Implementing Product-Service Systems at Koskamp

Bachelor Graduation Thesis - Industrial Engineering and Management

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Preface

Dear reader,

In front of you lies my bachelor thesis “Implementing Product Service Systems at Koskamp. Within this research it is tried to implement Product-Service Systems at Koskamp by making use of the Lean Startup method to improve customer satisfaction and the sales of Koskamp. In addition, new insights with respect to using Lean Startup in a B2B context were generated. To conduct this research, I have worked at Koskamp from May 2021 till August 2021.

Hereby, I want to thank all the people that helped me with making this research possible. First, I want to thank Xander Stegehuis, my main supervisor from the UT, for all his extensive support throughout this research. I really liked the discussions and brainstorming we did during the online meetings, and of course the detailed feedback that followed afterwards.

Secondly, I want to thank Koskamp and my main supervisor Arjen Tissingh. Without the help of you this research was not even possible. I want to thank you for the nice atmosphere at Koskamp, and the ability to work at the office, and the flexibility of working at home during the COVID pandemic. I also want to thank you for the great cooperation we had during this research, and for the extensive support you provided.

Thirdly, I want to thank my second supervisor Jos van Hillegersberg for this time at the beginning of the assignment, and the tips he gave for the execution of the research. The last person I want to thank is Ipek Seyran Topan. Without Ipek the preparation of this assignment would not have been such a smooth ride as it actually was right now.

I hope that you will enjoy reading this thesis and that it will generate new insights of how the Lean Startup method can help in practice.

Kind regards,

Ralph Sikosek

Enschede, August 2021

Management summary

Koskamp is a company that is situated in Den Ham, Overijssel. Koskamp delivers a wide range of parts that are needed for car vehicles. You can think of car tyres, tools, license plates and all required fluids from top brands and private labels.

Koskamp asked for research about the possibilities of implementing servitization in their organization. After the problem was analyzed thoroughly by making use of the method described by Heerkens (2011) and the four rules of thumb (Heerkens & Van Winden, 2017) the core problem was identified, Koskamp lacked the knowledge about implementing servitization in their organization. To be able to solve this problem and to make sure an addition to the scientific body of knowledge could be made, the following research question was formulated.

"How can Lean Startup contribute to implementing servitization in B2B SMEs?"

As already can be concluded from this research question, the whole research is conducted while making use of the Lean Startup methodology. Lean Startup is a methodology documented by Ries (2011) which is about applying lean techniques when reconfiguring business models. Business model reconfiguration was seen as a linear process while this is the opposite to Lean thinking (Chessbrough, 2020). Since the implementation of servitization requires the reconfiguration of Koskamps' business model it was interesting to use the Lean Startup methodology and see what the benefits and possible implications were of applying Lean Startup methodology in the Koskamp case.

The research started with talking with different employees within Koskamp and the management of Koskamp to look at the current business model. Discussions were held and steps were taken to be able to revise the business model. In other words, the vision of Koskamp of what servitization should add to their company and what it should add to the experience of Koskamp was created. It was concluded that the servitization offering should improve customer satisfaction because it should save the customer time and that Koskamp could save costs in the delivery department while increasing sales.

The second step in the Lean Startup methodology was the hypothesis creation. During this phase several hypotheses were written down which should be verified or rejected during the research. The hypotheses include statements about the usability of the solution and the added value of a Product-Service System for the customer.

After the hypotheses were created, a customer orientation analysis was done where the vision was verified by customers. Important to verify during this stage was if customers would even want to buy products through a Product-Service System.

After it was verified that it was indeed the case that customers are waiting for servitization to happen, the research continued. The next phase was about creating a functional design

which could be used to experiment with. The functional design was made in PowerPoint and displays the website module of the Product-Service System.

At the end of the research, the functional design was presented to the customers which then were asked to test if they were able to work with the solution as presented. This phase was the validation and was also the point where the hypotheses could be rejected or verified. At the end of the report the translation from action research to science knowledge is made.

After the validation phase was finished, the conclusion became clear. The interviewed customers are seeing benefits in the Product-Service System as is presented at the end of this report. Customers like that the Product-Service System is taking work out of their hands with respect to the amount of order bills to process and the lower amount of time needed for inventory checking. Koskamp can use the functional design as guideline for their ICT department. The ICT department can make the design functional as a website element. Then the advice to Koskamp would be conduct a real-life pilot where the Product-Service System is tested to a small but diverse group of customers. In a real-life pilot, Koskamp would be able to see the influence of servitization in their company. The influence on the purchasing department will become clear, since they have a better picture of which product is going to sell and in which amounts, while also the influence on, for example, the account managers become clear. They should also be able to sell the new proposition that Koskamp is offering to their clients. Koskamp should then evaluate the results of the pilot closely and look at what can be learnt and what can be done better before the PSS gets upscaled. Listening to the customer is key here. In the meantime, Koskamp can look at ways to introduce new products to the Product Service System.

The shift from action research to science knowledge also yielded some interesting discussion points. For example, applying Lean Startup in an existing business will have an impact on the existing customer base, something a startup does not have. In addition, a change in company culture is needed whereas a startup does not have an existing culture.

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§1. Introduction

This chapter serves as an introduction to the thesis. In this chapter the company where the assignment is conducted is introduced. In addition, the problem context and the motivation is stated. Subsequently, the problem for which this thesis is finding a solution is discussed.

§1.1 About Koskamp

Koskamp is a company that is situated in Den Ham, Overijssel. Koskamp delivers a wide range of parts that are needed for car vehicles. You can think of car tyres, tools, license plates and all required fluids from top brands and private labels. The ordered products are normally delivered to the client within 1,5 hours through their own distribution network. Koskamp has its own purchasing, inventory and delivery department. To enlarge the success of clients, Koskamp offers training, concepts and marketing support. Koskamp has 12 branches spread over the middle, north and east side of the country. Koskamp has 300 employees and has its own ICT, marketing and purchasing department.

§1.2 The problem

A shift towards Industry 4.0 has begun. Industry 4.0 is the industrial macro trend in which the convergence of digital technologies results in intelligent systems that can create value for industrial activities (Müller, et al. 2018). Servitization and the Industry 4.0 are considered two of the most recent trends transforming companies, and they are both concepts from a business model innovation perspective (Frank, 2019). Among a lot of companies, the willingness to pivot their business models to fit in the servitization and Industry 4.0 era is rising. Servitization is the innovation where an organization tries to create extra mutual value through a shift from selling products to selling product-service systems (Baines, et al. 2007). There are three identifiable aims firms aim for when they apply servitization. The drivers for these aims are marketing, financial and strategic drivers. These aims are (Besselink, 2015):

(i) Satisfy customer's needs (marketing and loyalty)
(ii) Enhance the company's performance (in this case financial driver, i.e. the continuing need for profit growth)
(iii) Achieve competitive advantages (strategic)

A problem which arises in some current industries is that products are getting more homogeneous. A problem that is appearing here is the so-called "commodity trap". The commodity trap is a trap where a company loses its competitive advantage, and it is no longer able to ask a premium price in their market because the product is becoming

indistinguishable from the product another company is offering (Aveni, 2010). Companies which are manufacturing homogeneous products should differentiate more, and servitization can be a good means to do so (Neely, 2010). As can be seen, together with Industry 4.0, it is a driver of servitization.

Servitization is important since the share of services in all the available offerings is becoming bigger (Besselink, 2015). A lot of new companies are arising which apply servitization in their businesses. Good examples of this are; Swapfiets, Netflix, Boldking and the recent Go-Sharing scooter platform. Customers demand value-added services in order to choose for a certain supplier. (Besselink, 2015). In addition to that, servitization can lead to an enhancement of a firm's performance. According to early research done by Roland Berger Consulting (2009) a satisfied customer who uses a PSS offering, is more loyal than a regular customer because this customer recognizes a product-service that is tailored to their needs.

However, there are also some pitfalls when implementing servitization into a business. First, the impact of servitization will only affect a firm's value if there is a critical mass of service sales (Fang, et al.). In practice, this means that it is difficult to hit the mass service level needed in order to be successful. The second pitfall to servitization is that it is essentially about implementing a new business model. This process can be comprehensive and complex (Bascavusoglu-Moreau and Tether, 2010). Accordingly, Morgan et al. (2008) found out that a high number of well-intended strategies failed in the end. This means that a lot of resources are wasted. To create structure in such a complex process, a certain implementation method should be chosen and adapted to servitization. The fourth pitfall is that most of the literature describes how servitization can be applied in manufacturing companies. However, it is not clear how companies are able to apply servitization if they are operating as a SME (Small / Medium Enterprises).

Now that the relevance, benefits and pitfalls of servitization are clarified, it can be concluded that servitization is increasingly becoming more important, but that it is difficult to implement it well. The transformation to servitization will include several important steps. KPIs need to be adjusted, processes need to be re-designed, and IT and company culture should be aligned (Slepinov, 2010). According to research done by (Martinez et al, 2019) a lot of service journeys follow the continuous change model, where change in servitization is not occasional but endemic in the way companies typically operate. Furthermore, the continuous change model is neither logical nor structured. This is the part where the research gap lies, it is still unclear how it is possible to manage the illogical and unstructured character of servitization.
The research conducted in module 12 will give insight in how implementing a product-service system can become a more structured process. Lean Startup is chosen as a method to bring this structure. Lean Startup is chosen as a method because at first sight, it seems to fit in the illogical and unstructured nature of the servitization process. Lean Startup is a method which is flexible and provides a not too rigid structure for implementation. The

Build-Measure-Learn cycle makes it a flexible method. It is possible to build a Minimum Viable Product or use a pilot to test a certain product in a certain market. The MVP is a product which is not finished but which represents the core product that will be launched in the end. A Minimum Viable Product can be tested, and results can be used to finalize the product or service. This cycle continues until the quality is at an acceptable level for end-users. This makes Lean Startup a flexible method, a project is not immediately killed when responses are not as positive as expected, there is room for failure. This is In contrast, where a Stage Gate model works with kill/go moments, the Lean Startup method provides the option to pivot or persevere (Sjodin, et al. 2020). The difference between these two methods will be described in more detail in the discussion.

Lean Startup is a method that is used to find a new company or to introduce a new product on behalf of an existing company. The Lean Startup provides a scientific approach to get the desired product to customers' hands faster. The Lean Startup method teaches how to drive a company to steer, when to turn, and when to persevere and grow a business with maximum acceleration (Ries, 2011). Using the Lean Startup approach, companies can create order not chaos by providing tools to test a vision continuously. The Lean Startup provides a toolset and consists of steps to continuously monitor performance. It helps with launching products more successfully and with a structured approach (Ries, 2011). The Lean Startup method helps by reducing waste during the product development process, by iterative testing and early customer insight. More theory about Lean Startup and why this method is chosen will be given in the next section in the report.

To rewrite this goal in a specific research goal, the following research question was created:

"How can Lean Startup contribute to implementing servitization in B2B retail SMEs?"

Before more information can be given as to how this question is going to be answered, more theory about Lean Startup, servitization and their relationship will be given in the next section.

§2. Theoretical Framework

§2.1 Servitization, Lean Startup and their relationship

As mentioned in the previous section, servitization is the transformational process of shifting from a product-centric business model to a service-centric approach. Servitization involves a redeployment and reconfiguration of a company's resource base as well as their organizational capabilities and structures (Baines, Lightfoot, Benedettini & Kay, 2009). A service business model means that the supplier commits to improving customers' value in use. This means that the supplier has a higher responsibility in improving customers' (perceived) value in use. This is different to a product-centric business model in a way that

a service model revenue mechanism depends on the outputs of customer value-creating processes instead of depending on inputs, such as service hours sold. An example of these outputs is guaranteeing a level of availability of products.

Servitization also entails a revision of business logic, which means that the mindset of managers and other people within a company is changed. Service infusion is a concept that is closely related to servitization. Service infusion is the process whereby the relative importance of service offerings to a company increases. Service infusion is a process which is started as soon as servitization is applied inside a company, where servitization forms the overarching concept (Brax, 2005).

Servitization involves the innovation of organizations processes to create a shift from only selling products to selling integrated products and services. The services have been categorized in base (warranties and spare parts), intermediate (maintenance, repair and overhaul) and advanced services. Advanced services are complex value propositions where the manufacturer focuses on providing performance outcomes to customers and can be thought of as substituting services that replace the purchase of the product (Baines et al, 2020). Service sophistication varies on the level of risk, competition and potential to create competitive advantages.

Ways to deliver a product or service that are fitting in the automation context are JIT and VMI. The Just-in-Time concept is a manufacturing workflow methodology aimed at reducing flow times and costs. The goal of JIT is that products or parts are delivered now a customer needs it, whereby it is possible to reduce inventories to zero. This helps in utilizing organizational capabilities and helps in maximizing ROI (Return on Investment).

Another inventory technique is VMI (Vendor Managed Inventory) is an inventory management technique in which the supplier is responsible for optimizing the inventory held by a distributor. VMI requires a link between supplier and distributor sales and inventory data. Traditionally, the distributor takes those tasks, so a shift is made from distributor task to supplier task. The benefits of VMI include better inventory accuracy, forecasting and service, but the challenge could be in communication between the different systems, since linking them is proven to be difficult (Essex, 2012).

According to Bascavusoglu (2010) servitization is an unstructured process. To make this process somewhat structured a method is chosen to help implementing servitization. Lean Startup is chosen to bring structure in this process. Lean Startup is a method that is documented by Ries (2011) and is about applying lean techniques in configuring business models. The core insight of Lean Startup is that most startup firms fail for reasons that are not the result of poor product development (Chesbrough, et al, 2020). The most common reason for failure in these startups is the lack of customer acceptance for this new offering. Normally, startups were advised to write a business plan with all the different aspects and then execute the plan when it was done, launching the product when everything was

documented extensively. Business model configuration was seen as a linear process (Chesbrough, 2020). This is the opposite of lean thinking. According to Ries (2011), Lean thinking is about reducing waste in industrial processes. Therefore, the method Lean Startup is developed; to reduce “waste” while implementing a new business model. This waste is reduced by iterative experimentation and early customer insight. Entrepreneurs make their implicit assumptions to empirical tests. The results of the test will then deliver new insights that either support the assumptions or inspire the entrepreneur to change. Entrepreneurs that use Lean Startup avoid costly mistakes in an early stage, and increase the likelihood of success (Mauyra, 2012; Ries, 2011).

Of course, different methods are available to implement innovations in a company, this research has considered three methods before choosing Lean Startup: agile working, design thinking and Lean Startup. Design thinking is a user-driven innovation strategy that fosters innovation while focusing on users and customers. Design thinking makes use of extensive user research, feedback loops and iteration cycles (Mueller, R. 2012). Design thinking is different from Lean Startup in some ways. First, hypothesis testing is not a focus within design thinking whereas this is the case with Lean Startup. In addition, the focus for design thinking is on extensive user research at the beginning, while with Lean Startup this is the vision of the founders of the company. Thirdly, the ideation phase is different, with Lean Startup the company already has a business idea whereas with design thinking, ideation is a big part of the process. Fourthly, design thinking is different in the way that it does not focus on the business model of an idea. This is important for servitization, since key part of servitization is the reconfiguration of the business model. Lastly, Lean Startup provides metric-based evaluation techniques which describe how hypothesis can be tested, whereas design thinking does not provide these techniques (Mueller, R. 2012). Agile methods are focused on making and scaling a solution. Agile is developed as a counterpart of the waterfall approach. In the waterfall approach, you learn what a customer needs, then a solution is built and when it gets on the market it is old and outdated already. Agile methods solve this by determining a customers need and then create a solution incrementally (Silva, 2019). The main concern of agile is creating a product or service that doesn’t work, while Lean Startup’ main concern is creating a product that people don’t need. Agile is ideal for complex projects with clear end goals. As can be seen, Lean Startup and agile methods are not mutually exclusive (Gonsal, 2015).

Since the servitization process includes a reconfiguration of business models, and Lean Startup supports the structure of this process, Lean Startup could be a good method to servitizate a company and is therefore chosen for this research. The goal of this research is to find out how Lean Startup can help with servitization, and in which aspects it cannot

§3. Research methodology

§3.1 Action research

In order to be able to answer the research question stated in the introduction, action research will be conducted. Action research is the family of research methodologies which pursue action (change) and research (understanding) at the same time (Dick, 1999). Action research can be described as a sequence of events that build on each other in an approach to problem solving. Because of these characteristics, action research can construct a suitable framework for the application of the developed method and its iterative improvement under genuine conditions (Cap, 2019). Action research is a good method for this problem since it is possible to gather new insights in how Lean Startup is contributing to servitization by directly applying it to a company. During this research, action research is relevant because applying servitization in a company has a lot of impact on the organization. In fact, a company is changing its business model. Purchasing, marketing and managers should work together and should adapt to these changes. By conducting action research, the researcher is part of the whole process inside the company and can help with controlling this process. Here, the Lean Startup and servitization theory will be applied to the company Koskamp.

§3.2 Problem identification

To be able to correctly identify the core problem of this bachelor assignment, a problem cluster is made. The problem cluster with all the connections can be seen in figure 1. As can be seen, the action problem is blue, and the identified core problem is green. First, Koskamp has no knowledge about how they can implement servitization in their company. Therefore, they are also not able to improve profits and improve customer satisfaction at the same time. Profit improvement is needed because the financial numbers are expected to be higher. The disappointing year numbers are caused by a lot of different factors. And these factors are present because of different underlying problems.

The first factor is that the delivery is too costly since the same product can be ordered every day. That means that a car garage is able to order single products, which are delivered independently. Therefore, the transportation costs for Koskamp are high. The unnecessary orders are caused by fluctuating demand. High transportation costs lead to less profit, which will result in disappointing year numbers.

The second factor for the disappointing year numbers is the customer base. The customer base is not big enough and there is growth needed in that department. Customers can be attracted by approaching them via different business models which leads to the action problem, making a shift to Product-Service System (PSS) based selling.

The third factor for the disappointing year numbers is that car garages are not able to estimate their usage very efficiently. Therefore, a lot of products are returned to Koskamp, which leads to a lot of unwanted inventory, which costs money. This leads to the action problem, making a shift to PSS which leads to a better prediction of usage.

Koskamp wants to implement a PSS, see action problem, because they want to enlarge the customer base. This means that they want to attract new customers. In addition to that, they want to keep the existing customers and make them more loyal. Servitization could help with enlarging the customer base, since customers are always searching for a better offering. If Koskamp is offering their customers a more tailored product-service offering, then it could be the case that the customers are abandoning their current suppliers. Customers can also become loyal to the company because they feel that the company is doing their best to create the best value possible. As can be seen there are a lot of problems that are tackled when the action problem is solved.

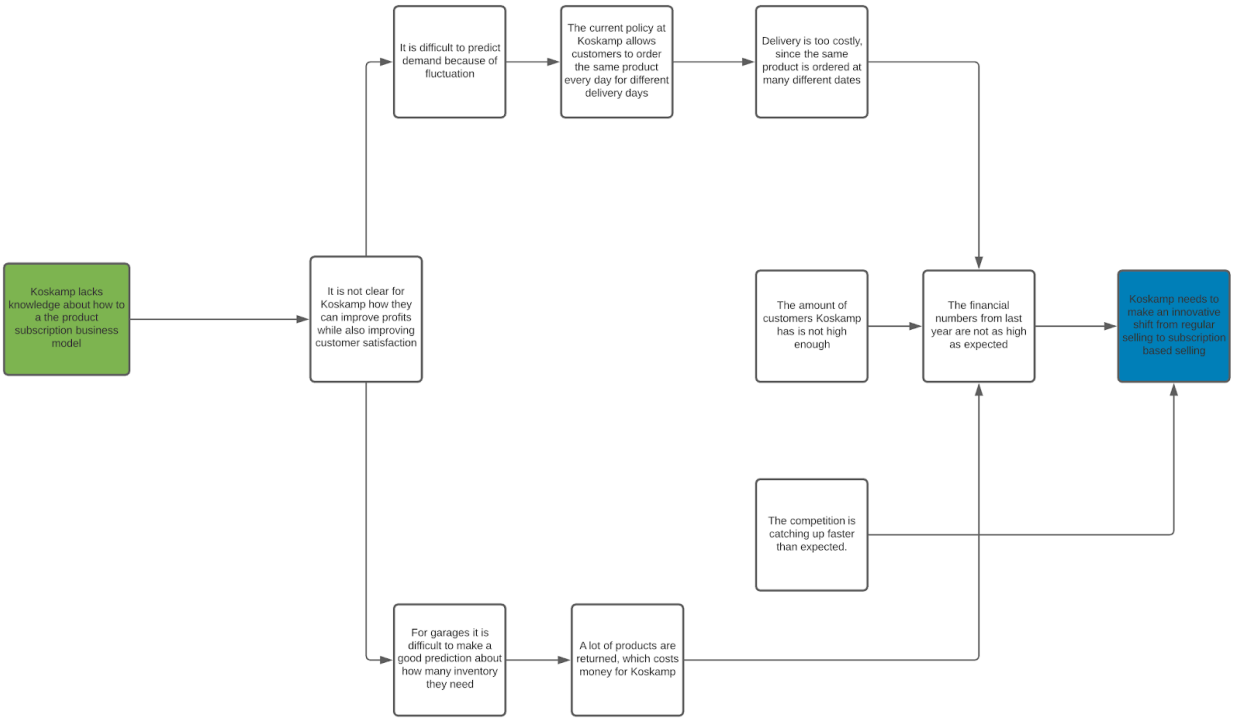


Figure 1: Problem cluster

§3.3 Core problem and motivation

The problems that are mentioned in the problem cluster were discovered during discussions and brainstorming sessions with stakeholders within the company Koskamp. According to the pneumonia rule a core problem is a problem where no further root cause can be discovered. In addition to that, a core problem needs to be influential. Lastly, the core problem needs to solve the most underlying problems in order to be selected as the core problem (Heerkens and Winden, 2017).

The research on applying a new business model can be extensive and Koskamp mentioned that there is not enough knowledge about the product-subscription business model and about how to apply a PSS. In addition to that, the marketing department mentioned that a

lot of projects are started at Koskamp, but they are never fully finished. They are always lying on the shelf waiting for execution. Therefore, Koskamp was searching for a student that could research the possibilities for applying the product-subscription model/PSS.

During discussions with the marketing department, we discovered that there are a lot of downsides to the regular selling method they are applying right now. Therefore, it is decided to look if a shift to a production-subscription model can solve the underlying problems that can be found in figure 2. Since testing the whole business model would be too time-consuming for this research, it is chosen to focus on the right-side of the BMC, involving customers, value proposition, channels and relations.

The core problem that is solved during the execution of the bachelor assignment is: **"Koskamp lacks knowledge about how to create a unique value proposition with the implementation of servitization"** Again, this core problem can be extended in a broader context. There is in general no clear method on how to apply the PSS in this type of business.

§3.4 Scope

The scope of this bachelor assignment can be seen in the table below. In the first column everything that is in scope is discussed. In the second column everything outside the scope of the assignment is shown.

In scope	**Out scope**
Selecting four products for PSS by means of a data-analysis	Selecting non-general products for use with product-subscription model / Product-Service system This is because non-general products are too difficult to apply in the model considering the limited time frame.
Researching benefits with PSS for Koskamp and customer	Selecting new brands that can be valuable for Koskamp. Selecting other brands can be valuable for Koskamp but is out of scope for this project.
Creating strategy for how to apply the product subscription model with corresponding communication strategy.	Offering new products to clients, because this would make the assignment too broad.
Trying to create a strategy where customers want to stay at Koskamp or where other customers want to make a	Applying other business models than the product-subscription model or any other way of maximizing profits. The assignment

transition to Koskamp	is focused on the product-subscription models, so other business models are out of scope.
Create a general method on how to apply PSS for B2B companies by using a lean startup approach.	x
Research on what aspects of servitization lean startup is usable and on which aspects it is not	x

Table 1: In and out scope

§3.5 Deliverables

The deliverables of this bachelor assignment include the following:

- *Theoretical framework: literature study about what the product-subscription model entails, what servitization is and how it is used in B2B companies right now*
- *Hypothesizes that are tested during the execution of the pilot*
- *A pilot for the Koskamp situation that is applied during research / flyer with proposal*
- *Communication strategy on what the offering looks like for the customer*
- *A general strategy on how to apply PSS in a B2B company context*
- *Interview reports from interviews conducted with customers*
- *Conclusion about how Lean Startup can contribute to implementing servitization, evaluation and recommendations for further research*

§3.6 Problem solving approach

The problem-solving approach / researching method is based on the Lean Startup Approach. Lean Startup is a toolset which is used to explore opportunities. Lean Startup focuses on the cycles of experimentation, validation and learning. Important within the Lean Startup framework is that the customer is constantly involved in the problem-solving process, and therefore stimulates early customer interaction (Ries, 2011). Two questions that are important for this problem-solving approach are:

1. How to translate the general insights into concrete and relevant initiatives?
2. How to overcome the obstacles during the execution?

Customer involvement helps by answering those two questions since the vision of a company can be translated into relevant initiatives if the customer thinks it is a relevant

solution to a problem they are facing. In addition, by involving customers during the development of the product or service the obstacles during execution can be found and overcome more effectively.

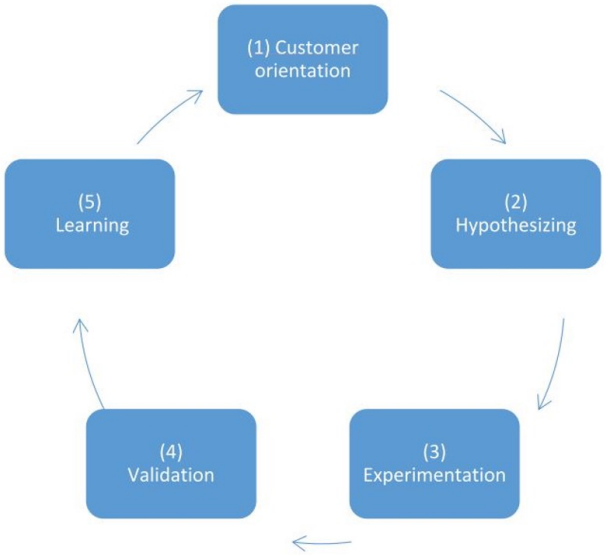


Figure 2: The Lean Startup cycle that is executed during the research

§3.6.1 Stage 1: Vision creation (VISION)

First, the vision should be made explicit. Here it is important to research what a company actually wants to achieve with the product-service system. In this stage, a literature study will be conducted, which will answer what servitization means for B2B companies. This vision can be clearly derived from the action problem section already. In this case, the problem is that B2B companies have no method to apply the product-service system. Therefore, they are not able to improve customer satisfaction, their financial position and their competitive advantage. This research can deeply immerse into the problem, and the marketing department is very interested in the product-service system. The vision will be made explicit by using interviews with the management of Koskamp as a starting point to extract the vision and concrete goals Koskamp wants to achieve with servitization; what does the business model look like? What does Koskamp want to achieve with the business model they have envisioned? All these meetings with the management have yielded the vision that will be made explicit in section 4. Because of confidentiality reasons these meetings will not be included in the report.

§3.6.2 Stage 2: Create hypothesis (HYPOTHESIZE)

If the vision is clear, then the vision is translated into measurable hypotheses. This consists of a falsifiable business model. In this business model the value proposition is the core. For each business model element Koskamp should formulate a set of falsifiable hypotheses. A hypothesis is falsifiable when it can be rejected through a decisive experiment (Eisenmann et al, 2011).

If all the hypotheses are formulated, then it is possible to proceed to stage 3, where the pilot will be specified.

§3.6.3 Stage 3: Specify pilot / flyer & qualitative customer research (EXPERIMENT)

Stage 3 in the Lean Startup process is about the specification of a pilot. In the Koskamp case a pilot is chosen because it makes it able to release the product-service offering to a certain portion of the market as fast as possible. In addition to that, it makes it possible to test the idea with real customers of Koskamp without committing a large budget to full development. Lastly, the pilot will give a good insight into how the target market will react to the new offering. The steps that should be taken during the pilot specification are as follows;

1). A product that is suitable for pilot testing should be selected.

2). A certain price for the product that is selected at (1) should be chosen

3). Customers that want to participate in the pilot need to be found. Since a pilot is a test of a certain offering to a selected number of customers. The selected customers should be a good representation of Koskamps' customer base and will cover customers from category A till F. Category A customers are the customers that are very loyal to Koskamp, while category F customers are the most price-driven customers, those that only order at Koskamp if the price is the lowest. If the customers are selected a communication strategy needs to be developed with the information that is told during the invitation to the pilot test.

4). A quantity strategy is created for the pilot. During this step it should be researched how the quantities needed by the customer can be best estimated by Koskamp.

5). If the pilot is fully specified a launch date should be selected and a certain duration should be chosen. A pilot can only be launched if there are enough customers that are willing to participate.

Since time is a constraint in this research it could be the case that it is not possible to release a pilot, in that case a flyer is created which contains the information from the pilot specification. In that specific case the flyer will be presented to the customers that were

selected for the pilot and the reaction and feedback to this flyer will be recorded and documented. In addition, a graphical appendix will display how the implementation of Product-Service Systems in a pilot will look like.

§3.6.4 Stage 4: Test and validate (VALIDATION)

During the fourth stage the pilot that is created in the third stage should be launched to the customers that were selected. Companies should be aware that during the testing phase, customers could react differently to the proposal than was expected during the first stage. Data should be acquired during this stage and should be analyzed. Data that is collected during this phase should also help with verifying if the hypotheses are true or wrong. Data that is collected during this stage is:

- Descriptive data about the overall customer opinion during the pilot
- Data about if customers are willing to buy more products at Koskamp if more products are offered through a PSS
  Data about which products customers would like to see next in a following pilot
- Opinions about what customers would like to change to a final product-offering or what should be added to make it more attractive

This data is gathered by conducting interviews before and after the pilot/functional design. The interviews that will be conducted before the pilot will have a different goal than the interviews that will be conducted after the pilot. The interviews before the pilot will be for the customer orientation. Here, the interview will focus on how the customer experiences the cooperation with Koskamp and how Koskamp could, in the customers' view, improve the customer satisfaction. In addition, questions about what the ordering process looks like will be asked since that will give important information in how processes during ordering can be optimized. Lastly, an explanation of the Product-Service System will be given as formulated during the vision creation, and the customer will be asked about his/her opinion about the proposal. After the creation of the pilot/functional design another interview round will be held. This interview is different from the other interview. During this interview the functional design will be given to the customer, and the reaction will be observed. A critical look will be taken if the customer is able to work with the functional design without intervention. Afterwards, questions will be asked about the functionality and possible improvement points. For the personal opinion's cohort analysis will be used. With cohort analysis all the customer data will be analyzed in cohorts. Cohort analysis is a kind of analytics that breaks down the data in a data set into related groups. The cohorts here will be the categories that Koskamp already uses when they categorize their customers. This is the reason that cohort analysis is chosen because the division of customer into certain data sets based on revenue is already available.

§3.6.5 Stage 5: Learn & decision-making (LEARN & DECISION MAKING)

During this phase, it is important to analyze the result from the pilot testing. It is time to re-shape the pilot. Information from stage 4 is used to be able to correctly adjust the offering. The new pilot should improve on the estimation of quantity needed by the customers. It should also improve on the price, that means that the revenues for the company should be improved. The gathered information should be put back in stage 1 to be able to create a new pilot and to re-launch and re-test the pilot. If everything already went according to plan, it is time to broaden the proposal with extra products and offer it to a larger group of customers. During this phase it is also important to look if all the challenges of the service paradox have been overcome.

§3.7 Research design

In order to be able to solve the action problem, a lot of knowledge has to be gained, and knowledge questions need to be answered. In this section the questions are given with a short motivation why this question is important. The research questions are based on the problem-solving method described in section 2.3. The first two questions will form the theoretical basis, questions 3, 4, 5,6, 7 will answer questions regarding the Koskamp case. Question 8 will then go back to the research question as opposed in the beginning and will answer how Lean Startup can contribute to servitization in a B2B SME.

1. *What is the customer vision of buying products through a PSS?*

This question relates closely to the customer orientation part of the Lean Startup approach. To answer this question interviews, need to be conducted with Koskamp customers in order to see if they are willing to buy products through a PSS. The information gathered by answering this research question needs to be evaluated closely, and needs to be taken into account by answering the next research questions.

2. *What is the vision of Koskamp of servitizating their company?*

This question closely relates to the vision part of the lean startup approach. This question is very important for Koskamp, since they want to know what the benefits entail for them. What does Koskamp want to achieve with servitization, and what do they hypothesize? The Lean Startup part about hypothesizing also comes forward with this question.

3. *What products are suitable for applying the PSS to?*

This question is important since a selection needs to be made of which products can be sold by means of a PSS, while taking the restrictions mentioned above into account. To answer this question we also have to take profit margins into account. In addition to that, to answer this question a data analysis should be conducted to see which products are ordered in a regular pattern. During the research on this question a pilot is created, completely in line with the problem-solving approach.

4. *How is the quantity that the customer needs determined?*

To answer this question a strategy is needed of how the quantity is determined. For example; an average can be used from the previous year. Since product demand is also dependent on seasonality, this should also be considered. This question is also part of the pilot creation that is described in the problem-solving section.

5. *What does the communication strategy to the customer look like with respect to the PSS?*

To answer this question a communication strategy needs to be developed in cooperation with the marketing department. This is important since the customer needs to know what he or she is buying. The communication strategy should make sure that a lot of customers are wanting to take the subscription.

6. *What does the final flyer / functional design look like, and how is the Lean Startup approach important for the servitization process?*

a. *What Lean Startup theories found can be applied within a servitization process of B2B companies?*

b. *How does the Lean Startup model help with applying servitization in a B2B SME context?*

c. *What is the, if any, noticeable difference between using the Lean Startup framework in a startup and in an established, existing organization?*

To answer this question the final proposal should be ready. The answer of this question should include an answer on how the lean startup approach can be used for implementing the Product-Service System (PSS) in B2B companies. This question is the most important for the science field, since the model will be applicable to a lot of companies. In the end the research will answer in which ways Lean Startup can help bring structure into the process of servitization. Knowledge about this is retrieved by applying the Lean Startup method to the Koskamp case. In the conclusion part of the final report, there will be a big part about this.

§4. Vision creation

§4.1 Vision creation

For this part of the report a close look will be taken at the Business Model Canvas, further referred to as BMC. The BMC is created in cooperation with the management of Koskamp. First, together with the management of Koskamp the BMC is redesigned for servitization. In this BMC can be seen how Koskamp thinks servitization will fit in their business. Normally, the Lean Startup approach is used for new businesses (startups) with new ideas. In this situation, the Lean Startup method is used for an existing business. This has an influence

on the customer base. Koskamp already has a big customer base in contrast with a startup, which begins from scratch.

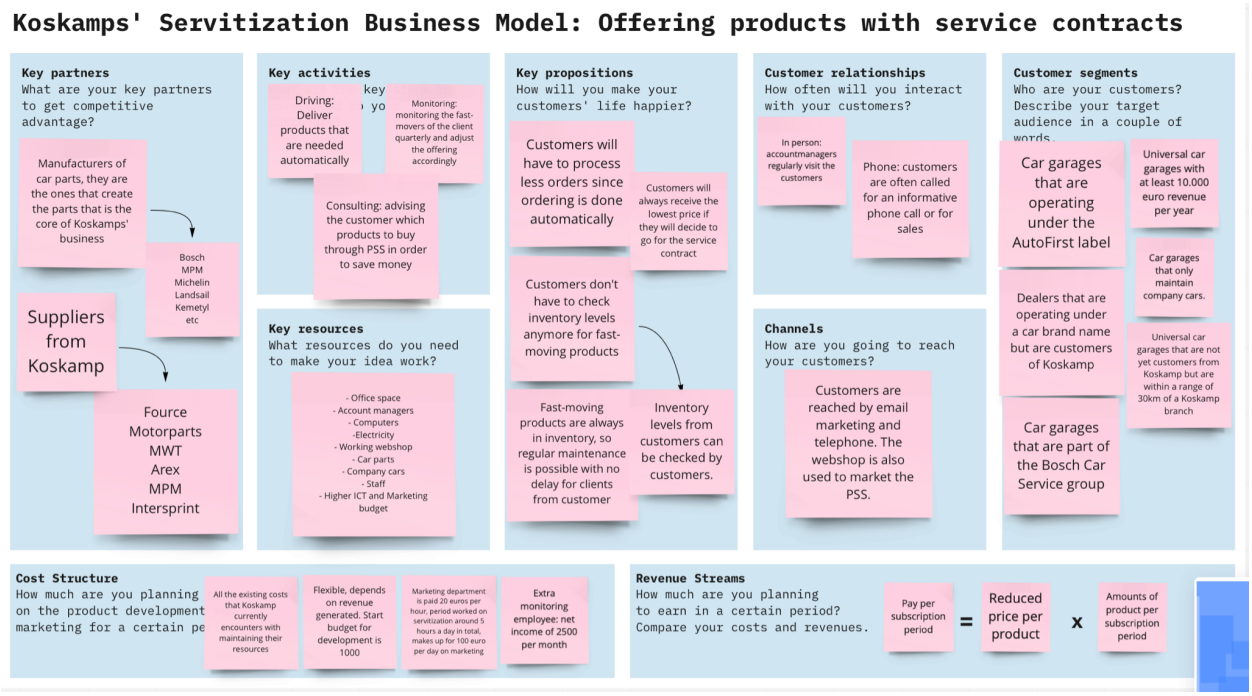


Figure 3: The re-designed Business Model Canvas for Koskamp when they are servitizated.

First are the customer segments. The customers that Koskamp wants to target are the universal car garages that are at least doing 10.000 euros per year on revenue. The universal car garages are the garages that are not operating under a label and therefore are operating on their own. In addition, Koskamp wants to target the garages which are part of the Vakgarage, Autofirst or Bosch Car Service label. In general, those garages are quite profitable and big enough to offer the Product-Service System. Koskamp also wants to attract customers that are not yet customers. The new Product-Service System could lead to more new customers if they see the benefits of the Product-Service System. However, those customers should be in a range of 30 kilometres from a Koskamp branch, otherwise delivery would become too costly. Lastly, the car garages that are only maintaining company cars are targeted (because those car garages are generally seen using more fluids). Koskamp wants to target customers which have the pain of being busy with the ordering process for too long due to excessive order amounts. This are the customers who place more than one order per day. Multiple orders on one day results in multiple order bills per day to process, which costs time. In general, these are the bigger garages. This is also the reason for Koskamp to target customers that are doing more than 10.000 euro revenue per year, because they expect that smaller garages are likely to be less busy with order processing. In Koskamps' vision the gain for the garages is that they have to process less orders because orders are automated, generic and the amount of order bills will be lower due to more efficient ordering with the PSS. In addition, according to Koskamp a pain is that customers must monitor their inventory every time, and when

products are delivered automatically then that is not needed anymore, because products will be always in inventory.

Secondly, are the key propositions. The key propositions are foundational to any business. The key propositions are the fundamental concepts of the exchange of value between the business and the customers. In the servitization case the key proposition is that customers must process less orders themselves since ordering is done automatically in a servitization fashion. This saves the customer time and thus money. Products for a certain month are automatically delivered at a fixed date each month to make sure that the customer will have enough stock for that month. VMI is a good option because then inventory data is accessible by Koskamp, and deliveries can be planned more efficiently. This is not possible right now because the link between customer and supplier system cannot be made with the current systems and switching costs are high. However, this would be a good future vision.

If the servitization strategy is applied correctly, the fast-moving products will always be in the inventory of the customers. This means that maintenance can be applied almost directly and that waiting for parts is not needed anymore in the future.

Thirdly are the channels. The customers are reached by telephone and by email marketing. In this way Koskamp can make sure that the targeted customers will have access to the new Product-Service System offerings. In addition to that, account managers are able to go to the customer in order to notify them about the new offering that Koskamp has. The webshop is used to incorporate the Product-Service System. A tab under the “My Account” label will function as a component where customers can see their subscriptions, adjust their delivery date and adjust the number of products delivered. Every month the desired products should then be delivered by the Koskamp delivery department.

Fourth are the customer relationships. The customer relationships are created through the channels. The relationship in this business model is personal assistance. Customers are personally assisted if they take the subscription. Customers are reached by telephone, which is a personal conversation aimed at that specific customer. If the webshop is ready where the customer can adjust everything themselves then a switch is made to a self-service relationship. The customer can help themselves with the tools provided by Koskamp.

Fourth are the key activities. The key activities display the actions that Koskamp needs to undertake to achieve the value proposition they have in mind (Ebinum, 2016). In this case, the activities consist of three core components. The first one is the monitoring activity. Each three months the fast-moving products of the customers need to be monitored and the offering should be adjusted accordingly. The second activity is the consulting activity where the account manager should advise the customers for which product, they can take a subscription. Third is the driving activity, if the products are selected and the customer is persuaded to take the subscription, the products need to be delivered to the customers.

However, this is not different compared to the current business model where delivery was also needed.

Fifth, the key resources. The key resources are the practical resources that are needed to achieve the key activities of the business. The key resources consist of the standard resources Koskamp needs to do business. These resources include; office space, account managers, computers, electricity, working webshop with service module, car parts, company cars, staff and a higher ICT and marketing budget. As can be seen, Koskamp does not envision that a lot of investments are needed to make this business model a success.

Sixth, the key partners. The key partners are the external companies/suppliers/parties that are critical for Koskamp to be able to deliver value to their customers (Ebinum, 2016). Koskamp is dependent on his partners. In this specific case, the partners are the suppliers. The biggest suppliers are: Fource, Motorparts, MWT, Arex, MPM and Intersprint. In addition, Koskamp is also indirectly dependent on the manufacturers of the parts. If the parts were not produced, the suppliers would not be able to supply, thus Koskamp would not be able to execute their business. There are a lot of manufacturers, but the most important manufacturer of aftermarket car parts is Bosch. There is a relationship between the key partners and the resources in the sense that partners can also be seen as a form of resources. Without Koskamps' key partners it would not be able to do business.

Last is the cost structure. The cost structure of the new business model is almost the same as the previous business model. The costs that Koskamp needs to make consist of the purchasing and inventory cost. The only change is that the marketing budget needs to be higher. In order to get enough customers on board the customers need to be targeted more aggressively. This is the case because the Product-Service System is a completely new offering from Koskamp to their clients which may require extra explanation and more aggressive marketing. It is not simply the offering of a new product, it is the offering of a whole new service. In addition, an extra employee is needed who does the monitoring of the inventory of the clients. Since the inventory systems of the customers are not linked to the inventory systems of Koskamp it is not possible to monitor the inventory levels in an easy manner (the linking of these systems is also not possible due to high switching costs). This means that this extra employee should call the customer during the first phase of implementation and ask about the inventory levels. After about three months Koskamp should be able to make a good estimation about the usage of a certain product by that specific customer. As an estimation, the employee will be busy with this task for 1 hour in a month per customer, this equals two calls of half an hour per month per customer. When the average of a 38-hour working week is taken, then the available hours per month per employee equals 152. If the employee will be only working on the monitoring, he or she will be likely to handle around 150 customers. This employee is needed till the moment the monitoring can be automated. The problem that arises here is that the employee will be busy with monitoring 150 different customers. Another and likely better idea would be to assign this task to already available account managers and use this division of customers for the inventory management. The average income for an account manager at Koskamp

equals 21,67 euro net income per hour. The increase in cost per customer, per month would then equal 21,67 euro. Another option for Koskamp would be that the customers send inventory data to Koskamp, so that Koskamp does not need to give managers more work in monitoring the inventory. Benefit of this is that this is cheaper for Koskamp, downside for the customer is that customers will have less convenience with using the PSS. Koskamp can shift from using a method to another after execution. Both solutions are intermediate solutions till inventory management can be fully automated.

The revenue stream is quite simple to explain, the revenues consist of the reduced price per product times the number of products sold. The revenue stream is the revenue that is generated by selling the products that Koskamp offers in a service-oriented basis. This revenue can be classified as a recurring revenue. Customers are paying a certain amount of money for X products per Y time unit (likely to be month). As the value proposition indicates, customers will receive products based on their needs and will do so every month. This means that the revenue for these products sold will be monthly recurring.

§4.2 Conclusion vision creation

The vision creation and customer orientation is a very important step in Lean Startup methodology. According to Koskamp, the vision is that the recurring revenue will have a positive effect on the purchasing department. In addition, Koskamp believes that servitization will help with lowering total delivery cost, improving sales and lowering the amount of returns.

§5. Hypothesis creation

Now that the customers are identified, and their overall opinion is known it is time to go to the next step in the Lean Startup process. The next step in the Lean Startup process is the hypothesis creation. A hypothesis-driven approach helps to reduce the biggest risk facing entrepreneurs; offering a product that no one wants. (Eisenmann et al, 2011). Many startups fail because their founders waste resources building and marketing products before they have resolved business model uncertainties. With the hypothesis-driven approach key is that growth is not seen as the primary objective. Instead, by bounding uncertainty before scaling, the hypothesis-driven approach optimizes the use of scarce resources (Eisenmann et al, 2011). Time is the scarcest resource in the Koskamp case. With the hypothesis creation phase the vision is translated into falsifiable business model hypotheses. The hypotheses are formulated as statements that must be true for the business model to succeed. The hypothesis are categorized per BMC element.

The formulated hypotheses are:

Value proposition

- Customers are facing the problem that they have to process a lot of orders which takes up a lot of time
- Customers are having trouble with keeping their inventory at an acceptable and sufficient level, i.e. this takes up a lot of time
- The PSS is easy to use for the customers; using the PSS should take workload for the customer down instead of up. Changing order size and order date should be very easy and not needed often.
- Customers have enough room to store the inventory they will receive by using a PSS
- Customers are willing to receive products on a monthly or quarterly basis as standard
- Koskamp is able to save the customer time by implementing the PSS
-

Key activities

- Koskamp is able to effectively monitor the amount of products used by the customer in a the set time frame for the Product-Service System

Channels

- Reaching the customer by telephone is the most effective way to reach potential customers for a PSS.

Resources

- Koskamp can have sufficient stock to match customer demand.
- There are at least 5 suitable products for a PSS to make it profitable in the long term

Some of the hypotheses are aimed towards the customer, while other hypotheses are aimed at Koskamp. That is needed because only then it is possible to test if the above formulated business model is going to work. Now the hypotheses are created it is possible to design the experiment, which will include the pilot specification.

§6. Customer orientation

For the customer orientation phase, it is important to look at what customers want, and what their view is on buying products through a Product-Service System. First possible customers should be selected to get more information from. The selection is a diverse group of customers from Koskamp. Koskamp divides their customers into different groups where A clients are the most loyal customers, and the F customers are the least loyal customers. In this case, Koskamp measures loyalty on the basis of the amount of yearly generated revenue by the garage. The customers are categorized in the following way;

Revenue from	**Revenue till**	**Category**
0	5.000	F
5.000	10.000	E

10.000	15.000	D
15.000	20.000	C
20.000	25.000	B
25.000	∞	A

Table 2: The limits that are used when categorizing the customers

The detailed interviews can be found in the appendix, while the general conclusions are stated below. With some customers detailed interviews in person were conducted (marked with *), whereas some customers were contacted through phone calls and questions were asked.

The customers that are selected for the customer orientation are:

Customer name	**Category**
BCS Baan Hengelo (*)	A
Athlon Service Center Utrecht	A
Broekhuis BMW Enschede (*)	B
Cornelis Hengelo (*)	C
Van den Belt (*)	A
Kamp Twente - Hengelo, Almelo (*)	A / B
Auto Haarhuis Almelo (*)	A
Ten Harkel Zutphen	F
Autoborg Groningen	A
BCS Autobedrijf H. van Bergen	A

Table 3: Customers that are reached for more information / interview for customer orientation

Now that the customers are identified it is time to look at the interview. All the interviews are held at location, so all the garages are spoken in person. The questions that are asked to these garages are:

1. You are a big customer from Koskamp. What do you like about doing business with Koskamp?
2. Are you also using other suppliers?
3. If answer to question 2 is yes; What could Koskamp do to let you order more at Koskamp?
4. What does the ordering process look like?
5. What do you like about the ordering system at Koskamp?
6. Are there any problems you encounter during purchasing the required parts?
7. How is the number of parts to order estimated?
8. What could Koskamp do to improve the customer experience?
9. In which way do you think that servitization of the Koskamp offerings could have a positive impact on your organization?
10. What do you consider to be possible pitfalls during the implementation of servitization?
11. What do you want to say to Koskamp?
12. What do you think of the Lean Startup process, the method we use to implement servitization where you as a customer are directly involved in the process?

As can be seen, the first questions are about the relationship between the customer and Koskamp. These questions are asked to get insight about how the customer looks at Koskamp as a supplier. What do they think Koskamp does good, and what can be done better? The follow up questions (4,6 and 7) are meant to get a good view of the ordering process and the problems that arise when products are ordered. The questions are designed to be general, so that the customer has complete freedom to express the process and the pains that are showing up. Before question 9 is asked, an explanation is given about the vision of the Product-Service System. Here it is explained that Koskamp is planning on introducing a Product-Service System offering which includes monthly delivery for a selection of products at a fixed lower than average price. The vision of a website module with a subscription tab is explained, and that the possibility of adjusting delivery dates will be possible in the future.

The general conclusions during the interviews are:

- Overall, the customers liked to buy products through a Product-Service System
- Customers that are part of a franchise really like a Product-Service System in the sense that the purchasing is done centrally, if this could be servitized this would really save them time.
- A lot of customers stated that they would like to participate in such a service system pilot but that the price must be sharp. Without a sharp price it would still be cheaper to buy at competitors where customers are searching for the cheapest price themselves. They are willing to pay a small premium for the service component of the Product-Service offering, but the base price for the product should not be higher than competitors.

- Some customers stated that they don't have room for a lot of inventory so it would be difficult if products are delivered automatically too soon, then the amount of products would exceed the possible inventory.
- Some customers stated that they would like to participate in an upcoming test but that they don't immediately see the benefit of the product-service system. Those customers are not persuaded by the benefit that a Product-Service System can deliver. This is an important note that should be taken into consideration when the actual pilot is designed. How can Koskamp make sure that there will be a certain benefit in buying products through a PSS? What can Koskamp create in terms of customer value?
- Customer mentions that a low price helps in terms of customer value, but the ease of servitization should really play an important role.
- Some customers state that they don't like to buy through a Product-Service System because they want to keep in control of their inventory. They are scared that products will arrive too soon or too late.
- Some customers indicated that they have their own suppliers which are the preferred suppliers. For those customers it is not possible to buy the indicated products through Koskamp.
- Some customers were very enthusiastic about the idea of buying products through a Product-Service system. These clients were mostly the clients where one person from the purchasing department does the purchasing for more branches in the same chain.
- Some customers indicated that it is important to look into certain problems that can occur. What will happen if the products are out of stock and an additional order is needed? Will the price be then the same as the price offered during the service contract period or is the regular price then valid? It is important to adjust the "staffel" price to the correct price that is used when a customer is using the PSS.
- Customers mention that they find it very disturbing that they always must look for the best offer; they want one supplier with the always the best price. They would really like a service-contract if the offering is attractive, with a clear added benefit and a good price.
- Customers mention that they find it difficult to estimate how much they need to order, since they are not sure how many cars they will have to maintain each month. Customers are really interested to see if a pattern can be found in buying behavior and if this could be tailored by servitization, if that is the case this would make them really enthusiastic.
- Several customers mentioned that it takes a lot of work to process all the different orders that are done. This takes up a lot of time. If the Product-Service System could help in making this process more efficient then the benefits of a PSS are clear immediately.
- One customer advised that it is smart to look at all the fast-flow products which are general and are sold in large quantities. Those products could be eligible for future pilots.

- For dealerships it is difficult to apply Product-Service Systems. They are often bound to certain suppliers, especially for fluids like oil. Customers mention that often a certain brand is prespecified. Then the dealership is not able to use a different brand of oil. Often the A-brand oils are not sold by Koskamp.

During the customer orientation phase several important points come up which are important when the pilot is designed. Overall, customers like the idea of buying products through a PSS, however they want a financial benefit, and they would like that it saves them time. Customers are tired from always searching for the best offer; if Koskamp is able to make them a good offer through servitization then that is interesting for them. Lastly and most important customers indicated that they are having a lot of work with processing all the individual orders, so if a PSS could help with lowering the amount of orders, then the solution would be very welcome.

§7. Pilot / flyer specification

Now that the vision and hypotheses are clear it is time to specify the pilot in more detail. A pilot is used to test the series of hypotheses that are stated before. Based on the feedback after the pilot Koskamp can choose whether to preserve the business model or to pivot it. When the business model is pivoted some elements of the business model are changed till all the elements are validated. At this point Koskamp can find a product-market fit (Eisenmann, 2011). This section closely follows the path as set in the research design. First, a suitable product is selected that is relevant for pilot testing in a servitization fashion. After that the quantity and price strategy is discussed. When the pilot is fully specified the offering is presented to the customers and the hypotheses are tested for validity.

§7.1 Product selection

Koskamp sells a lot of products to their customers, all the car parts needed to maintain a car are available, Koskamp sells over more than 2000 different parts. When a car is serviced, 50 different parts will be checked. However, Koskamp a lot of the products that Koskamp sells are car specific. This means that these products are ordered based on the type of cars that come by at the local garages. It is difficult to servitizise products that are specific, since it is impossible to know which cars will drive by on a certain day and which maintenance they will need. Because of this it is important to look at products which are fast-moving and generally applicable to a lot of different car types. A product which is fast moving should be ordered at least every month, and in a quantity higher than five in order to be called fast moving. Around twenty percent of the Koskamp product portfolio consists of fast-moving parts. In addition, products need to be selected which have a healthy margin and sell in large quantities. There is a relation with fast-moving and large quantities. If a

product sells fast, then it is also bought in larger quantities. The last criterion for the selected product is that the product should be easily transportable, if a product is too big then special delivery is needed which is extra costly. The criteria are set in accordance with the management. In addition, the products were selected together with the customers. In short, the criteria are as follows:

- Fast-moving products; should sell fast and should not be lying in inventory for more than one month
- The parts offered in the pilot should be non-specific products; generally applicable to most mainstream cars
- Healthy margin products: at least 10 percent (%) margin
- Should sell in large quantities
- Products should be easily transportable

As already mentioned, the Koskamp product portfolio consists of all the parts that are needed for car maintenance. To select the right products for pilot testing the criteria should be taken into account. The products listed below are the products that were considered to do pilot testing during the pilot design. Not all available products are discussed, only products which seem relevant to Koskamp for pilot testing. With each product type the criteria are discussed and a conclusion is given if the product is suitable for pilot testing.

Fluids

Oil

Oil is needed for almost each car that is maintained, this means that the product is fast-moving and that the product is sold in large quantities. As can be seen in the Qlik dashboard, the total yearly revenue generated by oil equals: 626.728 euro in 2020. The margin of oil is also healthy with an average margin of 28.7%. The only problem with oil is that it is not as general as Koskamp would like to introduce in a pilot. There are a lot of different oil brands available with different viscosity levels. The oil used in older cars have a lower viscosity than oil used in newer cars. An option could be to offer a package deal where the package includes a range of oils based on the highest number of types sold. Koskamp management thinks oil would be suitable for later pilots since it has a high margin, is fast-flowing and because the amount of oil in inventory by clients can be measured by the device used in the oil tank. Oil is a good candidate for a pilot, but not the best product to start with during the first pilot. According to the field research conducted at customers, it is concluded that oil is not a suitable candidate for dealerships. Dealerships are always committed to a certain brand of oil specified by the car manufacturer. If Koskamp includes oil in a pilot or in the final offering this would only be suitable for the independent car garages, for example the garages that are operating under the brand name Autofirst or Vakgarages. For oil it would be a good idea to have more experience with the servitization model that is applied.

Artikel: Merk | Artikel: Omschrij.. | Klant: Plaats | Periode | Waarden

	2021			2020			2019			2018		
	Omzet (€)	Marge (€)	Marge (%)	Omzet (€)	Marge (€)	Marge (%)	Omzet (€)	Marge (€)	Marge (%)	Omzet (€)	Marge (€)	Marge (%)
Totalen	€ 383.328	€ 109.876	28,7%	€ 662.782	€ 189.782	28,6%	€ 547.631	€ 158.505	28,9%	€ 437.750	€ 124.389	28,4%
MPM	€ 383.186	€ 109.847	28,7%	€ 662.564	€ 189.748	28,6%	€ 547.390	€ 158.428	28,9%	€ 437.658	€ 124.375	28,4%
01001 MOTOR OIL 15W-40 MULTI GRADE 1 LTR	€ 293	€ 116	39,5%	€ 388	€ 154	39,6%	€ 180	€ 72	40,2%	€ 240	€ 104	43,4%
01001B MOTOR OIL 20W-50 MULTI GRADE CLASSIC 1 LTR	€ 109	€ 44	40,6%	€ 320	€ 126	39,4%	€ 257	€ 96	37,4%	€ 290	€ 117	40,1%
01004 MOTOR OIL 15W-40 MULTI GRADE 4 LTR	€ 62	€ 25	39,8%	-	-	-	-	-	-	-	-	-
01004B MOTOR OIL 20W-50 MULTI GRADE CLASSIC 4 LTR	€ 55	€ 22	39,3%	€ 75	€ 29	39,0%	-	-	-	-	-	-
01005 MOTOR OIL 15W-40 MULTI GRADE 5 LTR	€ 1.105	€ 435	39,4%	€ 1.206	€ 480	39,8%	€ 717	€ 295	41,2%	€ 155	€ 67	43,5%
01005B MOTOR OIL 20W-50 MULTI GRADE CLASSIC 5 LTR	€ 1.391	€ 558	40,1%	€ 2.256	€ 916	40,6%	€ 1.654	€ 666	40,2%	€ 2.029	€ 829	40,9%
01020 MOTOR OIL 15W-40 MULTI GRADE 20 LTR	-	-	-	-	-	-	€ 105	€ 26	25,0%	€ 52	€ 13	25,0%
01020B MOTOR OIL 20W-50 MULTI GRADE CLASSIC 20 LTR	€ 373	€ 93	25,0%	€ 105	€ 26	25,0%	€ 96	€ 17	18,1%	€ 52	€ 13	25,0%
01060 MOTOR OIL 15W-40 MULTI GRADE 60 LTR	-	-	-	€ 151	€ 38	25,0%	-	-	-	€ 144	€ 36	25,0%
01060B MOTOR OIL 20W-50 MULTI GRADE CLASSIC 60 LTR	-	-	-	-	-	-	-	-	-	€ 144	€ 36	25,0%
02001 MOTOR OIL 15W-40 TURBO UNIVERSAL 1 LTR	€ 34	€ 14	39,5%	€ 75	€ 30	39,7%	€ 53	€ 18	33,5%	€ 61	€ 22	36,0%
02001A MOTOR OIL 20W-50 TURBO UNIVERSAL 1 LTR	€ 5	€ 2	41,3%	€ 26	€ 9	35,8%	-	-	-	-	-	-
02001B MOTOR OIL 10W-30 MULTI GRADE 1 LT	€ 191	€ 78	40,5%	€ 342	€ 133	38,9%	€ 209	€ 81	38,7%	€ 150	€ 62	40,9%
02001HZ MOTOR OIL 20W-50 CLASSIC HIGH ZINC 1 LTR	€ 121	€ 49	40,5%	€ 49	€ 20	41,2%	-	-	-	-	-	-
02004A MOTOR OIL 20W-50 TURBO UNIVERSAL 4 LTR	-	-	-	€ 0	€ 0	-	€ 54	€ 22	41,8%	-	-	-
02004B MOTOR OIL 10W-30 MULTI GRADE 4 LT	€ 25	€ 4	14,5%	€ 0	€ 0	-	-	-	-	-	-	-
02005 MOTOR OIL 15W-40 TURBO UNIVERSAL 5 LTR	€ 435	€ 176	40,4%	€ 706	€ 282	39,9%	€ 982	€ 403	41,1%	€ 832	€ 336	40,3%
02005B MOTOR OIL 10W-30 MULTI GRADE 5 LT	€ 44	€ 17	38,5%	€ 275	€ 108	39,4%	€ 276	€ 110	39,9%	€ 395	€ 159	40,4%
02005HZ MOTOR OIL 20W-50 CLASSIC HIGH ZINC 5 LTR	€ 61	€ 26	42,0%	€ 20	€ 3	15,1%	€ 186	€ 70	37,8%	€ 118	€ 53	45,2%
02020 MOTOR OIL 15W-40 TURBO UNIVERSAL 20 LTR	€ 107	€ 27	25,0%	€ 54	€ 13	25,0%	€ 54	€ 13	25,0%	-	-	-
02020A MOTOR OIL 20W-50 TURBO UNIVERSAL 20 LTR	-	-	-	-	-	-	-	-	-	-	-	-
02020B MOTOR OIL 10W-30 MULTI GRADE 20 LT	€ 118	€ 30	25,0%	€ 118	€ 30	25,0%	-	-	-	€ 113	€ 28	25,0%
02020HZ MOTOR OIL 20W-50 CLASSIC HIGH ZINC 20 LTR	-	-	-	€ 71	€ 20	28,7%	-	-	-	-	-	-
02060 MOTOR OIL 15W-40 TURBO UNIVERSAL 60 LTR	€ 316	€ 79	25,0%	€ 309	€ 77	25,0%	€ 154	€ 39	25,0%	€ 440	€ 110	25,0%
02060HZ MOTOR OIL 20W-50 CLASSIC HIGH ZINC 60 LTR	€ 207	€ 52	25,0%	€ 207	€ 52	25,0%	-	-	-	€ 203	€ 51	25,0%
02205 MOTOR OIL 15W-40 TURBO UNIVERSAL 205 LTR	-	-	-	€ 505	€ 126	25,0%	-	-	-	-	-	-
03001D MOTOR OIL 15W-40 SUPER HP DIESEL 1 LTR	€ 33	€ 13	38,6%	€ 43	€ 17	39,9%	€ 52	€ 20	39,0%	€ 99	€ 38	38,7%
03005D MOTOR OIL 15W-40 SUPER HP DIESEL 5 LTR	€ 186	€ 75	40,2%	€ 598	€ 233	39,0%	€ 588	€ 237	40,3%	€ 393	€ 167	42,5%
03020D MOTOR OIL 15W-40 SUPER HP DIESEL 20 LTR	€ 199	€ 50	25,0%	€ 174	€ 44	25,0%	-	-	-	-	-	-
03060D MOTOR OIL 15W-40 SUPER HP DIESEL 60 LTR	€ 176	€ 44	25,0%	€ 503	€ 126	25,0%	-	-	-	€ 319	€ 80	25,0%
04001 MOTOR OIL 10W-40 SEMI SYNTH.1 LTR	€ 839	€ 324	38,7%	€ 1.584	€ 613	38,7%	€ 1.425	€ 561	39,3%	€ 1.773	€ 703	39,6%
04001D MOTOR OIL 10W-40 SEMI SYNTH.DIESEL 1 LTR	-	-	-	-	-	-	-	-	-	-	-	-
04001E MOTOR OIL 5W-30 SEMI SYNTH.FUEL CONSERVI	-	-	-	-	-	-	-	-	-	€ 23	€ 3	12,3%
04001HM MOTOR OIL 10W-40 SEMI SYNTH.HIGHER MILEAGE 1	-	-	-	€ 24	€ 6	26,3%	€ 6	€ 2	38,5%	€ 33	€ 13	38,4%
04004 MOTOR OIL 10W-40 SEMI SYNTH.4 LTR	€ 177	€ 71	39,8%	€ 449	€ 178	39,6%	€ 15	€ 6	38,4%	-	-	-
04005 MOTOR OIL 10W-40 SEMI SYNTH.5 LTR	€ 2.351	€ 932	39,7%	€ 5.448	€ 2.176	39,9%	€ 5.835	€ 2.348	40,2%	€ 4.856	€ 1.995	41,1%
04005AB MOTOR OIL 10W-30 EXTRA HP TRUCK FUEL ECONOMY	-	-	-	-	-	-	-	-	-	€ 82	€ 25	30,0%
04005BG MPM 10W40 BUDGET	-	-	-	-	-	-	-	-	-	-	-	-
04005D MOTOR OIL 10W-40 SEMI SYNTH.DIESEL 5 LTR	-	-	-	-	-	-	-	-	-	-	-	-
04005E MOTOR OIL 5W-30 SEMI SYNTH.FUEL CONSERVI	-	-	-	-	-	-	-	-	-	€ 108	€ 17	15,3%
04005HM MOTOR OIL 10W-40 SEMI SYNTH.HIGHER MILEAGE 5	€ 67	€ 26	38,5%	€ 172	€ 60	34,8%	€ 26	€ 10	38,5%	€ 76	€ 29	38,5%

Picture 1: MPM oil revenue and margin data (since there are a lot of types and a lot of different brands the list is quite long).

AdBlue

AdBlue is a fluid that is used in the newer diesel cars with a nitric oxide reduction system. This fluid is sold in large quantities, normal cars need a refill of 10-liter AdBlue per 10.000 kilometer. For company diesel cars this is different, here it is normal to use 1,5 liters of AdBlue per 100 km. This would mean a refill of 10 liter per 750km. As all the new diesel cars are equipped with a nitric oxide reduction system this product sells in large quantities and is never in inventory for a long period of time. In addition, this means that the product is general in the sense that a lot of diesel engines need it. Disadvantage of this product is that it is sold in 10-liter jerry cans which will take up inventory space by customers. This is important to note, since this is also something that a customer noted in the customer orientation phase, the lack of inventory space. The yearly revenue of AdBlue equals 57.927 euro in 2020 and the margin of a 10-liter AdBlue jerrycan equals 4%. At first, this margin seems a bit low, but since the revenue that is accountable for AdBlue it is still a good product to sell in large quantities. To conclude, AdBlue is a good product to use in a pilot test.

	2021			2020			2019		
	Omzet (€)	Marge (€)	Marge (%)	Omzet (€)	Marge (€)	Marge (%)	Omzet (€)	Marge (€)	Marge (%)
Totalen	€ 31.542	€ 1.200	3,8%	€ 57.927	€ 2.016	3,5%	€ 55.087	€ 2.039	3,7%
KEMETYL	€ 31.542	€ 1.200	3,8%	€ 57.927	€ 2.016	3,5%	€ 55.087	€ 2.039	3,7%
3366010 ADBLUE 10 LITER MET SCHENKTUIT	€ 31.542	€ 1.200	3,8%	€ 57.927	€ 2.016	3,5%	€ 55.087	€ 2.039	3,7%

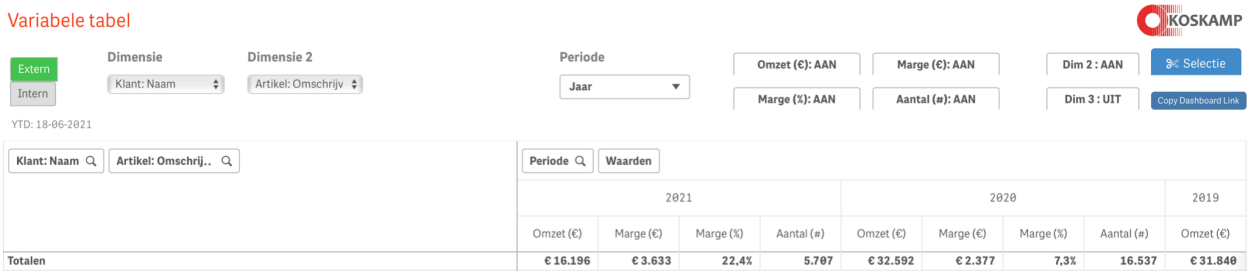
Picture 2: AdBlue revenue and margin data

Brake fluid

Brake fluid is also a fluid that needs to be renewed during a maintenance interval. Since every car uses brake fluid it is a fluid that sells fast in high quantities. On this criterion, brake fluid scores good. The disadvantage of brake fluid is that it is not generic. There are four types of brake fluid. The first one is DOT3 which is the most popular type. DOT4 is the newer brake fluid with a higher boiling point. Technically seen, DOT3 and DOT4 are intermixable, but it is not recommended. DOT5 and 5.1 is different from DOT3 and DOT4 in the sense that 5 and 5.1 are silicone based. Because of the number of different types of brake fluid, brake fluid will be excluded from a pilot.

Brake cleaner

Brake cleaner is a product that is often needed when maintenance occurs. The interesting point about brake cleaner is that it sells in large quantities and that the margin is very high. Brake cleaner is a product that finds more and more attention by the car garages. As can be seen by the Qlik figures, brake cleaner alone accounts for 32.592 euros total revenue in 2020. With an increased margin due to price agreements with the brand, the margin of 22.4% is very good. This is a good product to include in a pilot test.



	2021				2020				2019
	Omzet (€)	Marge (€)	Marge (%)	Aantal (#)	Omzet (€)	Marge (€)	Marge (%)	Aantal (#)	Omzet (€)
Totalen	€ 16.196	€ 3.633	22,4%	5.707	€ 32.592	€ 2.377	7,3%	16.537	€ 31.840

Picture 3: Brake cleaner revenue and margin data

Coolant

Coolant is a product that Koskamp sells that is responsible for cooling the engine while running. Coolant is a product that is sold in moderate quantities. This is because coolant is normally not consumed because it is a closed system. This means that during maintenance it normally does not have to be renewed. In addition to that, there are a lot of different

coolant types available, each with different colours. Because of these reasons coolant is not a good product to include in a pilot.

Washer fluid

Washer fluid is a fluid that is used to keep the front window clean. Washer fluid is used a lot and a refill is needed often. In this criteria washer fluid scores good. However, according to the Qlik Sense system washer fluid is not sold in large quantities by Koskamp. That means that a subscription offering would not be very valuable for this product. If Koskamp would be able to sell larger quantities of washer fluid it could be valuable.

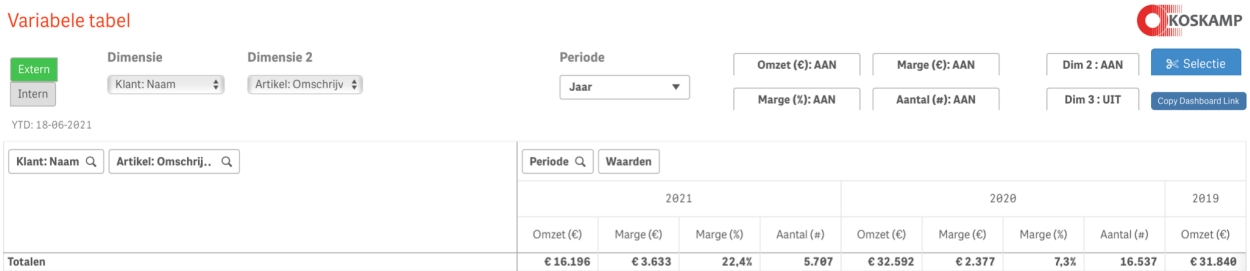
Parts

Tyres

Tyres are very important for car maintenance. On average, tyres need to be changed every 50.000 kilometres. So in a volume perspective tyres would be interesting to include in a pilot. However, there are two big constraints in play. First, tyres are available from a lot of different brands, sizes and loads. Therefore, it would be very difficult to ship tyres in a monthly or quarterly fashion. Customers indicated that they were also not interested in tyres as a subscription, since tyre sizes and loads are subject to change with every new model coming out. This means that if tyres are delivered for the previous model, it could be the case that these tyres will be lying on the shelf for a very long time. According to this information, tyres will not be included in a Product-Service offering.

Batteries

Batteries are an essential part of a car, since without a good functioning battery a car would not be able to start. The first gripe with batteries is that batteries don't need to be replaced very often. A car battery has a lifetime between 4 and 6 years. In addition, there are a lot of different types of batteries used in different cars with respect to the amount of amperes. Therefore, normal car batteries are not very efficient to include in a pilot. However, during the interviews customers mentioned that they would like to see the batteries that are used in the keys in a pilot. This is the standard CR2032 button-cell battery. According to the Qlik Sense database this type of battery accounts for a yearly revenue of 23.000 euro in 2020. This product will be included in the pilot offering.



Picture 4: Yearly revenue CR2032 battery

Interior filters

Interior filters are very important for a car, since they are meant to keep the air in the interior clean of harmful bacteria. Interior filters are changed during every service interval. This means that interior filters are sold in large quantities, which means that the first criteria of the product selection are met. However, according to the interviews with the customers and the information in Qlik, it can be seen that the filters differ. Bosch is the main supplier of filters, and Bosch alone sells 800+ different types of filters. That is because every car needs a filter with a different dimension. In addition, there are filters which contain active coal, and there are filters without active coal. Therefore, it is almost impossible to include this product in a PSS.

Now that some product categories are highlighted and some products are elaborated on, there are some suitable products that can be used in the experimentation phase. For the experimentation phase, three products are selected. Those products include AdBlue, brake cleaner and the CR2032 battery. The other products are used as a recommendation for Koskamp to do further research on how to include those products in an extended pilot test.

§7.2 Quantity determination

Now that the products are selected that are suitable to include in lightweight pilot testing, it is important to look at how the quantities are determined. There are three strategies available for quantity determination. The first strategy is that the quantity of products delivered monthly depends on the sales from the previous year. However, according to interviews with the customers this seems like a risky strategy. Because of the COVID situation last year and this year it is difficult to predict if the quantities are representative of the quantities needed right now. In addition, it could be the case that products are asked less than before. For example, AdBlue is only needed for diesel cars. Since the sales of diesel cars is declining it could be the case that the amount of AdBlue needed is also influenced by this.

The second strategy for quantity determination is to ask customers to make a prediction of how much they might need per month. They can make a prediction based on last month's sales instead of the whole year. In general, customers liked this idea more because they are in control. Customers indicated that it must be easy to adjust the amount of products that will be delivered, otherwise a PSS would create new disadvantages. In accordance with the management and customers, a design will be made on the website where it will be very convenient to adjust the size of the order (if needed).

The third strategy to estimate the quantities needed would be to make a connection between the Koskamp Qlik system and the customers' ERP system. Then Koskamp would be able to access the inventory data of the customers immediately. During the field research this option is investigated, but it turns out that the customers are using different

systems to keep track of their inventory. Therefore, it is not possible to create a connection between those different systems.

The conclusion here is that it is best to depict the quantity needed by the customers, where they would be able to adjust the quantities in an easy fashion by using a module on the website.

§7.3 Functional design

For the pilot design a functional design will be made in PowerPoint. The above-mentioned information will be included in this functional design. When the PowerPoint design is done it will be presented to the customers which will give feedback. The feedback will be incorporated in the design, this path follows the Lean Startup cycle. After the design is done, it will be handed over to the ICT department, they will be able to create a working design that will be placed on the website of Koskamp. The amount of functionality in this design depends on the time it costs to create the website module. Therefore, the PowerPoint will be presented to the ICT department after which they will be able to make a prediction of how much time it costs to create the design.

In Appendix B the functional design of the website module can be found, every dia that is part of the design will be discussed and explained. Note that the design is made in Dutch, since the design will be used for customer feedback, and all the customers that Koskamp is serving are Dutch.

Now that the vision is created, the hypotheses are formulated, the customer orientation and the pilot flyer design is done, it is time to proceed with the Lean Startup circle. During the customer orientation phase, the need for a solution for lowering excessive order times was validated. Also, the willingness for customers to buy products through a Product-Service System is there as can be seen in section 3.2. Section six will cover the other part of the validation phase of the Lean Startup circle. In this section it is validated if customers are able to work with the proposed solution in the form of the Product-Service System, and if the solution is indeed solving the problems that a customer faces (Ries, 2011). It is important to make sure that this process will take place as neutral as possible. Therefore, direct feedback from customers will be collected. To do this, Skype meetings are set-up with different customers that were also contacted in the first phase of the validation. During this Skype meetings the customer has to open the PowerPoint presentation and must use the design. The reaction of the customer was observed, and it was observed if the customer was able to use the design without any intervention. During the Skype call I was present if there were any questions present, or if the customer had problems with interacting with the design. The observations can be found in Appendix C under “General observations”. In addition, several questions were asked that will help with certifying or falsifying the hypotheses. The accompanying questions that are asked during the meetings are;

1. Do you think that by using the Product-Service System as displayed here, you will be able to save time?
2. Do you think that the solution as proposed here is easy to use?
    - What do you think of the possibility of changing the order size and delivery date?
3. What do you think of the products that are included in this first iteration of the pilot design?
    a. Do you think that this first product selection is good enough to persuade more customers to make use of the Product-Service System in the future?
4. Do you think that calling the customer, just as we did with you, is the best way to introduce customers to a new offering as proposed here?
5. In the pilot the delivery interval is set to monthly without an option to change it. Do you think that this interval is good, or should it be different? If it should be different, what should it be, or which options should be offered as well in the future?
6. Do you have any general remarks or suggestions regarding this first design?

The answers to these questions and the direct responses are collected and written down in Appendix C.

§8. Learning and recommendations to Koskamp

Now that all the necessary information has been gathered, the Lean Startup methodology prescribes that it is time to look back on the hypotheses. The two important questions are what has the research yielded in terms of information to falsify or verificate the hypotheses and what is the correct conclusion in terms of these hypotheses. The hypotheses stated in paragraph 5 are:

- Customers are facing the problem that they have to process a lot of orders which takes up a lot of time
- Customers are having trouble with keeping their inventory at an acceptable and sufficient level, i.e. this takes up a lot of time
- Customers have enough room to store the inventory they will receive by using a PSS
- Customers are willing to receive products on a monthly or quarterly basis as standard
- Koskamp is able to effectively monitor the number of products used by the customer in a certain time frame
- Reaching the customer by telephone is the most effective way to reach potential customers for a PSS.
- Koskamp is able to save the customer time by implementing the PSS
- Suppliers and manufacturers of car parts are able to deliver enough products to Koskamp to sell in the specified time frame
- Koskamp is able to have enough car parts in inventory to deliver to the customers that are making use of the PSS
- There are enough suitable products for a PSS to make it profitable in the long term

- The PSS is easy to use for the customers; using the PSS should take workload for the customer down instead of up. Changing order size and order date should be very easy and not needed often.

The first hypothesis states that customers are facing the problem that they have to process a lot of orders which takes up a lot of time. This problem statement is verified by the research during the customer orientation interview round. Customers stated that they have trouble with processing all the orders. If orders are combined into one order by using a Product-Service System then this will help with lowering the number of orders, which will help with reducing the processing time. In addition, orders will be more predictable which also helps with fast processing. This is verified by seeing the order process at the customer, which showed several order tickets for the same product. The hypothesis is verified.

The second hypothesis states that customers are having trouble with keeping their inventory on an acceptable level. During the research all interviewed customers have mentioned that the inventory of fast-moving products is checked manually. In practice, this means that the mechanic has to check each day if the inventory of fastflow products like AdBlue and oil is adequate. If customers are using the Product-Service System it is not needed anymore to check this inventory, since the products are ordered automatically in a certain interval (in this case a month). However, a prerequisite for this to work correctly is that the number of products needed per month remains stable. Information retrieved from Qlik during the research shows that for fast-movers the usage pattern is quite stable. For a hard verification of this, a more extensive and lengthier pilot would be needed.

The third hypothesis states that customers have enough room to store the larger amount of inventory caused by using the PSS. It is hard to falsify or to verify this hypothesis. During the customer orientation phase some customers have indicated that they have enough room for extra inventory, while others indicate that they have no room to store an excess amount of inventory. As can be concluded, the amount of inventory differs per customer and therefore the hypothesis cannot be verified nor falsified. Since VMI management is not possible yet because the linking of systems is costly, it is difficult to solve this challenge.

The fourth hypothesis is that customers like to receive products on a monthly or quarterly basis. This hypothesis can be verified. During the customer orientation phase customers have mentioned that they would like to receive products on a monthly basis, but that they would like to get some flexibility. Customers mentioned that they would like an option to depict the interval themselves. This is not possible in the current iteration but could be included in the following iteration where further research might be needed.

The fifth hypothesis is that Koskamp is able to monitor the number of products used by customers in a certain period of time. This hypothesis can be rejected. During client visits, it can be concluded that this is not the case. Koskamp is not able to monitor the number of products used by the customers due to a wide variety of systems used. The Koskamp ERP system is able to link with one customer CRM package, called VROAAM. Research shows

that every garage uses a different CRM package, in order to monitor the inventory, customers should switch to VROAAM. One customer already indicated that he is working on this transition, but the others indicated that this process is still unknown to be stable and too costly to implement.

The sixth hypothesis is that reaching the customer through telephone is the most effective way to reach potential customers for offering a PSS. This hypothesis can be verified. After the functional design a second interview with several customers was conducted. These customers have indicated that they think that telephone is indeed a good way to contact customers about the new offering because it is very personal. The personal touch is very important for customers although the customers advised to offer the PSS through the website in the long-term, since it would be too time consuming to call all the potential customers.

The seventh hypothesis is that Koskamp can save the customer time by implementing the PSS. This is verified after the functional design. Several customers have indicated that they think the Product-Service System as presented here will save them time. This is because the number of orders declines which will have a positive impact on the order processing time. In addition, it has a positive effect on the time it takes to check the inventory manually, as indicated by the customers.

The eighth and ninth hypothesis cannot be verified nor rejected. It is impossible to review the effects on the supply chain side of Koskamp. This can only be verified if a real-life pilot is launched, the effects on purchasing then become clear. Even then, it is still difficult to make an estimation of the effects because it is a short-term analysis.

It is difficult to verify or reject the tenth hypothesis. It is difficult to estimate what the long-term profitability is of the Product-Service System because there was not enough time to conduct a full-length real-life pilot. Customers have indicated that they would like to get a personalized offering with all the fast flow products that they use. However, this is too difficult to implement on a short-term interval. Therefore, the advice to Koskamp would be to first start with all the general fast-flow products as discussed in this report. Offering the fluids in a subscription model could be profitable because of a lower delivery interval and the extra sales generated, but this statement can only be verified after a long pilot period. After the pilot it is always possible to add extra products to the offering.

The last hypothesis can be verified since this can be concluded after the functional design was created. Customers indicate that they really believe in the Product-Service System and during the interviews customers showed that they were able to navigate through the interface themselves without any questions. They state that the interface is easy to use and that all the buttons are clear. In addition, they mentioned that changing the delivery date and number of products included in the delivery is simple and that the Product-Service System indeed helps to take the workload down instead of up.

Underneath, two tables can be found (these tables can also be found in Appendix E). The first table shows how the input of the respondents of the first interview round correlates with the hypotheses. The second table shows how the input of the respondents (the respondents who had a look at the functional PowerPoint design) correlates to the hypotheses.

Customer	**Hypothesis 1**	**Hypothesis 2**	**Hypothesis 3**	**Hypothesis 4**	**Hypothesis 5**	**Hypothesis 6**	**Hypothesis 7**	**Hypothesis 8**	**Hypothesis 9**	**Hypothesis 10**
BCS Baan Hengelo	👍	👎	👎	👎	-	-	👍	-	-	-
Athlon Utrecht	👍	👍	👍	👍	-	-	👍	-	-	-
Cornelis Hengelo	👍	👍	👍	👍	-	-	👍	-	-	-
Van den Belt Ijsselmuiden	👍	👍	👎	👍	-	-	👍	-	-	-
Kamp Twente Hengelo, Almelo	👍	👍	👍	👍	-	-	👍	-	-	-
Auto Haarhuis Almelo	👍	👎	👎	👎	-	-	👍	-	-	-
Ten Harkel Zutphen	👍	👍	👍	👍	-	-	👍	-	-	-
Autoborg Groningen	👍	👍	👍	👍	-	-	👍	-	-	-

BCS H. van Bergen	👎	👎	👎	👎	-	-	👎	-	-	-

Table 5: Table where correlation between hypotheses and customer input is given (👍 = verification, 👎 is falsification and – is indifferent).

Customer	Hypothesis 6	Hypothesis 7	Hypothesis 8	Hypothesis 9	Hypothesis 10
Van den Belt Ijsselmuiden	👍	👍	👍	👍	👍
Kamp Twente Hengelo, Almelo	👍	👍	👍	👍	👍

Table 6: Table where correlation between hypotheses and customer input is given (👍 = verification, 👎 is falsification and – is indifferent).

It can be concluded that the Product-Service System could be a good means for Koskamp to innovate within their company and to expand their offerings. However, Koskamp should really focus on the customer here, and needs to find ways to expand the product portfolio of the product-service offerings prior to launch (by implementing VMI in the future this would be a lot easier). With the Product-Service System Koskamp can offer something that is not yet available at other suppliers in the same industry. Of course, there are also some troubles with the implementation of the Product Service System. The long-term profitability is questionable, and since it was not possible to research this during this thesis period because of a lack of time, this can only be verified during a pilot over a longer period. More about the complications of this research in the research limitations section.This concludes the action part of the research. In the next paragraph, the discussion, the translation from the action research to the added value for science will be made.

The next point is the recommendations that can be made to Koskamp while keeping the results that this research yielded in mind. Koskamp should investigate and use the customer interviews that are included in this report. Most of the customers are positive about using a Product-Service System in the future. In addition, almost all interviewed customers praised the way of the way this research was conducted and the idea of including them in a pilot to test the product-service offering. Customers indicated that Koskamp has launched services in the past without notifying them, and the idea that they will be included in the service development really makes them eager to help with the development and to use the service in the future.

The first recommendation would be to use the functional design that is explained in Appendix B. The design gets positive customer reactions. Koskamp can use this design (and the interviews with respect to the responses to it) and hand it over to their ICT department to create a working prototype of the design on the website. Then, it could be a good idea to invite all the enthusiastic customers that have delivered input during this research to a

real-life pilot. The advice would be to keep the customer group in this pilot relatively small with a maximum of 50 customers. This makes it easier and more efficient to collect and process customer feedback. The customer segments described in the Business Model Canvas are verified to be a fit for this offering. Therefore, the invitation group can be expanded with customers from this segmentation (universal car garages or car garages operating under a universal label). The dealerships as mentioned in the BMC can be excluded, during research it has turned out that these garages are not willing to use the Product-Service System due to obligations to the car brand.

During the research it has been verified that the telephone is a good means to sell the product-service offering. The advice would be to call the customer when the invitation for the pilot is done, since it has been proven that this is a good means to inform a customer about a certain offering (during the research, customers have liked this way of communicating). If a customer has more in-depth questions, then it would be wise to send the account managers to the customers to give them a more detailed explanation about the pilot and the idea behind the offering.

For the pilot, the recommendation would be to select at least three products from the product selection section. Three products would be the minimum, so that the costs made during the pilot and its monitoring will be covered by the revenues the pilot generates. The advice would be to start with AdBlue, CR2032 battery and brake cleaner. In the meantime, Koskamp should investigate options on how to extend the product portfolio for a second pilot, or for product-service launch. For example, the option to include oil in the offering should be investigated more thoroughly. Koskamp has indicated that an automated oil meter is underway, which measures the amount of oil left in the tank, so that automatically new oil can be delivered. This measuring system would fit well in the Product-Service System that is designed, so investigate the options to include this soon.

The last recommendation is about launching the Product Service System after the pilot has been conducted. Customers have indicated that in the past, services from Koskamp have been launched with bugs. Don't launch the service too soon, testing the service in the pilot, collecting the feedback and implementing the feedback will take a lot of time, but will yield more satisfied customers in the end. All customer interviews are included in this report, and the advice would be to read them carefully. In Appendix F, the recommendations can be found in a roadmap, which can be used by Koskamp to implement the PSS.

§9. Discussion

Now that the research has been conducted at Koskamp, interesting insights have been generated that will have added value on the scientific body of knowledge (Heerkens, 2011). The research question that was formulated at the beginning of the research was: "How can the Lean Startup method contribute to implementing servitization at B2B SMEs?" During the research it is found out that Lean Startup can bring structure to an unstructured process like servitization. This can be concluded since Koskamp had no idea how to

implement and how to start with servitization. The Lean Startup methodology provided a good yardstick in starting with servitization. First, the Lean Startup methodology brought the steps needed to be able to revise a business model. This was also the main starting point during the research; what is the vision of Koskamp with servitizating their company. Starting with revising and discussing the new business model created the insights needed to draw the path for the upcoming steps. Next, the customer orientation phase was executed, here the vision of Koskamp was tested. After the vision was validated the pilot / flyer was designed. Afterwards, the design was validated by the customers and learning points were generated. As can be seen, the design of the Product-Service System closely followed the Lean Startup methodology. During the research, interesting insights about the pros and cons of using Lean Startup while servitizing in an existing organization have been gained.

The first insight is that it is difficult to use the Lean Startup methodology in existing businesses, because business model reconfiguration is needed instead of developing a completely new business model from the ground up (Chessbrough, 2020). During the research, it can be concluded that it is indeed the case. There is a big difference between implementing servitization through the Lean Startup method in existing businesses and new businesses. In existing organizations business model reconfiguration is needed, where in startups a business model is configured from the ground up. Why this is more difficult and what the pros and cons are of using Lean Startup for, in this case implementing a PSS, is described below.

First, an existing business already has a big customer base. The first problem that arises here is that these existing customers have to adapt to the new practices that a company is going to apply. This in contrast with a startup that is applying servitization through the Lean Startup method. The specific characteristic of Lean Startup, namely that this method is designed for startup is addressed. Here the adoption model of Rogers comes in. The adoption model of Rogers is a model that classifies adopters of innovations into different categories, based on the idea that certain individuals are more open to adaptation than others. The innovators are the individuals that are pulling the change. Second are the early adopters are the opinion leaders, they try out new ideas but in a careful way. Third are the early majority, this is the group of people that is careful but is accepting change more quickly than the average. Fourth is the late majority, these are the individuals that will only use new products or ideas when the majority is using it. Lastly, the adoption model describes the laggards, these are the people are critical to new ideas and will only accept it when the idea becomes mainstream or tradition. When a person is dealing with an existing customer base the implementation of servitization through Lean Startup is harder, because an existing customer base already consists of all or most of the types of customers listed in Rogers' model. A manager should deal with innovators and early adopters, but also with the opposite, the late majority and laggards. In the Koskamp case this theory can be clearly confirmed in practice. When customers were contacted and informed about the Product-Service System that Koskamp was planning on offering in the future, the responses varied a

lot. Some customers were very enthusiastic and wanted to participate in a pilot, while others were not enthusiastic and wanted to keep control of their own purchasing. It is difficult to persuade the customers who are not in the early adopters and innovators stage, and since an existing company does not want to lose the existing customers, the transition to servitization should be done extremely carefully. In an existing company, the product or service launch needs closer monitoring. In addition, in an existing company the customer base already has a certain expectation pattern, whereas this is not the case for a startup where Lean Startup is normally applied. In the Koskamp case this was clear in the sense that customers from Koskamp were satisfied with the current way of delivery and that some of the existing customers are scared that automated delivery through servitization would yield that products would arrive too late or too soon. Koskamp could solve this problem by offering customers who experience this during product launch a discount on the delivery of the next day. This is also how other existing companies can overcome this problem, compensating customers who are facing difficulties with the new offering. This can also help in keeping customers loyal. While speaking of loyalty, loyalty of customers in existing companies compared with new startups is also an interesting discussion point. During the servitization process at Koskamp customers have indicated that they really liked to be involved in the process right from the beginning. They indicated that during previous projects this was not always the case, and if those projects then failed, they were very disappointed since it had cost them time. Here, the benefit of Lean Startup in existing SMEs is displayed well, when customers are involved in the process, they are likely to accept failure more easily than if a project is launched without any type of involvement. Since a customer is involved during project development, they are also able to see where the problems occurred and why a project failed. This is especially important for existing businesses with an existing customer base. Since a company does not want to lose the customers which have been very loyal in the past, it is important to make them part of the development process. This is different from startups where there are no customers yet, so a company also does not have to worry about the possibility of losing loyal customers. As can be seen, two important characteristics of Lean Startup, the get out of the building principle as well as the acceptance of making errors are addressed here.

As can be concluded from the previous paragraph, the characteristic of existing businesses with their existent customer base has pros and cons. The existence of a customer base in existing businesses is a very important difference in the application of Lean Startup compared to startups.

Secondly, there is a big difference in applying servitization through Lean Startup in an existing business and a startup on the internal part of the company. In a startup a business model is designed together with the employees and hopefully all employees share the same vision. In a startup this is relatively easy since it is small-scale, so employees can faster agree on a certain vision. In a well-established existing company there are more employees, so it automatically becomes harder to agree on the vision and on the revised business model. The effect of this was clearly visible in the Koskamp case where the

opinion of the managers clearly ranged from very positive to very negative. Observations that have been made conclude that the marketing and purchasing department were very enthusiastic about the idea of the Product-Service System whereas the higher managers needed more time before they began to believe in the vision and the idea behind it. Higher managers started believing in the idea of the Product-Service System as soon as they saw that there was a market for it and that the customers of Koskamp liked it. This observation makes it clear that the use of Lean Startup in existing companies can be very valuable. The systematic and empirical way of innovating helped here to overcome internal struggles, because Lean Startup helped in convincing managers that there was indeed a value proposition waiting to be exploited. The transformation process to servitization is very complicated. There are five main factors dominantly influencing this transformation process. Those are: the extent of customer pull, the strength of technology push, the structure of the value network positioning, organizational readiness and organizational commitment. Customer pull influences advancement in terms of the readiness and wishes from the customers. Technology push is the factor that influences advancement in the way that new technology can enable a company to do more. Value network positioning has to do with the awareness of a company to restructure connections with other companies or individuals where the whole network can benefit from (Baines, 2020). The above-mentioned case example where managers believed in the Product-Service System as soon as they saw that customers were interested in it has something to do with the last two points; organizational readiness and commitment. Evidence shows the existence of so-called “tipping points”. These points are points which are triggered when the case for support is strong enough. These tipping points fill the gap between one stage and the next one. Companies would switch from the “Exploration” to “Engagement” stage only when senior management believed a viable business opportunity existed (Baines, 2020). Because Lean Startup stimulates a lot of customer engagement during development of services, customer feedback can help to persuade management in the belief that the new service offering can be a viable business opportunity, and that is exactly what happened during the case as described above.

However, the problem that arises is that the focus of Koskamp was not on introducing the Product-Service System. This is also a problem with an established company, the company is already operational, so there are other operational processes that need attention. In practice this meant that the ICT department was very busy with a project to reduce downtime of the website, so that there was almost no time and budget left for designing and operationalizing the PSS on the website. Although this is a general problem of managerial problems to innovative processes, it is important to keep in mind because this can be a problem when applying the Lean Startup method. The Lean Startup method is a time-consuming method because of the amount of customer involvement and verification steps throughout the process. Because of this, chances are high that companies should shift priorities when choosing Lean Startup as method for implementing, in this case, a Product Service System. One should note that it is only valuable to innovate by using Lean Startup if the benefits are higher than costs and not when the costs are higher than the

benefits. It can be discussed that it is valuable to create a good cost/benefit calculation before a servitization project is started by using Lean Startup.

Thirdly, servitization is seen as a unidirectional shift from product to product-service offerings, with the servitization process being neither logical nor structured. What this means in practice is that the servitization process seems to be a linearly process, but that the sub-processes follow an unstructured and iterative path (Martinez, et al. 2017). This can be verified throughout the implementation at Koskamp. In the Koskamp case the managers asked if the possibilities for servitization could be researched, because quote from manager “it is also done at other companies in different sectors”. “Maybe we can also servitize a part of our business”. This is a clear example of emergent change. Change that evolves based on the actions of individuals without a central plan. In addition, servitization process is mainly a process of continuous emergent change. Only the first phase in the process, the vision development, is an example of episodic change instead of continuous emergent change. Episodic change is the change which is planned and normally only done in periods of stability (Schein, 2002). The vision development is episodic because it is intentionally changing the deep structure (reconfiguring the whole business model) of the company, in this case Koskamp. After the development of the vision, the servitization process developed further with interviewing customers about their opinion about the vision, while the research also continued with selecting products to include in the product-service offering. Here it can be seen that those processes were executed in parallel where often shifts occurred between the different tasks. This means after the vision creation, servitization indeed becomes an unstructured process. The unstructured nature of servitization is not changed when it is applied with the Lean Startup methodology, but the Lean Startup methodology helped with creating overview about the different tasks that need to be executed in order to be able to implement a new offering, in this case a product-service offering.

Now it is verified that servitization is indeed a complex and unstructured process, also in the Koskamp case, the motivation to use Lean Startup as a tool to help implementing this process is stronger. A lot of firms are using the Stage Gate model for implementing servitization. The stage gate is also a method that shares a lot of characteristics with Lean Startup, they both focus on implementing innovative ideas while creating a minimal amount of waste. But the key difference here is that the stage-gate model works in a linear fashion and works with go/kill moments; after every phase it is decided to kill the project or to continue (Sjodin et al. 2020). Because the servitization process is so complex and unstructured, the stage-gate model is too rigid and too linear to handle the dynamic process of servitization. Since the Lean Startup model works with preserve or pivoting, where changing the vision is possible if pivoting is chosen. In addition, if pivoting the vision is chosen the agile characteristic of Lean Startup comes forward. If a vision needs pivoting, agile project management makes sure that previous acquired knowledge can be applied so that the second iteration can be executed smoother. Lean Startup here proves that it better fits the emergent and continuous change nature of servitization.

§10. Implications, limitations and future research

§10.1 Practical implications

As there are implications for the science field, the insights gathered during this action research also have implications in practice. First, the insights gathered during this research can help other small-medium enterprises with designing their servitization journey. It can give a guideline to companies on where to start with servitization (vision creation) and how to continue. Practitioners can use Lean Startup as a begin point in designing their servitization journey. Advice would be to start and talk with managers about their vision. In an existing business it can be difficult to agree on the same vision, but then the Lean Startup method can help.Then, talk with customers about their wishes with respect to servitization. The customer responses retrieved during the exploration phase can be used as a tool to convince managers of a certain vision. Use this vision and this customer input in re-designing the Business Model Canvas. Test the new business model by designing a pilot where the new servitization offering will be tested. Use this pilot test to finalize the servitization offering and ask your customers regularly for feedback. In addition, it can help other practitioners with identifying the main problems during the servitization more quickly; the changing of the organizational structure and its company climate and can warn them not to overlook these factors. Especially in existing companies, the existing customer base should be involved very carefully. Practitioners should pay attention that these loyal customers should be involved since they are the most valuable.

Furthermore, since this case study elaborated upon the vision development and the selection of products, useful insights might be gained by other companies in several strategical aspects for developing a service strategy and designing a product-service portfolio. Lastly, the case helped in identifying the need for a method to implement servitization. Other companies could use this research to make their choice on which method to use; stage-gate, lean startup or any other available method. Why Lean Startup would, according to arguments given in this thesis, be the best fit for the complex servitization process could make the choice for other companies easier.

§10.2 Research limitations

As with all research, this research also has some limitations. First, the period in which the research took place was quite short. At the beginning of the research, the idea was to conduct a real-life pilot with customers to be able to see how the product-service offering would function. During mid cycle it was found out that conducting a pilot and assessing all the data would take way more time than was available. Therefore, the research shifted from doing a pilot to creating a functional design and let customers respond to that design. However, this can also be seen as an interesting insight. Since an MVP costs a lot of time to develop. A functional design would yield almost the same responses as a full pilot or an

MVP, but will be more time-efficient to use, at least in the Koskamp case. The limitation that arises because of this problem is that this research was not able to assess the functioning of the product-service offering inside Koskamp. Because of that, this research does not discuss the (at first unforeseen) problems that will arise when the offering is implemented.

Secondly, because this research was conducted during the COVID period, it was very difficult to retrieve a lot of customer data and feedback. Not all customers were very enthusiastic about the fact that a researcher would come to them and would discuss about Koskamp and their servitization idea. Therefore, the data set is sometimes quite thin, and would not always be a good representation of the real-life situation. A good example of this is the feedback on the functional design. Because the combination of COVID and the vacation period it was very difficult to retrieve responses. As can be seen, only data of two customers is collected in this last verification phase. Because of this, it is hard to know if the responses that are collected will form a good representation of the average customer response due to the small sample size.

Thirdly, the last research limitation is about the fit of the research question with respect to the company. The research question focuses on SMEs (Small to Medium Enterprises) but Koskamp is not a small nor a medium enterprise. Koskamp has 12 branches with more than 300 employees. The definition of a SME is a company with at most 250 employees. Because the research question is answered with data from a larger company it could be argued if the data and insights gathered in this research are explicitly useful for SMEs.

Fourthly, since action research is conducted, this also has one big limitation. Action research' main criticism is that results can be overladen with subjectivity. There is a tendency that researchers become biased because of the over-involvement in the research. Although I tried to be completely objective during the research, I am not able to verify this myself because that would be biased too. Another limitation of action research is that it is time-consuming. This was also the limitation during the research. Because time was limited not every aspect of the Product-Service System could be tested in real-life, something which was in the scope when the research was designed.

§10.3 Future research

Now that the research is performed recommendations for future research are also formed. First, of all future research with more time could yield even more interesting insights. Now Lean Startup is applied, but an important aspect of Lean Startup is only tested in a lightweight manner. In future research it would be interesting to see what a pilot would yield in terms of insights. A lengthy pilot would reveal more complications of applying servitization with Lean Startup and would therefore retrieve even more valuable data.

Secondly, in future research it could be interesting to zoom in more on the specific activities that take place during the servitization process. For example, the customer

orientation phase, Koskamp had never used customer engagement so early in the process. Research could be done on how companies could improve customer satisfaction by listening more to their customers and involving them earlier in the product / service development chain. Also, strategies on how to persuade management on servitization can be explored deeper. We have seen that Lean Startup is a valuable tool in doing so, but it seems that there could be way more methods to create change in the organizational mindset of firms' management.

For Koskamp itself, future research can be done in how inventory management of customers can be automated and linked between the different systems of Koskamp and customer. Linking those systems will yield a lot of big data which Koskamp can use to improve the customer satisfaction. If Koskamp can see the inventory data, then customers will not have to adjust delivery dates and amounts because of a shortage or a surplus of products. Information about the linking of this systems is not yet available according to Koskamp but will be available very soon.

Appendices

Appendix A: Interview reports

Interview report Kamp Twente

You are a big customer from Koskamp. What do you like about doing business with Koskamp really like that I can trust Koskamp as a business partner. If I make an agreement with Koskamp I am sure that they will fulfill their promises. What I often see with companies from the Western side of the country is that they sometimes raise the price without any notification. In addition, those suppliers always have some caveats. "I really like that Koskamp and I have a good relationship, we both like to make profit of course, but we respect each other".

Are you also using other suppliers?

a. Yes, there is no other choice. I have different suppliers because I use them when Koskamp is not able to offer certain products. To not make clients wait for an excessive amount of time, I sometimes order at other suppliers. In addition, since we are an Opel dealer we are obligated to order some parts there, especially for the newer cars (2010 and up). Ordering works with a bonus system, if I order enough material at Opel I will get a bonus at the end of the year. Koskamp also gives a bonus, but this is a lot less. A few years back we had the RIM system which could be used to see which parts were needed at which garages. Then I was also able to deliver parts that I had in my inventory to dealers in the neighbourhood and vice versa.

If answer to question 2 is yes; What could Koskamp do to let you order more at Koskamp?

a. think they can do nothing more than they are already doing. As already mentioned, I am obligated to buy from Opel directly for some parts. Oil is a good example of this, I am obligated to buy the oil that Opel prescribes. Koskamp always sells MPM oil and that is not a brand that I want to use for the maintenance of my cars. I don't have a good experience with that brand, since I also was a mechanic myself. Because I am a dealer, I need to manage the expectations of customers, and I need to use oil from the so -called "A" brand.

What does the ordering process look like?

a. All the fast moving parts are in inventory, they are ordered when the mechanic thinks it is needed. All the non fast-moving parts, so the car specific parts are ordered when maintenance is planned. When I receive a car I can type in the license plate and the amount of kilometres driven and the system immediately shows the parts I need and sends this to the Opel system. Then in around 2 hours I receive a box with the parts I need for that specific car and the type of maintenance I am going to perform. Problem with the central database from Opel is that I need a part that is urgent and I order it in the beginning of the afternoon, I will receive it at 16:00. That is not very efficient, since the mechanics work till 17:00 and in 1 hour time not a lot of maintenance can be done. On such occasions, I don't order from Opel but from Koskamp. Usually they are a lot faster and more flexible with their deliveries.

What do you like about the ordering system at Koskamp?

a. It is fast and efficient. Since the introduction of their webshop it is really easy to find products and immediately order them. However, sometimes I just prefer to call the accountmanager.

Are there any problems you encounter during purchasing the required parts?

a. The biggest problem is that everything is centralized and I am forced to order at Opel for a lot of vehicles. And as already mentioned, sometimes Koskamp is not able to supply the right brand.

How is the amount of parts to order estimated?

a. That's actually very simple. Every day the mechanic walks through the inventory and he takes a look at the products that are in inventory. If product inventory is low, he immediately orders the required products.

What could Koskamp do to improve the customer experience?

a. The tyre prices are quite high. Koskamp is often an expensive supplier in terms of tyres. This makes it difficult to order the tyres at Koskamp if another supplier is almost always cheaper. In addition, I am a customer with more than 200.000 euros of revenue for Koskamp a year. If I order a special timing belt set for which I need special tools to install it, I would really appreciate it if Koskamp just provides those needed tools for free as a loan. Otherwise I need to order those tools which I am going to use only once, since I will never have to install such a timing belt set again. Koskamp could provide those tools for free as a loan for all the big customers.
b. The second thing I want to mention is that Koskamp has a special workshop module which includes all the documentation that is needed for installing certain parts. It is possible to get access to that module under certain conditions. I think it would be a good idea to grant access to all the big customers.

In which way do you think that servitization of the Koskamp offerings could have a positive impact on your organization?

a. I think this could really have a positive impact on our organization. First, the ordering process for us becomes simpler. If I get the products that I need on a monthly basis then that would be great. However, it must be easy to adjust the amount of products and/or to cancel or pause the subscription. In addition, now it takes a lot of work to process all the orders I do at Koskamp. If I would have the option to receive products on a subscription basis then I have to process less receipts. I guess that processing all the orders takes up 3 hours of my day each day again. By automating the orders through a PSS, the order recipes are the same which makes it easier for me to process the orders. In addition, if several orders are combined through a PSS, this will also help with eliminating unnecessary orders.

What do you consider to be possible pitfalls during the implementation of servitization?

a. I think it is difficult to select the products that are suitable for weekly/monthly delivery on a subscription basis. It would be wise to make a prognosis of the fast-movers per client and to offer those products in a Product-Service System. For us AdBlue would be a good product to include in a servitization model. CR2032 batteries are also a fast-mover, the batteries that are used in the keys of the car. As already mentioned, for us oil would not be a good contender because we have to buy the oil that Opel prescribes. Some other good products to include would be Bosch brake parts although they are somewhat specific. Stone-marten alarm systems and the adapter plugs for the towbar would also be good products to include in a Product-Service system.
b. I think it is difficult to apply servitization for a lot of products on the dealer level. Dealers are often obligated to use certain brands.

What do you want to say to Koskamp?

a. I think that a PSS could offer Koskamp a really great competitive advantage. If they could combine servitization in the future with a possibility to look into the inventory of their customers then that would be great. If Koskamp could look into our system and see how many products we have left, they can make sure we have it before we run out of inventory. Now that would be innovation! Koskamp should not apply servitization if it is used as a disguised way to increase their own sales and revenues.Koskamp should not push products to an extreme level of inventory if that is the only way to let servitization work. If Koskamp is going to raise the price of the tyres, then I want to get notified in advance, instead of afterwards.

What do you think of the Lean Startup process, the method we use to implement servitization where you as a customer are directly involved in the process?

a. I think this is a lot better than first rolling out and waiting for the responses. Too often I have seen that Koskamp wanted to roll out pilots while nothing really happened. Often the financial budget was empty before the pilot even finished, therefore a lot of unfinished projects are lying on the shelf.

Interview report Auto Haarhuis

1. You are a big customer from Koskamp, what do you like about doing business with Koskamp?
    a. Koskamp is a very good partner who always pushes to the extreme to make sure they fulfill their promises. Koskamp always thinks together with his clients. The training for mechanics that Koskamp offers is really good as well.
2. Are you also using other suppliers?
    a. Yes, I am also using different suppliers. However, I have two main suppliers Koskamp and Staadegaard. I would always want two suppliers since I don't want to be dependent on just one supplier. I also have some smaller suppliers which I only use as a backup if Koskamp does not have things in inventory and when I need a product fast.
3. If answer to question 2 is yes; What could Koskamp do to let you order more at Koskamp?
    a. Nothing really, I have a really good relationship with Koskamp and I like working with them. There are no real improvement steps that could be made in order to let me order more at Koskamp.
4. What does the ordering process look like?
    a. If I get a car in the garage I will look up its license number and I fill it in in my CRM system. The system knows the car and automatically creates a work order with the maintenance I have to do for that specific car.
5. What do you think of the ordering system at Koskamp?

   a. The ordering process is very good. The webshop works really well although sometimes it is down and I don't know the reason for that. But overall, the webshop and normal ordering system are functioning really well.
6. Are you facing any problems with the purchasing of parts? What are the difficulties during this process?
   a. I am not facing any problems during this process. There are not any improvements that can be made in this process.
7. What could Koskamp do in order to improve the customer experience?
   a. Koskamp could offer more technical assistance for our mechanics. A supplier has more responsibilities than only delivering parts. A good supplier should help with giving information about new regulations and should offer good training for mechanics. Especially for the smaller garages, it is very helpful to get updates from Koskamp if new regulations are applied.
8. In which way do you think servitization of the Koskamp offerings can contribute to your organization?
   a. I don't think the servitization model fits us. In addition, I don't see the added value a service model could give us. First, we don't buy our fluids at Koskamp. Auto Haarhuis has its own gas stations which are rented to Avia, the oil is purchased centrally at Avia. However, I do understand that the service model could bring some benefits, for example if a pattern can be found in which customers are using the fluids. If there is a pattern, then this could help Koskamp with locking in their customers.
9. What could be possible pitfalls during the implementation of servitization?
   a. Oil is a very difficult contender for a servitization business model since it is often purchased in bulk. Other products that could work for servitization, such as tow bars, are, I think, not the focus of Koskamp.
10. Do you have any additional comments?
   a. No.

Interview report Cornelis Hengelo

1. You are a big customer from Koskamp, what do you like about doing business with Koskamp?
   a. The prices at Koskamp are good. I have been doing business with Koskamp for 15 years and they have a lot of products in inventory which makes it easy for me to do business with them. I also like that account managers are visiting me often to check if I am still satisfied with what Koskamp is doing.
2. Are you also using other suppliers?
   a. Yes, I have some other suppliers as well. I also need different suppliers if something is not in stock at Koskamp. I don't want to be dependent on just one supplier.
3. If answer to question 2 is yes; What could Koskamp do to let you order more at Koskamp?

   a. If Koskamp wants me to order more from them they should work on their time planning. If Koskamp is late they are not a little too late, they are way too late with their deliveries. Sometimes Koskamp is not able to answer a question I have directly. In those cases they have to call me back. When they promise to call back shortly, they will call back in an hour or in one and a half hours. In addition, I think that the lines should be shorter. For example, if I call Koskamp for a special oil filter, the sales department first has to ask the logistics department for advice. This costs time and therefore money. If I have a car in maintenance and I have to wait one hour till I can proceed, then that costs me money. The inventory and logistics department has to support the sales department/customer contact center.
4. What does the ordering process look like?
   a. The car-specific parts are ordered when the car arrives in the maintenance list at the beginning of the week. The fast movers are ordered when the mechanic thinks it is needed. Here, no special procedure is used.
5. What do you think of the ordering process at Koskamp?
   a. The ordering process is very convenient, at the end of the month I always receive statistics with the amount of purchased products per item. Also the tyre sales are very insightful.
6. What are the problems you encounter during the ordering process?
   a. As already mentioned, if I need more information about a certain product I have to call Koskamp, the amount of knowledge the salesperson on the phone has is mediocre. Discussion between sales and inventory / purchasing is always needed which takes a long time. Sometimes if I have placed an order, Koskamp mentions that the order will be delivered at 10:00, but then it gets delivered at 10:45. This means that a car is 45 minutes extra in maintenance which costs money. For me it is less of a problem since I have more than one hydraulic lift, but if you have just one this would mean a big delay.
7. Does a discount have an impact on the amount of products you order at Koskamp?
   a. No, I am not price sensitive. Although Koskamp has room for improvement, my trust in Koskamp will always be there.
8. In which way do you think that servitization of the Koskamp offerings could have a positive impact on your organization?
   a. I think servitization could really help me if it is implemented correctly. Koskamp should make a list of products for me that I buy often, a certain list with all the fast movers on it. For each product on this list they should offer a subscription option. In addition, if I place one of those items in the cart accidentally, then I should get a popup that I already received that product through subscription, otherwise I might order double. In addition, I would also like a popup with the fastmovers that I still have to order, maybe this is easier to implement.
9. What do you think the pitfalls could be to servitization?

   a. No pitfalls, it would just really help.
10. What do you think about the fact that you are involved in this project right from the beginning (Lean Startup)?
    a. I really like it. I have seen before that Koskamp rolls something out without knowing if the customer even wants it. Now they are turning that process around with this project, I think that is really great. The distance between customer and supplier feels shorter this way.

Interview report Baan Automotive

1. You are a big customer from Koskamp, what do you like about doing business with Koskamp?
   a. Koskamp is a good supplier which really values the personal connection a lot. I really like the conversations I often have with the managers with Koskamp. That's important to make sure both parties are and stay satisfied. Koskamp always makes sure they will fulfill their promises.
2. Are you also using other suppliers?
   a. Yes, ofcourse. I have to since Koskamp is not able to offer everything I need. For example, we are ordering oil in bulk and as far as I know Koskamp is not able to deliver me Shell oil in bulk. (nb; I mentioned that it is possible right now to order oil in bulk at Koskamp). In addition, sometimes I am using another supplier if Koskamp is way too expensive. Last time, I was searching for a Bosch fuel filter which costs 110 euros at Koskamp, while I can buy it directly from Saab for 40 euros. Then I am using a different supplier. Lastly, I don't want to be dependent on just one supplier.
3. If answer to question 2 is yes; What could Koskamp do to let you order more at Koskamp?
   a. That's a difficult question. I think I am already very loyal to Koskamp. If Koskamp can offer me a better deal for the Shell oil in bulk then I would be considering buying the oil at Koskamp. But I think a lot of discussion is needed before that happens. We already have a really sharp deal with Shell.
4. What does the ordering process look like?
   a. When a car comes in I can just fill in the license plate and the amount of kilometres driven, and then my system tells me which parts I need to order. When I click those parts I can see which suppliers have those parts in inventory and then I am able to order immediately. It is a very efficient system. For fast-moving products it is different. Those products are ordered when the mechanic(s) thinks it is needed.
5. What do you think of the ordering process at Koskamp?
   a. I think the ordering process is very good and very well optimized. The Just In Time management system is executed very well. That means that if I have a specific car for maintenance I will receive the parts just when I need those.
6. What are the problems you encounter during the ordering process?

   a. I am encountering one big issue during the ordering process, that is that when I have an electric vehicle for maintenance, an Audi E-Tron for example, I have no clue which parts I have to replace at what time. Last time, I had an E-Tron which needed a new perfume reservoir according to the worklist. I have never seen such a part before, and my system tells me that Koskamp is also not able to supply those parts. This means that I have to get in contact with an Audi dealership to retrieve the parts I need in order to be able to maintain the car correctly. This costs me a lot of money and thus time. What I would like to see is that Koskamp is also offering those parts needed for electric cars. They are not doing that right now.
7. Does a discount have an impact on the amount of products you order at Koskamp?
   a. No, for me it does not have an impact.
8. What could Koskamp do to improve the customer experience?
   a. As I already mentioned, Koskamp could offer better support for maintaining electrical vehicles. They could do this by creating product training for electrical vehicles. For a lot of garages this is unclear. The supplier should give that information to their customers in my opinion. In addition, the first route is too late which costs me money if I have cars that are waiting to be repaired.
9. In which way do you think that servitization of the Koskamp offerings could have a positive impact on your organization?
   a. For us it is very difficult to use the new offering from Koskamp if it were live. We are ordering a lot of fluids in bulk, so for these products alone we are not interested in a service-offering. For the more specific parts it would be very difficult I think to be able to apply it correctly. I think that if Koskamp wants to roll out the servitization offering they really have to segment their customers. I can imagine that for customers that are individual and maybe a little bit smaller a PSS could offer great benefits.

Interview report BMW Broekhuis

1. You are a big customer from Koskamp, what do you like about doing business with Koskamp?
   a. What I like about Koskamp is that they are a trustworthy company. They are always striving for a good customer experience, and they have a great range of parts available.
2. Are you also using other suppliers?
   a. Of course, as we are a dealer company we are obliged to buy certain parts at the preferred supplier of the car manufacturer. If I am honest, we mostly use Koskamp for tyres, the biggest range of parts is coming from the other supplier.
3. If answer to question 2 is yes; What could Koskamp do to let you order more at Koskamp?

   a. I think that is not possible since we are not allowed to buy more products at Koskamp than we are currently doing. If I was an universal garage then I would consider buying more products at Koskamp, but we are simply not able to do it.
4. What does the ordering process look like?
   a. If a customer calls to the reception then the license plate number is asked and is entered into a BMW communication system. From here, all the car details can be found, such as engine specification, previous maintenance visits and much more. We ask the customer the amount of kilometers they have driven, and from that the system tells us which parts are needed for maintenance. These parts are ordered when the customer gives us approval for the required maintenance. The fast flow products are ordered as soon as the reparimen thinks it is needed. They monitor the amount of AdBlue and oil left each day, so there is no special procedure for it.
5. What do you think of the ordering process at Koskamp?
   a. It is good, but it is not special or something of any kind.
6. What are the problems you encounter during the ordering process?
   a. The problems that are encountered during the ordering process at Koskamp is that the delivery times are sometimes not correct. With that I mean that if Koskamp mentions that ordering before 14:00 will mean that I get it before 17:00, it is not always the case that that is true. I would say to Koskamp that it is important that these times are indicated correctly and I would advise them to work on it.
7. Does a discount have an impact on the amount of products you order at Koskamp?
   a. Since our main focus with Koskamp lies on tyres, and tyres are expensive, it would have an impact on the amount of tyres ordered. The problem is that we know that margin on tyres is low, and therefore discounts do not often occur.
8. What could Koskamp do to improve the customer experience?
   a. The only thing I can think of is the point that I already mentioned in point 6.
9. In which way do you think that servitization of the Koskamp offerings could have a positive impact on your organization?
   a. I think that the overall idea of servitization as you just explained is a very good idea, however I don't think it will work for dealerships since we are independent on the preferred supplier of the brand. Therefore, servitization is not able to help our company, unless it becomes available for tyres, but that would seem hard to implement.

Appendix B: Product selection table

Product	Product description	Suitable for pilot testing?
Oil	Oil is needed for almost each car.	Not yet, in a future pilot yes.

	Product is sold in large quantities. 626.728-euro revenue in 2020. Margin of 28.7%. Fast, flow product but not usable for pilot due to not all brand available and measuring device is not available.	
AdBlue	AdBlue is a fluid used in newer diesel cars with a nitric oxide reduction system. Usage about 10 liter per 10.000km. Yearly revenue of 57.927 euro, margin of 4%.	Yes
Brake fluid	Fluid that needs to be renewed during a maintenance interval. Different types, so makes it hard to include in product-service offering.	No
Brake cleaner	Brake cleaner is used during maintenance. 32.592 euro total revenue in 2020. Margin of 22.4%	Yes
Coolant	Product used for cooling the engine while running. Moderate quantities sold.	No
Washer fluid	Fluid to keep windows clean. Refill needed often, but product not sold in large quantities by Koskamp	Yes, but only if Koskamp can expand sales
Tyres	A lot of variances in tire types.	No

Batteries	Battery in the engine compartment does not have to be replaced often. CR2032 battery for remote of car needs to be replaced often.	Yes
Interior filters	Interior filters are needed to filter the air inside the car. There are 800+ types of filters.	No, impossible

Table 4: Products with selection critera

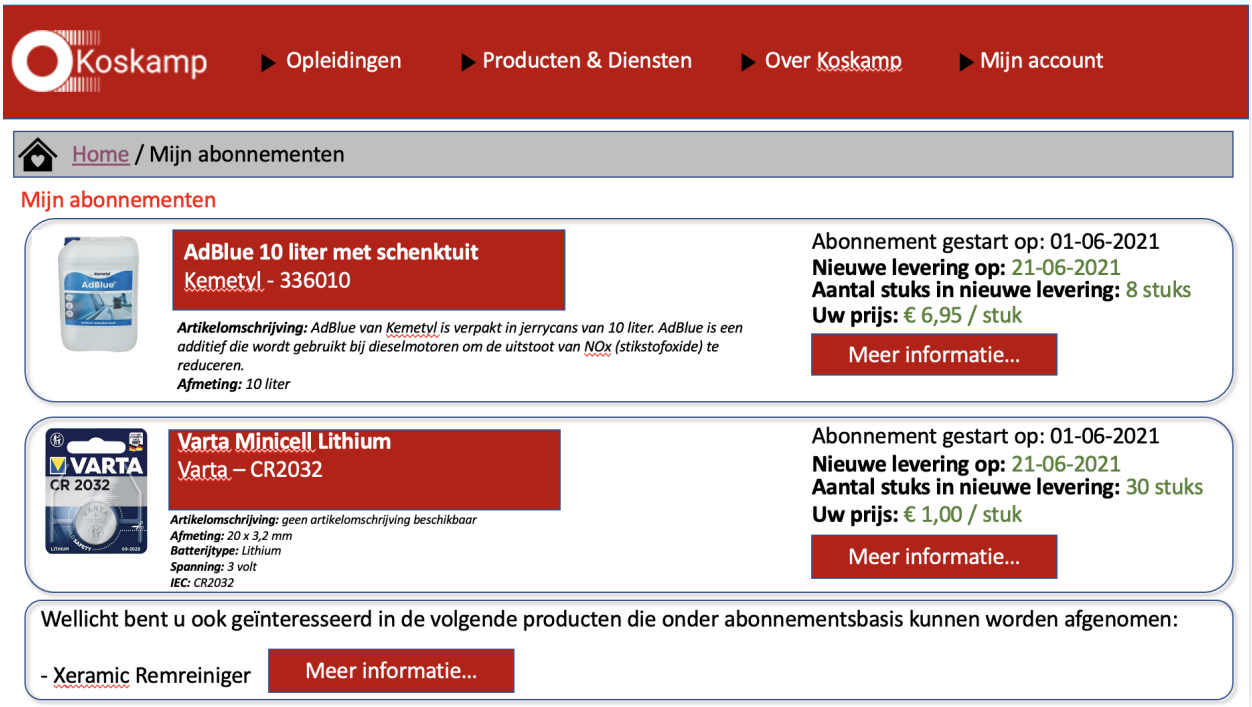
Appendix C: Functional design pilot / flyer

In this appendix all the functions and pages of the design are displayed and discussed. Note that only the pages are displayed for AdBlue and Xeramic, the page for the Varta battery looks the same and has the same functionality and is therefore excluded.

Homepage

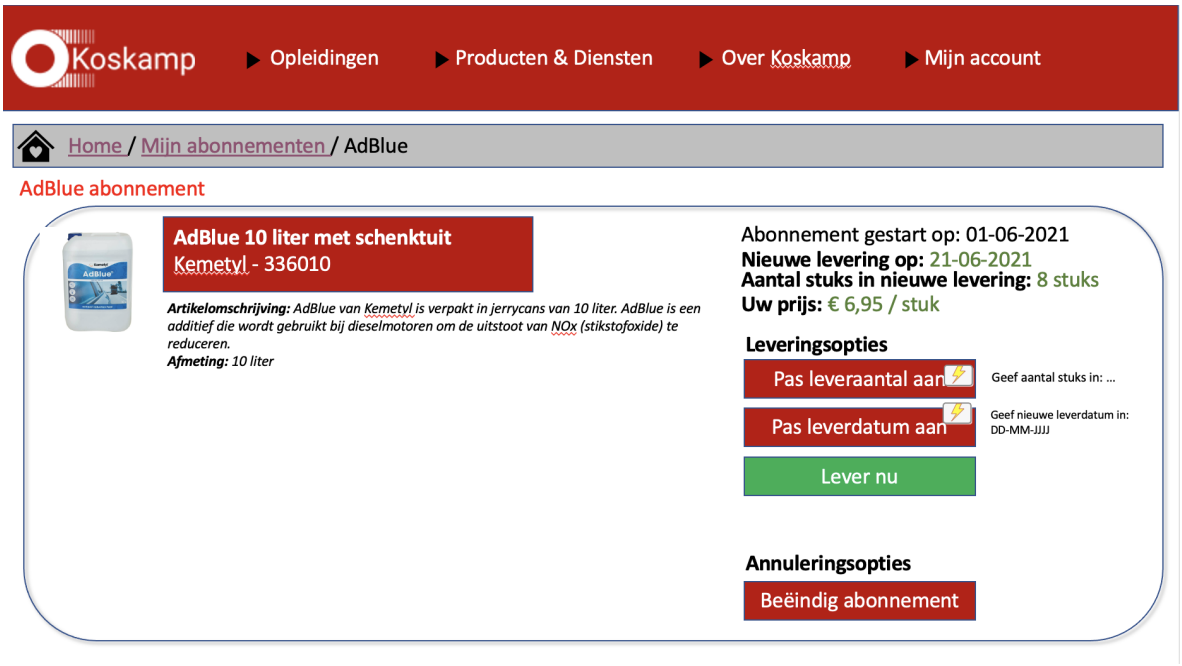
Picture 5: This is the homepage of Koskamp website. Here the Koskamp website has been re-created in PowerPoint and the tabs "Mijn abonnementen" and "Abonnement afsluiten" are added. A click on "Mijn abonnementen" will bring the customer to the picture on the next page.

My subscriptions landing page



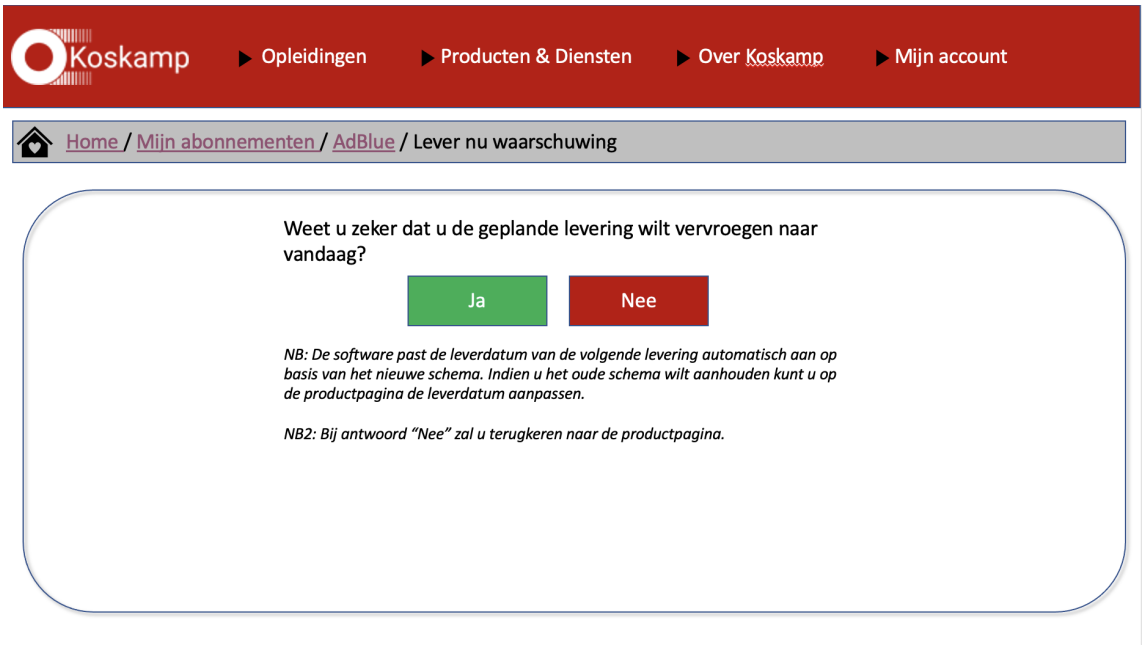
Picture 6: On the page called "Mijn abonnementen" an overview can be found of all the active subscriptions that a customer has. The customer is able to see at a glance which products are active as a subscription, when the new delivery will be and the number of products included in the delivery. In addition, the customer can see the price he has to pay for the product he receives. A short description of the product is provided and there is a possibility to show more information about the product when the "more information" button is clicked. At the bottom of the page a product is shown that is not yet active as a subscription, but the customer might be interested in.

More information landing page



Picture 7: The customer will land on this page when the button "Meer informatie" is clicked on the previous page. On this page the customer is able to adjust the amount of products to deliver for the upcoming delivery. In addition, he is able to adjust the delivery date, or to adjust the delivery day to the current day ("Lever nu"). Under the tab "Annuleringsopties" the customer is able to cancel the subscription. When the subscription is cancelled the last delivery will be the delivery that was already planned. When a subscription is cancelled, it is not possible to adjust the delivery date or delivery amount anymore.

Expedite landing page delivery

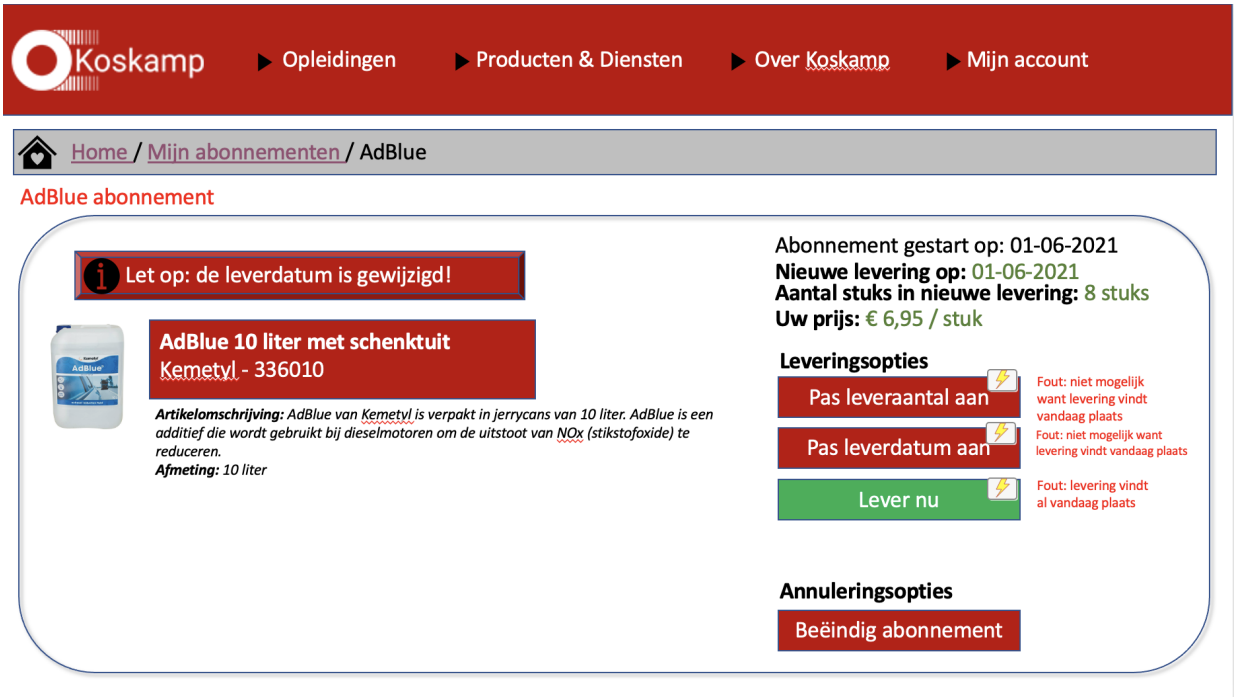


Picture 8: This warning message will show up if a customer decides to expedite the delivery. If a customer clicks "yes" he will be automatically redirected to the confirmation screen (see picture 9). If the customer clicks "no" he will be redirected to the previous product page (see picture 7). Below the "yes" and "no" buttons there is a warning message that the delivery will be automatically adjusted to a new scheme because of the expedited delivery. If a customer wants to return to the old delivery scheme again he is able to adjust the delivery date on the page of picture 7.

Confirmation screen expedited delivery

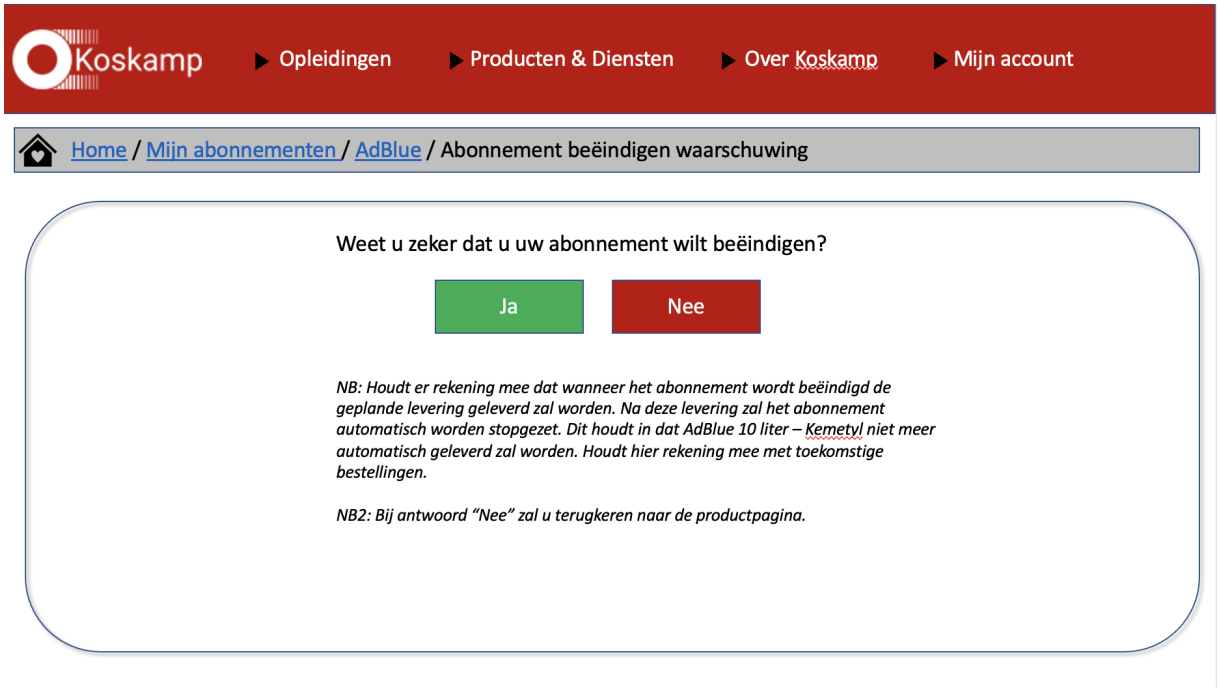
Picture 9: This is the confirmation screen where the customer is notified that the delivery is successfully expedited to today. The data is shown, and a notification bullet is given that when any problems or questions arise, it is possible to contact the account manager. The customer will automatically be redirected to the product page after 7 seconds.

Landing page if customer has decided to expedite the delivery



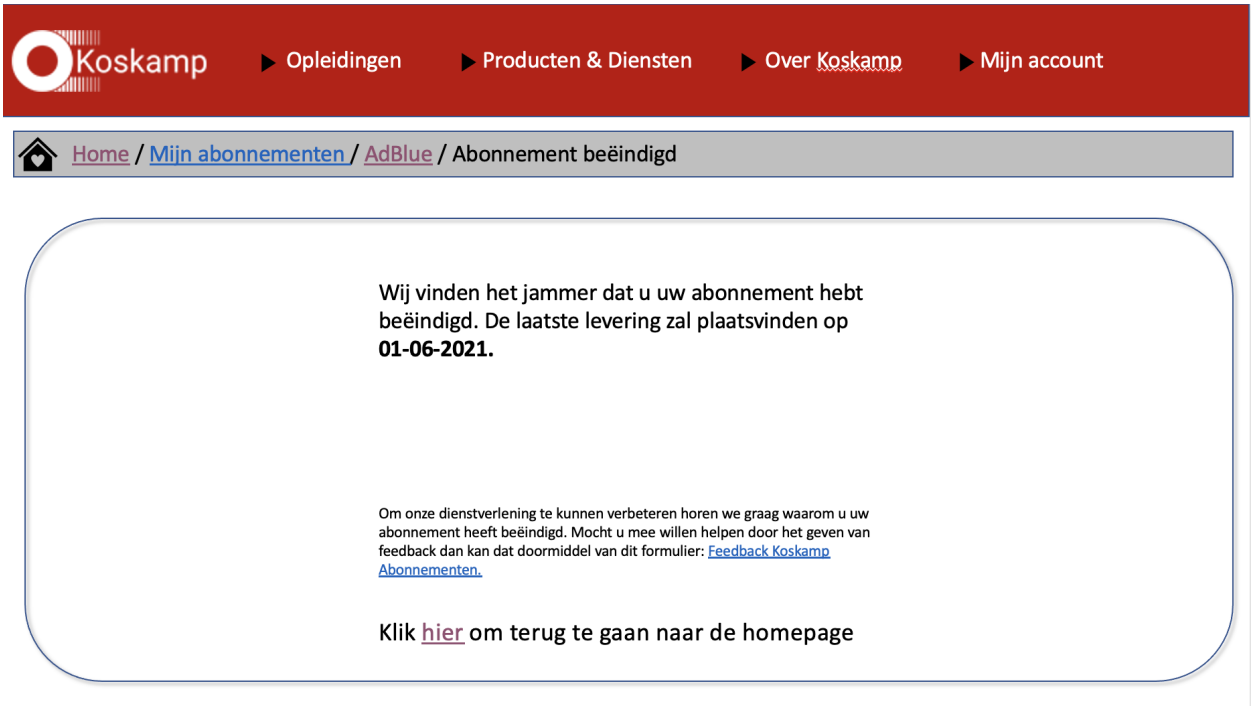
Picture 10: This is the screen where the customer will be redirected to after he has seen the confirmation screen of picture 9. As can be seen, a notification in red lets the customer know that the delivery date is changed to today. After the delivery is expedited it is not possible anymore to change the delivery date or the amount of products delivered.

Warning screen that will be displayed when customer wants to cancel the subscription



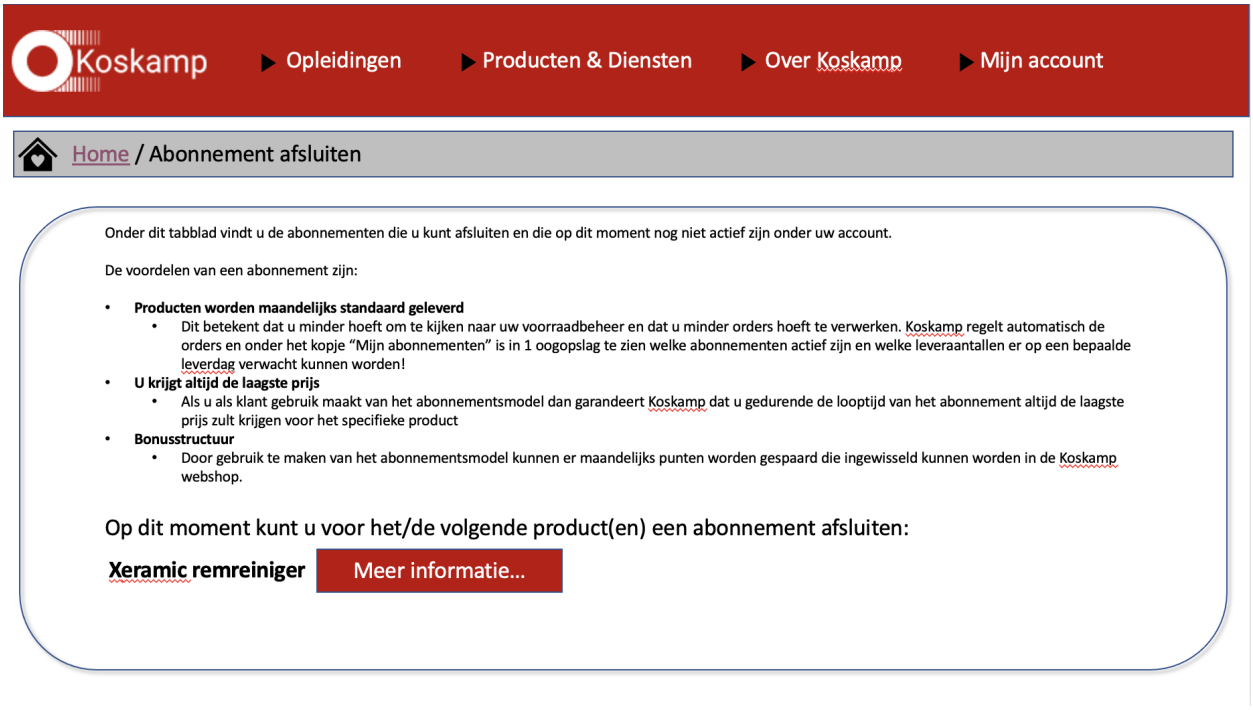
Picture 11: This is the warning screen that a customer sees when he clicks the button to cancel the subscription on picture 7. When the customer clicks "yes" the subscription will be cancelled. When the customer clicks "no" he will be redirected to the product page. Below the buttons a notification reminds the customer of the fact that the planned delivery will be the last delivery. After this delivery, no shipments will be delivered automatically anymore.

Confirmation screen of cancellation subscription



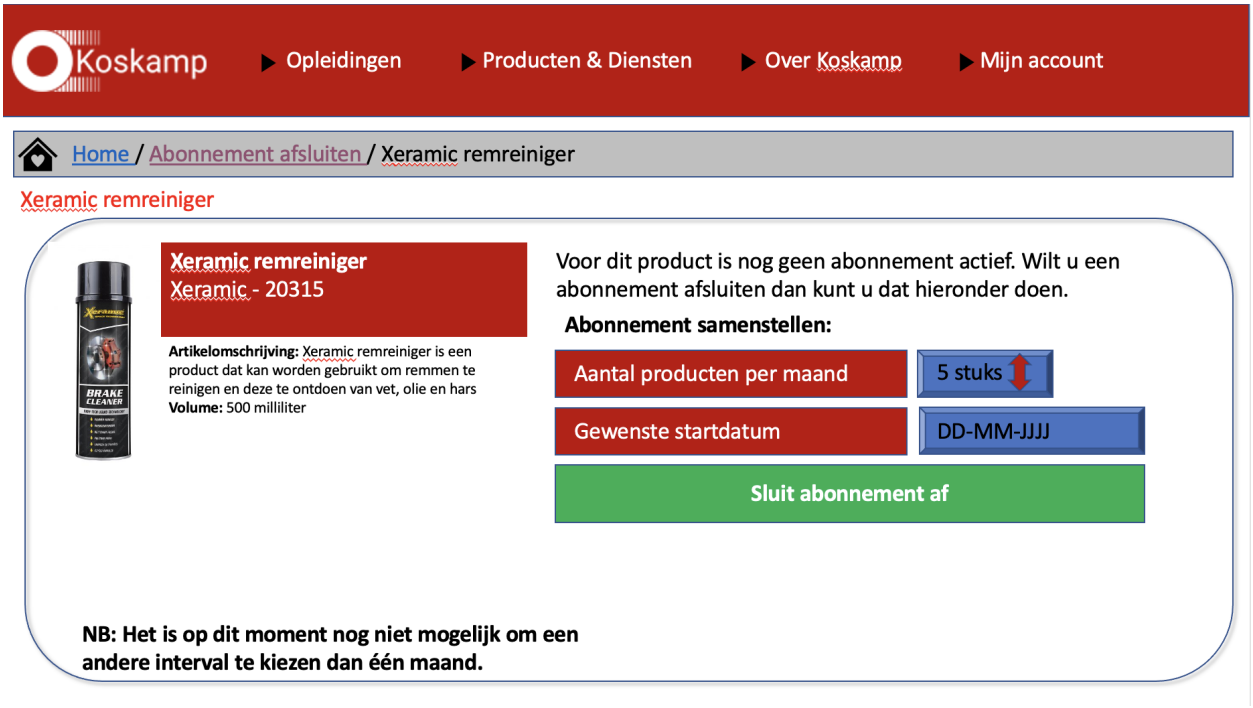
Picture 12: This page will be displayed after the customer has chosen "yes" for the cancellation of the subscription. The last delivery date is announced. In addition, a notification is displayed with the information that Koskamp wants to know why the customer has cancelled the subscription. Here the link to a form is provided. On the bottom of the page, a button appears to bring the customer to the homepage.

Take out a subscription page



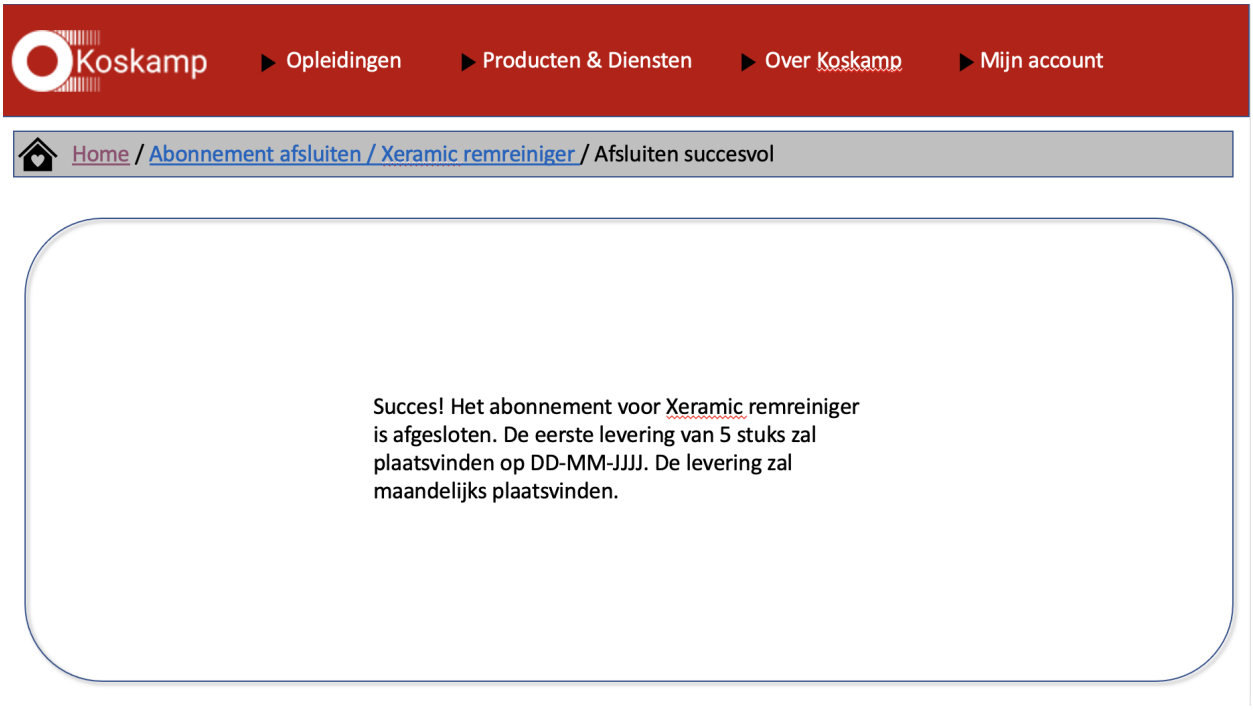
Picture 13: This picture will be shown if the customer selects "Abonnement afsluiten" in the dropdown menu that is present on the homepage. Information about the benefits of a subscription are given, and below that the products are listed that are offered and available through a subscription. As can be seen the product "Xeramic Brake cleaner" is available to take as a subscription.

Subscription page for Xeramic Brake cleaner.



Picture 14: This is the page that is shown if a customer clicks the "More information" button on the take out subscription page. Here it is possible to select the amount of products needed per month and the desired start date i.e. the day of the first delivery. With the green button the customer confirms the selection and agrees on taking the subscription. Below the product picture there is a notice that it is not possible to select a different interval than a month. This could change in the future depending on the developments Koskamp will make in the upcoming year.

Confirmation page subscription



Picture 15: This page will be shown if the green button on picture 14 is clicked. It shows that the subscription is successful and it notifies the customer about the first delivery date and the amount of products.

Appendix D: Customer reactions on functional design

Note: because of the vacation period it was difficult to get feedback from all the customers that were contacted during the customer orientation phase.

Van den Belt - Ijsselmuiden

General observations

During the Skype session it could be concluded that the customer was able to navigate through the interface himself. Two times the customer was not able to navigate back to a certain screen. This was because the hyperlinks for the “Mijn account” menu are not present on every page. However, navigation with the grey ribbon is always possible. After notifying the customer about this possibility, he was able to use the new website module without any problems. This will be changed in the final version of the design, where navigation from all pages is possible.

Questions asked afterwards

1. Do you think that by using the Product-Service System as displayed here, you will be able to save time?

Yes I think that I am able to save time by using this Product-Service System. During the last weeks I already used got AdBlue as a subscription as a test and I found it to be really convenient. The only thing that was not very efficient is that sometimes I had to call if I needed a different quantity or if I was unsure about if the delivery would actually happen. Now, with this interface on the website everything is clear for me. I don't have to check anymore if my fast-movers are in inventory anymore since they are always ordered. In addition, I don't have to process small orders anymore. Normally I always ordered all the fast-movers separately since I was not aware of the inventory I had. Now, I am able to receive the fast-movers in one order which also saves time on processing order bills.

2. Do you think that the solution as proposed here is easy to use?

In the observations it was clear that I was able to click through the interface on my own, without the help of the student. Without my IT-background knowledge that would indeed mean that the proposed solution is easy to use, haha! It is clear where all the buttons are for, and the warnings that are shown by the system are clear and clarifying.

3. What do you think of the possibility of changing the order size and delivery date?

Well actually that's great. As already mentioned during the first question, that was the only thing that I was struggling with when I was participating in the first test, that I had to call if I wanted to change the quantity of the order or the delivery date. That this is now possible to do on the website is amazing and very simple. I would suggest putting the buttons to change the order quantity and delivery date behind the "More information" button. That makes the interface less cluttered. (This feedback is implemented in the design in this report).

4. What do you think of the products that are included in this first iteration of the pilot design?

The amount of products included is not much. However, since this is the first iteration of the pilot design I think it is understandable that the product selection is limited. I hope that Koskamp finds a way to include other more non-general products. For example, when it is possible to create a link between my oil tank and the system of Koskamp, I would like to also buy oil through the Product-Service System as presented here.

5. Do you think that this first product selection is good enough to persuade more customers to make use of the Product-Service System in the future?

Yes, I think so. Customers like me want to see the fast-flow products in the Product Service System. The selection of the products right now are just that, the fast-flow products. Of course I would like to see Koskamp adding other products in the future. Maybe they are even able to add some kind of algorithm (AI maybe?) so that they can create a customized list of fast-flow products per customer.

6. Do you think that calling the customer, just as we did with you, is the best way to introduce customers to a new offering as proposed here?

Yes, I think there is no other possibility. I really liked that we were contacted through the phone. Although, I suggest when the Product-Service System offering is a little bit more mature to let the account managers propose the offering. They are already in personal contact with the customer, so it would be logical if the offering is presented by them. However, I understand that some training and information will be needed before they are able to do that.

7. In the pilot the delivery interval is set to monthly without an option to change it. Do you think that this interval is good, or should it be different? If it should be different, what should it be, or which options should be offered as well in the future?

I don't think that this interval should be fixed in the future. For some products it is just not convenient to get it delivered every month. Some products such as oil are products that I would need every two weeks. If I get oil per month, then I have an extraordinary amount of oil in inventory, for which I don't have room. I can imagine that this counts for more products.

8. Do you have any general remarks or suggestions regarding this first design?

The only remark I had was about to move the buttons behind the "More information" button to make the interface less cluttered. That's the only remark I have. The design looks very clean and is very easy to use. I would like to see the bonus point system on the website as well, since that was mentioned when the PSS was introduced. Maybe it is possible to include that on the product page, so that it is very easy to see the amount of points saved with each product.

Auto Kamp - Hengelo

General feedback

During the physical session at Kamp Twente in Hengelo it could be concluded that the customer was able to use the design without any intervention. The general feedback was;

"The design looks very good, I really see a future in this proposal and this design. The very to use buttons make it accessible for everybody, even for people without a technical background. If there are more fastmovers that could be added then I would say, start immediately."

Questions asked afterwards

1. Do you think that by using the Product-Service System as displayed here, you will be able to save time?

Yes, as discussed in the Skype meeting I strongly believe in the Product-Service System as presented by Koskamp. If my inventory of fast-flow products is kept on an adequate level then this saves a lot of time for me with respect to checking the inventory. In addition, I have to process less order bills which will save me time on a daily basis

2. Do you think that the solution as proposed here is easy to use?

Yes, completely! The very simple buttons make the interface very easy to control. Even my kids will understand this. In addition, all the required information is visible at a glance. This design is

exactly what I had in my mind when the first interview round took place around 2 months ago. I have no remarks whatsoever about the design, it simply looks and feels so easy to use.

3. What do you think of the possibility of changing the order size and delivery date?

Yes, that possibility is great and it is also needed. As mentioned in the first interview this was a prerequisite for me to join. If I have to call to change the order size and the delivery date then the benefits would not outweigh the negatives for me. Since the interface is so easy to use, I definitely see potential in the Product-Service System.

4. What do you think of the products that are included in this first iteration of the pilot design?

The amount of products is a little bit limited. I would advise Koskamp to create a list with fast movers per client, so that the offering becomes more customer-specialized. When Koskamp is able to find more generic fast-movers then I would say launch the Product-Service System immediately since it seems very promising. I really like the products that are included right now, since the products that are included also include the products that I had mentioned during the first interview. Therefore, I really get the feeling that Koskamp listens to their customers, and to me.

5. Do you think that this first product selection is good enough to persuade more customers to make use of the Product-Service System in the future?

That is difficult to say since I don't know which customer segments are targeted here. I would say that this product selection is good to create interest and awareness by customers. I would like to use the Product Service System with the selection of products as it is right now. Although, I can imagine that the customers who usually wait with trying new products or services would need a wider selection of products if Koskamp wants to persuade those customers using the Product-Service System.

6. Do you think that calling the customer, just as we did with you, is the best way to introduce customers to a new offering as proposed here?

Yes, I think that calling the customer with a certain offering is the most personal and effective approach to selling a new offering. If customers are doubtful about the offering then personal contact will always help to persuade them. However, I think that in the long term it would be easier to offer the Product-Service System on the website, and to make customers aware of this offering through mail. It would be quite a lot of work to call all the potential customers.

7. In the pilot the delivery interval is set to monthly without an option to change it. Do you think that this interval is good, or should it be different? If it should be different, what should it be, or which options should be offered as well in the future?

If I have to speak for myself, for me this interval is good. For example, I order AdBlue more than once in a month, but I find it no problem to get AdBlue in a monthly interval. I know that this saves Koskamp costs on the delivery part, but I'll get ease of use and a discount in return.

8. Do you have any general remarks or suggestions regarding this first design?

No, I would say start with it! The idea is great and the design looks very good. Of course there would be some hiccups present in the beginning, but I think that this idea really helps customers forward, and will also help Koskamp in saving costs!

Appendix E: Tables hypothesis correlation customer input

In this Appendix an overview is given how the responses during the interviews correlate to hypotheses that are formulated. In other words, for every customer participating in the interviews, it is displayed if their response verifies, rejects or works indifferent to the hypotheses. If the response indicates a verification, then the table indicates that with (👍) while a rejection will be indicated with (👎). If it is unable to verify or reject a hypothesis with the available responses, then this is indicated with (-).

1. Customers are facing the problem that they must process a lot of orders which takes up a lot of time
2. Customers are having trouble with keeping their inventory at an acceptable and sufficient level, i.e. this takes up a lot of time
3. Customers have enough room to store the inventory they will receive by using a PSS
4. Customers are willing to receive products on a monthly or quarterly basis as standard
5. Koskamp is able to effectively monitor the amount of products used by the customer in a the set time frame for the Product-Service System
6. Reaching the customer by telephone is the most effective way to reach potential customers for a PSS.
7. Koskamp is able to save the customer time by implementing the PSS
8. Koskamp is able to have sufficient stock to match customer demand.
9. There are at least 5 suitable products for a PSS to make it profitable in the long term
10. The PSS is easy to use for the customers; using the PSS should take workload for the customer down instead of up. Changing order size and order date should be very easy and not needed often.

Customer	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	Hypothesis 7	Hypothesis 8	Hypothesis 9	Hypothesis 10
BCS Baan Hengelo	👍	👎	👎	👎	-	-	👍	-	-	-
Athlon Utrecht	👍	👍	👍	👍	-	-	👍	-	-	-
Cornelis Hengelo	👍	👍	👍	👍	-	-	👍	-	-	-
Van den Belt Ijsselmuiden	👍	👍	👎	👍	-	-	👍	-	-	-
Kamp Twente Hengelo, Almelo	👍	👍	👍	👍	-	-	👍	-	-	-
Auto Haarhuis Almelo	👍	👎	👎	👎	-	-	👍	-	-	-
Ten Harkel Zutphen	👍	👍	👍	👍	-	-	👍	-	-	-
Autoborg Groningen	👍	👍	👍	👍	-	-	👍	-	-	-
BCS H. van Bergen	👎	👎	👎	👎	-	-	👎	-	-	-

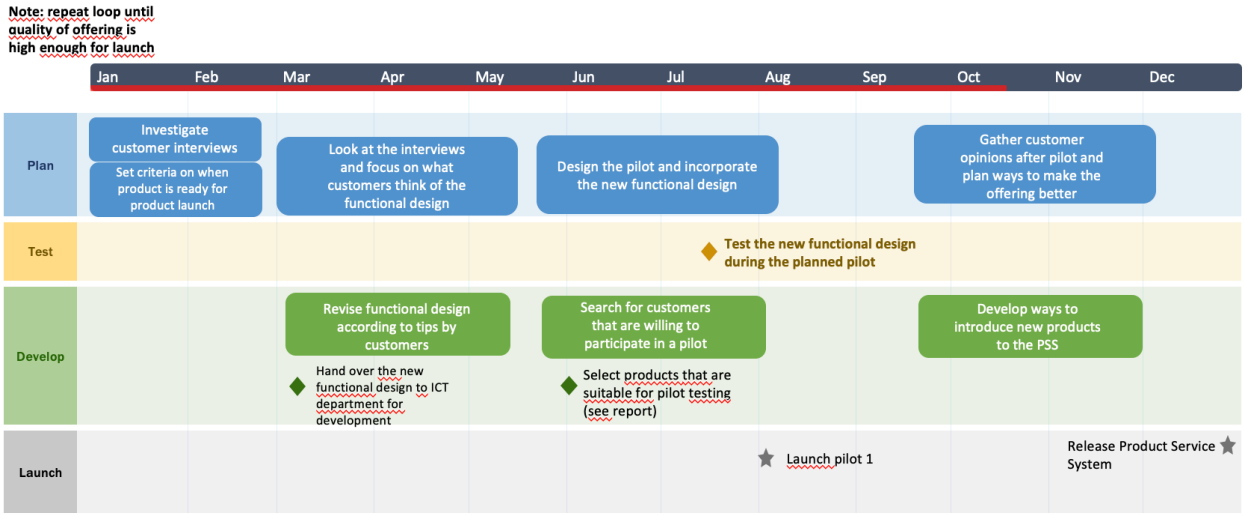
Table 5: Table where correlation between hypotheses and customer input is given (👍 = verification, 👎 is falsification and – is indifferent).

Customer	Hypothesis 6	Hypothesis 7	Hypothesis 8	Hypothesis 9	Hypothesis 10
Van den Belt Ijsselmuiden	👍	👍	👍	👍	👍
Kamp Twente Hengelo, Almelo	👍	👍	👍	👍	👍

Table 6: Table where correlation between hypotheses and customer input is given (👍 = verification, 👎 is falsification and – is indifferent).

Appendix F: Roadmap Koskamp recommendations

In this roadmap an overview is given on which steps Koskamp could take to launch the final offering.



Picture 16: Koskamp recommendations in roadmap

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