioned by respondents who at times had experienced a loud system.

#### The system generates desired temperature
A majority of the respondents meant that it is important to actually get the indoor temperature they desire and that it should be easy to get this. Some of the respondents are satisfied with the heating system regarding this aspect and other respondents expressed that the heating system is hard to set in order to get the right temperature and they need to raise and lower the temperature frequently to get the desired temperature.

#### The system responds quickly to temperature adjustments
Several respondents mentioned that they want the heating system to quickly respond to their indoor temperature adjustments. Comments from some respondents were that the system today not respond very quickly and that they need patient.

#### The system generates a stable temperature
Several respondents meant that they value a stable indoor temperature. Some respondents consider the system as slow and that the indoor temperature is affected by variations of outdoor temperatures. At the same time one respondent feels okay with this since it occurs only a few time a year and as long as it has a reasonable explanation (e.g. great decreasing outdoor temperature).

#### Proper amount of hot water
Several respondents meant that a proper amount of hot water is valuable. One respondent mentioned that the system today does not generate a proper amount of hot water, for instance when the respondent wants to take a bath.

#### Handle and adjust the heat pump from distance
A few respondents mentioned that they prefer to manage and adjust the heat pump from distance and not directly on the heat pump. One reason for this is for example that one respondent wants to avoid the boiler room. A smart phone application has been mention as a convenient solution.
The system manage itself
A majority of the respondents want the system to manage itself and thus interact with the system as seldom as possible. Some respondents meant that it is possible to adjust the heat pump more than they currently do, but that they actively choose to not do so. Mentioned reasons for this are lack of interest and that they do not want to spend time and effort. At the same time some respondents meant that they appreciate the opportunity to adjust the heat pump in special cases (not daily) for example to prepare for an increased hot water demand. Several respondents mentioned that they perceive the system as more or less managing itself. Some respondents compare it to their previous heating system such as wood burning, which required much more effort.

Maintenance free system
A majority of the respondents meant that they want a maintenance free system. One respondent has been owner to a liquid/water pump and an air/air pump, and means that the L/W was much more convenient regarding maintenance. Even if the A/A pump is relatively easy and fast to clean, it still causes some burden not least since one often thinks that one should clean it but easily postpone it for the future. Many of the respondents meant that they are satisfied with this value dimension, and agree that the system is more or less maintenance free.

Dynamic temperature adapted to the need of heat
Several respondents have indicated that they would like their heating to be dynamic based on the actual need of heat. For instance, a few respondents mentioned that they would like their heating system to be automatically dynamic over 24 hours, such as generating a colder temperature during night time and a warmer temperature during the day. One respondent also mentioned that during day time while nobody is at home it is even more valuable to automatically decrease the temperature. This respondent does not like when the heat pump is operating in the needlessness and therefore the respondent sometimes turns off the pump while the sun broils. Another respondent pointed out that it would be valuable with a setting that automatically generates the right temperature by adapting to the different needs of temperatures during a year.

Heating system status

Confirmation of right system for the house conditions
Several respondents meant that they want some kind of confirmation that their system (heat pump) is well dimensioned and suited for the conditions of the house. One respondent mentioned that a check performed by the installer firm after a year was appreciated. Other respondents meant that they checked the electricity bill in the beginning to make sure the pump seemed to be well dimensioned. One respondent thinks, after analyzing the electricity bills, that the heat pump is too weak and the respondent considers that the pump uses the immersion heater too much. According to the respondent, the installation firm’s recommendation of a heat pump did not take into account the conditions of the house, such as big windows and the lake next to the house.

Confirmation of a functioning system
Several respondents meant that they appreciate to get a confirmation that their heating system is functioning well. Some respondents mentioned that they check their heating system occasionally. One respondent does this about every other week and another do this about once a month. Though, one respondent meant that there is no need for a check of the heat pump since the respondent thinks it is functioning well based on experience. Mentioned ways of how the confirmation could be improved is
that a service partner checks the pump on a regular basis and has control over it or that the heat pump in another way, for example technically, is monitored and gives confirmation.

**Confirmation that the system operates efficiently**
A few respondents meant that they value a confirmation that the system is working as efficient as possible since they think that is important. In case the system shows that it is not operating as efficiently as possible, they want the possibility to fix it.

**Informed of problems/errors**
Several respondents expressed that they would like to quickly be informed if there are problems and errors with their heat pump. One respondent mentioned that one problem with the heat pump had been discovered firstly when the electric bill was received. Then the respondent checked the display on the heat pump and saw an error message, thus the error message was not sufficient since the respondent was not informed fast enough. Mentioned ways of how the informing will be performed is through application as well as through a firm that has control of the pump and announce if there are some problems and errors. A few respondents however meant that they do not require to be informed when the heat pump already has broken down because they notice themselves. Rather they want to be informed earlier when something is changed, which can cause problems later on. The respondents meant that they then get more out of the information since they can prevent breakdowns. Another respondent also commented that to be informed of that there are problems and errors with the heat pump when the respondent is not at home, for example receive the announcement via an application, would only cause unwanted stress.

**User-friendly**

**User-friendly interaction with the heat pump**
Several respondents mentioned that they value a user-friendly interface in the interaction with the heat pump. The respondents want the interaction to be easy, intuitive and there should be no risk to do it in a wrong way, which can lead to unwanted consequences. Several respondents meant that adjustments, such as temperature, are easy to do, but some other adjustments and settings can be more difficult. Some respondents meant that they prefer the interaction and the interface of the heat pump to be more similar to other technologies, such as a smart phones or a computer. Additionally, some respondents meant that they want to interact with the heat pump via a smart phone since they are more familiar with their phone comparing to the heat pump.

**Maintenance, Service and Reparation**

**Access to support/maintenance/service/reparation**
A majority of the respondents meant that they are valuing access to support, maintenance, service and reparations. One respondent mentioned that once an external part is performing work on the heat pump, it is also preferable that other parts are taken into account to prevent future breakdowns. However, even though a majority of the respondents value the accessibility of maintenance, service and reparation, many of them agree that they do not need it often. They mean that they have a great reliance on the heating system.

**Manage maintenance oneself**
Several respondents mentioned that they prefer to manage maintenance themselves rather than hire a firm to do it, due to cost savings. These respondents mean that they would like to manage the maintenance they are able to and have enough knowledge about. However, the value to manage
maintenance oneself is not perceived as valuable for all respondents, as some respondents rather value a firm to do the maintenance.

**Manage problems/errors oneself**
A few respondents meant that they prefer to manage problems/errors oneself instead of hiring a firm to do it, mainly due to cost savings. These respondents are today trying to manage and solve problem themselves before contacting a firm. However, some respondents do not want to handle any kind of problem themselves.

**Informed of time for maintenance**
A few respondents meant that they are valuing a heating system that automatically inform when maintenance is needed.

**Informed of time for service**
Several respondents mentioned that they are valuing the service company to inform them when it is time for service in order to fulfil the requirements for the warranty. Furthermore, regarding the warranty, customers prefer the retailer to register the warranty to make sure the customer does not miss this.

**Provider action and provider quality**

<table>
<thead>
<tr>
<th><strong>Short time before action</strong></th>
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<tbody>
<tr>
<td>A few respondents point out that they want external parties to respond and act quickly when they face a problem or require service. One respondent meant that this is especially important when it concerns the heating system. One respondent explained how a service provider was contacted and the service provider promised to come back to the respondent, but have not done that yet. This is something the respondent is very dissatisfied with.</td>
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<table>
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<tr>
<th><strong>Correction of problem quickly</strong></th>
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<tbody>
<tr>
<td>A few respondents expressed that they value reparations to be fixed quickly. One respondent has faced a situation where a repairer had to visit the customer’s home several times before the problem was solved. Another respondent had to wait quite some time for the repairer to fix the problem due to a delay of a spare part. Both the respondents were unsatisfied due to the delay.</td>
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<tr>
<th><strong>Trust in provider</strong></th>
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<tbody>
<tr>
<td>Several respondents mentioned that they are valuing an already existing relationship with a provider they trust in. Some respondents meant that in case they have problems with their pump or in case they will have to replace their heat pump they will firstly contact a provider they already have a relationship to and that they trust.</td>
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<table>
<thead>
<tr>
<th><strong>Competent provider</strong></th>
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<tr>
<td>Several respondents meant that they are considering competence as an important parameter for installers and service providers. Respondents mentioned both the impression of being professional and the fact that they actually are doing installations and services/reparations with high quality as valuable. Some respondents have experienced providers delivering for instance bad quality installations, which will make them not choose that installer for further work.</td>
</tr>
</tbody>
</table>
Punctual provider
A few respondents mentioned that it is valuable that a provider is punctual and thus stays to times agreed.

Well working communication
A few respondents mentioned that they value a good communication with the provider. Some respondents meant that they want to feel that they can talk to the provider and get answer to existing questions. Another respondent also mentioned the value of that the provider keeps the respondent updated and communicates what is going on. One respondent meant that the communication can gladly be held for instance by mail or text message but that the initial communication feels best via for instance phone, since it gives a more assuring feeling that the provider actually will achieve the task.

Provider sticks to the agreement
A few respondents mentioned that it is valuable for them that the providers stick to the agreement so that no undesired surprises appear, such as more work needed and unexpected higher costs. One respondent expressed a sceptic feeling of that the provider will stick to what is agreed. To get the agreement in the form of text was mentioned as appreciated since it reduce the risk of misunderstandings. A few respondents meant that one of the aspects they were most satisfied with regarding a purchase and installation they gone through was that the provider stack to the agreement and thus no unexpected costs were added.

Information and knowledge

Knowledge about how to manage the system
A majority of the respondents value the knowledge of how to manage the system. Some respondents want as little knowledge as possible, just to be able to handle the simplest adjustments, and others want knowledge also about how to prevent problems and how to make the operation as efficient as possible. Respondents told about situations where deficient knowledge caused problems, for example one respondent turned off the heat pump too often, which a technician informed the user about firstly when it broke due to that. Another respondent moved into a new house with a heating system. A couple of years later, when a service firm checked the pump regarding an error, the respondent was told to clean the filters. After the cleanse the system worked much better and was not as loud as before. The respondent meant that lack of knowledge did that loud noise and a fluctuated temperature was not considered as strange.

Information of how to handle the system via manual and/or film
Several respondents mentioned that they value to get information of how to handle the system via manual and/or film. Some respondents meant that they have used a manual and that it was helpful and some respondents meant that it would be easier to manage the pump if the manual was saved. Some respondents have also pointed out that the need of a manual was mainly during the first year. Respondents have also mentioned that film with information of how to handle the system could be valuable.

Information of how to handle the system via professional
Several respondents mentioned that they appreciate to get information and a walkthrough of how their heating system function and how to handle the system by a professional such as an installer. Respondents meant that reasons why they value to get information of how to handle the system is for instance that they can do more themselves later on and to increase the effectiveness of the system.
Some respondents mentioned that they attended while the installation was done and thereby got the opportunity to learn about future handling of the system such as some future maintenance work. This led to a comfortable feeling of doing it oneself in the future. Some respondents also mentioned that they got information of the few things a user need to control, in connection to the installation, and they were pleased with that as they felt it was the only information they actually needed. Some respondents pointed out that they value to get information face to face and one mentioned that to chat also is satisfying, anyhow for both cases they pointed out that the important is that there are possibilities to have a dialogue where one can ask questions. One respondent that had got information and a walkthrough, how the system should be handled, after the installation considers that it was hard to understand and put the information in perspective since the respondent has not had a house before. The respondent meant that it would be more advantageous to have the information, for instance of how the heat pump can be set to act on different times and during vacation, later on, for example one year after one has moved in to the house.

**Information of how to handle the system from user**
A few respondents meant that they value to get information of how to handle the system from user such as seller of the house. These respondents told that this information was sufficient and correspond to their demands of information. Some respondents have search for earlier user experiences on the internet to better understand the use process of the heat pump.

**Information about previously work with the heating system**
A few respondents mentioned that it would be good to get the information of what work such as installation, maintenance, service and reparation that has been done with the heating system. One respondent which had lived in its house for one year mentioned that the respondent did not know what work had been done with the heat pump earlier.

**Knowledge /information about how to solve errors / problems**
A few respondents mentioned that they value information about how to handle errors / problems themselves. These respondents require more information about the problem and steps telling them how to solve it. Some of these respondents explained how they contacted relatives with knowledge and asked for guidance during the solving process and other did Google searches to try to gain information about how to solve the problem. Additionally, a few respondents meant that they would value information about exact what firm to contact and how to inform the firm about the problem.

**Product quality**

**High quality product**
A majority of the respondents meant that a high quality product is important. They value a product (including all different parts) with a long life time.

**Availability of spare parts**
Few respondents meant that they value the availability of spare parts. As an example one respondent owns a heat pump where spare parts have been hard to find. The respondent means that this will be an important aspect in the next heat pump purchase.

**Well-known brand**
A few respondents meant that a well-known brand is important for them and influence their purchase decision of a heat pump. Some of these respondents also mentioned that they value a brand known as
good quality before a lower cost when it comes to heat pumps. Other respondents expressed that it is unclear which brand they would purchase if a new heating system should be needed and that they feel open minded for different brands.

**Long warranty**
Several respondents mentioned the value of a long warranty. Some respondents mention that they value a long warranty because they appreciate to get rid of the responsibility of the consequences such as cost if something with the pump breaks. One respondent also stated that the warranty time is an aspect that the respondent would take into consideration while making a purchase decision and may influence the decision.

**Control in decision process**

**Control in decision**
A majority of the respondents have indicated that they want control in the decision of which heat pump and brand they will buy as well as from which provider and installer they will buy from. The need of control is about making sure that the heat pump, which is going to be purchased is suitable for the house conditions and that it is good quality of the pump and the installation as well as that all this is provided to a good price. In order to acquire more control in the decision the respondents try to gather information and advice from different sources. The time and extent respondents are dedicating to information collection varies between different respondents. One respondent mentioned that the respondent was ready to take time to gather information and not hurry the decision. Another respondent meant that the respondent has no knowledge of the issue and is then forced to trust someone else while making the decision, which is one reason while the respondent thinks it is hard to make the decision. Anyhow, the majority of the respondents mentioned that they would like several sources which point to the same decision in order to get control of that it will be the right decision.

**Advice from relatives and friends with knowledge**
A few respondents mentioned that they value advices from relatives and friends with knowledge of the issue when it comes to making a decision. The respondents value this because they want to achieve more control of making a good decision. One respondent mentioned that relatives and friends feel as reliable sources, which give a trustable advice. Another respondent mentioned that the respondent’s own contacts is the ones that influence the respondent’s decision the most.

**Advice and information on internet**
Several respondents mentioned advice and information on internet as valuable when a decision should be made. With advice and information on the internet the respondents achieving more control of making a good decision. By using internet, respondents try to get an overview of what alternatives that are offered in the market, judgments of what alternatives that are good and bad for different conditions and tests that have been conducted. A few respondents reported that they use internet in combination with other sources of advice since internet searches is a convenient way of increase control in the decision. One respondent though mentioned that there are risks with trusting the information on internet and pointed out that one has to be critical, since it is, for instance on forums, often people that share negative thoughts regarding different problems. Positive experiences are less likely shared on these kind of forums.
Advice from users with experience
Several respondents indicated that they value advices from users with experience of heat pumps and providers when it comes to making a decision. It is valuable for these respondents because they want to achieve more control of making a good decision. A few respondents meant that to base the decision on advice from people they know is a fast way to involve more control in the decision and is nor a piece of work. One respondent mentioned that it would be valuable to talk to neighbors to hear their experiences since some of their conditions are probably the same as the respondent's.

Advice from professional/seller
A majority of the respondents mentioned that they want to get advice from professionals / sellers when a decision should be made. The reason for this is that they want more control in the decision making, that a good decision will be made. Several respondents mentioned that they prefer to get advises from professional/seller in connection to a home visit where the professional/seller can notice the circumstances of the house. Some respondents meant that they do not have much knowledge regarding the issue and would miss important aspects to keep in mind while taking a decision and therefore would rather listened to what a professional/seller recommends. One respondent also mentioned that it feels good to take their advice since they have been through this process a lot of times. A few of the respondents though mentioned that they feel sceptic to trust a seller's recommendation; they listen to the seller’s recommendation but the advice from them does not influence their decision that much. One respondent also pointed out that it can be hard to make a decision after taken advise from several professionals/sellers since they suggest and recommend differently. A few respondents mentioned that they value a face to face contact with a professional/seller where one has the opportunity to discuss different solutions and to ask questions.

Own experience
A few respondents mentioned the value of own experience. One respondent stated that the respondent's last purchase of heat pump, including the installation, had not been a difficult decision due to that the respondent had own experience. The respondent decided to choose a similar pump as previously used. The respondent meant that the purchase decision of a second heat pump is easier.

See the product before decision
A few respondents reported that they appreciate to physically see the product before their purchase. One respondent mentioned that if the respondent should have been recommended a heat pump the respondent would go somewhere where one physically can see the recommended heat pump as well as to see other different heat pumps.

Costs
Low investment cost
A majority of the respondents mentioned that they are valuing a low investment cost. However, many of the respondents meant that they do not want to risk getting a pump with bad quality. Some of the respondents meant that they would use internet to find the requested heat pump to the lowest price. Further, several respondents meant that they rather like to take a high investment cost and a low operation cost, than the other way around.

Regarding how the respondents would finance a new heat pump one respondent in the segment 25 - 40 years old does not know but would probably ask a family member for the money, one respondent
from the same segment would use the house loan and five respondents in the segment would use savings. From the segment 40 - 65 years old, all four respondents would use their savings.

**Be able to influence the payment model**
A few respondents mentioned that they value to have the opportunity to influence the payment model so that the most suitable option for the customer can be chosen. For instance, some respondents want to be able to pay a big part of the cost, connected to the lifecycle of the product, directly.

**Low operation cost**
A majority of the respondents mentioned that a low operation cost considering the heating system is important to them. Some respondents who have changed from other heating systems to a heat pump mean that low operation cost was a crucial parameter in their choice. Furthermore, some respondents mention that they want to avoid the immersion heater to turn on due to the cost aspect. Many of the respondents are satisfied with their heat pump regarding this aspect, and think the operation cost is low and in line with their expectations. However, some of the respondents think the immersion heater turn on too often, which resulted in a higher electricity cost than they expected.

**Low reparation and service cost**
A few respondents meant that they want a low cost for reparations, services and maintenance for the heating system.

**Pre-defined costs**
A few respondents meant that they are valuing the costs to be pre-defined, and thus not get unexpected costs.

**Guaranteed value for spent money**
A majority of the respondents meant that they want to avoid the risk of paying unnecessarily. For instance, some respondents meant that those kind of problems they can solve themselves they also want to solve, and not pay for others to solve them. In addition, some respondents mentioned the risk of doing reparations on an old heat pump in case it will break just shortly after that or pay for service on a heat pump in case everything looks good.

**Resource utilization**

<table>
<thead>
<tr>
<th>Resource efficient</th>
<th>A few respondents mentioned that a resource efficient system is important to them. Some respondents mentioned that they compare COP to get the most efficient system. Also, respondents meant that a heat pump feels smart in a resource efficient aspect.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally friendly</td>
<td>A few respondents meant that they are valuing a system which is environmentally friendly. One respondent stated that environmentally friendly is not an aspect, which will affect a decision of heating system, rather it is seen as an added value parameter. One respondent mentioned that environmentally friendly is one of the most important factors concerning a heating system.</td>
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</tbody>
</table>

**Other**

<table>
<thead>
<tr>
<th>Keep of a good state of house, garden and interior</th>
<th>A few respondents mentioned the value of keeping a good state of their house garden and interior. One respondent meant that the decision to make a drill hole for geothermal heating rather than furrowing most of the garden for soil heat was taken since the respondent did not want to affect the</th>
</tr>
</thead>
</table>
look of the garden. Another respondent mentioned an existing problem caused by the heat pump, which led to a constant moist spot on the house facade. One respondent also expressed that when an external part is performing a service of the respondent's heat pump it is valuable if the house is kept in a good state and not dirty. This respondent though thinks that the house gets messy and dirty when letting an installer or a service technician perform work in the house since a lot of equipment are going back and forth and they do not always clean.

**Business directly with manufacturer**
To do business directly with manufacturer was expressed as valuable by a few respondents. These respondents meant that it is advantageous to cut the supply chain since it means less margin mark-ups and also that problems and other issues can be communicated directly with the manufacturer.

**Local manufacture**
A few respondents mentioned that they value to purchase from a local manufacturer. One respondent meant that the respondent's last purchase decision of a heat pump was influence by if the manufacturer was local or not.

**Newness and innovation**
A few respondents mentioned that they think it is exiting with new technology, such as the opportunity to use their cell phone to manage the heat pump or other more high-tech applications. At the same time some respondents meant that they want to avoid too much of this kind of technology since they are not interested and do not want to learn how it works. A few respondents also stated that they do not want the latest released models, since they want to stick to something, which is well known on the market.

**Ownership**
Several respondents mentioned that they are valuing to own their heating system. Mentioned reasons for that is for instance that they have more control over the expenses and that it would feel strange to own the house but not the heating system. Some of the respondents meant that they do not want to own the heat pump just because of the ownership per se, rather they cannot see economic incentive for not doing it.

**Increased market value of the house**
A few respondents mentioned that the market value of the house is an important parameter in their choice for a new heating system.
5.1.2 Service concept examples from the interviews

In the following sections the result from the last part of the interviews is presented. Customers were here requested to share their thoughts regarding four different service concept examples.

Example 1: Imagine that you as a customer has the opportunity to buy a heat pump directly via IVT’s/Bosch’s website and thereby partly reduce the cost. You as a customer should then report a number of parameters, for instance your residential area, what type of system you have today, etc. and upload some photos of your home. Based on your parameters a heat pump will be recommended for you, which you directly can order on the website and the company can arrange an appointment and do the installation for you. What do you feel about a solution like this compare to your last purchase process of a heat pump? Which one would you prefer? Why?

If the respondents would have to choose between the presented concept and a traditional purchase via an installer five respondents would choose the presented concept and seven respondents would choose the traditional purchase process, see Figure 11. Of the five respondents positive to the concept three belong to the segment 25-40 years old and two to the segment 41-65 years old. Of the respondents negative to the concept, five respondents belong to the segment 25-40 years old and two respondents belong to the segment 41-65 years old. All of the respondents positive to the concept saw the concept as an opportunity to get a better price, which also was the main reason for choosing this concept. Further advantage that was pointed out with the presented concept was that it means a direct contact with the manufacturer and thus an intermediary can be removed. Also, increased availability is seen as a positive aspect compare to the traditional purchase process. One respondent considers that if direct price information will be available in this concept it is also a positive aspect. Some respondents meant that they have experience from e-commerce and see it as a natural step also concerning heat pumps. Among the respondents positive to the concept about half of them would trust the service and choose the heat pump recommended from it. The other half would not fully trust the service and would strengthen the decision by using other inputs as well, such as free home visit of an installer firm. Some respondents see a risk with uploading parameters themselves but mean that the service must be designed with control questions to minimize the presented risk. Among the respondents positive to the concept no opportunity to have a dialog with a professional is still seen as a negative aspect with the concept.

All respondents negative to the concept mean that they see a big risk of getting wrong heating system/heat pump with this concept. Reasons for that are that they are lacking knowledge to define the parameters requested and they also see a risk that other parameters, which the service is not taken into consideration, is important in order to determine the most suitable heat pump. Instead the respondents negative to the concept prefer that a professional does a home visit and makes an assessment based on the circumstances. If the concept includes the possibility to personal guidance and dialog one of the respondents negative to the concept would be positive to the concept. Since the investment is relatively high the respondents negative to the concept see a risk to get wrong heat pump and also to be responsible in case that will happen. The respondents negative to the concept see the reduced prices as positive but think that it still not is worth the risk. One of the respondents negative to the concept mentioned that the concept would be appreciated as a first step before contacting an installation firm. The reason for this is that the respondent would get indication of suitable model and its price. Another respondent negative to the concept also mentioned that the respondent might consider the concept if it concerned a replacement of heat pump, since the existing heat pump could be a good reference.
Example 2: Imagine that you as a customer has the opportunity to enter into a leasing contract, where you do not own the heat pump and pay a monthly cost instead. The company is then responsible for the heat pump and makes sure that you as a customer always has a functioning heat pump. How do you feel about a concept like this in relation to today’s where you as a customer purchases and owns the heat pump? Which one would you prefer? Why?

If the respondents would have to choose between the presented concept and the traditional one where the customer owns the heat pump, one respondent would probably choose the leasing concept and eleven respondents would probably choose the traditional purchase of heat pump, see Figure 12. The only respondent positive to the concept belongs to the segment 25-40 years old. Of the respondents negative to the concept seven respondents belong to the segment 25-40 years old and four belong to the segment 41-65 years old. The reason for the positive respondent to choose the leasing concept is that the respondent sees it as convenient to get rid of anxiety and responsibility if something happens with the heat pump. The respondent sees it as positive since there will be no unpredictable costs. It is still a question regarding the cost but the respondent is willing to pay a slightly higher cost for the leasing concept. However, the positive respondent sees a risk in case the respondent will sell the house during the time of the agreement, but as long as it can be solved the leasing concept is interesting.

All the respondents that are negative to the concept think that the leasing concept would probably be more expensive in the long run compared to the traditional concept and this is the main reason why they are negative to the concept. A majority of the respondents which are negative to the concept do not see the need of the leasing concept since they believe that the heat pump not will break much, which some of the respondents base on earlier experiences. A few respondents compared the heat pump leasing concept to car leasing and meant that much more can happen to a car. Also, they see one of the advantages with car leasing as the possibility to change the car to a new model after some time, but these advantages are not seen in the heat pump leasing. One respondent considers the heating system as an
important part of the house and thus want to own the heating system since the respondent owns the house. Further risks seen to the leasing concept are problems to sell the house, a risk that the market value of the house will decrease and legal problems. Some respondents mentioned that they do not see the investment cost as problematic, which they otherwise see as an incentive to the leasing concept. A few respondents see a risk to enter into an agreement and be dependent on the firm in case the circumstances would change. The respondents negative to the leasing concept do however see some positive aspects as well. A majority of them would appreciate to get rid of the risk if something happens with the heat pump. Also that the firm is responsible for the pump's function and that the pump is operating as efficiently as possible is considered as convenient and as a potential for lower electricity consumption.

![Service concept two](image)

*Figure 12 - Amount of respondents positive or negative to service concept two*

**Example 3:** Imagine that you as a customer has the opportunity to buy an additional service, which implies that you pay a fixed monthly cost and thereby has free access to service and reparation. Additionally, the company would monitor your heat pump and announce you as well as remediate eventual errors which are found. What do you feel about a solution like this in relation to how you have it today? Which one would you prefer? Why?

Two respondents meant that they are interested to the presented service concept and ten respondents meant that they are negative to the presented service concept, see Figure 13. Of the respondents positive to the concept one belongs to the segment 25-40 years old and one belongs to the segment 41-65 years old. Of the respondents negative to the concept seven respondents belong to the segment 25-40 years old and three respondents belong to the segment 41-65 years old. Mentioned reasons for the respondent positive to the concept is that they get rid of the risk in case anything would happen with the heat pump. Also, these respondents appreciate the monitoring and see it as convenient. One of the two respondents positive to the concept thinks the service is interesting firstly after the warranty has passed and also means that more risks are connected with the heat pump as it gets older.
Of the respondents negative to the concept all meant that they think they will lose too much money compare to if they are responsible for services and reparations themselves. A majority of the respondents negative to the concept consider the heat pump as reliable and do not see that big risk connected to the operation. Thus, the respondents prefer to take a small risk, which they think probably will result in saved money in the long run. Additionally, a few respondents meant that monitoring and more simple reparations are nothing they want to pay for, since they can do it themselves.

Common for all the respondents negative to the concept is the assessed risk of losing money, however there are parts of the concept considered as positive to many of the respondents. They think the concept would do the use-process more convenient with less responsibility. Some respondents mentioned that the monitoring would be appreciated, for example during a vacation. At the same time, some respondents meant that the monitoring is interesting only if it can prevent future problems, and thus it needs to notice problems in the initial phase, before the user can discover it. Of the respondents negative to the concept some of them are willing to pay for the concept if the price was lower, about 100 - 150 SEK would have been acceptable.

![Service concept three](image)

Figure 13 - Amount of respondents positive or negative to service concept three

Example 4: Imagine that you as a customer has the opportunity to pay a pre-defined price per kwh heat and a fixed yearly fee for service, maintenance and reparation. The company owns the equipment, guarantees a full functional system and takes responsibility for the electricity bill. How do you feel about a concept like this in relation to have you have it today? Which one would you prefer? Why?

If the respondents would have to choose between the presented concept and the traditional one six respondents would probably choose the presented concept and six respondents would probably choose the traditional concept, see Figure 14. Of the respondents positive to the concept three belong to the segment 25-40 years old and three belong to the segment 41-65 years old. Of the respondents negative to the presented concept five belong to the segment 25-40 years old and one belongs to the segment 41-65 years old. The respondents positive to the concept emphasized less concern connected to electricity
consumption, less responsibility in case the heat pump breaks and a fixed price per heat unit consumed as positive aspect with the presented concept. However, some of these respondents found it hard to relate to the concept and thus hard to assess the concept's pros and cons. A majority of the respondents positive to the concept would still consider the cost and would not choose the presented concept if it would be much more expensive than the traditional concept. However, many of these respondents see the concept as an opportunity to even save money. Further, one of the respondents positive to the presented concept thinks the concept is interesting and exiting due to its newness on the market.

The respondents negative to the presented concept meant that they are sceptic mostly because of an economic aspect. They think that they will lose much money compare to the traditional concept. Some of these respondents are afraid to enter into an agreement extended over time since they want to be able to influence their cost and not pay fixed yearly fees. Furthermore, one of the respondents want to influence the decision of heat pump and thus does not want to leave the decision to the firm and another respondent see legal risk connected to an eventual house sale or if unsatisfied with the heat pump chosen by the company. The respondents negative to the concept do also see advantages with the concept, such as pre-defined cost per heat unit and avoiding responsibility for the system's operation and maintenance.

![Figure 14 - Amount of respondents positive or negative to service concept four](image)

5.2 Market screening - External concepts
In the following section several external concepts, provided by manufacturers, utilities and service providers are presented.

5.2.1 Thermondo
Thermondo is an online heating installation company in Germany offering “one-stop shop” for customers (Delta Energy & Environment, 2017). Based on several data points provided by customers, the company enables an automated proposal of heating system. The proposals include hardware from all major German manufactures offered to a lower cost, as well as installations (performed by the companies own craftsmen teams) and consultant services (Climate-KIC, 2017). Furthermore, Thermondo can take responsibility for
dismantling and disposal of the old system and coordinate actors, such as chimney sweep and local network actors (Eco Summit - Smart Green Business Network, 2017). Thermondo offers customers a leasing option for a monthly fee including the appliance, full service and maintenance (Delta Energy & Environment, 2017). The leasing contracts can vary between 2 – 10 years and address the upfront cost barrier to customers (Delta Energy & Environment, 2017). This leasing contract is however not available for heat pumps right now.

Thermondo can offer products to an advantageous price due to its digital solution and shortened supply chain (Delta Energy & Environment, 2017). They can provide the leasing option through a low-cost loan from the German public bank KFW (Delta Energy & Environment, 2017). The business model can be hard to replicate for manufactures due to ties with existing players in the value chain (Delta Energy & Environment, 2017). However the leasing model will lose some advantages when adapted to heat pumps, due to high specification costs (Delta Energy & Environment, 2017).

5.2.2 Best green
Best green is a heating solution company in Denmark, which is owned by Insero offering new solutions within energy and intelligent software (Insero Group, 2017). Best green offers heat as a service (Delta Energy & Environment, 2017), where the end customer pays for heat produced by the heat pump, which is purchased and owned by the company (Insero Group, 2017). The end customer continues to pay for the electricity from their utility, but Best Green reimburses for the electricity used by the heat pump, which is metered (Delta Energy & Environment, 2017). In addition to heat, customers pay an annual service fee (including operation and maintenance) as well as for the heat pump installation (Delta Energy & Environment, 2017). The offer should be affordable, simple and maintenance-free (Insero Group, 2017), and it should further remove hassle and risk for the end customer (Delta Energy & Environment, 2017). The contract’s setting time is 12 months and after that the period of notice is one month (Best Green, 2017). If the end customer sells its resident before the setting time has passed, the new house owner will be offered to take over the contract and if the new house owner does not want to take over it, the end customer needs to pay a fee of 10.000 DDK for the disposal (Best Green, 2017).

The target group of this concept is Danish householders, municipalities and small commercial customers who wish to have district heating connection, but cannot since they are too far away to connect to one (Delta Energy & Environment, 2017). Best Green means that they can provide advantageous prices due to their bulk purchases of heat pumps as well as due to subsidies (Best Green, 2017). To be able to provide the installation, operation and maintenance Best Green establish contracts with local preferred installers, which the end customers later can contact if they face problems with their heat pump (Delta Energy & Environment, 2017).

By providing this concept Best Green is facing high risks and the concept can be difficult to scale (Delta Energy & Environment, 2017). Some of the risks and barriers associated with the concept are that it implies high upfront investment cost per customer and that there is a customer awareness barrier, where for instance customers in many countries have low awareness of paying for heat rather than fuel (Delta Energy & Environment, 2017). Furthermore, there is a financial flow risk from potential under-performance of heat pump, which in turn would require high installation quality to make sure the operation is as efficient as possible. The installation quality can be challenging with more installation partners (Delta Energy & Environment, 2017).
5.2.3  E.ON
E.ON Sverige is a company producing and delivering energy for instance in the form of electricity, gas and heat as well as providing energy related service (E.ON, 2017). The company offers the end customer a service which implies that the company takes over the responsibility of the end customer's heat pump and makes sure that it always operates as it should (E.ON, 2017). By this offer the company prevents hassle and stoppage through service, maintenance and monitoring on the customer's heat pump and if the heat pump breaks the company will quickly repair it without any extra costs (E.ON, 2017). The customer's payment of this service is on a monthly basis, where the customer pays a fixed fee of 299kr (E.ON, 2017). The offered service includes a first visit by the customer's place where inspection, service and coupling of the heat pump to the offered service is done (E.ON, 2017). The offered service also includes inspection and service each fourth year, reparation when needed, continuously monitoring of the heat pump as well as getting in touch with the end customer if something is wrong with the heat pump, status report every third month and only one contact for support and error report.

The service is offered to people living in and around Malmö and only for liquid/water and air/water heat pumps up to the age of 10 years and only from the brand IVT/Bosch, Nibe and Thermia (E.ON, 2017).

5.2.4  Luleå Energi
Luleå Energi is a company providing energy and communication solutions and is owned by Luleå Kommunföretag AB (Luleå Energi, 2017). Among other energy solutions, the company provides district heating. In addition, the company offers customers education regarding the customers’ district heating centrals (Luleå Energi, 2017). The education takes place at the customers’ place and provides the customers with basic knowledge about the function and the handling of the customers’ system equipment (Luleå Energi, 2017). This education is offered to a price of 1175kr (Luleå Energi, 2017).

The service is targeting those who recently have become new residential owners and also those who want to get to know more about their centrals (Luleå Energi, 2017).

5.2.5  Kalmar Energi
Kalmar energi is a company providing electricity, district heating and other energy services (Kalmar Energi, 2017). The company offers the service thermography, where the company heat photographs the customers’ residents and on that basis gives related guidance (Kalmar Energi, 2017). With this thermography the customer can decrease its energy costs and get a more comfortable indoor environment due to identifying of where unnecessary energy and money are filtering through (Kalmar Energi, 2017). By dint of the thermography unseals, insufficient insulation as well as design- and construction faults leading to draft, moisture damage, and energy leakage in the customer's resident can be discovered (Kalmar Energi, 2017).

The service is offered in two different levels, where one of them is called Thermography Base and includes personal home visit with thermography and energy advisory service and is offered to a price of 1 295 kr (Kalmar Energi, 2017). The other level of the service is called Thermography Plus and includes personal home visit with thermography, image documentation in the form of USB-, PDF- or papers and energy advisory service and is offered to a price of 1 995 kr (Kalmar Energi, 2017).

The company's target group of this offered thermography service is residential owners in the municipality of Kalmar (Kalmar Energi, 2017).
5.2.6 Nefit

Nefit is a brand by Bosch providing boilers as well as other products for energy efficient heating and renewable energy in the Netherlands (Nefit, 2017). Nefit offers the consumers the opportunity to do business directly with the manufacturer instead of with intermediaries, which Nefit means gives security (Nefit, 2017). The business is then done directly online from the Nefit's webpage and the customer gets help in choosing the right boiler for them by online advise and online quotation tools (Nefit, 2017). Not only purchase of boilers are provided but also the option to rent a boiler. By the service, renting of a boiler, the customer escapes the investment cost and is guaranteed to be provided with heat and hot water for a fixed monthly cost where all is included, except the gas consumption, thus no other unexpected cost will appear (Nefit, 2017). The renting offer also includes installation, maintenance in the form of biyearly inspection and cleaning of the boiler, trouble shooting, reparation if needed, 24/7 availability and a 12 years Nefit guarantee (the contract regards a period of 12 years) (Nefit, 2017). Nefit arrange everything for the installation for the customer through local Nefit partners.

A very similar concept to this one is provided by the company Hassle Free Boilers, operating in England, but which promotes their offer as hassle free boilers to a monthly payment option (Hassle Free Boilers, 2017).
5.2.7 Market screening matrix - External concepts

The different identified concepts are assessed based on how they fulfil different customer values, which is following in Table 2.

<table>
<thead>
<tr>
<th>Values</th>
<th>Thermondo</th>
<th>Best Green</th>
<th>E.ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost reduction</td>
<td>- Strive to optimize the system based on different technologies and products.</td>
<td>- Potential cost reduction if the customers have several problems with their heat pumps.</td>
<td>- Potential cost reduction if the customers have several problems with their heat pumps.</td>
</tr>
<tr>
<td></td>
<td>- Potential cost reduction if the customers have several problems with their heat pumps.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating accessibility</td>
<td>- The leasing contract guarantees access to a functional system. (E.g. replace equipment if needed).</td>
<td>- The company is responsible for a full functional system and the service subscription guarantees customers service.</td>
<td>- The company guarantees a full functional heat pump.</td>
</tr>
<tr>
<td>Getting the job done</td>
<td>- Thermondo is the only contact customers need. - The company is responsible to coordinate different actors. - Thermondo solves upcoming problems</td>
<td>- Best green is the only contact customers initially need. (Later, in case of problems, the customer will have to contact a sub contracted service partner) - Best green solves upcoming problems</td>
<td>- The company monitors the heat pump and gets in touch with the customer when something is wrong. - E. ON solves upcoming problems</td>
</tr>
<tr>
<td>Customization</td>
<td>- The most suitable solution is combined based on customers in-data and from a wide product range.</td>
<td>- Some customization can be done for an extra fee (but most customers get a pre-decided standard solution).</td>
<td></td>
</tr>
<tr>
<td>No ownership</td>
<td>- Leasing is provided where the company owns the equipment.</td>
<td>- The company is the owner of the heat pump.</td>
<td></td>
</tr>
<tr>
<td>Convenience /usability</td>
<td>- In the leasing contract, Thermondo is available 24 - 7. - Order online should be easy and convenient.</td>
<td></td>
<td>- Convenient due to providing of continuously monitoring, so that the customer does not need to be alert and have control over the heat pump.</td>
</tr>
<tr>
<td>Risk reduction</td>
<td>- The leasing contract reduces risks connected to unpredictable costs for reparations and no working heating system</td>
<td>- The concept reduces risks connected to cost related to fluctuated electricity prices and bad efficiency, unpredictable reparation costs and no working heating system.</td>
<td>- The concept reduces risks connected to cost related to an inefficient heat pump, unpredictable costs for reparations and no working heating system.</td>
</tr>
<tr>
<td>Accessibility due to new business model</td>
<td>- In the leasing contract, customers pay on a monthly bases with no upfront cost.</td>
<td>- The price model consists of three different fees: an installation fee, an annual fee for service subscription, and fee/ kwh.</td>
<td>- A fixed service fee.</td>
</tr>
</tbody>
</table>
## Market research

| Price | - Reduced cost due to online solution and a shortened supply chain.  
|       | - E.g. 75 euro per months (10 years) | -Customer can be offered better prices due to bulk purchases.  
|       | -35.000 - 40.000 DKK for installation, 0,85 DKK / kwh and 5.000 DKK yearly fee. | -299kr/month |
| Time | -Hard to evaluate | -Hard to evaluate | -Hard to evaluate |
| Other | -Customers are responsible for in-data parameters and provide Thermondo with pictures on the existing heating system. | - | - |

<table>
<thead>
<tr>
<th>Values</th>
<th>Luleå Energi</th>
<th>Kalmar Energi</th>
<th>Nefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost reduction</td>
<td>-Possible cost reduction due to that less purchase of maintenance and service might be needed. The customers, with their new knowledge, can handle the system right and solve some issues themselves.</td>
<td>-Helps the customer to reduce unnecessary energy cost by identifying where heat filters through and by valuable advises.</td>
<td>-Potential cost reduction if the customers have several problems with their heat pumps.</td>
</tr>
<tr>
<td>Operating accessibility</td>
<td>-</td>
<td>-</td>
<td>-The renting contract guarantees a full functional system.</td>
</tr>
<tr>
<td>Getting the job done</td>
<td>-</td>
<td>-</td>
<td>-Nefit is the only contact customers initially need. (Later, in case of problems, the customer will have to contact a service partner) -Nefit solves upcoming problems.</td>
</tr>
<tr>
<td>Customization</td>
<td>-Considering it is an education dedicated to a specific customer, there are possibilities for questions.</td>
<td>-The customer's specific context is analyzed and advises are given based on that situation.</td>
<td>-</td>
</tr>
<tr>
<td>No ownership</td>
<td>-</td>
<td>-</td>
<td>-Nefit owns the boiler.</td>
</tr>
<tr>
<td>Convenience/usability</td>
<td>-Usability due to more knowledge of how to handle the system. -Convenience since the customer does not need to spend time on searching and interpreting information from different sources, but only one lesson by the customer's place is required where the important information can be presented and shown physically.</td>
<td>-Convenience since the customer does not need to be experienced or observant in order to identify from what and where draft, moisture damage and energy leakage are caused. Convenient to get help with how to handle and improve it.</td>
<td>-Nefit is available 24/7 and problems will be rectified quickly.</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Risk reduction</th>
<th></th>
<th>-</th>
<th>-</th>
<th>- The concept reduces risks connected to unpredictable costs for reparations and no working heating system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility due to new business model</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-A monthly fixed fee with no up-front cost.</td>
</tr>
<tr>
<td>Price</td>
<td>1.175 SEK</td>
<td>Base: 1.295 SEK Plus: 1.995 SEK</td>
<td>-Due to shortened supply chain better customer prices might be possible.</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>-Time spent for the education.</td>
<td>-Time spent for the home visit.</td>
<td>-Hard to evaluate.</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>-Engagement and alertness during the lesson.</td>
<td>-Engagement to fulfil the advises in order to make the most out of the service.</td>
<td>-Due to the online purchase, the boiler recommendation is based on in-data parameters given by the customer.</td>
<td></td>
</tr>
</tbody>
</table>

### 5.3 Market screening - Main competitors’ concepts

In the following section service related offers provides by two manufacturers of heat pumps are presented. The two firms, Nibe and Thermia, are seen as two of Bosch Thermoteknik AB’s main competitors.

#### 5.3.1.1 Nibe

Nibe offers the service NIBE Uplink, which aims to help the customer to overview its heat pump. With NIBE uplink information about the current operating status is provide as well as information about different temperatures. The service stores some historical information, such as indoor-/outdoor temperatures and the compressor’s operating time. Those parameters can be used to adjust the system for a more comfortable indoor climate and hot water. In case of disruption in the system, the customer can receive a notice via email, also including a recommendation of how to fix the problem. If customers have an electricity agreement with variable price, Nibe Uplink can base on information about coming electricity prices optimize the operation of the system. In addition to presented functions, which are included in a free service offer to customers, further functions can be added for an extra fee. The premium functions represent for instance the possibility to control the system, e.g. indoor and water temperatures, from distance. This function is provided for 249 SEK per year and the amount customer pays every year is thus dependent on what- and how many premium functions they request.

#### 5.3.1.2 Thermia

Thermia Online is a service providing customers with information about their heating system via a computer, tablet or smartphone. Customers can for instance find information about the system’s status and what temperature they have at home. They can adjust the system from the devises, which mean that they can monitor and control the system from distance. All data is stored on an external server, enables several users to access the information. Further, Thermia Online offers customers temperature history and activity history. It also includes an alarm function where customers or installers get noticed if
something is wrong with the system. Thermia is presenting the service as a customized offer where a solution is combined depending on customers’ requirements. The subscription fee thus varies from customer to customer.

Thermia Link is a control panel linking the heat pump with the other parts of the heating system. Thermia Link makes it possible to adjust the whole system from one place, where for example different temperatures can be set in different rooms.

Thermia is advertising service agreements, which is an agreement between end customers and installers/service partners. Those agreements are customized based on customers’ requirements and the price thus varies. With a service agreement the customer extend the heat pump's life time, make sure the heat pump is operating efficiently and minimize the risk for unexpected problems.

5.4 Internal interviews
In the following section the result of some internal interviews, performed with employees from the central department at Bosch Thermotechnology and from other actors in the value network, are presented.

5.4.1 Interview with Bosch employee - sales department
The interviewed employee is working in a sales department in Wernau and is involved in a project regarding digital sales. The aim with the project is to strengthen the relationship between Bosch, installers and end customers. Within the project they work with a digital platform for these different actors and they have developed different tools and services, such as an automatic generating tool giving end customers advice of the most suitable heating system. The work within the project is both focusing on how to make installers and end customers more loyal to Bosch.

An important insight is that end customers in general want to have more control over its purchase of a new heating system. Traditionally installers have had a big impact on end customers’ choice, and even if they still have, customers do not completely want to assign the choice to an installer. Furthermore, customers seem to request more options regarding payment and financing. Leasing and rent, which address these preferences for more financing options, will probably be a trend the coming years. Trust, both for installers and for the products, is further a key aspect for customers.

Experiences from the Dutch market is that a leasing contract can work well for a heating system. However, a leasing concept can look easy to manage from the outside, but includes many tricky parts. Not least, the company has to find an interested bank for the funding, which can bring difficulties. Further, disrupting the traditional value network and targeting end customers directly bring a big risk. Especially on the Swedish market, which is very conservative and where installers today have a strong position with many orders. Due to that, they are probably less interested to be subcontractors for installations and services. Therefore, the question regarding which actor in the value chain that best takes the responsibility for a leasing contract (or other contracts with end customers) has to be considered.

5.4.2 Interview with Bosch employee - product management department
The interviewed employee is working in product management in Wernau with a project regarding digital marketing and sales. The aim is to create possibilities for a better understanding of online sales processes and better understanding of interactions between Bosch, installers and end customers. In the project they look for success factors in the end customers’ decision process and do so by analyzing different data, such as Google searches. Important is also to be observant on installers’ actions of handling online leads. Also,
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the project focus on how to support and help installers to be more successful of targeting and satisfying end customers.

The interviewed employee means that time is an essential parameter for end customers. Within three days after visiting a webpage where they have shown interest they want to be contacted by the installer firm. Furthermore, end customers use internet in a new way, they compare prices but are still valuing high quality of products and installations. End customers want convenience and in the choice between installers and manufactures trust in competence is important.

New players have started to be stable on the markets. For example, in Germany big installation companies active on a national market where they targeting customers online have occurred. Important is that local installers change their mind set, to better fit in the new markets with new customer preferences.

5.4.3 Interview with Bosch employee - legal department
A legal representative within Bosch Thermotechnology explains some barriers to a leasing concept regarding heat pumps concerning the German market. A heat pump, which is installed to the house and therefore connected to fixed assets, does legally belong to the house and thus the ownership is legally belonging to the house owner. The ownership of the heat pump is connected to the owner of the house in case the appliance is integrated in the building and if it is an essential part of the building, which will be the case if the appliance is fixed (not mobile) and if it is necessary for the house to work (which a heating system would typically be in Sweden). It can be possible ways around this, for example if the contract is covering a very short period of time (much shorter than the product’s lifetime) and if an external part somehow can control the land register and therefore be responsible for the installation and the removal of a certain appliance. Those inputs are especially concerning B2B, and private consumers have even more rights and the legal restrictions are probably even harder. The inputs presented above will probably cause problems firstly if the consumer is not able to pay and when an order of seizure is running. Indications say that the situation is probably the same in Sweden and the separation right (translated from “separationsrätten”), may not take affect when it regards accessories in a property, which the house owner disposes (Minilex, 2017) (Unger, 2006).

5.4.4 Interview with employee at IVT center
An employee at an IVT Center means that their customers are mainly striving after a heating system and a provider which are secure, stable and reliable. The customers generally want a system which is as cheap as possible, but in the end they value the security higher. Further, the IVT Center employee means that a holistic perspective is valuable for the customers. Even though some customers want to call a firm and get everything regarding the heating system fixed, there are also a number of customers which prefer to understand the technology and accomplish some adjustments and actions themselves. The IVT Center employee states that one aspect that makes the customers satisfied regarding them as a service firm is that the customers feel that the firm is present and that the customers always have someone to call. Further, the brand of the heating system is not very important for the customers. The IVT Center employee estimates that it is only approximately 15% of the consumers contacting the IVT center which know what brand they would like to buy and find it important. The employee means that for instance a car brand’s importance in the purchasing process is not comparable to a heat pump brand’s. Furthermore, the employee has not perceived the investment cost as something very problematic for the customers. They use to be aware of that it implies a high upfront cost, but perceive it as a boring expense.
6 Analysis

The following chapter analyzes the empirical result from the customer interviews, market sensing and internal interviews together with relevant theory. The analysis aims to answer the thesis’s research questions, and the chapter’s structure is further based on these research questions. As a last part in the chapter, the selected integrated solutions are presented separately.

6.1 RQ 1: What factors are creating customer value in the business of residential heating?

Osterwalder and Pigneur (2010) present eight different elements of what potentially can create customer value, which are newness, performance, customization, "getting the job done", design, brand/status, price, cost reduction, risk reduction, accessibility and convenience/usability. Further, other potential value elements are presented in the theory, such as more abstract elements typical for services. The empirical result does also show on many value dimensions in the residential heating market, values that are of different character. As describe by Woodruf (1997) some of them can be categorized as product / service attributes and others do rather explained desired/satisfied consequences and goals. In the following text the identified value dimensions are further discussed.

Performance

Several identified value dimensions can be relate to the value performance, which satisfy needs connected to the product performance. Osterwalder & Pigneur (2010) say that faster PC and more disk storage are examples of how a products performance can contribute to customer value. From the customer interviews reliable operation and the system generates desired temperature were mentioned as important to a majority of the respondents. Further, silent system, the system responds quickly to temperature adjustments, the system generates a stable temperature and proper amount of hot water are all value dimensions identified from the interviews and which can be connected to performance. These values are strengthened as important to customers even by an IVT Center employee, which means that the customers are generally striving after a secure, stable and reliable system. All of the presented value dimensions can more or less be related as product attributes and are in many cases linked with the consequence of desired comfort at home, both regarding indoor temperature and hot water. They are also related to the consequence that customers do not want to be forced to handle problems that cause time and effort. The importance of the product/system’s performance is strengthen by Mahapatra and Gustavsson (2009), meaning that doubt about attaining desired satisfaction regarding the system’s performance can affect people’s decision to not chose a specific heating system. Furthermore, informed of time for maintenance in order to improve the efficiency of the pump is mentioned as valuable by a few respondents, as well as high quality products, where a majority of the respondents meant that they are valuing a product with a long lifetime. Both value dimensions can be connected to the value element performance. Mahapatra and Gustavsson (2009) do also mean that doubt about a product´s economical or physical lifetime can also make people decide to not change system.

Customization

Osterwalder & Pigneur (2010) mean that customer value can be created by elements targeting a specific customer. The value dimension advice from professional/seller regarding the purchase process identified among a majority of the respondents, concern some interesting parts regarding customization. Customers think it is important with a system, which is optimal adapted to the circumstances of the house and their requirements and appreciate a professional to do a customized assessment of the specific house and its
conditions. Further, a few of the respondents who value information about how to handle the system from a professional/seller expressed that one important part is to be able to ask questions to the professional and thus get knowledge adapted to the customer’s own requirements, which also describes how a customized element creates customer value in today’s offer.

**Price**

From the interviews the value dimension low investment cost was identified among a majority of the respondents. However, as for example Smith and Nagle (2005) and also Kalifa (2004) state, customer value is defined as the benefit the customer gets in exchange for the cost connected to the offer. Different customers who see different benefits do thus have different price preferences. Osterwalder and Pigneur (2010) state that being able to offer a customer the same value to a lower price can create customer value and do further mean that this is especially interesting to price sensitive customers. From the interviews there are clear examples of how some customers use internet to compare prices to find the product to the cheapest price and in that way the customer value increases. Those customers make sure they possess the knowledge about what they need, in terms of what kind of product, installation and so on, and how they best can solve every part to the cheapest price. This is in line with Cerasale & Stone (2004) describing that price sensitive customers are often customers who understand their needs and therefore do not need advices and guidance including in more extensive offers. Those customers do thus not see that much benefits in all parts included in an extensive offer and can find the same benefits in a less extensive offer provided to a lower price. Partly this is also concerning other customers in the residential heating market, even customers who require more extensive offers. These customers often look up at least two offers from different installer firms to make sure they do not risk to get the same benefits to a much lower price somewhere else, which is described in the value dimension control in decision. Also the identified value dimension provider sticks to the agreement show that it is important to the customer to understand what benefits they get compare to the price, and they do not want to risk a higher price for the same expected value in the end. Also the identified value dimension low reparation and service cost follow the same reasoning, and customers want as much out of it as possible to a low price.

Interesting in this discussion is also the fact that customers can find it hard to understand their needs and thus find it hard to compare different offers. As an example the IVT center employee told about a customer who got its hedge destroyed since the customer chose the cheaper alternative meaning that the equipment would not be lifted into the garden rather it was driven in through the hedge. However, the customer did not realize that this could happen while taking the decision and got disappointed afterwards. The fact that customers can be unaware of their needs is something Osterwalder and Pigneur (2010) and also Cerasale and Stone (2004) mean, and they further state that even unaware customer needs can be addressed in a value proposition. Further, since a heating system is considered as complex to some customers it can be even harder to understand one’s own needs.

According to Mahaparata and Gustavsson (2009) peoples’ age affect the decision to install a new heating system, mainly due to the investment cost. They mean that younger people who just moved into their house have less money to put on an energy system and they are also in general less aware of such a system, a situation that is thought to improve over time. In the interviews one out of eight customers from the segment 25 - 40 years old did not know how they would finance a new heat pump, one would use the house loan and six would use their savings. The result thus varies but many of the younger customers do however have the economical prerequisites to afford the investment. However, for the
customers who do not have the economical prerequisites it may result in a less desirable situation since it can be hard to postpone an investment of a new heat pump to a more suitable time.

Mahapatra and Gustavsson (2009) do also mean that people in a later phase of life might be less interested to change heating system due to the investment cost. One of the reasons for this is that they do not expect to recoup the investment. In this study no focus was placed on customers in a later phase of life. However, one respondent expressed how an investment of a new heat pump would feel onerous in case the occupancy of the house was just temporary and plans of selling it existed.

Cost reduction

Osterwalder and Pigneur (2010) mean that helping customers saving money can lead to customer value. Cost reduction seems to be an important element, which contributes to customer value even in the business of residential heating. Identified value dimensions connected to cost reduction are among others low operation cost, confirmation of that the system operates as efficiently as possible and informed of time for maintenance. A majority of the respondents value a low operation cost and to be able to decrease the operation cost has for many been the primary reason for investing in a heat pump in the first place. This is also strengthen by Mahapatra and Gustavsson (2009) meaning that one of the most common factors behind a heating system choice is annual cost. Furthermore, actions that can help customers save energy and reduce their electricity bill create customer value, where for example informed of time for maintenance is valuable to a few customers since they see an opportunity to increase the efficiency and therefore also reduce cost. The value dynamic temperature adapted to the need of heat, identified among several respondents is an example of how customers would value their heating system to automatically adapt to their needs and circumstances and therefore save energy and money. For these respondents it is important that it is automatic since the cost savings are probably not that big that it would be worth too much effort. Shantaram and Vatt (2011) mean that customers have showed a big interest into technologies helping them automatically controlling their energy, which is in line with the value dimension dynamic temperature adapted to the need of heat. Presented in the value parameter low operation cost customers want to avoid the immersion heater to turn on and additionally the identified value dimension confirmation of the right system for the house conditions points on the same thing, customers are afraid of high operation cost due to the immersion heater and want to avoid it as much as possible. According to van der Hoeven (2014) a high energy bill can cause financial stress and negatively affect people’s mental health, which further indicate the importance of a low electricity bill.

Among several respondents the value dimension manage maintenance oneself and among a few respondents manage problems/errors oneself were identified. Both these value dimensions point on the same thing, those customers prefer to handle the heat pump themselves rather than let a firm do it in case they have the right knowledge or help. The reason for this are potential cost savings.

Design

Osterwalder and Pigneur (2010) mean that a product’s design can contribute to customer value. However, none of the respondents did mention the product design during any of the interviews and thus the product design seems to not be a very important parameter to customers. However, the value dimension keep of a good state of house, garden and interior does still indicate that esthetical parameters are important to the customers, and if the product would negatively impact the indoor environment to much it would probably cause dissatisfied customers.
Convenience/usability

Convenience/usability is by Osterwalder & Pigneur (2010) presented as a general element that contributes to customer value and this value can be seen as the hierarchy stage consequence arising from the use of different product attributes and performance, thus it can be connected to several identified product/service attribute values in the business of residential heating. For instance, the value direct available price information can be connected to convenience, since the consequence of the value generates convenience in the purchasing process due to that it enables the customer to quickly compare prices for different alternatives. The value adaption for heating system exist also contributes to convenience in the next heating system decision and installation, since some parts of the system already exist and are installed in the house. Further does the value handle and adjust the heat pump from distance generates convenience as the customer can be wherever it is suitable for the customer and hence do for example not need to go to the boiler room. The identified values the system manage itself and maintenance free system both contribute to convenience since it requires less effort and time from the customer. Both values can be interpreted as important values since it was indicated by the majority of the interviewed users. Furthermore, the value user-friendly interaction with the heat pump can be connected to convenience/usability since it makes it easier and perhaps more familiar for the customer. Besides, this factor which can be seen as a product attribute, is confirmed as valuable in the energy market as Roy (2002) states that the product attribute technological simplicity is valuable there. The values informed of time for service and the aspect of information of which firm to contact in the value knowledge/information about how to solve errors/problems contribute to convenience in the business of residential heating since it reduces unclarity.

Accessibility

Accessibility, as Osterwalder & Pigneur (2010) are presenting as a general element generating customer value and the example of access to a product and service is brought up by the authors, which thus can be connected to the identified value access to support/maintenance/service/reparation. This value can be seen as important in the energy market as Mahapatra and Gustavsson (2009) mean that doubts about availability of service and support may influenced people’s decision to not change heating system. Since the majority of the respondents in the interviews indicated that they value access to support/maintenance/service/reparation, the general value of accessibility and the value of availability of service and support in the energy market can be confirmed as existing, and even be seen as an important value, also in the business of residential heating. That many of the respondents have reliance to the heating system and do not see much need of maintenance and service, but still value to know that there is access to it in case they need it can be connected to Kowlakowski and Kindström’s (2012) example of creating customer value through accessibility, namely to provide a product which is available in case they have to need it. Furthermore, the value availability of spare parts can also be connected to the general value accessibility, since some respondents meant that they have had difficulties to find spare parts for its heat pump which will influence the next heat pump purchase and that Osterwalder & Pigneur (2010) states that accessibility can for instance imply that the supplier makes it possible for a customer to access a product.

Getting the job done

Another value presented by Osterwalder & Pigneur (2010) is getting the job done, which for instance can be interpreted as a consequence to the identified value supplier takes a holistic responsibility. This since
the respondents pointed out that it is appreciated if the supplier contacts and coordinates external actors which are needed for the outcome. Thus, contacting and coordinating job is not the customer’s burden anymore, but the customer can instead focus on other more value creating activities which Osterwalder and Pigneur (2010) write is the meaning by the general value *getting the job done*. Besides, an IVT Center employee strengthen the aspect *supplier takes a holistic responsibility* as valuable for the customers. However, some respondents want the possibility to coordinate different providers themselves, as they see possibilities to reduce cost, use own contacts or want to do some parts of the solution themselves. As presented before, this can be explained by what Cerasale & Stone (2004) mean, namely that customers which understand their own needs are more price sensitive and may not request extensive offers such as extensive integrated service solutions.

**Brand/status**

Osterwalder and Pigneur (2010) mean that *brand/status* is a general element generating customer value and this can be connected to the identified value *well-known brand*. Since a few respondents have mentioned well-known brand as important and that it would influence their purchase decision of a heat pump, this general value *well-known brand* can be confirmed as, to some extent, valuable also in the business of residential heating. However, the heat pump’s brand seems to not be one of the elements generating most customer value according to the held interviews since not many respondents mentioned it and since some meant that they were open minded for different brands. This is strengthened by an IVT-Center employee, which estimated that approximately 15% of their customers know which brand they would like to buy and find it important and the others care less about the brand. Furthermore, the identified value *local manufacturer* can be connected to the general value *brand/status* since a few respondents mentioned that they value to purchase from a local manufacturer and perhaps they are satisfied with being able to say to other inhabitants that they support local firms.

**Newness**

Some respondents meant that they like to stick to the regular and well-known on the market, for instance regarding different models and technology of the heat pump, but at the same time some respondents meant they value *newness and innovation*. Thus, the general value *newness*, presented by Osterwalder and Pigneur (2010), is confirmed as valuable in the residential heating for some customers, but does not seem to be one of the most important elements.

**Risk reduction**

Several identified value dimensions from the interviews can be connected to the, according to Osterwalder and Pigneur (2010), value *risk reduction*, since it is the consequence of these identified values. For instance, the value dimensions *fast delivery and installation* and *proactive offer* are appreciated in order to reduce the risk of a vulnerable situation of no functioning heating system and thus no heat supply. *Proactive offer* also reduces the risk of being forced to make a purchase decision under time pressure. Furthermore, the identified values *confirmation of a functioning system* and *informed of problems/errors* deal with a feeling of security by reducing the risk of that problems with the heat pump not will be discovered or be discovered too late. As an example one respondent perceived the current informing of error as not fast enough, there are potentials of reaching more customer value regarding this risk reduction. The value *risk reduction* can be seen as often connected to the cost aspect, in the form of risk of increased costs. This not least since some respondents pointed out that they would prefer to not
be informed only when problems have occurred, but before problems have fully occurred so they can prevent problems, breakdowns and consequently increased costs. Another identified value that reduces risk of increased cost is the value long warranty, where the supplier, precisely as Osterwalder and Pigneur (2010) states about risk reduction, takes over some risks and freeing the customer of burden. Osterwalder and Pigneur (2010) mean that a provided one-year guarantee for a used car brings advantages to the customer such as getting rid of the responsibility of cost for breakdowns and consecutive repairs, which indicate that the element a long warranty also generates the consequence of risk reduction. The identified values guaranteed value for spent money and information about previously work with the heating system can also be connected to the general value risk reduction. This since they are appreciated in order to reduce the risk of for instance not carry out maintenance, service and reparation if it was very long time since the last one was performed and thus could be needed as well as the risk of paying for this even though it was not needed and thus not actually create any value.

**Other**

Kowalkowski and Kindström (2012) state that elements generating customer value in the “value in use” perspective can be of more abstract nature and they give the example of making sure the customer is feeling secure and not questioning the supplier’s knowledge. Similar value dimensions have been identified in the business of residential heating through the interviews, for instance trust in provider, competent provider, correction of problem quickly, punctual provider and well working communication. An IVT Center employee strengthen these aspects as valuable for the customers by meaning that the customers are striving for a secure and reliable provider. Some respondents in the interviews mentioned for instance that when they decide which firm they will contact firstly if they have problems with their heat pump or will buy and install a new one they would prefer to contact a provider which they have a relationship to and trust in and another respondent mentioned the importance of that the provider communicates and update the customer of what is going on.

Cerasale and Stone (2004) argue that customers are valuing the benefits provided by a product and are less interested of owning them, which partly can be confirmed and partly can be contradictory when it comes to the a heat pump. What the customer actually value is the benefits provided by the heat pump and less the ownership per se. However, several customers still value to own the heat pump due to other aspects and thus the contradictory value dimension ownership has been identified when it regards heat pumps. One reason is that if they own the house they also want to own the house’s heating system so that it contributes to increased market value of the house, which in turn creates value for the customers seen to both what Mahapatra and Gustavsson (2009) state regarding customer value in the energy market and the identified value through the interviews. Further, Cerasale and Stone (2004) mean that owning products make less sense in a constantly changing world where products often can be replaced or need upgrades quickly. A heat pump seems to be a product, which does not fit into the description but rather the opposite as it is more complicated to replace and as the need of upgrading to a newer model of a heat pump is not big, along with a belief of a long economic life time. Based on this, customers do not see economic advantages to not own the heat pump and also due to that they see the risk of costly problems as low.

The aspect flexibility is by Edvardsson (1997) presented as something which can contribute to increased value for the customer as it can generate a more positive customer-experienced quality and productivity. Furthermore, Edvardsson (1997) means that better flexibility can be created by transferring activities in
the service process to the customer themselves. The value of *flexibility* can thus be seen in different attribute in the business of residential heating as several value dimensions regarding what the customer would appreciate to have the opportunity to manage themselves have been identified through the interviews. These value dimensions are for instance *manage maintenance oneself* and *manage problems/errors oneself*. The underlying reason for valuing these are possibility to cost savings. Also the interviewed IVT employee mentioned that some customers prefer to understand the technology and accomplish some adjustments themselves, but at the same time some of the customers just want to call the firm which organize and do everything for them. That this generates customer value can be strengthening by Edvardsson’s (1997) similar example, namely self-service in restaurant, which can influence the customer’s experienced quality positively and reduce cost related to restaurant personnel. Furthermore, Edvardsson (1997) means that to be offered several options can increase the perceived customer value, which indicates that the identified value *be able to influence the payment model* is strengthen as valuable. An example of providing different options which contribute to increased customer value, presented by Edvardsson (1997), is that a customer can choose to use the cash dispenser outside instead of entering a bank when there is a long queue inside the bank. This reminds of the identified value *accessibility in purchasing process* as it implies that the customer can choose, in this case purchase time, based on what suits the customer the most seen to less sacrificing. Thus, even this identified value can be strengthened as valuable.

The value dimensions *resources efficient* and *environmentally friendly* are identified from the interviews among a few of the respondents. The importance of the environmental friendly aspect appears to be more important for some of the customers who mentioned the value than others. One respondent that expressed the value dimension as not very important meant that it for instance would not influence the respondent’s decision of heating system, while another respondent thought it was, together with some other factors, an important value. That low GHG emission can affect the decision, as Mahapatra and Gustavsson (2009) state, can thus partly be identified in the interviews, however the majority of the respondents did not mentioned environmentally friendly as something creating value to them. Resource efficient seems to be a bit more important, but mostly due to its economic benefit.

There are some values that have been identified in the business of residential heating through the interviews which is not fully covered by the found theory. Some of these regard different knowledge aspects, such as what kind of knowledge that is valuable and from what source information is preferred. For instance, the identified value dimensions *knowledge about how to manage the system*, *knowledge about how to solve errors / problems*, *information of how to handle the system via manual and/or film*, *information of how to handle the system via professional*, *information of how to handle the system from user*. Even though these value dimensions are not fully covered by the found theory they can still partly be connected to other presented values above, as for instance the values *cost reduction* and *risk reduction*. This because mentioned reasons for valuing information and knowledge is to prevent problems, solve problems oneself and maximize the system’s functioning and efficiency, which all in turn can be connected to risk reduction or cost reduction. Since the majority of the respondents mentioned that they value knowledge about how to manage the system, it can be seen as an important element for the customers when it comes to the business of residential heating. This makes probably sense due to that it regards more complex products than many other products customers own and as many users may feel feckless without knowledge since it actually is about something important for the living.
Those who uppermost seem to value information about its heating system, for instance *how to manage the system* and about the different functions, are those who newly moved in to a house where there is a heat pump or those who newly bought a new heat pump. Also Mahapatra and Gustavsson (2009) strengthen this by stating that those who are less aware of the system are those who recently have moved in to a house, and in addition stating that it is often younger home owners which moves from an apartment to a house, and that the knowledge aspect improves over time.

Furthermore, a value dimension identified in the interviews is *control in decision*, a value dimension indicating that a majority of the respondents want to have control over its purchase concerning for instance model of the pump, brand, installer firm and price. A heat pump implies a big investment, which the customers expect will last in many years and they want to make sure they choose the right one. What customers do to get more control vary and they are valuing to use different sources in different extent, for example *advice from relatives and friends with knowledge, advice and information on internet, advice from users with experience* and *advice from professional/seller* are identified value dimensions from the interviews. Additionally, *own experience* and *see the product before the purchase* are identified value dimensions, which also give the customer more control over the purchasing. Many customers seem to use at least two different sources pointing in the same direction. The value dimension *control in the decision* is also strengthened from the internal interviews at the company, where a Bosch employee pointed out the importance for customers to have control in the decision and the increased customer behavior of comparing different alternatives. A majority of the respondents meant that *advice from professional/seller* is important and this goes in line with Mahapatra and Gustavsson (2009) mean, that installers are the customers’ main source of information in a new heating system choice. Thus, the empirical result can be strengthened by earlier results, but customers seem to want even more control since they often use different sources pointing at the same thing.
6.2 RQ 2: How can existing services in the heating market contribute to inspiration for an integrated service solution?

Services can vary in extent and different services can be combined together with products into integrated service solutions (Kindström & Kowalkowski, 2014). Edvardsson (1997) means that those services rather can be existing services already offered by the company or new developed services. Below follows an analysis, where existing services in the heating market are discussed in order to act as inspiration for parts in an integrated service solution. The section ends with a visual formation, including analyzed parts that potentially can contribute to an integrated service solution for Bosch Thermoteknik AB.

Package deals or all-in-one solutions can except from the products themselves, also include services such as planning, financing, installing, operation, maintenance, upgrading and recycling (Lindahl, Sundin, Öhrwall Rönnbäck, Öhlund Sandström, & Östlin, 2006). Of the mentioned examples the empirical result shows that many of them are offered, in different extent, to customers in the heating market today. Furthermore, integrated service solutions can be formed in different ways and according to Hannon (2012) they can be formed into product-oriented, use-oriented or result-oriented systems.

**Product oriented services**

Hannon (2012) gives examples of product-oriented services such as maintenance, take-back and financing schemes and further Pigosso et al. (2017) mean that installation, maintenance, repair, upgrading and recycling, and training and consulting, are all examples of product-oriented services. From the empirical result several product-oriented services were identified where customers are offered services together with their product purchase. As in the examples presented by Hannon (2012) and Pigosso et al. (2017) customers are for instance offered different payment schemes, such as installment, which is offered to Bosch’s customers through the funding firm Wasa Kredit, and thus customers pay a monthly cost rather than take the whole investment cost at one time. Furthermore, *installation* of the equipment is offered by actors from the empirical investigation, such as from Thermondo, Best green and Bosch. As in the examples mentioned by Hannon (2012) and Pigosso et al. (2017) *maintenance, reparation, service and operation* are all product-oriented services and all of them can be found in different extent from actors in the empirical investigation. As an example E.ON guaranties operation and takes responsibility for that the heat pump operates as it should and for instance Thermondo takes responsibility for the maintenance of the heat pump in their leasing offer. Service and reparation are offered by several actors and for example Bosch’s customers can receive help with this through Bosch’s value network and other firms are offered this both separate where the customer pays for performed work and included in offers where the customer is guaranteed service and reparation for a fixed price.

In connection to the product purchase, firms such as Thermondo offer customers help to make a decision for the most suitable heating system by providing an online tool, something which also is provided by Bosch. Additionally, home visits are offered by installer firms within Bosch’s network in order to give the customers *consultation in the decision* based on the specific circumstances of the house and the use profile. These consultation services aim to help customers with their decision and can more or less also be related as a product-oriented service.

*Monitoring* of the heat pump is a service that potentially can be integrated in a service solution. Responsibility for monitoring the heat pump is offered by E.ON and they inform the customer in case something is wrong and in case the heat pump does not operate as it should. In addition, product...
manufactures, such as Nibe, Thermia and Bosch offer customers monitoring functions, via for instance an application, where information about the heat pump operation can be seen. Also, customers can receive a notification in case something is wrong with the heat pump and Nibe does also add information about how the customer should proceed in order to get the problem solved. E.ON does offer customers a status report, where customers receive information regarding the heat pump’s status, covering a passed period of time. Historical information about the heat pump and its operation can also be received in the applications from Nibe and Thermia.

A part of an integrated service solution could also be the product-oriented service "training", which Pigosso et al. (2017) for instance mean can imply that the customer gets help of how to apply the product through training. It can also be seen in the service concept, provided by Luleå Energi, where the customers are offered education regarding their district heating centrals and thereby get basic knowledge about the function and handling of the system equipment. Furthermore, the interviewed IVT employee meant that in connection to the installation and/or the revisit about a month after the installation, the installer often gives some basic knowledge to the customers regarding simple advice of how to handle the system.

The provision of support to customers can be seen in several service concepts in the heating market, for instance by E.ON, Thermondo, Best Green and Nefit. Further, Kowalkowski and Kindström (2012) mean that technical support, through for instance call-centers or websites, can be a part of an integrated offer. How this support is provided varies, some firms provide support from themselves and are thus many time the only contact needed for the customers and some firms transfer the support to partners. The availability of the support can also vary in extent, but for instance Nefit has a 24/7 availability.

Use oriented services

From the empirical result concepts are found, where focus has been shifted from selling the product to the customers to instead sell the function/use of it. Hannon (2012) describes this as an use-oriented system. Both Thermondo and Nefit offer these kind of service systems in their leasing contracts, where the ownership of the product belongs to the company, and the customers pay the company for access to the product. Thus, taking responsibility for the ownership is a further part, which could be included in an integrated service solution. In addition to taking over the ownership, several product-oriented services are included in the offers provided by Thermondo and Nefit, such as installation, maintenance, operation, service and reparation. Further, in the leasing contracts the customers are still responsible for paying the fuel and electricity.

Result oriented services

The last type of an integrated service system, presented by Hannon (2012) is the result-oriented system, where the customer’s need is guaranteed to be satisfied but without definition of which material that will be used. The concept offered by Best Green, can be linked to a result-oriented system, since the customers pay an agreed fee per heat unit, rather than for the equipment and the electricity it consumes. Bertoldi and Rezessy (2005) mean that companies can even take over the responsibility for purchasing the electricity and fuel but mean that it is not very widespread. Neither in the empirical collection this was found, but still it can potentially contribute to an integrated service solution. According to Bertoldi and Rezessy (2005) also a contract can be arranged where the customer is charged per square meter of
conditioned space, but this is not found among the concepts in the empirical collection. However, it can still be inspiration as a part of an integrated service solution.

**Further potential services**

Except from services concerning the heat pump and heat generation, other existing services have been identified, which still can be of interest as a part of an integrated service solution in the heat pump market. An integrated service solution can for instance constitutes of energy analysis as Bertoldi et al. (2006) mean can be an activity included in services in the energy market. Also Nilsson (2016) writes about analysis as a part included in an integrated solution, which was developed for example in UK. Energy analysis, can be likened with the service thermograph provided for example by Kalmar Energi, since it implies heat photographing which identifies unseals, insufficient insulation, design- and construction faults which leads to draft, moisture damage and energy leakage. In addition, advice and guidance can, seen to what Cerasale and Stone (2004) mean, be part of an integrated service solution. The existing service thermography, provided by Luleå Energi, can be seen as an example of this, since the service includes related guidance as energy advice. Just like what Nilsson (2016) means, that there are parts of integrated service solutions as for instance analysis that focus on how the customer can save energy, the existing service concept thermography can be seen as focusing on energy savings as it is about identifying unnecessary energy filtering.

Furthermore, implementation, for instance as a following step of an energy analysis, can be part of an integrated service solution. Bertoldi et al. (2006) mean that one of several activities in an integrated service solution can constituted of implementation. In order to be able to perform the implementation required equipment is needed, such as insulation or radiators. Interesting is then what Nilsson (2016) states that it is important to investigate how different technical solutions can be packaged into service solutions and better fit market requirements. As mentioned, Nilsson (2016) means that there are many service solutions focusing on how the customer can save energy and Hannon (2012) writes about energy performance contracting, which includes guaranteed energy savings. Implementation can thus mean that a guaranteed energy saving is provided.

**Payment schemes**

How the payment is structured for the investigated existing services varies. For instance, for some service concepts there are payment forms of a fixed non-recurring cost, used for example for the thermography provided by Kalmar energy and for the education regarding the customer’s district heating central provided by Luleå Energi. Furthermore, there are several service concepts with a fixed monthly fee where everything provided in the service offer is included in the fixed monthly price and no other unexpected costs will appear for the customer. Seen payment schemes like this is for instance Thermondo’s and Nefit’s leasing of boilers, where the usual investment cost escapes and is a part of the split monthly cost instead. Also Bertoldi and Rezessy (2005) write about leasing in the energy market where the payment is a fixed monthly fee. Further examples is the additional service, provided by E.ON, which also means a fixed monthly cost for everything provided in the service concept. In addition to the payment form of fixed annual and monthly fees, there are also annual and monthly fees based on what the customer request and how many functions the customer adds to the offer, which can be seen used in for instance Nibe Uplink, Thermia Online and the service agreement advertised by Thermia. There are also integrated service solutions in the business of residential heating with payment schemes which combine and include both a fixed non-recurring cost, a fixed annual fee and a cost for the actual heat produced which thus
varies. This payment form is for instance used for the integrated service concept provided by Best Green, where the installation constitutes of a fixed non-recurring cost, the heat produced by the heat pump is charged for and where the other parts included in the offer, such as service, constitutes of a fixed annual fee.

Other possible payment scheme for an integrated service solution is based on the customer’s energy savings, which the firm is helping the customer to achieve. For instance, the “chauffage” contract use in the energy market, presented by Bertoldi and Rezessy (2005), where the payment is based on the customer’s existing energy bill minus a percentage of the saving. Another example is the “first out” contract used in the energy market, presented by Bertoldi and Rezessy (2005), where the customer pays 100% of the energy savings until the projects costs and profit for the provider is paid and the payment period is then depending on the savings achieved. However, these kind of payment schemes have not been found among the existing service concept in the heating market. As seen in the business of residential heating, while combining different service parts into an integrated service solution, the payment schemes can vary, for instance can some of the including parts be charged in different forms than others or all parts can be charged in one single price. In addition, the different parts as well as the whole solution can vary in price, be a fixed price, can vary in payment time period and be a fixed payment time period. Furthermore, existing services point to that a payment form of a single service can possibly change as it is integrated into a more extended service solution.

The discussed parts that potentially can be included in an integrated service solution are presented in the visual formation, see Figure 15, below.

Figure 15 - Potential parts in an integrated service solution
6.3 RQ3 How can integrated service solutions for Bosch Thermoteknik AB be designed considering the previous questions?

As a conclusion in the previous sections and thus the answer of research question two, several parts were identified, that can contribute to inspiration for an integrated solution for Bosch Thermoteknik AB. In the following section, each part is discussed also with a customer value perspective. Discussed in the sections are also some generated ideas that can contribute to increased customer value.

*Heat pump*

Several identified value dimensions concern the heat pump per se and requested functions. However, how the product can be developed to contribute to increased customer value, will not be discussed. Still the product composes an important part in the integrated solutions and some product related discussions are presented in the section *Electricity*.

*Consultation in decision*

As previously described consultation is something which is commonly offered to customers in the residential heating market through home visits and via online tools. This is considered as an important factor contributing to customer value, which can be identified through the value dimensions control in the decision and advice from a professional/seller. Since many companies offer consultation to their customers today and since consultation in the decision contributes to customer value it should still be offered to customers when they buy a new heat pump. However, it is not a service which we will use in a special integrated solution, rather it will be offered to all customers for free as it does today.

Additionally, an idea that potentially can increase customer value is to let the customer easier find information regarding neighbors’ heating solutions. For example, on IVT’s website see what kind of IVT heat pumps/solutions people in their area have to get a better picture of what could be suitable. To offer customers something like this can create customer value based on the value advice from users with experience, where customers are valuing insight in what kind of heating solutions their neighbors have. The information would also be very accessible and not cause the customer burden in form of do the investigation oneself.

Another idea, which concerns the customers’ decision and purchase process is a proactive offer, which can be targeting customers who have a very old heat pump. Since, it can be hard to motivate customers to replace a functioning heat pump if not the price would be significantly reduced, one way is to offer a whole neighborhood a change to do a replacement, for example during summer time. The company can then coordinate the installations at one time and therefore save money, which can motivate a reduced price for customers. A similar solution is to let customers prepare for the next heating system purchase in advance before the old heat pump breaks. Via an installer firm the customer then has the opportunity to get a home visit and advice in advance, as a suggestion during summer time. Customers then have a clear picture of what they need and want when the heat pump then breaks and the installer has the information stored and guarantees the customer a replacement very soon after the break down. The customer’s heat pump could for instance be stored by the company or at least the company should be able to install it with a short notice time. The presented solutions concerning proactive offer are targeting the customer value dimensions proactive offer and control in the decision, since the offer would give the customer more time to think of what kind of system they want and also reduce the risk of being without heat when the heat pump breaks.
Installation

As previously mentioned the service installation of equipment is an often offered part in a heat pump offer. This part is still seen as an interesting part of an integrated service solution that includes a new heat pump, not least since it in some manner fulfills the identified value supplier takes a holistic responsibility. The customer does not need to coordinate different actors for the installation and for the heat pump. Thus, installation is included in two of the final concepts, since they also include a heat pump.

Maintenance/Reparation/Service/Operation

Parts of an integrated service solution regarding maintenance, reparation, service and operation could be designed in different manners. One idea is to further develop the current stoppage messages through an application, so that the customers not only get the information that a problem has occurred, but also receive information in terms of what the customer can do about it. This error message should include two alternatives, namely opportunity to forward the message to nearest service provider which then will contact the customer, and for possible cases information including a demonstrating video of how the customer can solve the problem oneself. Customers are thus provided with the option to choose to solve it oneself or hire a firm to do it. Additionally, contact information to the nearest service provider is visible in case the customer needs help. Customers should receive a message, not only when stoppage has occurred but also when there is something which indicates a future breakdown as well as if the heat pump not is operating as efficiently as it can. Thus, the information should consist of how the customer can prevent stoppage, problems and how the customer can increase the heat pump´s efficiency. Further, the information of how to solve it oneself should mainly be available to issues which are not covered by the guarantee and where the customer should not, in the first hand, contact a service provider. But at term, even more activities could be possible for the customer to choose to do oneself, which would require adoptions and adjustments in the product development to facilitate for the customer.

Information of what customers can do as a part of an integrated service solution is interesting since it fulfills several identified values. Not least the value access to support/maintenance/service/reparation, which was mentioned by the majority of the respondents. Support, maintenance, service and reparation would be very accessible to customers due to the opportunity for them to manage it themselves and are not dependent on service partners and their availability. Furthermore, the idea fulfills the identified values knowledge/information about how to solve errors/problems, manage problems/errors oneself and manage maintenance oneself. Since the idea implies more opportunities for the customer, who can choose to do more itself and thus reduce costs compare to hiring a firm, it also fulfills flexibility. In example three in the interviews, which concerning an additional service with free access to service and reparation, mentioned reason for not choosing the concept was unwillingness to pay for easier maintenance and easier reparations which could be made by the customer itself. This presented solution of maintenance/reparation/service/operation seems to increasing the value for the customer, seen to what is offered today, and is thus embedded in one of the integrated service solutions.

Another idea regarding maintenance and service is that the customer signs up for a service and maintenance agreement in connection to a heat pump purchase or a move in to a house where there is a heat pump. The agreement consists of predefined occasions for preventive service and maintenance, thus it can prevent problems and also improve the heat pump’s efficiency. The service and maintenance occasions could roughly be done every second year since it would be in line with Bosch’s recommendation. This idea seems to be interesting for some customers because it generates the
identified values high quality product, as it can increase the heat pump's lifetime, confirmation of that the system operates as efficient as possible and with a low operation cost. Furthermore, one mentioned positive aspect with the leasing concept presented in example two in the interviews was precisely that someone makes sure that the heat pump is functioning as it should and operating as efficient as possible, so that cost reduction for the operation can be achieved. However, in example four in the interviews one mentioned negative aspect was to sign up for an agreement including for instance service and maintenance where the customer pays a fixed yearly fee. This since the customer wants to have the possibility to influence that it could be cheaper, for instance by handle the heat pump well and prevent problems themselves. However, the presented idea will be integrated in one of the final service solutions since a possibility to attract some customers is seen.

Service and maintenance solitary as today's offers can be interesting as a part of an integrated service solution and hence it is embedded in the integrated service solution 2. Further, it is in some manner embedded in the integrated service solution 3, where a check of that the heat pump is operating as efficiently as possible is performed.

Further, parts in an integrated service regarding reparation could be an agreement which to a fixed price guarantees the customer reparations of the heat pump if something happens to it. This could fulfill the identified value predefined cost, since no unexpected cost will appear for the customer. In example two, three and four in the interviews, which all included some kind of agreement for a fixed fee, mentioned positive aspect was to get rid of the responsibility if something happens and thus get rid of unpredictable costs. However, the interest to this idea is decreasing seen to that for most of the customers, it was not something which they were willing to pay a lot for. This since they think that not much happens to the heat pump generally and thus not worth much money to get rid of the responsibility. They think it would be more expensive for them, compare to pay firstly when a breakdown or problem actually has happened. In particular, this idea is less interesting for the customers during the guarantee time which is provided today, which was an aspect that emerged for instance in example three in the interviews. This presented idea of a reparation agreement is, based on the above arguments, not embedded in any of the proposed integrated service solutions.

**Monitoring**

As previously described firms are offering different kind of monitoring of heat pumps, variant where either a company monitor the heat pump or customers can see the heat pump’s operation and receive error message via a separate device. One idea is to except what Bosch’s customers are offered today via IVT anywhere also offer them extended monitoring. By this kind of monitoring, the idea is that customer will, except receive a notification when stoppages, also receive information indicating on stoppage before it has occurred and also information when the heat pump does not operate as efficiently as possible and thus need maintenance. The information can be received as today through an application. By offering customers the concept, potential for increased customer value can be generated based on the value dimensions confirmation of that the system operates as efficiently as possible, informed of problems/errors, informed of time for maintenance and guaranteed value for spent money. In the latter value dimension customers feel more willing to pay for as an example maintenance if they know the heat pump needs it. Also the important value dimension reliable operation, expressed by a majority of the respondents indicate that customers want a reliable operation, and if they can prevent stoppages it can generate increased customer value. Customers thoughts regarding example three from the
interviews concerning for example monitoring show that some customers were negative to it since they can discover stoppages themselves and do not need a firm to call. Therefore, the idea is to extend the monitoring to also be able to identify errors in earlier stages and identify when the pump does not operate as efficiently as possible. The idea is considered as interesting and will be included in one of the integrated solutions.

**Education**

In earlier chapters it was described that customer can receive information regarding how to handle their heating system either by an education or via the installer in connection to the installation of a new heat pump. An idea is to offer and market an organized education of the heating system provided by Bosch partners, but where Bosch is responsible to set the agenda and prepare material that can be used and handed over to customers. Since installers have a very important role in meeting customer concerns and questions, this would be a chance for Bosch to actually have some control regarding what they want should be communicated to customers in terms of how to handle the system, how to prevent problems, maximize the effect and so on. An important parameter is also that the educator has a good knowledge in other products such as applications to further recommend, based on customers’ requirement, what customers can use to do their process as convenient as possible. An education could potentially create customer value based on the value parameters knowledge about how to handle the system, which was identified among a majority of the respondents. Further, information about how to handle the system via professional, seem to be the most wanted source to gain information. Since, customer seem to get some kind of information today from installers, the education must be organized to have a higher quality and be more extended. Otherwise, it will be hard to motivate customers to pay for something which today is included in the purchase and which is more or less offered for free. However, customers how not but their heat pump, rather move in to a house with an installed heat pump, is not offered the chance to get information of how the system works from a professional. Therefore, those customers can be an interested segment for this kind of service. Risks that still are seen with the service it that customers do not see the value with the service and will therefore not be ready to pay for it. Important is that the company communicate the value to customers in a right way. Overall, the idea is considered as interesting and will be included in one integrated service solution.

**Support**

An idea is to extend the todays support to not only refer customers to service partner, but also offer them a support function via an online portal. This portal can be formed as a kind of a customer forum, where customers have the opportunity to add questions and get them answered by professionals at Bosch. Questions should be visible to other customers using the forum and it should also contain the possibility for customers to comment each other’s question. Commonly asked questions can be saved and stored into different categories based on what they concern. At some defined times, personnel at Bosch can be available on a chat function, where users direct can get answers on their questions. The idea is give customers access to the forum by a log in, since it should be a favor only for Bosch’s customers and not for other heat pump users. The idea with the portal, is to do the support more accessible and convenient for customers, since they do not need to call a service partner for all their questions. The idea can create customer value based on the identified value dimension access to support/maintenance/service/reparation, and it should mainly support customers in their use process when they have questions regarding how to handle the pump, if their problem is covered by the warranty,
how they can solve problems themselves and so on. Further potential to customer value creation is based on the value dimension knowledge about how to handle the system, information about how to solve errors/problems, information about how to handle the system via professional and information about how to handle the system via user. In the latter value dimension, customer seem to be interested in also learn from each other, and get help from other users in their own use process; a need that will be satisfied since questions will be visible for all customers and since they also have the opportunity to answer each other’s questions and therefore share own experiences.

However, even if the idea is considered as it potentially can create customer value there are some barriers connected to it. One barrier is that it might be unclear for customer when to contact Bosch and when to contact a service partner. As Kowalkowski and Kindström (2012) mean customer contact is one parameter, which has to be allocated in the value network, and it should be clear how this allocation should look like. Furthermore, a barrier could be the risk of a dispute with service partners in the value network, since they usually have had the responsibility for the customer support. Kowalkowski and Kindström (2012) mean that this kind of risk can occur when a product firm, that normally has worked toward intermediaries, tries to strengthen the direct contact with the end customer. However, the risks are assessed as less likely to occur and therefore the concept is still considered as interesting. The idea should though not be included in an integrated solution, rather be offered to all Bosch’s customers.

**Dismantling and Disposal**

Disposal and dismantling of the previous heating system is provided today in connection with purchase and installation of a new heat pump. This is still interesting to offer to the customers together with the purchase and installation of a heat pump and thus the dismantling and disposal part is embedded in the integrated service solution 1, which for instance includes heat pump and installation.

**Ownership**

That the firm takes the responsibility for the ownership of the heat pump, such as in a leasing concept, could be a part of an integrated service solution. Some respondents mentioned the benefits of reduced risk in connection to that the firm is the owner of their heating system. However, the identified value dimension ownership, which was mentioned by several respondents indicates that customers still value to own their heating system and several barriers are identified to a potential leasing. Mainly customers think leasing will be more expensive in the long run, and a majority of the respondents mentioned that they would compare the leasing concept with a traditionally purchase and chose the one which is most economic beneficial. In addition, the aspect that they do not think that much happens to a heat pump makes them think it is more worth to own the heat pump. Mostly based on these arguments, eleven out of twelve respondents meant in example two in the interviews that they would rather choose to own the heat pump as today than sign up for a leasing contract where the firm owns the heat pump. Furthermore, it was mentioned that the benefits of leasing of a heat pump were not seen in the same manner as for example a leasing of a car. This since it is more valuable to upgrade to newer car models more often than to newer heat pump models and in addition many customers have high belief on long heat pump lifetime. This is in line with what Cerasale and Stone (2004) say about ownership, where they mean that owning a product makes less sense if the product constantly can be replaced or need upgrades, which is also discussed under the value dimension Ownership. Furthermore, in example two in the interviews, the investment cost, which respondents meant could be an advantages to escape with leasing, was not seen as a big problem. Thus a purchase of a heat pump is likely done rather than to lease it. Also, some
respondent in general had a negative attitude to leasing because they think they will be fooled seen to a cost aspect. Busnelli et al. (2011) mean that offers related to energy savings provided by energy producers have made customers concerned of that it rather bringing energy consumption than energy savings and based on the same logic a manufacture offering alternative ways of purchasing products, may result in some sceptic customer. Further, this initial negative attitude to leasing can influence the customers' satisfaction of the experience outcome negatively since McNeill and Mather (2016) means that by entering an experience with a positive emotion a higher satisfaction of the experience outcome is reached.

However, as mentioned initially customers saw the leasing concept as convenient since the company would guarantee a functioning system and the responsibility is moved from the customer to the company. What is still very clear is that customers do not see that much value in the leasing concept compare to a traditional purchase and the price ceiling is for sure not much higher than for a traditional purchase. If the company would be responsible for the heat pump and would make sure the heat pump was operating as efficiently as possible, there is a potential for decreased electricity bill for customer, which based on the value dimensions identified in the study is important to customers. It was however not an aspect many customers connected to the leasing concept, and in case the company would start offering leasing, equipment which is guaranteed operates as efficiently as possible could potentially increase customer value and important would therefore be to communicate that value. Especially if the electricity prices decrease.

It is also a legal aspect which can make leasing of a heat pump problematic. This according to what a legal representative employed at Bosch in Germany meant, namely that if the appliance is integrated in the building and is an essential part of the building the ownership is legally connected to the owner of the house. That it is integrated in the building and an essential part of the building will be the case if the appliance is not mobile and also if it is necessary for the house to work, which the legal representative meant a heating system such as a heat pump typically would be in Sweden.

As a conclusion, ownership moved to the company in terms of a leasing concept will not be embedded in the proposed integrated service solutions.

**Electricity**

In an integrated service solution, a company can take over the responsibility for the electricity. Either by reimburse customers for their electricity purchase or either by being responsible for the electricity purchase. Rather than pay for electricity, customer would then pay per consumed heat unit or for instance per square meter conditioned space. From a customer perspective advantages can be seen with a solution like this due to the identified value dimensions low operation cost and confirmation of the right system for the house conditions. Both the value dimensions address customers concern regarding a high electricity bill and they want to avoid the immersion heater to turn on. If they instead would pay for the output - the heat, they would not have to concern about the heat pump electricity consumption. Further, the value dimension guaranteed value for spent money indicates that customer only want to pay for what actually guarantee them a result, which would be fulfilled by the concept if they only pay for what they actually consume. Regarding example four from the interviews, many customers seemed interested in the concept due to its simplicity and that customers do not have to think about the electricity bill and only pay for consumed heat. People did also see it as a chance to even save money, which was one reason why they liked the concept. If the company takes responsibility for the electricity and get many customers on
these kind of agreements, the company could potentially negotiate good electricity prices. Furthermore, it could stimulate the product development toward product that consumes less energy and if the company find good solutions, it can therefore be an incentive for a service like this. In a customer perspective, they would get an advantageous heating price, which is in line with low operation cost, and further it would be more resource efficient if the product consumed less energy, which is another identified customer value.

The respondents negative to the concept where they would pay per heat unit rather than a traditional purchase, thought it would be more expensive, which was the main reason to their concern for the concept. In concept four the company was not only responsible for the electricity, also the company owned the heat pump and customers had to pay an initial cost and a yearly fee for service, reparation and maintenance. The company took a big risk to take over all responsibility and thus the solution can be kind of costly for customers, compare to a traditional solution, and clear from the interviews in that customer would compare the solution with a traditionally purchase and probably chose the one which is most economic. Another barrier is that some customers think it is hard to relate to the concept and see the benefits of it, which would require a clear communication from the company regarding what advantages it can bring for customers.

Ideas where the company would not take the responsibility for everything, but still for the electricity have been discussed. One idea is to still let the customer own the heat pump and be responsible in case it breaks, but guarantee them a fixed price for the heat consumed, which mean they do never have to care about the electricity consumption. However, if the company should take the risk for the electricity consumption, they probably want to make sure the heat pump operates as efficiently as possible and therefore monitor the heat pump and be responsible for maintenance. A barrier is further seen regarding the heat pump choice. What would motivate customer to pay for the most suitable heat pump that the company recommends if they do not have to care about the energy consumption?

Overall a solution which gives customers a possibility to pay for output is very interesting. Still there are many barriers to address, such as if the company should take the responsibility for everything and how it can be done to a cost which not exceed what customers are ready to pay. Commonly for all respondents are that they would probably choose the concept which they think will be the cheapest alternative in the long run. Therefore, the interval where the price can be set, as Kowalkowski and Kindström mean is the difference between what customers are ready to pay and the company's cost for the offer, would probably be very small if it even exists. The price customers are ready to pay is just slightly more than what they are paying today including the risk that the heat pump need reparation a few times. Further, in case the ownership of the heat pump would still belong to the customer, but the company for the electricity, who should choose the heat pump? Even if it is very interesting with the solution, it will not be integrated in any of the integrated solutions.

**Heat analysis and guidance**

Heat analysis and guidance could represent a part of an integrated service solution. An idea is that this would extend the offer to a more holistic view and responsibility of the customer's heat, for instance so that not only the generation of heat is taken into account but also to preserve the generated heat. Thus, it would comprise of an analysis of what could be problematic with the current conditions, such as identify energy leakages with measuring instruments as for instance by thermography. Furthermore, analyzing different data as for instance the electricity consumption for the heat pump and how much the immersion heater has been used, in order to identify possible improvements. Based on the analysis, related guidance
as for instance how the surrounding's condition and the user's behavior can be improved can, in addition, be provided to the customer.

Heat analysis and guidance as a part of an integrated service solution could be interesting for the customers since it could contribute to further fulfillment of the identified values low operation cost, which is an important value for most of the customers as it was indicated by the majority of the respondents. Furthermore, it can contribute to the fulfillment of the identified values environmental friendly, the system generates a stable temperature and the system responds quickly to temperature adjustments. To involve heat analysis and guidance as a part of an integrated service solution would imply that further knowledge and competence need to be acquired either within the firm or at least within the value network. Thus, as Kowalkowski and Kindström (2012) mean when new customer need and demand emerge, the company need to develop existing value network and perhaps establish new value network formations and thereby the service portfolio can be extend. As mentioned, Busnelli et al. (2011) write about customers sceptic about energy providers with energy saving offers, as they think it would rather implies energy consumption. Seen to this, a heat pump manufacturer may have advantages regarding starting to provide energy saving offers, since they usually sell heat pumps and not the electricity. This not least since one can figure out advantages for a heat pump manufacturer to provide energy saving offers as the firm is anxious about what customers are satisfied with their heat and if other aspects worsen the heat experience the general satisfaction of the heat pump may be negatively influenced. However, what actor having the best knowledge and competence within the issue still needs to be considered, which perhaps will require to expand the existing value network for a heat pump manufacturer. In conclusion, as heat analysis and guidance is perceived as an interesting part in an integrated service solution it is embedded in the proposed integrated service solution 3.

Implementation

Based on the result from an energy analysis, also implementation could be a part of an integrated service solution. To offer customers implementation would require more actors in the value network to be able to offer products and services, such as isolate the house or window seals better. As Kindström and Kowalkowski (2014) mean both internal and external products and services can be integrated in more extensive offers. Also, due to satisfying transformed customer needs and demands, companies can develop their existing value network and establish new formation.
6.4 Integrated service solution 1: Nyinflyttad

Background

Many people move in to a house maybe to start a family after they have sold their apartment. They buy a house with an existing heat pump and get some quick advices from the house sellers regarding how to handle the heating system but except from that they do not have much knowledge. They are left with the responsibility and hope the system will operate without problem, at least during the first winter. However, they are not sure when the latest service was performed, probably a couple of years have passed and they are not sure about the heat pump’s condition. However, initially some problems occur, problems that in some cases could have been prevented and at least been handled differently to save both reparation costs and electricity costs and not least to avoid some burden. The system, which is about 10 – 12 years old is not covered by the guarantee, but is still expected to operate a couple of more years. Additionally, when problems occur, the customer do not have a relationship to a specific service provider and do not know who to best contact. About five years later when the heat pump brakes, the owners have to take a decision of what they should buy next in terms of brand, model and from which retailer, and an already established relationship to an installer/service firm seems to be an important parameter, which influence their choice.

The integrated service solution

The integrated service Nyinflyttad aims to provide customers with a secure feeling of having a functioning heating system and knowledge regarding how to handle the system. Increased knowledge should help customers be more aware of functions and how to take care and maintain the heat pump in the best way in order to reach a required indoor climate, a low electricity bill and prolong the lifetime of the heat pump with a decreased risk of breakdowns.

Nyinflyttad includes two main parts and one additional, namely:

- Service
- Education
- + Service agreement

The part service is included in the package in order to ensure a full functioning heat pump and make sure the customer has the right conditions as a starting point. By an initial service, future problems can be identified and decrease the risk of stoppages during at least the first winter period, something which otherwise can cause much burden especially to new house owners without knowledge and experience. In connection with the service, the offer also includes an education that will take place at customers’ residents. The education should contain information regarding how the heat pump and the technology works, how to handle the heat pump, what applications and such attributes that customers can use based on their demands, how to perform maintenance and further some general advices regarding energy savings. The agenda for the education should be set by Bosch Thermoteknik AB to guarantee the quality and Bosch Thermoteknik AB will also prepare material, such as manuals and summarized instructions which can be handed over to customers. In addition, the integrated service solution gives the customers an option to enter into a service agreement where prevention service and maintenance is performed on the heat pump. The service agreement will follow Bosch Thermoteknik AB’s recommendation, which is
service every second year. The customers who sign up for this agreement will be contacted by a service provider when it is time for the service. The reason why this service agreement is selectable and not a main part in this integrated service solution is that it will probably not be attractive to all customers chosen this package, since after increased knowledge they will take more responsibility and maintain the heat pump themselves in order to save money. However, still some customers will leave some responsibility to a service provider in order to ensure a full functioning heating system.

The pricing of this package could be a fixed non-recurring cost for the main parts, the initial service and the education. Since clear synergies can be seen, not least that both the main activities take place at the same time, they can advantageously be packaged together. This leads to that it will be cheaper to provide the services and therefore the customer can get a better price comparing to if the parts would be bought separately. From a customer perspective synergies are also seen between the two main services since increased customer knowledge is not worth much if the heat pump is already from the beginning in a bad condition. Furthermore, if the customer chooses the additional service agreement the payment for that could be a fixed cost each time the service is performed. Synergies are seen together with the other services in this integrated service solution since they constitute a good base for taking care of the heat pump. The advantages seen for Bosch Thermoteknik AB regarding the integrated service solution are potential to take part of the margins especially for the education and more satisfied customers. If good relationships are established to customers who newly have become owners of a house it will lead to increased chances that these customers will chose the same partner (including brand) in the forthcoming heat pump purchase.
6.5 Integrated service solution 2: Tryggheten

Background

Owners of heat pumps are someday in need to acquire a new heating system. Since they generally have been satisfied with their heat pump and have own experiences of it they know that they want their next purchase of a heating system to be a heat pump as well. However, during the use of the current heat pump it has been some uncertainty whether the heat pump has been functioning well, operating as efficiently as possible or not, if something could have been done to improve the heat generation, etc. They have simply not known much about the heat pump's operation in terms of how well it has been operating, but as it mostly has been operating and that they feel that they cannot do much about it they have more or less supposed that it is alright and let it kept going. Furthermore, they would always like to reduce the costs spending on the heat generation and during the use process of the previous heat pump they considered to hire a firm to perform maintenance on the heat pump. They have heard that it is recommended but did not know if it was needed at that time and if it would generate a better operation, for instance as efficiently as possible, and if it would be payed off or not. Furthermore, in order to reduce costs, they are willing to sometime act themselves to prevent and solve some problems. However, they feel that they have insufficient knowledge of when, what and how it should be done, but are now for the next heat pump acquiring striving after a solution which enables them to easier do more themselves and easier report and communicate problems occurred with the heat pump.

The integrated service solution

Tryggheten is aiming to provide the customer with a convenient utilization. It should reduce uncertainties regarding when maintenance, preventions and reparations actually are needed in order to create a low operation- and reparation cost and also to make sure that it is worth to spend money, time and effort on it. It also aims to provide the customer with the option to reduce costs by enabling to act oneself or to pay for it by handing over it to a service provider.

Tryggheten includes several parts, namely:

- Heat pump
- Dismantling / disposal of current heat pump
- Installation
- Monitoring
- Information-rich error messages including possibility to forward it to a service provider

This integrated service solution is targeting customers which will replace their current heat pump to a new one and thus, the customer needs to get the dismantling and disposal of the current heat pump done, the new heat pump must be acquired and the installation must be done. In order to make it convenient for the customer all this, which for sure is needed for replacement, is organized and included in the package of the integrated service solution. In connection to the heat pump purchase and installation also equipment for more advanced monitoring is prepared and assembled to the selected heat pump and installed in the house together with the heat pump installation. This will enable the monitoring and notice function, which also is included into the package. The information is received by the customer through an
application when breakdown has occurred, but also when something is changed, which can cause problems in the future and when there are actions which can be made in order to increase the heat pump's efficiency. In the error messages the customer receives detailed information as well as video demonstrations easy to understand even for those who are not experienced with handling such technical products. The received information should constitute of a reduced amount and be well selected based on the specific identified problem, possible prevention and improvement. The customer is provided with the opportunity to act oneself and thereby escape costs or to hire a firm to do it. If the latter option is preferred by the customers a possibility to forward the error message to a service partner is offered. This function is included in the offer in order to make it more convenient for the customer, since it otherwise could be difficult for the customer to communicate and describe. To receive the message based on the monitoring could also be beneficial for the service provider, since the technicians can be better prepared for instance with right equipment as they know what the action will regard and do not need to start to investigate the problem then they arrive at the same manner.

In this solution Bosch Thermoteknik AB will be responsible for the technical parts, such as the heat pump, monitoring equipment as well as the application with befittingly information and videos. Service partners will be responsible for the heat pump acquisition, delivery and installation. The service provider is also responsible for the maintenance, service and reparation which is forwarded to them, however the actual work performed on the heat pump is not included in the integrated service solution, thus the customer have to pay extra for that.

Synergies by providing these parts integrated into a solution is for instance that the monitoring equipment can be assembled and prepared with the heat pump and only one delivery time is needed. Also the installation can be done together at the same time. Furthermore, the informing by for instance an error message is more valuable when it is provided together with solutions for it, such as how to do it oneself or directly send it to a service partner.

The pricing of the parts heat pump, dismantling/disposal, installation and service work could be set in the same way as today. To access the monitoring a fixed non-recurring cost could be charged the customer. Alternatively, a predefined monthly cost can be charged the customer depending on what kind of resources it takes to provide the monitoring. Regarding the work performed by a service partner, due to forwarding of error messages, Bosch Thermoteknik AB could receive a part of the margin earned by the service partners, since they created the sales opportunity.
6.6 Integrated service solution 3: Säkerställan

Background

Customers who contact a retailer are in many cases offered a consultation, where installers visit the customers’ home in order to check the circumstances of the house to best recommend a suitable heat pump. Partly some obvious inadequacies regarding the existing heating system or the house may be communicated to the customer, such as broken radiators or heat leakages, but usually not much focus is placed here. The customer is then recommended a heat pump based on the circumstances, and the customer might be satisfied and in other cases unsatisfied. Sometimes the customer considers the heat pump is too weak considering the circumstances and that the immersion heater turns on too often, which results in a high electricity bill. However, the heat pump would maybe have been sufficient if rather the house circumstances would have been improved. The electricity cost would have decreased and at the same time a smaller and cheaper heat pump would have been enough. To actually improve the circumstances can, except from reduce the electricity bill and the heat pump investment cost, also increase the indoor comfort.

The integrated service solution

Säkerställan aims to provide customers with the best heating solution for their house, including both the heat pump generating heat, but also measures regarding how the heat can be preserved. To extend the focus, of not only including the heat pump, but also including the circumstances of the house, there is a potential to satisfy customers’ needs in terms of low costs and high comfort.

Säkerställan includes the parts:

- Heat analysis and guidance
- Heat pump
- Dismantling / Disposal
- Installation
- + implementation of measures

An initial heat analysis including guidance will be performed in order to identify heat losses, such as from radiators and house shell. Based on this information, the customer will get a recommendation of measures that can be taken in order to improve the circumstances. Further, when the analysis is embedded together with a new heat pump purchase, the recommendations will also include a heat pump model. As a potential additional service in the package is the implementation of measures, which means that the installer firm also can coordinate actors that can perform the recommended activities, such as insulation. Clear synergies are seen to comprise the analysis and the opportunity to implementation together with the heat pump purchase since the result of the analysis also can affect the recommendation of a heat pump model, depending on if the customer choose to do the implementations or not. Included in the package are also dismantling/disposal of the old heat pump and installation of the new one to make the process convenient for the customer. Also, synergies can be seen between the analysis and the implementation since the analysis per se does not contribute to customer value creation in case insufficient are identified but not measured.
The pricing of the parts heat pump, dismantling/disposal and installation could be defined in the same way as today. The analysis could be charged to a fixed non-recurring cost and the implementations could vary dependent on what the specific implementation comprises.
7 Conclusion

Bosch Thermoteknik AB is today mainly offering products to its customers, but also a few product related services within its value network, such as consultation in decision, installation, service and reparations and dismantling of an old heating system. In order to expand the service-offerings, customer needs and values were investigated and the most important value dimensions are a reliable operation, which gives a carefree ownership, a system that manage itself and does not require too much time and effort from the user, a high quality product with long life time, and a low operation and investment cost. Furthermore, customers want control in their decision in terms of model, quality of installation and costs, which have resulted in customer behavior where different offerings and sources are compared to give them a feeling of that they get the most benefit out of the offer to a low cost. Further, more abstract values that have been shown to be important to customers are for example the accessibility of service, maintenance and support. Customers do not want to risk to be omitted in case they get problems with their system. Customers’ knowledge and interest regarding their heating system vary but one important identified value dimension is that customers are valuing to possess the knowledge, which is required in order to handle the system to reach their requirements. Overall customers seem very satisfied with many of the identified values.

Several services have been identified in the market place, which have been interesting through the perspective that they can contribute with inspiration to integrated service solutions for Bosch Thermoteknik AB. These services can be categorized as either product-oriented, use-oriented or result-oriented forms. The product-oriented services are consultation in decision, installation, maintenance, repairation, service, operation, monitoring, education, support, and dismantling and disposal. Further, use–oriented forms are seen where companies are offering customer the opportunity to lease the appliance rather than purchase it and thus the company takes over the ownership of the product. The result-oriented forms found in the study, imply that customers pay for the result the equipment generates in terms of heat and the company is responsible for the electricity. Additionally, services not mainly connected to a product, but that still are included in integrated services in the energy market were found and considered as interesting for inspiration, such as heat analysis and implementation of energy saving measures.

Seen to the use-oriented and result-oriented forms both examples could potentially contribute to customer value in the heating market, however for both of them there are many barriers to address. The identified leasing concepts are mainly formed in order to let the customers escape the investment cost and hassle and risk, due to a potential brake down of the equipment. However, the respondents in this study did not see the investment cost as a big problem, neither the risk of costly breakdowns. Rather they see some disadvantages to the leasing concept mainly due to a cost aspect, where they think it would be costlier in the long run and they are also afraid of legal issues as well as an affected market value of the house, due to not own the heating system. Regarding the result-oriented forms, customers are more positive, but does still see the cost aspect as crucial. However, they see the concept as a potential to even save money and they are also valuing to have predefined cost rather than not knowing the cost of the heating since it is dependent on electricity prices and equipment.

The concepts that act as inspiration together with generated concepts where all discussed from a customer value perspective, based on the segment for the study. Three integrated solutions where finally combined and chosen, which are Nyinflyttad, Tryggheten and Säkerställan.
Nyinflyttad is targeting customers who recently have moved into a house with a heat pump and are not sure of its condition and they do neither have the knowledge to handle the system in the way they want. Nyinflyttad consists of two (plus one) services, namely an initial service, education and additionally an option for a service agreement. By the initial service the status of the heat pump is checked and necessary maintenance is done. The education, which take place at customers’ place aims to increase customers’ knowledge regarding their heating system to better be able to adjust and handle the heat pump, prevent problems, and save energy. Furthermore, the option for customers to sign up on a service agreement is a way for them to even further take care of the heat pump by letting the company perform prevention services in line with Bosch Thermoteknik AB´s recommendations. The customer will then be contacted when it is time for service.

Tryggheten is targeting price sensitive customers, who want to make sure that the heat pump is operating as efficiently as possible. Further, these customers want to have the possibility to do maintenance and easier reparations themselves, rather than let a firm do it, in order to save money. Tryggheten includes the heat pump, dismantling / disposal of the current heat pump, installation, monitoring in terms of information via an application when errors (including early stages) occur and the heat pump needs maintenance. Additionally, the error message gives, in case it is possible, information about how the customer can solve the problem oneself and also the possibility to forward the error message to a service partner.

The last concept, Tryggheten, is targeting customers who want to improve the heating in their house in order to be more energy efficient, save electricity costs and increase the comfort at home. Säkerställan consists of heat analysis and guidance, heat pump, dismantling and disposal, installation and further the option to implement the recommended measures from the heat analysis. The heat analysis makes it possible to detect deficiencies regarding the house conditions, such as insulations, in order to recommend measures. The solution also provides customers with the option to implement recommended measures. Together with the result from the analysis the customer will also get recommendations of a heat pump in order to give the best holistic solution to the customer.

The three integrated service concepts are first drafts, mainly considering the customer perspective and thus there are still other aspects to further investigate.
8 Discussion

The different generated concept proposals’ extent and character varies. None of them are ready to be implemented directly, rather there are aspect to consider. Säkerställan implies that new value networks are required, which can take time as it also means dependency of new actors. Tryggheten, might require use of new technology and also ideas over how the technology should last or be replaced to function during the whole life time for the appliance. Regarding concept one, Nyinflyttad, actors and knowledge already exist within todays value network and this solution can thus probably be implemented sooner than the other concepts. Still roles and cooperation need to be further clarified and improved, not least to ensure the quality of the education. To summarize, the implementation processes of the different concept proposals would also vary where some of them will require more challenges than others.

The packages of the integrated service solution could possibly be more of an extended character than they turned out to be, as the idea with integrated service solution is that they should bring synergies when parts are integrated. However, in order to not lose some potential customers to the offer parts in the proposal concepts have carefully been chosen so that not too much is packed in the offer. If a customer not value all of the integrated parts in an offer the customer will probably not be willing to buy the integrated service solution as the customer pays for more products or services than the customer sees as beneficial. Thus the overall value, which takes both the benefits and the costs into account, would not be as high as it possibly could in case it would be a less extended integrated service solution.

A manufacturer as Bosch Thermoteknik AB has good opportunities to grow in a service-led way since they have a product specific knowledge and could possibly provide the heat pump-users with services. However, the company has previously left the end customer contact to their service partners and therefore it can be difficult to suddenly directly address the end customers. Reasons for that are that the firm is very dependent on collaborations with partners in order to provide local presence and that disputes, with partners which can feel that they are threatened, can occur. Discussions with internal employees have pointed to a climate which still is though and employees meant that there are risks by disregarding their service partners when developing new offers. Because of this the concept proposals also involve the current service partners into the offers and Bosch Thermoteknik AB still not addressing the end customers directly. Despite this, a manufacturer has valuable product specific knowledge which could contribute to services, for instance knowledge such as how the customers handle the product in the best way, and therefore they can beneficially be involved in services provided to end customers.

The concept proposal is aiming to fulfill identified values but the case when it should be provided by a manufacturer aggravates the fulfillment of some of the identified values. For instance, the value control in decision can partly be assisted with, but the aspect to take other firm’s heat pumps into account in the decision could not easily be satisfied by the manufacturers perspective. Not least since the customer would not fully trust a manufacturer while saying that their heat pump is better for the customer than other brand would be. To further assist the customer in the decision between different brands would instead be easier for external actors. In conclusion, even though the firm really wants to please the customers in every way, fulfill all identified values, it can be difficult and not always possible.

The generated ideas to integrated service solutions in this study should be based on what the customers desire and value in the business of residential heating and on inspiration from existing services. However, many of the generated ideas is not flat what the customers have mentioned that they request. This since many of the customers seemed satisfied concerning their heating system and therefore they found it
perhaps difficult to reflect on what could bring more value for them and what they would value in the future. Furthermore, to come up with what they would value in form of concrete product-attributes can be difficult for respondents during an interview, since it can require innovative thinking. Therefore, many of the ideas is rather based on how identified values more of a consequence-level could be fulfilled or more fulfilled than today.

The recommended concept proposals are addressing what integrated service solution could be interesting in the customers’ perspective, seen to their situation, needs and behavior, which actually is a very important aspect when it comes to services but of course it cannot alone assess whether these proposals are worth to start to offer or not for Bosch Thermoteknik AB. However, theses concept proposals can be seen as indication of what could be interesting to further investigate in, if the company wants to expand their offering with offers of service characters. Before entrance service businesses, Bosch Thermoteknik AB as a traditionally product firm, ought to develop a service strategy in order to contemplate what they actually want and where they want to heading regarding the service aspect. Services can be advanced and complex to undertake and therefore it requires elaboration and that it is well-reasoned before even entrance.

To further investigate if these concept proposals could be interesting to offer for Bosch Thermoteknik AB other aspect such as the economic aspect and the internal aspect of organizational needs to be considered. Seen to the economic aspect, it must be investigated whether it could be economic viable or not. In this study the “price sealing”, that is what customer could be willing to pay seen to the value the customer experience, is rather taken into account. This limit comprises of the maximal possible price for the service and therefore the company’s cost to produce and provide the service cannot be higher but rather have to be a bit lower so that there are some margins. Further, the internal aspects of organizing the service, such as making sure that they are able to handle and provide the service needs to be considered. Since the proposal concepts not are developed in a detailed level, the details of how it should be accomplished also needs to be specified. Even though further investigations of whether the proposal concepts are economically worth to start to offer and if it is manageable for Bosch Thermoteknik AB, the aspect that inspiration from other existing services has been used in the generation of the concept proposals contribute to some kind of “reality-check”. This since similar services obviously have been managed and perhaps then also been economically beneficial.

Further work for Bosch Thermoteknik AB is in addition to continue working with customer value identifications. To update the value dimensions continuously is crucial to get insight in customer needs and how they are valuing the company’s offer. Furthermore, to let customer rank the value dimensions, to better understand which of them they are considering more important than other is essential in order to address the most important values.
References


References


Appendix 1- Interview guide
Syftet med intervjun är att få en förståelse för hur dagens erbjudande av värmepumpar av varumärket IVT/Bosch skapar värde för kunderna samt potential för utökat kundvärde. Resultatet av studien kommer att användas i vårt examensarbete med målet att utveckla ett nytt erbjudande som både tar hänsyn till produkt och tjänster.

Se det som en chans att vara med att påverka framtida erbjudanden av värmesystem.

Intervjun kommer att ta omkring 45 minuter.

Du som respondent kommer att vara helt anonym.

Är det ok att vi spelar in intervjun?

Del 1 – Intro

- Ålder på respondenten
- Region/Stad
- Boendeform
- Värmesystem, märke, modell idag
- Tidpunkt för införskaffning av nuvarande system
- Gradera din kunskap för värmesystemet på en skala 1 – 5.

Del 2 – Nuvarande koncept

Beslut och inköpsprocessen


- Vad var anledningen till att du faktiskt bytte system? (det gamla gick sönder / var inte effektivt nog / ..)
- Vart vände du dig?
- Hur samlade du in information? Vilka källor använder du dig av? I vilken utsträckning?
- Vilka teknologier/märken var intressanta för dig?
- Vad vägde för och emot de olika alternativen du valde emellan?
- Funderade du på andra alternativ (Så som att beställa via internet, osv)
- Hur lämnades offert?- Skedde kontraktsskrivning osv? Betalning?

2. Finns det något du är missnöjd med eller upplever problematiskt i beslut- och inköpsprocessen?

- Saknade du någon information?
- Hade aktörer kunnat agera annorlunda?
- Tog det för kort/lång tid?
• Hur hade du velat ha det istället?

**Leverans och installation**

3. Hur gick det till när din pump levererandes och installerades?
• Hur lång tid tog det innan den nya systemet installerades?
• Hur upplever du leverantörens expertis?
• Vad krävdes av dig vid installationen? (vara hemma/ öppna / städa osv)
• Är du tillfredsställd över hur systemet levererades och installerades?

4. Om du fick önska, hur skulle processen se ut när ditt värmesystem levererades och installerades?

**Användning**

5. Nu när du har ägt ditt värmesystem ett tag, vad tycker du om det?
• Uppfyller det de förväntningar du hade? Varför? Varför inte?

6. Hur ser användningsprocessen ut?
• Hur ofta interagerar du med din värmepump?
• Vad justerar du?
• Använder du manualen eller annan hjälp vid justering?
• Är det intuitivt?
• Hade du önskat mer hjälp? Eller på ett annat sätt? (via filmer, telefon osv)

7. Har du haft några problem med ditt värmesystem?
• Hur upptäckte du problemet?
• Hur gick du tillväga? (Vem kontaktade du?)
• Vem löste problemet?
• Hur lång tid tog det att åtgärda problemet?
• Är du tillfredsställd över hur problemet hanterades?

8. Sker underhållsarbeten av pumpen?
• Hur tycker du att det fungerar?
• Hur ofta?
• Vad görs? Görs inte?
• Vad önskar du skulle göras?

9. Hur skulle du vilja att användningsprocessen såg ut?
• Vad vill du kunna sköta själv?
• Vad vill du att externa parter ska sköta?
• Är det något du skulle kunna tänka dig att betala för?
• Är det något du saknar/önskar skulle erbjudas under din användningstid av värmesystemet?
Övrigt

10. Föreställ dig att din värmepump skulle gå sönder idag och att du tvingas byta ut den

- Hur känner du inför detta?
- Vad skulle vara dina första steg efter att du insett att den är sönder?

Del 3 – Framtida koncept


Ex 4: Vi säger att du som kund har möjlighet till att betala ett fast pris per kwh värme samt en fast årlig kostnad för service av utrustningen. Företaget äger därmed utrustningen, garanterar att den alltid fungerar samt ansvarar för elkostnaden för pumpen. Hur ställer du dig till en sådan lösning i förhållande till hur du har det idag? Vilket skulle du föredra? Varför? (De utgifter du har är 20 000 kr startavgift och installation av pumpen, 80 öre per kwh värme, 4000 årlig kostnad för service och underhåll.)
Appendix 2 – Dimensions from interview analysis

| Dimension 1 - | Convenience in purchase/installation/use |
| Dimension 2 – | Knowledge |
| Dimension 3 – | Functionality |
| Dimension 4 – | Comfort |
| Dimension 5 – | Operation cost |
| Dimension 6 – | Investment cost |
| Dimension 7 – | Interaction with the heat pump |
| Dimension 8 – | The system manages itself incl. maintenance free |
| Dimension 9 – | Time/engagement/interest |
| Dimension 10 – | Information of status/errors |
| Dimension 11 – | Help in use process |
| Dimension 12 – | Handling of problems |
| Dimension 13 - | Risks |
| Dimension 14 – | Newness/innovations |
| Dimension 15 – | Control in decision/help in decision |
| Dimension 16 – | Product quality |
| Dimension 17 - | Ownership |
| Dimension 18 – | Environmental friendly |
| Dimension 19 – | Resource efficient |
| Dimension 20 – | Professionalism/competence/relation |
| Dimension 21 – | Business with manufacturer |
| Dimension 22 - | Brand |
| Dimension 23 – | Dynamic adjustments |
| Dimension 24 – | House/garden/interior |
| Dimension 25 – | Proactive actions |
| Dimension 26 – | Market value of house |