


A co-creative perspective on a marketing strategy.

Implementing it on the riser-recliner chair LeChair of Sowecare.



Bachelor Graduation Project by Marijke van Lune

UNIVERSITY OF TWENTE. **SOWECARE** 



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This Bachelor assignment was commissioned by

Sowecare BV
Twentelaan 10
7609 RE, Almelo
Tel.: 0546 49 32 51
E-mail: info@sowecare.nl
www.sowecare.nl

and

University of Twente
Faculty of Engineering Technology
Industrial Design
Postbus 217
7500 AE Enschede

The responsible person for this assignment is

M.W.M. van Lune
S1447904
Industrial Design

Commission of the Exam Committee

Mentor University	Dr. C.V. Gelhard
Mentor University	Prof. Dr. Ir. M.C. van der Voort
Mentor Sowecare	Msc. M.J.M. Olde Daalhuis - Damhuis

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Preface

All the technologies that surround us nowadays have a big influence on the society. It changes the way we see, the way we think, the way we socialize. It changes the way we are involved in this world. Because of all the technologies, the human being has access to more information than ever before. These vast amounts of information result in people knowing more and wanting to know more. These people with knowledge want to put that knowledge to good use. They want to be involved.

This also affects the market. Just buying is not enough anymore. They want to see what is behind the product, they want to be involved in its design. That is why co-creation of value has grown so fast in the last few years.

During my internship at Sowecare BV I tried to implement these value co-creation tools into their marketing strategy. Because of this, their products would not only be fully adjustable to the wishes and requirements of the user, but also be designed and marketed by the inputs of different stakeholders. With an improved company-consumer relationship as a result.

During the assignment, I learned a lot. I learned not only the importance of involving stakeholders in the design of a product and how to create that involvement, but also to be in a working environment and to put everything I learned during my bachelor Industrial Design in practice.

I would like to thank Miranda Olde Daalhuis and Carsten Gelhard for their help, support and feedback during the assignment. I would also like to thank Evert Elbertsen for his feedback on my work, and all the other employees for the pleasant working environment.

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Finally I would like to thank all the users, occupational therapists and employees for the time and effort they put in the post market surveillance.

Marijke van Lune
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Summary

After changing the image of their riser-recliner chair LeChair, Sowecare was in need of a new marketing strategy for the product. This assignment created a marketing communication channel for this new marketing strategy by implementing value co-creation tools in the process. The concept of the co-creation of value describes collaboration between multiple stakeholders (Prahalad & Ramaswamy, 2000), both internal and external, and focuses on the idea of these stakeholders as a creator of value, interacting with each other (Mathis, Kim, Uysal, Sirgy, & Prebensen, 2016). This can be done in two ways. The first is co-production, where the company still holds all the power and external stakeholders can give suggestions and insights, but the final value creation is done through the company. The second is the contrary, where the external stakeholders creates the value almost on his own through using the product, without the help of the company, and is called value-in-use.

Both value-in-use and co-production are used to create the marketing communication channel. Through value-in-use, opinions are created about wat LeChair and Sowecare. These opinions from value-in-use were then translated into something useful in two ways: co-production and co-marketing.

Co-production was used to translate these insights into recommendations. Through a post market surveillance, the insights were gathered and analysed, and afterwards recommendations were given on how to improve LeChair, as well as the communication and promotion of Sowecare.

Co-marketing was used by creating a communication channel for social media. The insights from value-in-use, together with a full marketing communication analysis, were used to design and develop a promotional video in order to create that different image. By putting the promotional video on the website and social media like YouTube and Facebook, value-in-use will be created again.

Samenvatting

Nadat het imago van de aangepaste stoel c.q. sta-op stoel LeChair was veranderd, had Sowecare een nieuwe marketing strategie nodig. Deze opdracht heeft een communicatie kanaal gemaakt voor deze nieuwe marketing strategy, door value co-creation te implementeren. Value co-creation is een samenwerking tussen verschillende belanghebbenden (Pralad & Ramaswamy, 2000), zowel intern als extern, en ziet deze belanghebbenden als de ontwerper van value door interactie te hebben met elkaar (Mathis, Kim, Uysal, Sirgy, & Prebensen, 2016). Dit kan op twee manieren. De eerste is co-productie, waarbij het bedrijf nog altijd de touwtjes in handen heeft, maar suggesties en inbreng van externe stakeholders gebruiken bij de value creation. De tweede is het tegenovergestelde en geeft de externe belanghebbenden bijna alle macht door het product te gebruiken, en heet value-in-use.

Zowel value-in-use, als co-productie zijn gebruikt bij het maken van een marketing communicatie kanaal. Via value-in-use worden er

meningen gevormd over LeChair en Sowecare. Deze meningen vanuit value-in-use zijn vervolgens naar iets bruikbaars vertaald op twee manieren: co-productie en co-marketing.

Co-productie is gebruikt om de meningen te vertalen in aanbevelingen voor verbeteringen. Via een post market surveillance zijn deze meningen vergaard en ge-analyseerd, waarna er aanbevelingen zijn gedaan over hoe zowel LeChair, als de communicatie en promotie van Sowecare verbeterd kan worden.

Co-marketing is gebruikt in het creëren van een communicatie middel. De meningen vanuit value-in-use, samen met een volledige marketing communicatie analyse, is gebruikt om een promotievideo te ontwerpen en produceren. Door dit filmpje vervolgens op zowel de website, als verschillende social media sites als YouTube en Facebook te plaatsen, kan er weer value-in-use worden gecreëerd.

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Introduction

In this report can be read how value co-creation is implemented in the marketing strategy of Sowecare BV. Sowecare is a manufacturer of innovative rehabilitation devices since 1998. Under their own brand they design, manufacture and sell riser-recliner chairs, pedal chairs and wheelchairs which are sold domestically and abroad. Sowecare distinguishes itself by developing qualitative and innovative solutions which enhance the independency of the user. Because they produce their own products, the chair can be fully adjustable to all the wishes and requirements of the users.

The sales of their riser-recliner chair LeChair plummeted in the last few years, since the rules for the reimbursement of riser-recliner chairs in the Netherlands tightened in 2009 and only a few people are now able to get a reimbursement, and only if they have such a disability or illness, that sitting in a 'normal' chair is not doable anymore. The rest has to pay for the chair out of their own hand.

Because of this, Sowecare changed the image of the chair. Instead of just an armchair that can help a person standing up, they changed it into a medical device which supports people with different disabilities and illnesses to sit in a chair. Because of this, they had to create a new marketing strategy. Creating a marketing communication channel for this new marketing strategy was the purpose of this assignment.

The design of the communication channel was done through value co-creation. In order to be able to do this, first research had to be done about what co-creation is, with its building blocks, and how it could be implemented in a marketing strategy. This research can be found in chapter 1 and 2.

After this, a full analysis was made about Sowecare, LeChair, and its users. A background analysis, target analysis and market analysis can be found in chapter 3, 4 and 5.

When all the background information was collected, the value co-creation could start. This was done through a post marketing surveillance. The surveillance and its analysis can be found in chapter 6. The recommendations for a redesign of LeChair and the communication tools can also be found in chapter 6.

With the insights collected from a part of cocreation of value, a communication tool was developed to communicate the new image of LeChair to the consumers and start a new part of value co-creation. The marketing communication analysis can be found in chapter 7, and the design and development of the channel can be found in chapter 8.

1. User-Centred Marketing

Ever since the rise of mass production and more evolved communication tools a company-centric, an efficiency-driven view of value creation, shaped the industrial infrastructure and the entire business system (*Prahalad & Ramaswamy, 2002*). Products were basic and designed for the mass market. The goal was to standardize everything so that the production costs could be as low as possible, and thus they could be priced lower and made more affordable to more buyers. Value creation was seen as a process of cost-effectively producing goods and services. It is what Philip Kotler et al (*2010*) call the product-centric era.

Nowadays, the society has changed. The fast advances in technology have altered the way people communicate, make decisions, socialise, entertain themselves, interact with each other or even do their shopping (*Constantinides & Fountain, 2008*). These current information and communication technologies, with the Internet in particular, are forcing companies to think differently about value creation and to be more responsive to consumer input. Driven by the consumer-centric culture of the Internet, with its emphasis on interactivity, speed, individuality and openness – Web 2.0 (*Erragcha & Romdhane, 2014; O'Reilly, 2005*) – the consumer's influence on value creation has never been greater and it is spreading to all points in the value chain (*Prahalad & Ramaswamy, 2002*). This emerging reality is forcing a re-examination of the traditional system of company-centric value creation, to a premise centred on co-creation of unique value with customers (*Prahalad & Ramaswamy, 2004 a*).

1.1. Value co-creation

The concept of the co-creation of value describes collaboration between multiple stakeholders (*Prahalad & Ramaswamy, 2000*), both internal and external, and focuses on the idea of these stakeholders as a creator of value, interacting with each other (*Mathis, Kim, Uysal, Sirgy, & Prebensen, 2016*). It is a continuous dialogue

between internal stakeholders – the company – and external stakeholders – the customer – about problem definition and problem solving. The experience of one is used to co-create personalized experience to suit his/her personal context. The variety of experiences of many is used to know how the external stakeholders see the business in real time (*Prahalad & Ramaswamy, 2004 b*). This is done through direct and indirect collaboration across one or more stages of the value chain (*Ranjan & Read, 2016*). According to Ranjan and Read (*2016*), value co-creation consists of two distinct elements: co-production and value-in-use.

Co-Production

"Co-production consists of direct or indirect 'co-working with customers' or participation in the product/service design process." (*Ranjan & Read, 2016, p. 292*). It is a more traditional approach and based on a goods-dominant logic (*Terblanche, 2014*). The consumer participation plays a big role in co-production, but the company also has a big influence on the process, and it is a firm-centric approach (*Chathoth, Altinay, Harrington, Okumus, & Chan, 2013*). In co-production, control of the process is located at the side of the firm, which defines the nature and extent of co-production (*Vargo & Lusch, 2004*). There are acts of mutual exchange, physical and mental activities, and access to mutual expertise. However, co-production still considers consumers as exogenous targets and as resources of the firm. Nonetheless, it does not rule out the possibility of customers being psychologically involved in the co-production process (*Ranjan & Read, 2016*). Co-production is mostly carried out in the design and product development phase, or the production phase of the value chain, but also a bit in the marketing phase.

Ranjan and Read (*2016*) found three underlying elements of co-production that can be organized according to the categories of knowledge sharing, equity, and interaction. Knowledge sharing is the basic operant resource that consists of sharing

consumers' knowledge, ideas, and creativity in the articulation and expression of current and future needs. Equity means the firm's willingness to share control in favour of consumer empowerment and the consumer's desire to contribute to their role in co-creation activities. Interaction is the primary interface between company and consumer. It is an opportunity to understand, share, and serve needs, and to simultaneously assess and adapt resource commitment.

Value-in-use

"Value-in-use extends beyond the co-production, exchange, and possession of a good or service, and it requires customers to learn how to use, repair, and maintain a product or service proposition." (Ranjan & Read, 2016, p. 293). By Prahalad and Ramaswamy (2004 a), value-in-use is also referred to as co-creating experience, since it focuses on the experience that customers will seek to create. It describes the way actors behave, interact, interpret, experience, use, and evaluate propositions based on the social construction of which they are a part (Prahalad & Ramaswamy, 2004 b; Vargo & Lusch, 2004; Ranjan & Read, 2016). In contrast to the co-production, value-in-use is a more service-dominant logic (Lusch & Vargo, 2006). Where the firm had the control in co-production, with value-in-use they only have partial control (Prahalad & Ramaswamy, 2004 b), and it may even be mostly independent of the company's intervention or exchange (Vargo & Lusch, 2004). It regards customers as active players who can co-develop and personalize their relationships with and adopt a multitude of different roles (Payne, Storbacka, & Frow, 2008). Value-in-use is carried out in the consumption phase of the value chain, but can also be used in the marketing phase.

Ranjan and Read (2016) identified three elements that value-in-use consists of: experience, relationship, and personalization. Experience is an empathetic, emotional, and memorable interaction that has intrinsic value, which results

in use value. Personalization is the uniqueness of the actual or perceived use process, the value being contingent on individual characteristics, and results in possibilities of cultural reshaping and reinforcement through the uniqueness of the process

Building blocks of value co-creation

As could be read in previous sections, according to Ranjan and Read (2016), co-creation consists of six elements, divided in two dimensions: knowledge sharing, equity, and interaction for co-production, and experience, relationship, and personalization for value-in-use.

Prahalad and Ramaswamy (2004 b) came up with the DART method: Dialog, access, risk-benefits, and transparency. They see these four elements as the building blocks of interaction. However, they take a lot of the other elements into account and thus these four elements rather can be seen as the building blocks of these elements and the means to link the six elements of value co-creation.

Dialog implies interactivity, deep engagement, and the ability and willingness to act on both sides. Dialog also encourages the knowledge sharing and understanding between companies and consumers. However, it is difficult to have a dialog between two unequal partners, so the firm and the consumer must become equal and joint problem solvers. This equality is difficult if consumers do not have the same access and transparency to information. Access challenges the notion that ownership is the only way for the consumer to experience value, and transparency of information is required to create the trust between institutions and individuals (Prahalad & Ramaswamy, 2002). Both are critical to have a meaningful dialog. But more importantly, dialog, access, and transparency can lead to a clear assessment by the consumer of the risk-benefits of a course of action and decision. With risk-benefits comes the risk reduction, which assumes that if consumers become co-creators

Co-creation element 1	Linking element	Co-creation element 2
Knowledge sharing	Dialog Access Transparency	Interaction
Knowledge sharing	Access Transparency	Equity
Interaction	Dialog Risk benefit	Relationship
Experience	Dialog	Interaction
Experience	Dialog Access Transparency Risk Benefit	Personalization

Table 1: Co-creation building blocks.

of value with companies, they will demand more information about potential risks of goods and services, but they may also have to bear more responsibility for handling those risks (*Prahalad & Ramaswamy, 2002*). So, these building blocks already take knowledge sharing, interaction, and equity into account. These building blocks can also be used to link experience, relationship, and personalization with knowledge sharing, equity and interaction.

Dialog aids knowledge sharing in interaction. This knowledge sharing cannot be done without equity, which can be done through access and transparency. A good interaction with dialog and risk benefits, makes sure there is a good relationship between the company and the consumer. And experience with dialog turns into an interaction, and experience, aided with dialog,

access, transparency and risk benefit, can turn into personalization. See also table 1.

So, the six elements are important in order to make the co-creation process work. Without knowledge sharing, interaction, equity, relationship, experience and personalization, the process would go less smoothly. The four linking elements help to achieve the six building blocks.

1.2. Co-creation of value in practice

Previously was already mentioned that co-creation is spreading to every phase of the value chain. The value chain describes the full range of activities which are required to bring a product or service from idea to the customer. Figure 1 (*Kaplinisky & Morris, 2001*), shows the different phases of the value chain: design and product development; production; marketing; and consumption/recycling. It was also mentioned that co-production mostly takes place in the design, product development and production stage of the design process. Value-in-use, on the other hand, occurs in the marketing and consumption phase. So there is a dichotomy, right in the middle of the value chain, where the value chain is split between co-production and value-in-use. This means that not all phases have the same dimensions of the co-creation process, and thus in every phase, different methods can be used to involve people in the value creation process. In the next section, the co-creation practices that can be used per phase are elaborated.

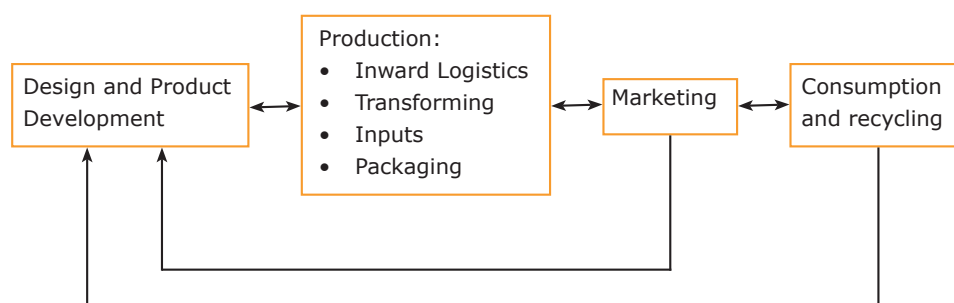


Figure 1: The Value chain

Design, product development and production

Participatory Design

Participatory design is a research method, which uses design as research (*Spinuzzi, 2005*), actively involving all the stakeholders in the process as much as possible (*Casali, 2013*). It is an approach in which the (future) users play a critical role in designing it (*Schuler & Namioka, 1993*), where the roles of the designer and the researcher blur and the user becomes a critical component of the process (*Sanders E. B., 2002*), becoming both user and designer. The designer strives to learn the realities of the users' situation, while the user strives to articulate their desired aims and learn appropriate technological means to obtain them. Through interactions with prototypes and mock-ups, among other things, the user can have a voice in the design of the product, without needing to speak the language of professional technology design. (*Simonsen & Robertson, 2013*)

Co-design

Co-design is the successor of participatory design, and can be seen as collective creativity as it is applied across the whole span of a design process (*Sanders & Stappers, Co-creation and the new landscapes of design., 2008*). Classical roles of users, researchers, and designers in the design process get mixed up. The person who will eventually be served through the design process is given the position of 'expert of his/her experience', and plays a large role in knowledge development, idea generation and concept development. The designer and the researcher

collaborate on the tools for ideation, and may even be the same person. The designer switches to a support role, and the user can get the opportunity to design the solution themselves (*Casali, 2013*). However, this is not always possible. In some situations, a lesser degree of user involvement is needed.

The role of the user can be in four levels of creativity: doing, adapting, making and creating (*Sanders E. B., 2006*). The motivation behind doing is to accomplish something through productive activity, which requires a minimal amount of interest and skill requirements. The next level, adapting, is more advanced. The motivation behind it is to make something one's own by changing it in some way, to better fit a personality or the functional needs. It needs adaptive creativity, which requires more interest and a higher skill level than doing. The third level of creativity is making, which motivation is to use one's hands and mind to make or build something that did not exist before. Usually, there is some guidance involved. It requires a genuine interest and prior experience in the domain. The most advanced level of creativity is creating, which motivation is to express oneself or to innovate. Advanced creative efforts are fuelled by passion and guided by a high level of experience. It differs from making in that creating relies on the use of raw materials and the absence of a pre-determined pattern. Table 2 gives an overview of the different levels of creativity.

Level	type	Motivated by	Example
4	creating	inspiration	Dreaming up a new dish.
3	Making	Asserting ability or skill.	Cooking with a recipe.
2	Adapting	Appropriation	Embellishing a ready-made meal.
1	doing	Productivity	Putting ready meals in the microwave.

Table 2: Levels of creativity

The difference between participatory design and co-design.

Both processes have in common that they involve people in the design process in order to design something that is more effective for the user. However, co-design leans more on teaching the skills to the recipients of the process, while participatory design stress more the involvement factor (Casali, 2013).

Marketing

Marketing 2.0

Marketing 2.0 is a response to the changes of the society and the rise of Web 2.0. The fundamental principle of marketing 2.0 is to integrate consumers at all levels of the marketing approach and considers them as an active player in the marketing process, instead of a single receiver (Erragcha & Romdhane, 2014). It is a relationship-based strategy (in contrast to the product-based strategy of marketing 1.0), where customers and companies work in collaboration to explore a need and then create a unique product or serving meeting that need (Corbae, Jensen, & Schneider, 2003). The golden rule "customer is king" works well in this strategy. This way, customers are better off because their needs and wants are well addressed. Marketers try to touch the consumer's mind as well as their hearts (Kotler, Kartajaya, & Setiawan, 2010).

This marketing strategy thus connects the companies directly with their customers (Neti, 2011) and empowers them to participate in several marketing activities, including branding, product development, product feedback, and customer service (Parise & Guinan, 2008). This leads to a shift in the locus of power away from the firm, towards the customer (Berthon, Pitt, Plangger, & Shapiro, 2012). Because of the social media and its online communities, social networks, blog marketing, and many other communication tools within it, consumers are in control, driving content to build personal relationships. This means that companies have to give up some control of certain processes in order

to allow consumers more direct input into driving the organization's value proposition. However, it is important that companies have a community moderator role, who helps manage and facilitate discussions, and ensures that the community is active by encouraging member participation in blogs, wikis and forums, pointing out community events such as podcasts, training sessions, or conferences, and sharing electronic articles and links to relevant websites. (Parise & Guinan, 2008)

When looking at this, there are three important things in order for marketing 2.0 to work: social media, so that everyone is connected and consumers are able to give their input; creative consumers, to have their say in the matter, give their input and keep the community active; and the company as a community moderator, to keep the community active and helps manage everything. This can also be seen in figure 2.

Marketing 3.0

Kotler et al (2010) go a step further: Marketing 3.0. Marketing 3.0 is the promotion of an authentic and sincere message, and translating into all aspects of the company: product development, personnel management, and marketing (R., 2014). Consumer choices are based more and more on more deeper needs, and marketing 3.0 is a respond to this. It is value-driven, searches for a meaning and sees the human with an holistic approach, looking at the consumer as a human that is multidimensional (Kotler, Kertajaya, & Setiawan, 2010). it is the result of collaboration between a group of entities, adopting all the same values, and is responding to cultural issues (Erragcha & Romdhane, 2014). Companies are evaluated not

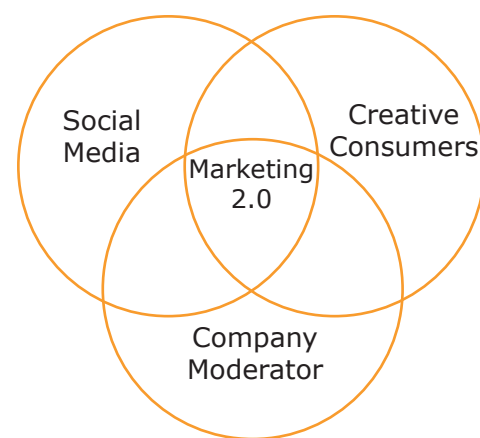


Figure 2: Marketing 2.0

only with respect to the profit they generate, but also in terms of their behaviour towards humans and the planet.

Marketing 3.0 has the same execution as marketing 2.0, involving users in the process and using social media to accomplish their goals. However, it has this extra dimension added to it, trying to create a meaning in the world.

Consumption

Consumption is where the true co-creation of experience happens. The consumers have bought the product and are using it. The power is now out of the company's hand and the consumer has all the time and place to create his/her own value and experience. However, the company can still get its hand on this information: by being open for feedback. This can either be passive or active.

Passive feedback

For passive feedback the company does not have to do much more than maintain the ways people can contact them, e.g. phone, mail, social media, in person, et cetera. When people have the need to give the company feedback, they can contact the company.

Active feedback

The company itself can also play an active role in receiving the feedback. An example for this is surveys. Companies can take the opportunity to perform a surveillance with people who have already been using the product for a while. They know what they like and do not like about the product, and can give that information to the company.

1.3. Conclusion

All the changes in technology and society are forcing companies to re-examine their product-based approach to a user-based approach: Value co-creation. Value co-creation is a collaboration between multiple stakeholders and focuses on the idea of these stakeholders as a creator of value, interacting with each other.

Co-creation can be divided into two parts: co-production and value-in-use. Co-production is an approach where the company still holds most of the strings. However, users are given the opportunity to have their say in the matter and help designing the product. Value-in-use, on the other hand, is almost fully dependable on the user and is an approach where the company cannot really do anything. Value-in-use is an approach where users create their own value while using the product.

In order to make co-creation work, there are six building blocks that have to be taken into account: knowledge sharing, equity, interaction, experience, relationship and personalization. In order to create these six building blocks, four elements are needed: dialog, access, transparency and risk benefit.

When all the building blocks are taken care of, the company can start with the co-creation process. In all four stages of the value chain (design and product development, production, marketing, and consumption/recycling), co-creation can take place. In the design and production stage, co-production is used through participatory design or co-design. In the marketing stage, co-marketing is used to create value-in-use, and value-in-use is also created in the consumption stage.

2. Implementation

This research has been done to see how different stakeholders can be integrated in the value creating process. In order to see if it works, the theory is implemented in a case study. The case study consist of the co-creation of LeChair, a riser-recliner chair designed and produced by Sowecare BV.

LeChair is a riser recliner chair, unique in its movement and adjustability, which makes it a perfect medical device for all sorts of physical disabilities. However, LeChair is not often seen as the medical device that it is. Because of that, their image needs to be changed. This will be done through value co-creation.

The first important part is to find out what the different stakeholders think of LeChair right now. For this, co-creation of experience will be used. Different stakeholders, like employees, users and occupational therapists have opinions of LeChair. These stakeholders have been working with LeChair for some time, since they either use it, produce it, or give advice about LeChair. This means they have quite some knowledge about LeChair, and because they are all different opinions, it can be very valuable to hear all of them.

These opinions can be divided into two groups: internal and external insights. Employees are covered by the internal opinions, users and employees by the external opinions. To change the image that the external stakeholders have, their opinions need to be compared to the internal stakeholders. The internal stakeholders should have a very clear view of the image of LeChair, or at least the image that they want to reach. By comparing the internal opinions to the external opinions, it will be clear what is missing where, in order to translate the internal opinions to the external opinions.

This translation can be done in two ways: co-production and co-marketing. First of all, the opinions of the co-creation of experience can

be used to see what can or should be changed about LeChair itself. So with these insights, recommendations will be made about how the design of LeChair can be changed. This is done through a post market surveillance. Besides recommendations about LeChair, also recommendations about the communication and promotion of Sowecare can be made, since these insights will also be gained.

Second, co-marketing was used by creating a communication channel for social media. The insights from value-in-use, together with a full marketing communication analysis, were used to design and develop a promotional video in order to create that different image. By putting the promotional video on the website and social media like YouTube and Facebook, value-in-use will be created again.

3. Background Analysis

3.1. Sowecare B.V.

Sowecare B.V. is a manufacturer of rehabilitation devices and thereby partner in the healthcare industry. Their mission is to develop and produce innovative products, which improve the living conditions of people with disabilities, so that they will be independent for a longer time and are able to continue their everyday lives. The company owns its own workshop, which allows them to custom-make all their chairs and adjust them to the individual requirements and wishes of the user. Besides their own products, Sowecare B.V. also produces healthcare products for third parties, like Philips Medical Systems. (*Eigen Productie*)

To accomplish all this, Sowecare B.V. has around 40 employees, divided in two departments (upholstery and assembly department) and a small staff (*Sowecare, 2015*). In the upholstery department, chairs are upholstered and extra attention is paid to the specific requirements and wishes, like the back lumbar, deviating foam or coating materials and specific shape requirements. In the assembly department, chairs are assembled. The frame of all the chairs is set to the specific sizes of the user. On this department the final inspection also takes place.

In the Netherlands, the products are in particular sold to private buyers, big insurance companies, WMO and nursing homes. Abroad they work together with wholesalers and larger dealers.

3.2. The Products

Sowecare B.V. develops different kinds of rehabilitation devices, like a riser recliner chair, a pedal chair, an electric wheelchair and a pedal-wheelchair combination.

A *riser recliner* chair is an adapted chair, which makes rising from a chair easier for people with a physical disability. A riser recliner chair rises because of an electric motor and tips the user forwards, which makes the rising easier. Besides

a help with rising, the chair is also a help with sitting down, which prevents plumping down on the chair. The user 'sits down' with the chair in the highest position and uses the electric motor to lower the chair again. The chair can go even lower than the standard sitting position, into a reclining position. (*Sta-op-stoel, 2013*)

A *pedal chair* is a helping device, which enables the user to sit down in a stable way and to move around the house independently. The chair can be put so high that the user is almost on the same height as when he would be when standing. This means that the user does not have to stand up or sit down all the time anymore, but can keep sitting down in the chair while working. It is also often used for transfers. Then the height of the chair is put on the same height of, for example, the bed, so the user can make the transfer from the pedal chair to the bed easier, without having to stand up. (*Trippelstoel, 2015*)

A *wheelchair* is a means of transportation for people who have difficulties walking. There are three ways of moving: either the user moves the wheelchair manually, there is a person who pushes the wheelchair, or the wheelchair contains an electric motor which drives the wheelchair. There are a wide variety of wheelchairs to meet the specific needs of the user (for example for sports, active wheelchairs, passive wheelchairs, et cetera). (*Wheelchair, 2016; Rolstoel, 2016*)



Figure 3: LeChair

LeChair

LeChair is a riser recliner chair with a high rising function, providing the user with extra support while standing up, wherein the back stays straight the whole time. Besides that, the chair also has an unique movement pattern, which follows

the exact kinetic action of a person when they stand up or sit down. The virtual centres of rotation of the chair correspond with the centres of rotation of a person's joint, which prevents abrasion to the chair. LeChair is, however, most often used as a custom seat instead of a riser-recliner chair. For example, a person with scoliosis needs extra support while sitting, so he can achieve the right sitting posture. Because of different adjustments in LeChair, this is possible. (Leaflet LeChair III, 2014; Aangepaste stoel; sta-opstoel LeChair)

LeRoulé Plus

LeRoulé Plus is a wheelchair, which is very adaptable to the user, and can be used as a wheelchair, as well as a pedal chair. The modular construction of the chair enables the user to adapt the chair to his individual requirements and wishes. When getting in and out of the wheelchair is challenging, there is an added electric high/low and stand up functions. Because the user can handle these options without help, the user stays independent and utilizes his possibilities. (Leaflet LeRoulé Plus, 2013; Hoog-laag sta-op rolstoel LeRoulé Plus)



Figure 4: LeRoulé Plus



Figure 5: LeTriple
reach even high spaces, without losing stability.

LeTriple

LeTriple is a pedal chair, which can be fully adjusted to the individual requirements and a variety of options can be added. The chair is provided with an electric high/low function, which enables the user to

Another aspect of the chair is the undercarriage; the chair is equipped with a special M-shaped undercarriage, which provides the user with a lot of space to make an efficient pedal movement without a lot of force. The undercarriage also provides a lot of stability in all positions of the chair. (Leaflet LeTriple, 2013; Trippelstoel/trippelwerkstoel LeTriple)

LeTriple Basic

LeTriple Basic has the same functions as the LeTriple, but with less options. The chair still can be adjusted to suit the dimensions of the user. This way the correct working posture can be created, which makes the chair a perfect working chair.



Figure 6: LeTriple Basic

The LeTriple Basic, however, does not have the specific M-shaped undercarriage, like LeTriple. These different shapes, together with different materials, made it possible to reduce the selling price. (Leaflet LeTriple Basic, 2012)



Figure 7: LeTriple Wheels

LeTriple Wheels

LeTriple Wheels unites shifting and wheelchair functions into a light moving chair, which is the solution for people for whom a standard 'pedal' chair is not sufficient,

but a wheelchair is also not useful. The sprung rear wheels of the chair ensures that indoor obstacles such as bumps can be easily and safely traversed, while the large wheels ensure that even in small spaces, the user can still move with great flexibility. The electric high/

low reach gives the user the possibility to work at different heights, with a footrest that moves with the chair, for when the feet cannot reach the floor anymore. (*Leaflet LeTriple Wheels, 2013; Trippelrolstoel LeTriple Wheels*)

Medical devices

All products of Sowecare are medical devices. A medical device is every instrument, apparatus, appliance, material, software or other article intended by the manufacturer to be used for humans to detect, treat, mitigate or prevent diseases of disabilities (*Kruisinga, 1970*). There are essential requirements to which a medical device has to meet. The overall requirements, including the efficiency requirement, is about the technical safety, sterility, and biocompatibility of the product. The manufacturer or importer is responsible, as well as certain administrative requirements. Then, the products will have a CE marking, and is the company free to trade throughout the European Economic Area (EEA). Manufacturers who launch their own products, have to register with the competent authorities. (*CE-markering: richtlijn medische hulpmiddelen*)

3.3. LeChair

In the last section LeChair was already explained. However, in this section there will be a bit more in depth explanation about the chair, the design, the options, the settings, the control, and about applying and financial support.

The design

The following points are the basis of the design of LeChair: comfort, function, safety, lifetime and environment. These points are partly realised by use of exceptional, sustainable materials. The fabric is hardwearing, easy to clean, and fire retardant. Comfort and a good functionality are reached by minimizing the shear forces through the use of the unique movement pattern, the settings and adjustments of the chair to the user, good specifications, and all the available options. The unique movement pattern is already

explained in section 3.2., in the next sections first LeChair Basic, together with the basic routine before manufacturing, will be explained with the specifications, followed by the different options, the settings and the control.

LeChair Basic

Before LeChair is made for the future user, first a fitting is performed with the person concerned. Most of the time, these fittings take place at the home of the future user and will be performed by an employee of Sowecare, together with an occupational therapist. In some cases, mostly when abroad, there will not be an employee of Sowecare or an occupational therapist present, but is it the dealer that performs the fitting of the chair.

When the fitting is done, then the sizes will be filled in on the order form (see also Appendix A). The future user has the possibility to buy the basic edition or to add extra options. In the basic edition, there are still some adjustments possible, so that the chair suits the body of the user in the best way possible.

The standard specifications of LeChair are (*Karakteristieken LeChair III, 2009*):

- The mechanism of the chair, made of steel;
- The mechanism of the footrest, made of steel;
- The seat, made of plywood with foam and latex;
- The back rest, made of an metal frame with plywood, coated with polyether foam, and a lumbar cushion, with the length of 80 centimeters;
- The coating, made of fabric, hardwearing, easy to clean, and fire retardant;
- The armrests, made of wood with polyether foam;
- The side consoles, made of plywood and wood;
- The footrest, made of plywood with polyether foam;

- Two motors: the rising-reclining motor (6000 Newton), and the footrest motor (2000 Newton). There is a third, optional motor: the back motor (3500 Newton). All motors have an 220-240 Volt toroidal transformer;
- A blocking Switch, which blocks the outgoing movement of the footrest in the rising position;
- A 4 or 6 button control (depending on the amount of motors), with a synchronised function: standing up means the footrest goes in (for safety).

Extra, adjustable options

Besides the basic option, the chair can be adapted to comply with the needs of the user (see also Appendix B). There are a lot of options that can be added or adjusted to the chair to meet the users' needs:

- The Fabric (also possible in the basic edition);
- The Adjustment;
- The Seat;
- The Seat width (also possible in the basic edition);
- The back;
- The back height;
- The neck support (also possible in the basic edition);
- The armrests;
- The seat height (also possible in the basic edition);
- The seat depth (also possible in the basic edition);
- Other adjustments

Sometimes, future users also would like some extra options added to the chair which are not on the option form. If Sowecare is able to either buy, or make these extra parts, and it is safe to add these options, they will make sure these options will end up on the chair.

Besides all the extra options, there are a few more things that makes the LeChair standard different from LeChair basic:

- LeChair basic has metal legs, while the standard has wooden legs;
- LeChair basic has single stitched fabric, while the standard has a double stitch;
- LeChair standard has a manually adjustable head rest;
- The motors and control of LeChair basic is different from the standard;
- LeChair standard has a side pocket.
- LeChair has an console below, where LeChair basic only has a upholstered plate.

Settings

As seen in the specifications, there are three separate motors present in the chair. One for the rising and reclining function, one for the foot rest, and one for the back. All motors can be controlled separately, except when rising, because then the foot rest automatically moves in to ensure safety. The chair is stepless adjustable from the reclining position, through the active sitting position, to the rising position. The minimum angle between the seat and the backrest is in the stand-up motion 90 degrees, in which the backrest always remains vertical.



Control

LeChair is operated by the user through a handset, which is placed on the side of the chair (either on the left or on the right, depending on the preferences of the user). The handset either has four or six buttons, depending on the options of the one specific chair. With the upper two buttons, the rising and reclining is operated, the middle two buttons controls the footrest and the lower two buttons control the back

Figure 8: the control

operation. When there is a four-button handset, the lower two buttons for the back operation are not present.

Besides the handset, there are two specifications which can be manually controlled by the user: the lumbar and the neck cushion. Using the pump on the lumbar, the desired thickness can be attained. Using the button on the pump, air can escape from the lumbar to make it smaller. The separate neck cushion can be adjusted in the height by shifting is over the back rest.

International Market

Sowecare does not only sell their chairs in the Netherlands, there is also export. Specifically looking at LeChair, the countries where a lot of export is going, are England and Switzerland (*verkoop monitor Acces, nd*). There is also a little export going to France and Germany, but since this is not so much, in the next sections the focus will lay only on the Netherlands, England and Switzerland

Applying and financial support for LeChair The Netherlands

Financial support for a riser recliner is only possible if there are specific sitting problems and a simple chair is not possible anymore. Then a person can go to the health insurance company. If there are not any specific sitting problems, but the user does need the chair to participate in everyday life, the person can try to get financial aid through the 'wet maatschappelijke ondersteuning' (WMO) – law for social support – at the local community. (*Vergoeding, nd*)

Applying for a riser recliner chair at a health insurance company is different for every company, but broadly the following procedure is gone through. Applying for a riser recliner chair is only possible with a medical statement. Depending on the health insurance company, this can come from the general practitioner, the occupational therapist, and/or the doctor treating you. This statement has to be sent to the health

insurance, together with a request form. The application will then be handled by the resources department, where based on the medical statement is checked whether the person is eligible for the riser recliner chair. When in doubt, the health insurance may choose to do a home visit (*Sta-opstoel aanvragen*).

After applying, in a few weeks there will either be an approval, a rejection, or a message that an appointment will follow for further assessment. When the application is approved, the fitting of the chair can be performed, after which the chair will be ordered and delivered.

The riser recliner chair is most of the time a loan provision and the health insurance company is the owner of the chair. The user has to agree to the terms of delivery and sign the loan statement. When the user does not need the chair anymore, it will be picked up. With an objection of the rejection, it is possible to object within six weeks from the decision of the municipality at the WMO. After filling in a complaint, a hearing will be held, often by a separate committee. The committee then makes a recommendation to the city, after which a decision on the objection is formed. If there is a disagreement, the user can appeal to the administrative court. Finally, it is possible to do a higher appeal at the Central Council of Appeals (*Vergoeding*).

United Kingdom

In the United Kingdom you can either buy your own equipment or obtain it through the National Health Service (NHS) or the local council. For the NHS, a social worker or an occupational therapist can assess the needs of the person to consider what equipment would best help them. This usually happens as part of the assessment process. A need for equipment may also be triggered by a carer's assessment. Equipment will be provided free of charge, as well as minor adaptations (*Equipment and changes to your home*).

A Disabled Facilities Grant is a form of local authority grant to help towards the cost of adapting your home to enable the person to continue to live there. A grant is paid when the council considers that changes are necessary to meet their needs, and that the work is reasonable and practical (*Equipment and changes to your home*). Only certain people qualify for help with the costs. The first step is to get a needs assessment form from the social services department of their local authority. Then local authorities have the legal duty to carry out that needs assessment if they think he might be eligible for local authority care. If the person is assessed as needing care, it is possible to apply for financial help, where after the local authority will carry out a financial assessment of his income, savings and assets to decide how much help they can give.

So it depends on the amount of capital as well as the income, if you are eligible for local authority funding. (*Getting Local Authority Funding for Care at Home*).

The local authority must give their decision in writing within six months of the date of application. If there is disagreement with the decision, the user could use the local authority's complaints system. A further complaint could be made to the Local Government Ombudsman (*Equipment and changes to your home*).

Switzerland

In Switzerland, riser recliner chairs are hardly ever compensated. Sometimes the local authorities provided some financial support, or there is a charitable organisation that helps out. However, this is only for specific persons or cases. In general, most of the population have to pay for the riser recliner chair themselves.

3.4. Conclusion

Sowecare is a company that have three characteristics that they value highly. The first is that all their chairs are innovative. This can be seen in their products, because every product contains something new. This can either be a part of the product, like the movement through virtual pivot points of LeChair, or the complete product itself, like LeTriple Wheels.

The second value of Sowecare is the quality. This can be seen in the type of products that they make - rehabilitation devices - and in the way they make the products.

The last characteristic that Sowecare values highly is user friendliness. This can be seen in the adaptability of the chair. In this chapter only the adaptability of LeChair was brought up, since this thesis is about LeChair. However, all chairs of Sowecare are fully adjustable, not only in the standardized options, but also in options that the user needs or requires - as long as it is safe.

LeChair itself is unique in two ways. First of all, its movement through virtual pivot points, so that the chair moves exactly like a body, is unique. What is also unique, are all the available options of LeChair, both standardized and custom-made.

4. Target Audience Analysis

4.1. Riser recliner chair users

People who have to use a riser recliner chair are the primary target audience for the chair. Since this target audience is very broad, this will be further specified. The target audience can be divided in two major groups: People who have to use the chair because of an illness, and people who have to use the chair because of disabilities through age.

4.1.1. Users because of an illness

There are a lot of different illnesses for which people have to use the chair. All these different diseases give different reasons for using the chair, and different reasons give different functions to the chair. That is why, in the following sections, every disease will be shortly explained.

Kyphosis

Kyphosis is an exaggerated curvature of the upper (thoracic) spine that creates a hunchback appearance (*Kyphosis Definition*). There are three main types of kyphosis: postural, Scheuermann's, and congenital (*Eck, 2016*). Postural kyphosis is noticed during adolescence, and is caused by poor posture and a weakening of the muscles and ligaments in the back. Scheuermann's kyphosis is the result of a structural deformity of the vertebrae and is also noticed during adolescence. Congenital kyphosis is the least common type of kyphosis, which is caused by an abnormal development of the vertebrae during development prior to birth. Kyphosis is estimated to affect 4 to 8% of the population (*Kyphosis, 2003*), which is equally as common in male and female (*Kyphosis*).

The most common symptoms for patients with kyphosis are the appearance of a hunchback. Symptoms may include back pain, muscle fatigue, and stiffness in the back. Most often, these symptoms remain fairly constant and do not become progressively worse with time. However, sometimes it is progressive, causing a more exaggerated hunchback. In rare cases,

this leads to compression of the spinal cord with neurologic symptoms including weakness, loss of sensation, or loss of bowel and bladder control. For both postural and Scheuermann's kyphosis, physical therapy and exercise are often effective. Surgery is recommended for congenital kyphosis and more severe cases of Scheuermann's kyphosis.

Scoliosis

Scoliosis is an abnormal curve in the spine in the vertical plane of the body, where only a lateral curvature is normal (*Davis, 2016*). Scoliosis affects about 2% of females and 0,5% of males. Most patient get the disorder around age 10 to 12 and in their early teens, because this is the time when children are growing fast (*What Is Scoliosis?, 2014*). The most common symptom of scoliosis is an abnormal curve of the spine. Scoliosis may cause the head to appear off centre, leaning to one side or notice one hip or shoulder to be higher than the opposite side. If the scoliosis is more severe, it can make it more difficult for the heart and lungs to work properly, which causes shortness of breath and chest pains. In most cases, scoliosis is not painful, but some types of scoliosis can cause back pain, rib pain, neck pain, muscle spasms, and abdominal pain.

The most common type of scoliosis is idiopathic scoliosis, which means that there is no cause for the disease and affects over 80% of all scoliosis patient. Besides that, there are three other main types: functional, where the spine is normal, but an abnormal curve develops because of a problem somewhere else in the body; neuromuscular, where there is a problem when the bones of the spine are formed and develops in people with other disorders; and degenerative, which occurs in older adults and is caused by changes in the spine due to arthritis.

Oedema

Oedema is a swelling, usually of the legs, feet and/or hands due to the accumulation of excessive fluid in the tissues (*Cunha, 2016*). There are two types of oedema: peripheral and pulmonary (*Mathur, 2015*). Peripheral oedema is oedema in tissues perfused by the peripheral vascular system (veins and arteries in arms, hands, legs and feet) (*Peripheral edema, 2016*). Symptoms include swelling of the affected area(s), which cause the surrounding skin to "tighten". The swelling from peripheral oedema is gravity-dependent. Pulmonary oedema is oedema in the tissue and air spaces of the lungs (*Pulmonary oedema, 2016*). Symptoms may include shortness of breath, difficulty breathing when lying flat, waking up breathless, and requiring multiple pillows to raise the head at night for a comfortable sleep. Oedema affects about 1.6% of people, can occur in all ages and occurs ten times more often in females than in males (*Ely, Osheroff, Chambliss, & Ebell, 2006*).

Decubitus ulcers

Decubitus ulcers are pressure sores, which is an injury to the skin caused by constant pressure or shear forces (*Pressure Sores, nd*), shear forces and/or friction (*Pressure Ulcer, 2017*). This often occurs when a person lies in bed or sits in a chair for a long time. Pressure reduces blood supply to the skin. Over time, this can cause the skin to break down and form an open sore. There are different stages, and each stage had different symptoms. Depending on the stage, it may include: skin discoloration, pain in the affected area, infection, open skin, skin that does not lighten to the touch, and skin that is softer or firmer than the surrounding skin.

Pressure sores occur at every age, but mostly in patients older than age 65 (*Wiersma, 2015*). 0.19% of males, and 0.27% of females have the disorder.

Parkinson's disease

Parkinson's disease is a neurodegenerative (progressive loss of structure or function of neurons) disorder, which leads to progressive deterioration of motor function due to loss of dopamine-producing brain cells (*Heyn, 2016*). The progression and degree of impairment vary from individual to individual. Most individuals who develop Parkinson's disease are over 60 years old. Estimated is that 6.3 million people worldwide have the disease (*About Parkinson's Disease, 2010*), and men are affected about 1,5 to 2 times more often than women. Incidence of Parkinson's increases with age, but an estimated four percent of people with Parkinson's Disease are diagnosed before the age of 50 (*Statistics on Parkinson's*).

Symptoms may include trembling in fingers, hands, arms, feet, legs, jaw, or head; stiffness of the limbs and trunk; slowness of voluntary movement; posture inability, and parkinsonian gait. Secondary symptoms are anxiety, insecurity, stress, confusion, memory loss, dementia, constipation, depression, difficulty swallowing, diminished sense of smell, increased sweating, male erectile dysfunction, skin problems, slowed, quieter speech, monotone voice, and urinary frequency/urgency.

Amyotrophic Lateral Sclerosis (ALS)

ALS is a neuromuscular disorder, which leads to insufficient functioning of the muscles (*De Ziekte*). This is because the motor neurons in the spinal cord and the brain stem are withering away. As a result, the signals from the brain are no longer transferred to the muscles. The brain can no longer trigger muscle movements. Estimated is that around 0.088% of the population has ALS, with about 1,5 more males than females (*Feiten en cijfers over ALS*). Most of the time the disease arises between age 20 and 40.

Symptoms may include: weakening muscles resulting in the failure of arms or legs; stiffness, muscle spasm and reduction in force; difficulty standing, walking and turning; reduction in speech and swallowing with pneumonia effect; anxiety and depression; hanging of the head by impairment of the neck muscles; and difficulty breathing (*Symptomen en diagnose*).

Multiple Sclerosis (MS)

MS is a neurological disease which causes demyelination of the brain and spinal cord nerve cells (*Taylor, 2016*). MS occurs predominantly in younger persons, with those aged 15 to 60 most likely to be diagnosed, and about 2.5 million people worldwide have been diagnosed. Women are about twice as likely as men to develop multiple sclerosis.

MS symptoms are dependent on the area of demyelination, and may include: visual changes; double vision; a sensation or feeling of numbness, tingling, or weakness; vertigo or dizziness; a lack of coordination of the arms or legs, problems with balance, problems with walking, and falling; slurred speech; Lhermitte sign (a sense of an electrical charge traveling down the spine with neck flexion); and incontinence or the inability to empty the bladder.

In a progressed stage, patient have muscle spasms, or an involuntary painful contraction of certain muscles.

Arthritis

Arthritis is used to describe around 200 rheumatic diseases and conditions that affect joints, the tissues that surround the joint, and other connective tissue (*Nichols, 2015*). The most common types are osteoarthritis and rheumatoid arthritis. Arthritis is most commonly seen in adults, with two-thirds of people with arthritis are under age 65. However, half of adults over age 65 have arthritis (*Arthritis Facts*) women than men (*Macon & Reed-Guy, 2015*), with 26 percent of women and 18 percent of men.

Symptoms usually develop over time, but they may also appear suddenly, and may include: joint pain, stiffness, swelling, decrease in range of motion, redness of skin around the joint. In the case of rheumatoid arthritis, symptoms may also include feeling tired, losing appetite, becoming anaemic, or having a fever, and severe cases cause joint deformity.

For clarity, all facts were put into a table, as can be seen in table 3.

Illness	Starting Age	Male : Female	Total % of Population	% Male Population	%Female Population
Kyphosis	<0, 10-18	1:1	8 - 16%	-	-
Scoliosis	10 - 15	-	-	2%	0.5%
Oedema	All Ages	1:10	1.6%	-	-
Decubitus Ulcers	>65	-	-	0.19%	0.27%
Parkinson's Disease	>50	2:1	0.084%	-	-
ALS	20-40	3:2	0.088%	-	-
MS	15-60	1:2	0.03%	-	-
Arthritis	All Ages	-	-	18%	26%

Table 3: All facts of users who have to use LeChair because of an illness.

4.1.2. Users because of age

The other major group of people who use the chair, are the elderly. Because the term 'elderly' is very broad, just as in the last section, this will be exemplified through some facts. These facts will also tell why elderly are in the target group of riser recliner chair users.

In most developed world countries, the chronological age of 65 years old is accepted as a definition of the term 'elderly' (*Proposed working definition of an older person in Africa for the MDS Project, 2002*). In the Netherlands lived in 2015 3 million elderly people, which will rise to 4,7 million people in 2040 (*Feiten en cijfers*). In the United Kingdom there live 11.6 million elderly people, which is expected to rise by over 40 per cent in the next 17 years to over 16 million (*Later Life in the United Kingdom, 2016*). In Switzerland was in 2015 18 per cent of all population above age 65 (*Population ages 65 and above (% of total)*).

Changes

As people age they change in a myriad of ways – both physical and cognitive. In the following sections, both physical and cognitive changes that elderly experience, are elaborated.

Physical Changes

Physical changes of elderly include the following: Bones. Once we reach the age of 30, bone marrow gradually starts to disappear from the bones in our arms and legs, and there is a reduction in calcium that leads to decreased bone mass (*Aging: Age-Related Physical Changes, 2011*).

- **Hair.** Hair loss and greying are commonly associated with aging. Receding hairlines and thinning of the hair are common by age 50, especially for men. Greying tends to vary by ethnics groups and individuals.
- **Height.** On average, beginning on our 40's, people can lose up to 5 centimetres in height. Most of the loss occurs in the spine as the disks between the vertebrae shrink.

- **Muscles.** Most people experience a steady reduction in physical strength due to a loss of muscle tissue, with the most rapid decline occurring after age 50.
- **Skin.** Age spots and wrinkles become noticeable around age 40 or 50 and skin becomes less elastic. Wrinkles and sagging skin are most common in the arms, face and neck.
- **Teeth.** With ageing, teeth become more sensitive to hot and cold temperatures. Tooth decay, gum disease and discoloration of teeth occur with age.
- **Digestive system.** About 40% of the time, old age is marked by digestive disorders such as difficulty swallowing, inability to eat enough and to absorb nutrition, constipation and bleeding (*Old Age, 2016*).
- **Hearing.** Over time, changes in the ear make high-frequency sounds harder to hear and changes in tone and speech less clear. These changes tend to speed up after age 55 (*50+: Live Better, Longer, 2014*).
- **Vision.** Most people in their 40s develop a need for reading glasses as the lenses in the eyes become less flexible (presbyopia). It's normal for night visions and visual sharpness to decline.
- **Incontinence.** Weakening muscles can cause incontinence, because of weak bladder muscles (*Urinary Incontinence, 2016*).
- **Balance.** Often several conditions can come together to produce balance problems, which may include: inner ear problems, eye problems, numbness in feet and legs, arthritis, heart of blood circulation problems, long-term diseases of the nervous system, and taking multiple medications (*Aging & Health A to Z, 2016*).

Cognitive changes

Cognitive changes of elderly include the following:

- **Attention.** In general, the attention does not decline when people get older. However, dividing attention will get more difficult. Older

adults are more affected by the division of attention than young adults, particularly when the attentional demands of the two tasks are high (Glisky, 2007).

- Working memory. Older adults exhibit significant deficits in tasks that involve active manipulation, reorganization, or integration of the contents of working memory.
- Long term memory. Ageing principally affects episodic memory, namely memory for specific events or experiences that occurred in the past. It is likely that older memories have become more semantic, retaining the general core information but lacking details, particularly spatial and temporal context.
- Perception. Perceptual function is reduced in most older adults and is not always correctable by external aids. However, a big part of reduced perception is because of hearing and vision loss.
- Speech and language. Under normal conditions speech and language processing are largely intact, although processing time may be somewhat slower than in young adults. In fact, discourse skills actually improve with age.
- Decision making. Older adults often come to the same kinds of decisions as younger adults, but reach their conclusions in a different way. They tend to rely more on prior knowledge about the problem domain and less on new information, whereas young people, who likely have less knowledge about these issues, tend to sample and evaluate more current information and consider more alternatives before making their decision. Older adults also tend to rely on expert opinion to a greater degree than young adults.

These are a lot of the most common changes people experience when getting older. Mostly the physical changes are interesting, and then especially the deteriorated bones, muscles, incontinence, and balance. These three physical changes are interesting, because these three cause a limitation in the movement of the elderly.

So for these people the riser recliner chair is very interesting, because then they can sit down and stand up with less effort.

Movement restriction.

As can be seen in table 4, statistically elderly are the ones in the Netherlands who have the most restrictions in movement. More than 10 per cent of the people aged between 65 and 75, and over 30 per cent for people aged over 75 – and 3 per cent of the total population (Gezondheid, aandoeningen, beperkingen; persoonskenmerken, 2010-2013, 2015).

Age Interval (in years)	Number of people with a movement restriction (in %, from a total of 100%)
30-40	2.4%
40-50	4.5%
50-55	5.2%
55-65	10.1%
65-75	10.2%
>75	31.7%

Table 4: Number of people with a movement restriction, per age group.

4.2. Occupational Therapists

Occupational therapists are an important secondary target audience. An occupational therapist will most likely recommend a riser recliner chair to the (future) user, and will be available during the fitting. Occupational therapists are not that important for the post market surveillance, but will be an important target audience for the promotional video.

Occupational therapy

Occupational therapy is the use of assessment and treatment to develop, recover, or maintain the daily living and work skills of people with a physical, mental, or cognitive disorder. It is a client-centred practice that places emphasis on the progress towards the client's goals. It focuses

on adapting the environment, modifying the task, teaching the skill, and educating the client/family in order to increase participation in and performance of daily activities, particularly those that are meaningful to the client (*Occupational therapy, 2016*). These daily activities can be in various fields, like activities of daily living (ADL), productivity, leisure, living, and mobility (*Ergotherapie, 2016*).

An occupational therapist works systematically through a sequence of actions known as the occupational therapy process. There are several versions of this process, but all include the basic components of evaluation, intervention and outcomes. (*Occupational therapy, 2016*)

Work areas

The work of occupational therapists can be divided into five areas: Mental health, geriatrics (a specialty that focuses on health care of elderly people), developmental disorders, physical revalidation, and cognitive revalidation.

Occupational therapists are employed by, among other things, hospitals, rehabilitation centres, educational establishments, social welfare institutions such as sheltered workshops, day care centres, nursing or caring homes, residential facilities for people with mental disabilities or independently in their own practice. (*Ergotherapie, 2016*)

Statistics

In 2014 there were 114600 occupational therapists in the United Kingdom. Expected is that the employment will grow 27 per cent from 2014 to 2024 (*Occupational Therapists, 2015*). Most occupational therapists are between 20 and 30 years old, and about 95 per cent is female (*Craik, Chacksfield, & Richards*).

In 2014 there were 4142 occupational therapists working in the Netherlands, and the amount increases every year. The average age is 37 years, and 66 per cent is younger than 40 years

old. Only 6.3 per cent of occupational therapists is male. (*Hassel & Kenens, 2014*)

In Switzerland, there were 22.000 occupational therapists employed in 2015. In Switzerland, a lot more males are employed as an occupational therapist. 23 per cent of the occupational therapists are male. (*Arbeitsmarkt Ergotherapie, Physiotherapie, 2015*)

4.3. Stakeholders

Besides importance to analyse the target audience, it is also useful to map all the stakeholders. Every stakeholder has his own interests and roles.

1. The company: Sowecare and its employees.
 - a. The company develops and produces LeChair. His goals are to develop great products and to make a profit.
 - b. His interests are an innovative product, a reliable imago, good quality, low production costs and to be better than his competition.
2. LeChair User: the people that have a reduced mobility and thus cannot sit down or stand up in a normal chair anymore.
 - a. The goal of the user is to improve its mobility, to make sitting and standing up easier, and thus improve daily living.
 - b. The interests are a reliable chair, easy to maintain, adjustable to his own needs, and a good quality.
3. The Local Authorities or health insurance: they provide financial aid and deliver LeChair.
 - a. The goal is to improve the independence of the patient and to reduce costs.
 - b. The interests are low costs, reusable chairs, good quality, and a short delivery time.
4. The occupational therapists: they prescribe the chair, and accompany during fittings.
 - a. The goal is to improve the independence of the patient.

- b. The interests are good quality, adjustable to the needs and wishes of the user, easy to maintain, a reliable chair, and short delivery times.
- 5. Dealers: they deliver and maintain the chair.
 - a. The goal is to make a profit.
 - b. The interests are low costs, good quality, and easy to maintain.

4.4. Conclusion

There are a lot of different reasons why people use a riser recliner chair. Even though LeChair is a niche product, the primary target audience is very broad. Every person that meets the target audience has a reduced mobility in one way or another. This can be because of different illnesses that affect the body, or because of age. As a result, standing up and sitting down is difficult, so the people need to use a riser recliner chair.

An important secondary target audience is the occupational therapist. Outstanding is that almost all occupational therapists are female. Also, every year the amount of occupational therapists is growing. Occupational therapists are employed by, among other things, hospitals, rehabilitation centres, educational establishments, social welfare institutions such as sheltered workshops, day care centres, nursing or caring homes, residential facilities for people with mental disabilities or independently in their own practice. Every stakeholder of LeChair has a different role, goal and interest at the seat. Most important interests are low cost, good quality, easy to maintain, short delivery times, and adjustable to the users' needs and wishes. So when (re) designing, it is important to keep these interests in mind.

5. Market Analysis

5.1. Stand up help

Not only other riser recliner chairs are competition for LeChair. There are also other assistive devices that serve to help people stand up. These devices do have (partly) the same function as LeChair: they help people stand up more easily.

Couch Cane

The couch cane is a simple couch-side handle that makes standing up from a couch or chair easy (see figure 9).

(Couch Cane)

Benefits

- Small
- Not expensive
- It does not stand out much.
- No batteries or tools needed.

Difference with LeChair

This system can be ideal for people who still have strength in their arms. Because this system helps the user to stand up by pulling himself up out of the chair. So as long as there is the strength in the arm and core stability, it could work. However, there are a lot of people, especially the older people and people with illnesses like MS or Parkinson's Disease, who do not have the strength in their arms anymore. So for those people, this assistive device will not work.



Figure 9: Couch Cane

Lifting seat cushion

A lifting seat cushion is a portable lightweight cushion that creates a lift system of every seat (see figure 10). It is a seat that is placed on a chair and then helps the user to stand up, by



Figure 10: Lifting Seat Cushion

means of an extra push. The force is realized by a central pneumatic cylinder and can be easily adapted to the weight of the user. (*Sta op hulp*)

Benefits:

- Not expensive
- Easy to carry
- No batteries or tools needed

Difference with LeChair

This system has a limited support for the user. People who don't have a very bad restriction of movement can use this system. However, there are a lot of people for who this system is not enough, and need a full standing-up and sitting down assistance. LeChair provides this.

5.2. Riser Recliner Chairs

There are a lot of different riser recliner chairs. However, these can be divided into categories: single motor, dual motor, tilt in space, and wall hugging.

Single motor

Reclining chairs with a single motor provide one combined riser and recliner action. On recline, the footrest automatically rises to support the legs – normally to an angle of 45 degrees, as this is considered comfortable for watching TV. (*Pearl*) These are examples of single motor riser recliner chairs: (*Yorkley Single Motor Riser Recliner Chair; Linton Single Motor Riser Recliner; Havana Recliner (Single Motor)*).

Dual Motor

Chairs with two motors let the user operate the back and footrest independently of each other, so there is the possibility to sit upright and choose not to have your legs elevated, or choose to recline the chair fully so it becomes flat like a bed. (*Pearl*). These are examples of dual motor riser recliner chairs: (*Luxor Dual Motor Riser Recliner Chair; Dual Motor Riser Recliner Chairs; Aangepaste stoel; sta-opstoel LeChair*).

Tilt in space

Tilting in space is a reclining action where, instead of the backrest separating from the seat (and thus creating a gap), the whole chair simply

tips backwards while maintaining a seating position. This does not rub or shear the skin on the users' back as he moves, the user can elevate his legs above his hips (useful for people with oedema), and the back and pelvis are supported throughout (so it's suitable for anyone with back or neck problems). (Pearl) These are examples of tilt in space riser recliner chairs: (*Dual Motor Tilt-in-Space Chair*; *Aangepaste stoel*; *sta-opstoel LeChair*)

Wall hugging

Instead of reclining backwards, the wall hugger moves forward as it reclines. This means the user can position the chair in a small room about 10 centimetres away from the wall. However, they do need more space in front. (Pearl) These are examples of wall hugging riser recliner chairs: (*Borg Leather Wall Hugger Riser Recliner Chair*; *Wallhugger Riser Recliner Chairs*).

Differences with LeChair

LeChair does not really fit in any of these categories. Because many aspects of LeChair can be adjusted, there is no specific form, so there is no specific category in which LeChair belongs.

5.3. Custom seat

Besides helping people to stand up, LeChair is also a chair for support when people have problems while sitting. In the Netherlands, there are two chairs which compete with LeChair on this perspective: Fitform and Doge. Both chairs, however, are also a competitor as a stand-up help, since both are riser recliner chairs too.

Fitform

Fitform is a series of chairs, all developed for people who have sitting problems. They have a 'wellness' and a 'care' collection, and mostly the 'care' collection is a competitor with LeChair. The same as with LeChair, the Fitform chair is tailor-made. Seat height, seat depth, armrest height and lumbar height and thickness is measured, which ensures the ergonomic, responsible

sitting experience. (*Fitform Relax- en staopfauteuils Zorg*)

Benefits

- There are more options available than with LeChair (*Brochure Fitform Vario*).
- There are more accessories available than with LeChair (*Brochure Fitform Vario*).
- There is a chair available for people with a plus size.



Figure 11: Fitform Vario Chair

Differences with LeChair

The Fitform chair has a tilting adjustment where seat and backrest tilt backwards together. LeChair is provided, in contrast to the Fitform chair, with the virtual points of rotation. With movement of LeChair, the movement from the hip joint is simulated. Because of this, no shear forces occur, which leads to a comfortable sitting experience, without having to change positions. (*characteristics LeChair*).

Besides the shear forces, LeChair has another difference from the Fitform chair, namely that it is fully adjustable to the user. Although the Fitform chair has a lot of standardized options, what it lacks is that there are no individual options possible that are not standardized options. LeChair, on the other hand, does make this possible.

Doge

The doge collection has a wide collection of riser-recliner chairs. Their program consists of both standard and custom chairs manufactured customized partially or completely. Their chair 'Doge Modular' is the chair that competes the most with LeChair. The same with LeChair, it



Figure 12: Doge Modular

Benefits

- There is a chair available for people with a plus size.
- There is a seat with elevated edge available.

Differences with LeChair

The differences between LeChair and the Doge Modular is the same as with the Fitform: the Doge Modular has a tilting adjustment where seat and backrest tilt backwards together. LeChair is provided, in contrast to the Fitform chair, with the virtual points of rotation. With movement of LeChair, the movement from the hip joint is simulated. Because of this, no shear forces occur, which leads to a comfortable sitting experience, without having to change positions. (*characteristics LeChair*).

Besides the movement differences, the Doge Modular also lacks the full adjustability that LeChair contains.

is equipped with different motors to independently adjust the stand-up and sit down functions, back angle, footrest, and the tilt. Also, the chair can be equipped with many modifications and is completely re-adjustable. (*Riser Recliner Chairs*)

5.4. Conclusion

In both departments of LeChair – stand-up help and custom seat – are some competitors. However, in every department there are characteristics which makes LeChair different from the rest. As a stand-up help, the largest difference is that LeChair is a passive stand-up help. LeChair provides support in the full stand up process, which enables even the people who have no strength themselves to stand up, to do this independently. However, when looking at chairs from Fitform and Doge, they also have the electrical, full support with standing-up.

As a custom seat, the uniqueness of LeChair is the movement. The virtual points of rotation make LeChair different from Fitform and Doge. Following the exact kinetic action of a person (see also chapter 4) and not having shear forces is what makes the chair different from other chairs, and is thus definitely an Unique Selling Point.

Another Unique Selling Point of LeChair is its full adjustability. Both the fitform and the doge chair have different options available. However, these are all standardized, and when a consumer needs another option added or removed besides the standardized options, this is not possible. LeChair, on the other hand, makes these options possible (if safe, of course).

6. Post Market Surveillance

A post market surveillance (PMS) is the practice of monitoring the safety of a medical device after it has been released on the market. Since medical devices are approved on the basis of clinical trials, which involve relatively small numbers of people who have been selected for this purpose, the PMS can further refine, or confirm or deny, the safety of a drug or device after it is used in the general population. (*Postmarketing Surveillance, 2016*)

Traditional approaches have been to look at complaint data as primary data element. However, PMS is more than complaints trending. As a leader in technology, product owners have many different ways to gather post launch information on their products in the market. The challenge is how to get all the information in a useable form that can be analysed, and then used for product or market improvements. (*Some Practical Advice to Establish a Post Market Surveillance (PMS) Process, 2013*)

6.1. Goals

This PMS will be held for a couple of reasons. First, and most obvious, is for the general reason a PMS is held: to refine, confirm, or deny the safety and its medical benefits. These things will be addressed together with a further inquiry about the specific parts of LeChair, such as its design, functions, comfort and ergonomics. So also the insights of the customers regarding LeChair will be gained. With these insights, several recommendations will be made for the redesign.

Another part for which the PMS will be held, is to get insights of the customer regarding their impression of Sowecare and its brand and values. These insights are useful, because it shows how the customer sees the company and its products. This can give the company feedback about their marketing. If the image of the customer is the same as the employees have of their company, then the way they are promoting is good and

can improve their marketing so that it puts the point forward even more. If the image of the customer is different from the image of the employees, then the company needs to change their marketing communications.

6.2. Preparations

Size of the research group

It has been shown that the number of usability problems found in a usability test with n users is:

$$N(1-(1-L)^n)$$

This formula is depicted in figure XX. As can be seen in figure 13, there are only five users needed in order to find 80 per cent of all usability problems. When there are fifteen test users, 100 per cent of all usability problems are found. (Nielsen & Landauer, 1993)

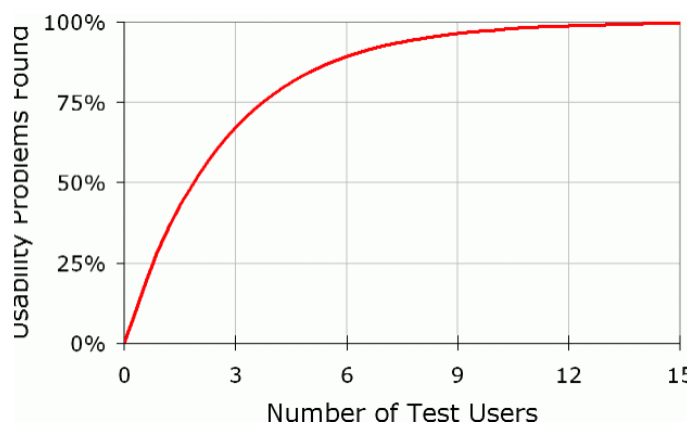


Figure 13: amount of users needed

So, for this surveillance, at least five people of the target group will be interviewed. A list will be made of people who can join the surveillance, and this list will contain as many people as possible, who will fall under the requirements. This is, so that there is a back-up, if people are not willing to co-operate, or do not have the time. If in the end there are enough people who want to co-operate with the surveillance, more than five people per target group will be asked to join the surveillance, so that the percentage of usability problems found, can be even higher than 80 per cent.

Finding people

Users from Switzerland

Although Switzerland is one of the countries where most chairs are sold to abroad, the choice has been made to exclude them from the PMS. This has been done for several reasons. First, Sowecare sells chairs to a wholesale company, which sells it to a dealer, who sells it to the user. So in order to reach the user, Sowecare has to reach a lot of people beforehand, and everyone has to approve it and must have the time for it. Second, the procedure in Switzerland is different. Normally the chair is custom made. However, for Switzerland, three forms of LeChair basic is made, and they sell only those three chairs. So there is a big chance that different results will come forth from them, because they do not have all the options that LeChair offers.

Users from the United Kingdom

Initially, it was intended to use Yorkshire Care Equipment, a dealer of care equipment that Sowecare has sold chairs to before, to get the users. However, because the responding time of Yorkshire Equipment was very long, it could not be done anymore during the assignment. That is why, eventually, no users from the United Kingdom were asked questions.

Users from the Netherlands

Users from the Netherlands were found through Access. Sowecare keeps a database of all the people they ever sold a chair to. So from there, a list was made with people who are currently using LeChair. This list can be found in Appendix C.

Occupational Therapists/Dealers

Sowecare already has a list of occupational therapists that they often work together with, and thus have been to fittings with LeChair and can give us a more in depth answer, without first having to study the chair. However, these occupational therapists will live mostly in the Netherlands. That is why, for abroad, dealers will be approached. They themselves also know

a lot about the chair and thus can give answers to our questions. But they also work together with occupational therapists, so they can give their contact information. A list of dealers and occupational therapists can be found in Appendix C.

6.3. Procedure

The study will be a qualitative research, because qualitative methods are much better suited for answering questions about why or how to fix a problem, whereas quantitative methods do a much better job answering how many and how much types of questions (Rohrer, 2014).

Questionnaire

The surveillance will be executed through a questionnaire and will be held preferably in person or over the phone. It will preferably not be done on paper, because it is not direct and it can take very long to get an answer. Also, talking over the phone gives you the possibility for further questioning. However, if the user would like to do the surveillance on paper, this is possible.

The questionnaire will be arranged in such a way that afterwards it is easier to draw clear conclusions. This will be done through well formulated questions, which are mostly open questions. The questionnaire consists of two parts:

- Part one is aimed at LeChair, its functions and its comfortability. All separate parts of LeChair will be addressed through several questions. Questions will be asked about the product in relation to the user and his disability. Through the results of this part of the surveillance, recommendations can be made about a possible redesign.
- Part two is aimed at the marketing communication tool. Questions will be asked about general communication, and about Sowecare in particular. Through the results of this part, a view can be generated

about what the target audience prefers as a marketing communication tool, and what the promotional video should contain.

Three different questionnaires were made: one for the users, one for the occupational therapists and dealers, and one for the employees.

There are different reasons for making two questionnaires instead of one:

- Users have used the chair for years, so they can really give their experience of long term usage, among other things. Occupational therapists and dealers, on the other hand, have a different type of knowledge. They have a lot of technical and medical knowledge about LeChair and work with a lot of different chairs, so can give a more technical and medical view of LeChair. This can be really interesting, to see the differences between how the user sees the chair, and how the occupational therapists/dealers see the chair.
- Since most of the time users do not find the riser-recliner chair themselves, it is not really useful to ask them questions about communication and promotion of LeChair. Dealers and occupational therapists, on the other hand, recommend chairs to the user most of the time. Thus, they will have seen some communication or promotion tools sometimes. However, they can be asked questions about how they see Sowecare as a brand and what they think the company's values are.

Questionnaire users

As already said in the previous section, most of the questionnaire about the communication will not be useful to ask to the user. That is why the questionnaire of the user will contain part I, and an adapted version of part II.

First, some questions will be asked about the background of the user. This is done to get some extra information about the person answering the questions. These questions can mostly be filled in beforehand, with the information Sowecare

already has. Questions that cannot be filled in, will be asked to the user during the questionnaire

Part I will be purely about the chair. All separate parts of LeChair will be addressed, and several questions will be asked about it. This is, so a full view of what the user thinks about the product can be generated. Some general questions will be asked, as well as specific questions about the different functions, the motor, the control, the lumbar, the head rest, the comfort, and the safety. In the end, the user can give a final conclusion. Also, in every part, the user has the opportunity to give some extra comments about parts of LeChair, which are not addressed by the questions.

Part II will be about how the customer sees Sowecare, its brand and its values. Despite that the user does not choose the chair and probably do not know much about the marketing communication, they do have their own image about Sowecare and its products, which can be useful.

The full questionnaire for the users can be found in Appendix D.

Questionnaire Occupational Therapists/Dealers

As already said, the questions of the occupational therapists and dealers will differ slightly from the questions of the user. Besides that they will get the questions of part two, the questions of part one will be less comprehensive, since they do not use the chair themselves.

First, some questions will be asked about the background of the occupational therapist or dealer. This is done to get some extra information about the person answering the questions. These questions can mostly be filled in beforehand, with the information Sowecare already has. Questions that cannot be filled in, will be asked to the user during the questionnaire.

Part I will be purely about the chair. All separate parts of LeChair will be addressed, and several questions will be asked about it. However, in contrast to the questions for the user, this will be focused more on the technical and medical stuff of LeChair. This is, so I can have a full view of what the user thinks about the product.

Part II will contain some questions about communication and promotion. Both questions about general preferences, and questions about Sowecare in particular will be asked.

The full questionnaire for the occupational therapists and dealers can be found in Appendix E.

Questionnaire employees

First, some questions will be asked about the background of the employee. This is done to get some extra information about the person answering the questions.

Part I will be purely about the chair. All separate parts of LeChair will be addressed, and several questions will be asked about it. However, in contrast to the questions for the user, this will be focused more on the technical and medical stuff of LeChair. This is, so a full view can be generated about the product.

Part II will contain some questions about communication and promotion. Both questions about general preferences, and questions about Sowecare in particular will be asked.

The full questionnaire for the employees can be found in Appendix F.

6.4. Outcome process

First of all, the outcomes of the surveillance will be analysed. This will be done through comparing the results of the employees with the results of the users and occupational therapists. The

employees should have a very clear image of the chair and the company, since they work with it every day. So by comparing the results of the employees with those of the users and occupational therapists, a clear view can be generated of how Sowecare communicates their images to the customer.

With the outcomes of the PMS, several things will be done. First of all, recommendations will be given for a redesign of LeChair. Second, with the insights of the occupational therapists and dealers about the marketing communications, recommendations for adjusting Sowecare's marketing communication will be provided. Third, with the insights given in part II from both the users and occupational therapists/dealers, a concept for a promotional video will be made.

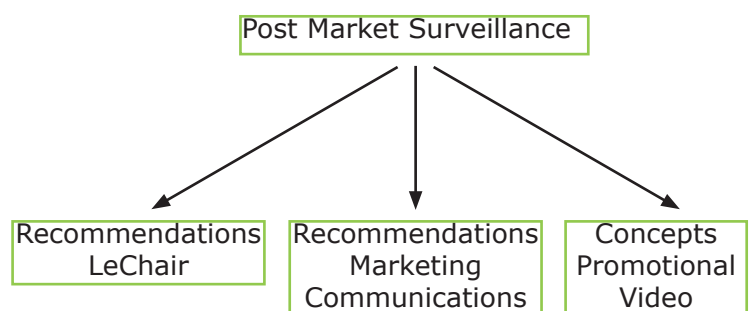


Figure 14: Visualisation of the process.

6.5. In Depth Analysis

In total, ten people were interviewed for the surveillance, of which six employees, two users and two occupational therapists. Two interviews were executed in person, three interviews on the phone, and five interviews on paper. The user interviews can be found in Appendix G, occupational therapists interviews in Appendix H, and employee interviews in Appendix I.

For the analysis, the outcomes were coded and put into different categories: setting, design, comfort, functions, usage, Sowecare, and promotion. In these categories, codes were also subdivided. Then the outcomes were compared with each other.

Users

Only two users were interviewed. Two people are not enough to make a valid analysis. However, since the results can be compared with the occupational therapists and the employees, a

fairly solid analysis can be made in the end. The outcomes can be found in Appendix G. In table 5 the coded outcomes can be found. The quotes refer to the interviews in Appendix G.

Code	User 1	User 2
Setting		
Living situation	Living at home.	Living in a nursery home.
When used	Mostly at night.	<i>"Ik gebruik de stoel eigenlijk altijd. Behalve bij het eten, dan zit ik aan de eettafel."</i> (p.2, algemeen: vraag 8)
Design		
Weight	The chair is heavy.	<i>The chair is heavy. "Het zou wel mooi zijn als ik de stoel zou kunnen verplaatsen, dan kan ik hem ook aan de eettafel zetten. Maar ja, dat kan nu niet, omdat hij zo zwaar is."</i> (p. 2, algemeen: vraag 8).
Size	<i>"Het is wel een groot ding, maar met alle functies die erin zitten om me fatsoenlijk te laten zitten, kan dat ook niet anders."</i> (p.2, Algemeen: vraag 6)	It is fairly big.
Looks	<i>"De stoel is niet gebouwd om mooi te zijn, dus ik vind het prima hoe hij eruit ziet."</i> (p. 2, algemeen: vraag 5)	<i>"Hij ziet er mooi uit en past bij mijn interieur."</i> (p.2, algemeen: vraag 5)
Comfort	The comfort is really nice.	<i>"Het comfort van de stoel is heel fijn, ik zou hem zo aan iedereen aanraden."</i> (p. 3, Extra: vraag 1)
Functions		
Dangers	<i>"De snoeren kunnen nog wel gevaarlijk zijn, wanneer je erover valt."</i> (p.2, Functies: vraag 1)	
Footrest	<i>"Het ligt eraan wanneer ik hem gebruik, maar meestal als mijn benen te zwaar zijn en me niet meer kunnen houden."</i> (p.2, functies:vraag 4)	<i>"Ik gebruik de voetsteun eigenlijk alleen als ik wil slapen. anders heb ik liever de voeten op de grond staan, dat voelt stabiel."</i> (p.2, functies: vraag 4)
Control	<i>"In het begin drukte ik nog wel eens op de verkeerde knop, maar dat loopt nu ook allemaal snel."</i> (p.2, functies: vraag 4)	<i>"Het gebruik van de bediening gaat helemaal blindelings en ik gebruik hem zonder te kijken."</i> (p.2, functies: vraag 8)

Control		"Het is fijn dat het helemaal zelf bediend kan worden." (p.2, functies: vraag 1)
Neck pillow	"Het kussentje erop gooi ik er ook af. Daar krijg ik nekpijn van." (p.2, functies: vraag 9)	Always uses the neck pillow.
Top-swing	Does not use the top-swing.	Does not use the top-swing.
Lumbar	Does not need the lumbar.	"Ik heb hem in het begin één keer opgepompt, maar omdat hij niet leegloopt, hoef ik hem verder niet te gebruiken." (p.2, functies: vraag 11)
Sowecare	Does not have any knowledge about Sowecare.	"Het zitcomfort is heel belangrijk. Maar verder zou ik het eigenlijk niet weten." (p.3, communicatie en promotie: vraag 2)

Table 5: User Coding

Analysis of user codes

After analysing the codes, there are a few things that stand out:

Weight: Both said that the chair was heavy, without getting specifically asked for it. One even mentioned that he would like it if the chair could be moved easier.

Looks: from the question if they liked the looks of the chair, it is really easy to see that this is a very subjective question. While one user really liked the looks of the chair, the other thought it was not so nice.

Control: Also with the control their opinions did not match. One said that in the beginning he had some difficulty with finding the right buttons for the different functions. The other user said that he uses the control blindly. However, the first user said that now he can use the control without any problem, and the second user did not say if he had any problems in the beginning.

Neck pillow: The comfort of the neck pillow was also viewed differently. The first user got neck pains from the pillow, while the other user really liked it and never used the chair without it.

Lumbar: It is remarkable that both did not use the lumbar, especially the first user. He does experience back pains, and for him the lumbar would be of great help. However, he, as well as the other user, does not use the lumbar.

Sowecare: Both users did not have any knowledge about Sowecare as a company.

Occupational therapists

There are five occupational therapists who have knowledge about LeChair. Only two of them were interviewed. The outcomes can be found in Appendix H. The coded outcomes can be found in table 6. The quotes refer to the interviews in Appendix H.

Code	Occupational Therapist 1	Occupational Therapist 2
Setting	Independent	Kersten Revalidatie
Design		
Adjustability	<i>"De instelbaarheid en het gemak hiervan vind ik tegenvallen. Het zou mooi zijn als dit makkelijker instelbaar zou zijn, zonder gebruik van andere onderdelen."</i> (p.1, algemeen: vraag 2)	The adjustability is the best characteristic of the chair.
Looks	The looks are old-fashioned	<i>"Het is niet mooi, maar ik snap dat de techniek verborgen moet worden, dus daar is niet veel aan te veranderen."</i> (p. 1, algemeen: vraag 5)
Piece of fabric in the back.	<i>"Het rolletje met losse bekleding aan de achterzijde van de stoel is m.i. een kwetsbaar onderdeel. Heb al een aantal keren meegemaakt dat deze defect is gegaan"</i> (p. 1, algemeen: vraag 5)	<i>"Wat wel mooi is, is dat bij het omhoog gaan, de mechaniek verborgen blijft."</i> (p. 1, algemeen: vraag 5)
Usage		
Using for users	<i>"[Het wordt] met name [gebruikt] in situaties waar een fors negatieve wig nodig is, waarbij voetsteun (voeten aan de grond) eveneens een vereiste is."</i> (p. 1, algemeen: vraag 1)	The choice of the chair is made by the dealer.
Availability.		<i>"Hij wordt niet vaak vergoed, waardoor ik hem niet vaak gebruik. Ook hebben veel bedrijven hem niet in het assortiment zitten."</i> (p. 1, functies: vraag 1)
Functions		
Rising-reclining	<i>"De hoogste stand bij opstaan vinden sommigen eng, i.v.m. uitglijden"</i> (p. 1, functies: vraag 1)	<i>"Ik vind dat de stoel de persoon goed op de benen zet, wat hem uniek maakt van andere stoelen."</i> (p. 1, functies: vraag 1)
Rising-reclining	<i>"Achterover kantelen, waarbij voeten aan de grond vind ik een van de unieke eigenschappen."</i> (p. 1, functies: vraag 1)	
Motor		<i>"Qua snelheid is hij wel wat traag. (...) Voor de mensen die nog iets beter ter been zijn, mag het wel wat sneller. Dus misschien zou het mooi zijn als er twee standen voor snelheid zou kunnen zijn."</i> (p. 1, functies: vraag 1)
Backrest function.		<i>"Soms is de kantelbare rugleuning niet nodig. Zou het niet uitgeschakeld/ geblokkeerd kunnen worden. Voor slapen in de stoel is het goed, maar voor veel anderen zou het niet nodig hoeven zijn."</i> (p. 1, functies: vraag 3)

Control	"Bediening mag duidelijker (kleuren) en knoppen mogen groter." (p. 2, functies: vraag 5)	"De één-knop bediening zou dus goed zijn. Maar daarnaast snappen niet alle ouderen alle pictogrammen die op de bediening zitten. Het is dus goed om in plaats van de pictogrammen, tekst neer te zetten." (p. 1-2, functies: vraag 5)
Movement	"[Ik vind] de virtuele draaipunten en het bewegingspatroon één van de unieke eigenschappen van de stoel." (p. 2, extra: vraag 3)	
Lumbar		"Voor sommige personen zou het goed zijn als de lumbaal steun op een andere plek in de rug zou kunnen zitten." (p. 2, extra: vraag 8)
Sowecare	Does not have any knowledge about Sowecare.	"Ik heb nooit rechtstreeks contact gehad, dus kan er eigenlijk niet veel over zeggen." (p. 2, communicatie en promotie, vraag 1).
USP	"[Ik vind] de virtuele draaipunten en het bewegingspatroon één van de unieke eigenschappen van de stoel." (p. 2, extra: vraag 3)	"Ik vind dat de stoel de persoon goed op de benen zet, wat hem uniek maakt van andere stoelen." (p. 1, functies: vraag 1)
USP	"Achterover kantelen, waarbij voeten aan de grond vind ik een van de unieke eigenschappen." (p. 1, functies: vraag 1)	
Promotion		
Important Aspects	"De unieke eigenschappen van de stoel goed naar voren laten komen en qua aanpassingen richten op de wet- en regelgeving voor de aangepaste stoel." (p. 2, communicatie en promotie, vraag 7)	"Ik heb pas informatie nodig als ik bij de klant is. Een goede website met duidelijke foto's en technische specificaties is dan heel belangrijk." (p. 2, communicatie en promotie, vraag 7)
Promotional video	"Als adviseur bij een leverancier ben ik vooral geïnteresseerd in mogelijkheden van de stoel en de optionele aanpassingen vanuit de wet- en regelgeving omtrent de aangepaste stoel." (p. 2, communicatie en promotie, vraag 7)	"Wat voor mij dan belangrijk is, is dat het begint met waar het om gaat. Daarbij moet alles in stukjes worden geknipt om de werking duidelijk te maken. Hoe korter hoe beter." (p. 2, communicatie en promotie, vraag 7)

Table 6: Occupational Therapist Coding

Analysis of occupational therapist codes

After analysing the codes, there are a few things that stand out:

Adjustability: The difference of opinion between the two occupational therapists is remarkable. While one view the adjustability as the best characteristic of the chair, the other thinks the ease of use in the adjustability could be much better.

Looks: Both thought that the looks of the chair were not so nice, and that it could use an upgrade from the old-fashioned look.
Piece of fabric in the back: One thought that the piece of fabric in the back was really good, because that way the frame stays hidden in the rising position. However, the other occupational therapist thought this part was too fragile, because it had been broken on more than one occasion.

Rising-reclining: this case is kind of a theory versus practice case. The theory comes from the second occupational therapist, who says that the chair puts people on their feet in the right way. The practice, however, is that some people are scared to put the rising function in its highest point, says occupational therapist 1.

Control: Both thought that the control should be more clear. Both in the size of the buttons, as in the colors and symbols.

Movement: the unique part of the chair is the virtual pivot points.

Lumbar: One said that the lumbar should also be adjustable in the height, so that it better suits the users. However, this is already possible, when measuring before the chair is made.

Backrest: One suggested that the third motor should be blocked in some cases. Some people have benefit from the backrest, but for most it is not necessary. However, it is already possible to order the chair with only two motors.

Sowecare: Both did not have knowledge about Sowecare, one even had never had direct contact with Sowecare before.

Unique Selling Point: Both agreed that the movement of the chair is its unique selling point, but they preferred different aspects within the movement. One thought the virtual pivot points together with the feet staying on the ground while reclining was good, the other thought the way people were put on their feet while rising was good.

Promotion: Both had different opinions about what was important for the promotion. One thought the strong points should be addressed, together with the laws and rules for a custom seat. The other was mostly looking for a well working website with clear photos and technical specifications.

Promotional video: They were mostly looking for a short video, which is clear and shows all the possibilities of LeChair.

Employee

Six employees were interviewed. The outcomes can be found in Appendix I. The coded outcomes can be found in table 7. The quotes refer to the interviews in Appendix I.

Because of the amount of people, the table was split up. On the even pages, employee 1 to 3 can be found, and on the odd pages, employee 4 to 6. When the pages are put besides each other, they form a full table.

Analysis of the employees

After analysing the codes, there are a few things that stand out:

Looks: Everyone agrees that they either just don't like the looks of the chair, thinks it's boring, or old-fashioned. However, the notion is already made that the design of the chair is not important for this niche market.

Size: Some people mentioned that the chair was quite big, but whether that was okay or not differed. Someone thought it was perfect for an armchair, another did not mind the size because of all the functions of the chair, and one employee thought that the chair would be too big for the small living rooms of the elderly.

Movement: Most of the employees mentioned that the movement of LeChair is what makes it unique. Both because of the virtual pivot points, and the continuous movement of the chair.

Footrest: One employee said that there are different sizes of footrests available, depending on the height of the chair. Another said that there was a constraint on the movement, because the footrest is dependent on the height of the chair. So employees have different views of the same function.

Motor: The opinions about the velocity of the motor differ. Some people think the speed is too slow, while another employee thinks on some points it is going too fast (for the elderly).

Lumbar: Some of the employees mentioned that the lumbar is not big enough and that they did not feel it very well, because it was hidden behind layers of foam.

Sowecare: What was really remarkable, is that most of the employees did not really have any idea about the values of Sowecare. However, they could tell me about the Unique selling point. The unique selling point of Sowecare is that they design and produce custom made chairs which are fully adjustable to the wishes and requirements of the user. The unique selling point of LeChair is the rising function and the antidecubitus trait.

Unique Selling Point: All employees thought that the adjustability of the chair is what makes LeChair unique.

Promotion: Everyone had a different opinion about how the promotion should be changed to be better, but the overall thought was to change the image of Sowecare the customer has made. This can be done through better quality of promotion, changing the image of the company and the chair, and by showing the specifics of the company and the chair. Besides that, advertising was also still important.

Promotional video: Suggestions were made both for the user in the video, as well as the contents of the video. The video should show the user's happiness and autonomy, and should contain the strong points of the chair and explanations to make it more clear that it is a medical device.

Code	Employee 1	Employee 2	Employee 3
Setting	Intern international trade	Intern mechanical engineering	Managing director
Design			
Design			"Het ontwerp van de stoel maakt het uniek." (p.1, algemeen: vraag 1)
Frame			"Daarbij blijft het frame op de grond staan in de sta-op functie, waar hij bij andere merken mee omhoog beweegt." (p.1, algemeen: vraag 1)
Looks	"Ik vind het een stoel die comfortabel zit maar niet heel mooi oogt. (p.1, algemeen: vraag 1)	"[Het] doet me een beetje denken aan Opa en Oma." (p.1, algemeen: vraag 5)	"Het liefst zou de stoel nog mooier kunnen zijn. Maar voor deze niche markt is dat niet belangrijk." (p.1, algemeen: vraag 3)
Size	"Voor een 'huiskamerstoel' vind ik de [grootte van de] stoel perfect." (p.1, algemeen: vraag 6)	"Hij is groot maar dat is ook niet zo gek als je ziet wat hij allemaal kan." (p.1, algemeen: vraag 6)	
Pockets			
Usage			
Recommend to user	"Wanner je lekker wilt zitten ondanks dat je een lichamelijke beperking hebt." (p.1, algemeen: vraag 7)	Always	"Wanneer iemand een serieuze vorm van decubitus heeft, of serieuze rugklachten met grote rug aanpassingen, en voor mensen die hele specifieke aanpassingen aan de stoel nodig heeft." (p.1, algemeen: vraag 7)
Availability			

Code	Employee 4	Employee 5	Employee 6
Setting	Product manager	Intern occupational therapist	Manager assembly
Design			
Design			
Frame			
Looks		"Misschien kan hij minder lomp?" (p.1, algemeen: vraag 5)	"[Ik] vind het sober /saai." (p.1, algemeen: vraag 5)
Size		"De stoel is groot om te zien. Oudere mensen hebben vaak niet een hele grote woonkamer waardoor de stoel meteen opvalt." (p.1, algemeen: vraag 4)	
Pockets			"[De] zijvakken beginnen direct te lubberen." (p.1, algemeen: vraag 3)
Usage			
Recommend to user	With indications from earlier Post Market Surveillances.	"Als mensen een sta-op stoel nodig hebben waarbij ze specifieke eisen hebben om goed te kunnen zitten." (p.1, algemeen: vraag 7)	"Wanneer mensen sta op en zit rug problemen hebben." (p.1, algemeen: vraag 7)
Availability		"De stoel is redelijk duur en het wordt eigenlijk niet meer vergoed door de zorgverzekering of WMO. Dat betekent dat mensen hem zelf moeten kopen." (p.1, algemeen: vraag 3)	

Function			
Movement			"Wat uniek is, is dat het één continue beweging is van ligstand tot opstaan." (p.2, functies: vraag 1)
Footrest	Footrest is too short.		"De lengte [is] ontoereikend. Omdat de voetsteun onder de zitting zit, kunnen we de voetensteun niet langer maken. Maar ook dit doet er eigenlijk niet toe voor onze doelgroep." (p.2, functies: vraag 2)
Backrest			"Dit zorgt er ook voor dat de mensen over de dag heen verschillende zithoeken kunnen hebben." (p.1, functies: vraag 3)
Motor	It is slow.		
Motor	"Je hoort hem wel maar dat is niet storend." (p.1, functies: vraag 4)	It does not make any noise.	
Motor			"De kracht van het ontwerp is dat hij dus één motor heeft van liggen naar opstaan" (p.1, functies: vraag 4)
Motor			Dit zorgt er wel voor dat er een beperking van gewicht is. Dit zou opgelost kunnen worden met een ligstand beperking." (p.1, functies: vraag 4)

Function			
Movement	The virtual pivot points are unique.	<i>"Het gaat mooi geleidelijk."</i> (p.1, functies: vraag 1)	
Footrest	<i>"Verschillende hoogtes afhankelijk van hoogte stoel."</i> (p.2, functies: vraag 2)		
Backrest		<i>"Hij kan ver omlaag, waardoor mensen in een passieve stand komen."</i> (p.1, functies: vraag 3)	
Motor		<i>"Bij de rugleuning naar achteren, dan zit er een moment in dat hij in het zelfde tempo naar achteren gaat. Ik zou me voor kunnen stellen dat ouderen dit opeens snel naar achteren vinden gaan."</i> (p. 1, functies: vraag 4)	<i>"[De] snelheid laat te wensen over in de sta op beweging."</i> (p.1, functies: vraag 1)
Motor			
Motor			
Motor			

Lumbar			"Soms is hij niet groot genoeg, omdat hij achter veel schuim zit." (p.2, functies: vraag 8)
Sowecare			
Values	Has no knowledge about the values.	Has no knowledge about the values.	"We zijn innoverend en hebben een hoge service." (p. 2, communicatie en promotie: vraag 1)
USP	"De sta op functie." (p.2, communicatie en promotie: vraag 2)	"Het leveren van op maat gemaakte kwaliteitsproducten voor in de zorg." (p.2, communicatie en promotie, vraag 2)	Anti-decubitus, adjustability, and the right sitting posture.
Promotion			
Changes in promotion	Put articles in magazines in nursing homes.	"Kwalitatief betere filmpjes en een nieuwe huisstijl." (p. 2, communicatie en promotie, vraag 6)	"Door het imago van de meubelzaal stoel achter ons te laten." (p. 2, communicatie en promotie, vraag 6)
Promotional video.	That the user is happy.	"Een filmpje waarin de autonomie van de persoon in kwestie centraal staat." (p. 2, communicatie en promotie, vraag 8)	

Lumbar		"Lumbaal steun is soms een beetje vaag. Als ik dat ding oppomp dan merk ik eigenlijk vrij weinig." (p. 2, functies: vraag 8)	"[Het] is alleen lastig in hoog laag te verstellen." (p. 2, functies: vraag 8)
Sowecare			
Values	Has no knowledge about the values.	"ik vind dat ze soms nog iets cliëntgerichter mogen werken tijdens wat er met een passing kan." (p. 2, communicatie en promotie: vraag 1)	
USP	"De unieke producten welke andere bedrijven niet hebben en dat alles op maat gemaakt kan worden, ook individuele aanpassingen." (p. 2, communicatie en promotie, vraag 2)	Custom made chairs	
Promotion			
Changes in promotion	"Vakbladen, website, Google Adwords, beurzen. Website wordt steeds belangrijker." (p. 2, communicatie en promotie, vraag 6)	"Het specifieke van deze stoel laten zien. Waarom zou ik als ergotherapeut deze stoel moeten kiezen voor een cliënt. Door alle opties!" (p. 2, communicatie en promotie, vraag 6)	Custom made chairs
Promotional video.	"Sowieso is het belangrijk dat in het filmpje duidelijk wordt dat het een medisch hulpmiddel is." (p. 2, communicatie en promotie, vraag 7)	That the user is more independent.	Show the strong points of the chair.

Table 7: Employee Coding

6.6. Cross Case Analysis.

With the in-depth analysis, outcomes were analysed separately and compared with each other within the same stakeholder group. During

the cross case analysis, the outcomes of the different stakeholders will be compared with each other. This comparison can be found in table 8.

Code	Users	Occupational Therapists	Employees
Weight	Both said that the chair was heavy, without getting specifically asked for it. One even mentioned that he would like it if the chair could be moved easier.		
Adjustability		The difference of opinion between the two occupational therapists is remarkable. While one view the adjustability as the best characteristic of the chair, the other thinks the ease of use in the adjustability could be much better.	All employees thought that the adjustability of the chair is what makes LeChair unique.
Looks	from the question if they liked the looks of the chair, it is really easy to see that this is a very subjective question. While one user really liked the looks of the chair, the other thought it was not so nice.	Both thought that the looks of the chair were not so nice, and that it could use an upgrade from the old-fashioned look.	Everyone agreed that they either just don't like the looks of the chair, thinks its boring, or old-fashioned. However, the notion is already made that the design of the chair is not important for this niche market.
Piece of fabric in the back		One thought that the piece of fabric in the back was really good, because that way the frame stays hidden in the rising position. However, the other occupational therapist thought this part was too fragile, because it had been broken on more than one occasion.	

Code	Users	Occupational Therapists	Employees
Size			Some people mentioned that the chair was quite big, but whether that was okay or not differed. Someone thought it was perfect for an armchair, another did not mind the size because of all the functions of the chair, and one employee thought that the chair would be too big for the small living rooms of the elderly.
Movement		The unique part of the chair s the virtual pivot points.	Most of the employees mentioned that the movement of LeChair is what makes it unique. Both because of the virtual pivot points, and the continuous movement of the chair.
Rising-Reclining		This case is kind of a theorie versus practice case. The theory comes from the second occupational therapist, who says that the chair puts people on their feet in the right way. The practice, however, is that some people are scared to put the rising function in its highest point, says occupational therapist 1.	
Motor			The opinions about the velocity of the motor differ. Some people think the speed is too slow, while another employee thinks on some points it is going too fast (for the elderly).

Code	Users	Occupational Therpaists	Employee
Control	Also with the control their opinions did not match. One said that in the beginning he had some difficulty with finding the right buttons for the different functions. The other user said that he uses the control blindly. However, the first user said that now he can use the control without any problem, and the second user did not say if he had any problems in the beginning.	Both thought that the control should be more clear. Both in the size of the buttons, as in the colors and symbols.	
Neck Pillow	The comfort of the neck pillow was also viewed differently. The first user got neck pains from the pillow, while the other user really liked it and never used the chair without it.		
Lumbar	It is remarkable that both did not use the lumbar, especially the first user. He does experience back pains, and for him the lumbar would be of great help. However, he, as well as the other user, does not use the lumbar.	One said that the lumbar should also be adjustable in the height, so that it better suits the users. However, this is already possible, when measuring before the chair is made.	Some of the employees mentioned that the lumbar is not big enough and that they did not feel it very well, because it was hidden behind layers of foam.
Backrest		One suggested that the third motor should be blocked in some cases. Some people have benefit from the backrest, but for most it is not necessary. However, it is already possible to order the chair with only two motors.	

Code	Users	Occupational Therapists	Employee
Sowecare	Both users did not have any knowledge about Sowecare as a company.	Both did not have knowledge about Sowecare, one even had never had direct contact with Sowecare before.	What was really remarkable, is that most of the employees did not really have any idea about the values of Sowecare. However, they could tell me about the Unique selling point. The unique selling point of Sowecare is that they design and produce custom made chairs which are fully adjustable to the wishes and requirements of the user. The unique selling point of LeChair is the rising function and the anti-decubitus trait.
USP		Both agreed that the movement of the chair is its unique selling point, but they preferred different aspects within the movement. One thought the virtual pivot points together with the feet staying on the ground while reclining was good, the other thought the way people were put on their feet while rising was good.	All employees thought that the adjustability of the chair is what makes LeChair unique.

Promotion		Both had different opinions about what was important for the promotion. One thought the strong points should be addressed, together with the laws and rules for a custom seat. The other was mostly looking for a well working website with clear photo's and technical specifications.	Everyone had a different opinion about how the promotion should be changed to be better, but the overall thought was to change the image of Sowecare the customer has made. This can be done through better quality of promotion, changing the image of the company and the chair, and by showing the specifics of the company and the chair. Besides that, advertising was also still important.
Promotional video		They were mostly looking for a short video, which is clear and shows all the possibilities of LeChair.	Suggestions were made both for the user in the video, as well as the contents of the video. The video should show the user's happiness and autonomy, and should contain the strong points of the chair and explanations to make it more clear that it is a medical device.

Table 8: Cross-case analysis

Analysis of the cross case.

There are only a few codes for which all three had something to say, which were about the looks, the lumbar and about Sowecare.

They almost all agreed with each other on the looks, that the chair did not look so nice, or that it was old-fashioned. From the employees, however, came forth that the looks were not the important thing for this niche market. The users also agree with this. They see that the chair is not made to be beautiful, but to be functional.

On the lumbar, everyone had different thoughts, but none of them were really positive. The users just did not use the lumbar, even the user who experienced back pains. The occupational therapists thought that it should be adjustable in the height, and the employees thought that the lumbar is not big enough, because you could hardly feel it. That it is not big enough could be the reason that the users do not use the lumbar, because they do not get enough support from it. However, this has not been tested, so it is only an assumption and not a fact.

Both the users and occupational therapists had something to say about the control. While the users disagreed with each other whether the control was good enough or not, the occupational therapists agreed with the user who said that he had some difficulties with the control. They thought that the buttons should be bigger, that there should be colour divisions, and that the symbols should be changed into just text.

What was really remarkable, is that almost no-one could say anything about the values of the company, not even the employees. To have the buyer know about what Sowecare stands for is important both for the selling and for the company-consumer relationship. If the employees have knowledge of the values, they can design and produce the product with these values in mind. To communicate these values to the consumer, they tell the consumer what

they think as important. This is a way of creating contact with the consumer, give them a little bit of insight behind the products, which improves the company-consumer relationship. It also helps with the selling, because the consumer has his own values and would like to match their values with those of the company. When they know the values of the company, this will be easier to do.

The occupational therapists and the employees had different views on the unique selling product of LeChair. The occupational therapists thought that the movement was unique, while the employees thought the adjustability was unique. However, in the analysis, both characteristics were named as unique selling points.

There were not really any corresponding answers about the promotion and the promotional video. However, now for both the general promotion and the promotional video a list can be made about what it should contain. For the promotion this is:

- The strong points should be addressed.
- The laws and rules for a custom chair should be addressed.
- A well working website is needed, with clear photos and technical specifications.
- Improve the quality of the promotion.
- Change the image of the chair to a medical device.
- Show the specifics of the chair.

For the promotional video, this list is:

- Show that the user is happy with the product.
- Show the options and possibilities of LeChair.
- Have clear explanations.
- Use 'real' people.
- Show that it is a medical device (and not furniture).
- Show the movement of LeChair
- Show that the user is more independent because of LeChair.
- Show the strong aspects of LeChair.
- Show the autonomy of the user.
- Make a short video, which contains only the important information.

6.7. Recommendations in response to PMS

From the analysis of the PMS, recommendations were made. For the recommendations, the division was made between recommendations for LeChair, and recommendations for the communication and promotion of Sowecare and LeChair. For the communication and promotion, the division was also made between recommendations from the PMS, and recommendations from the writer, which she encountered during the assignment.

LeChair

- Overall everyone was very happy with LeChair and did not really have any big things that have to be changed. This means that it is not really important to change the design immediately. Should there be a LeChair IV, then there are some things that could be changed. However, for all the changes a decision has to be made if the change weighs up to the time, effort and costs put into the design. This was not made during the assignment, because of the limited time and the doubt that there is right now about whether or not there will be a redesign.
- The control of the chair should be changed. Instead of the symbols, there should be text that explain the buttons. To use only one button was also mentioned as an option. However, when there are three motors, and thus six movement ways, it would be hard to incorporate these six into one button. Also, since the emphasis of the chair will be no longer on the rising-reclining part, there is not really a necessity to make the riser button red. Should there be a need for colour, it would better be used to separate the three motors (for example, red for rising-reclining, blue for footrest, yellow for backrest).
- It is a good thing that the motor keeps hidden while rising. However, the little piece of fabric that is now used is very fragile. So, there should be looked for a way to make it less fragile. This can either be done by making

minor changes to the existing design, like change the material. Another option is to completely change the design of the piece of fabric in the back. The company should decide this for themselves when redesigning it.

- The lumbar should be made bigger. Right now it is hardly felt when the lumbar is inflated, which results in not having enough support, or in the user not using the lumbar.
- Users would like it if the chair could be moved. Right now it is not doable, because it is heavy and big. If wheels and a handlebar could be put onto the chair, this would be a lot easier. However, it should be kept in mind that the chair should still be very stable, which means that the wheels cannot really be used as only standing points, and that thus the chair should also have rigid legs.

Communication and Promotion Recommendations from the PMS

Communication and promotion of LeChair and Sowecare definitely have to be improved, in different ways.

- Several people gave some feedback on several things that could be added to the chair, while these options were already available. This means that there has to be a better communication about the chair and its full adjustability.
- No one of the users and the occupational therapist could tell anything about Sowecare and what they stand for, and even most of the employees could not tell anything about the values of the company. To have the buyer know about what Sowecare stands for is important both for the selling and for the company-consumer relationship. If the employees have knowledge of the values, they can design and produce the product with these values in mind. To communicate these values to the consumer, they tell the consumer what they think as important. This is a way of creating contact with the consumer, give them a little bit of insight behind the products, which improves the

company-consumer relationship. It also helps with the selling, because the consumer has his own values and would like to match their values with those of the company. When they know the values of the company, this will be easier to do.

- The website could also use some changes, according to the outcomes of the PMS.
- The laws and rules of the chair should be better addressed. On the Dutch site, there does exist a header “vergoeding”, which explains shortly where users can apply for subsidy for the chair. However, the difficulty to get subsidy for the chair could better be addressed, as well as further rules and laws concerning the chair.
- The website contains leaflets that can be downloaded, which contain the technical specifications and some more detailed information. However, this information cannot be found on the website itself. It would be a good idea to put this information also on the website, together with clear photo’s which can be made bigger, so that a clear view can be given of the products even when there is difficulties with downloading the documents.

Recommendations from the writer.

- It is very important for Sowecare that they can be found on the Internet. In the beginning of the assignment, Sowecare and its products were very hard to find. However, over the course of the assignment, this has already been improved a lot. The advice is given to keep improving this, since nowadays the Internet is one of the most important communication methods.
- Just as the findability on the Internet is important, the website is important as well. Overall, the website is clear and works well. However, there are some things that could be changed about the website.
- LeChair is - at least in Dutch - still indicated as a riser-recliner chair in most of the headers. In the text it is already called a “custom seat”. Since Sowecare would like to

leave the image of the normal arm chair and focus more on the “custom seat” part of the chair, the advice is given to also show this in the header. So instead of calling it “riser-recliner chair LeChair”, call it “custom seat LeChair” (or in Dutch: “aangepaste stoel LeChair”).

- On the home page there is still a press release of September 2016. Although it is a good idea to put news on the website, having only one article from half a year ago makes the website look outdated. So the advice is given to either keep the news up to date, or do not put news on the website at all.
- The advice is given to improve the overall quality of the communication and promotion. It was also suggested in the PMS, but is important enough to be stressed a little more. The quality is important because of two things. Partly because of the values: it is very clear that quality is of high value in the products. This should be translated into the communicatin and promotion, to give a corresponding message to the customer. But besides this, it also gives an unprofessional image when the quality of the promotion materials is not good, like grammar errors or visible spots from removed backgrounds on an image.

6.8. Conclusion

Although only two users and two occupational therapists were interviewed, there were ten interviews in the end, so an analysis of the surveillances could be made. However, this does mean that the outcomes of the analysis are not 100% reliable. When making the recommendations, this was already kept in mind, so with common sense all the results were evaluated before writing it down.

The recommendations that came through the review phase are important points, which Sowecare could implement in the future.

7. Marketing Communication Analysis

With the insights of the PMS, a communication tool can be designed. However, before this is possible, first an analysis should be done about which communication would be best and what it would look like.

Marketing communications are the means by which companies attempt to inform, persuade, and remind consumers – directly or indirectly – about the products and brands they sell (Kotler & Keller, 2012). There are eight major modes of communication, called the marketing communication mix. These can be found in Table 9.

Marketing communication activities contribute to the associations customers make with the company, that can strengthen or weaken a customer's view of the company, their brand equity, and sales in many ways: brand

awareness, forging brand image in consumers' memories, eliciting positive brand judgments or feelings, and strengthening consumer loyalty. The way these brand associations are formed does not matter. However, the marketing communication activities must be integrated to deliver a consistent message and achieve the strategic positioning.

The starting point in planning marketing communications is a communication audit that profiles all interactions customers in the target market may have with the company and all its products and services. To implement the right communications programs afterwards, marketers need to assess which experiences and impressions will have the most influence at each stage of the buying process. Then they can judge marketing communications according to their ability to affect experiences and impressions,

Communication Mode	Meaning	Characteristic
Advertising	Any paid form of non-personal presentation and promotion.	<ul style="list-style-type: none"> • Pervasive • Amplified expressiveness • Control
Sales promotion	Short-term incentives to encourage trial or purchase of a product or service.	<ul style="list-style-type: none"> • Ability to be attention-getting • Incentive • Invitation to engage in the transaction
Events and experiences	Company-sponsored activities and programs to create daily interaction with consumers.	<ul style="list-style-type: none"> • Relevant • Engaging • Implicit
Public relations and publicity	Programs directed internally or externally, and media to promote or protect the company's image.	<ul style="list-style-type: none"> • High credibility • Ability to reach hard-to-find buyers • Dramatization
Direct and Interactive Marketing	Use of tools to communicate directly with or solicit response from specific customers.	<ul style="list-style-type: none"> • Customized • Up-to-date • Interactive
Word-of-mouth Marketing	People-to-people communication.	<ul style="list-style-type: none"> • Influential • Personal • Timely
Personal Selling	Face-to-face interaction with prospective buyers.	<ul style="list-style-type: none"> • Personal interaction • Cultivation • Response

Table 9: Communication modes

build customer loyalty and brand equity, and drive sales. Herein the marketer should be “media neutral” and evaluate all communication options on effectiveness and efficiency.

7.1. Developing Effective Communications

Developing effective communications consists of eight steps: identifying the target audience, determining the objectives, designing the communications, selecting the channels, establishing the budget, deciding on the media mix, measuring the results, and managing the integrated marketing communications.

- Identify the target audience. The target audience is a critical influence on the communicator’s decisions about what to say, how, when, where, and to whom.
- Determine the communications objectives. There are four possible objectives, of which multiple objectives can be achieved: category needs, brand awareness, brand attitude, and brand purchase intention.
- Design the communications. Formulating the communications to achieve the desired response requires three problems: message strategy, creative strategy (informational or transformational) and message source.
- Select communications channels. Selecting an efficient means to carry the message, dividing the personal and non-personal channels.
- Establish the total marketing communications budget. Deciding on the communication budget can be done in four ways: the affordable method, percentage-of-sales method, competitive-parity method, and objective-and-task method.
- Deciding on the marketing communications mix. Allocating the marketing communications budget over the eight major modes of communication.
- Managing the integrated marketing communications process. A planning process designed to assure that all brand contacts

received by a customer or prospect for a product, service, or organization are relevant to that person and consistent over time.

7.2. Current Communication channels of Sowecare.

Before a communication tool can be developed, first a research has to be done about the current communication channels Sowecare already uses. This list can be found in Table 10.

Communication channel	Ways of marketing
Advertising	<ul style="list-style-type: none"> • Flyers • User Manual • Advertisements in magazines in the Netherlands, Germany and France.
Sales Promotion	<ul style="list-style-type: none"> • Promotional videos about some of the products. • Trade fairs.
Events and Experiences	
Public Relations and Publicity	<ul style="list-style-type: none"> • Reports to employees.
Direct and Interactive Marketing	<ul style="list-style-type: none"> • Website. • E-mail. • Google AdWorks. • Medical Expo (an international webstore) • Promotional videos about some of the products.
Word-of-Mouth Marketing	<ul style="list-style-type: none"> • Person-to-person
Personal Selling	<ul style="list-style-type: none"> • Trade fairs • Fittings • Showroom

Table 10: Current communication channels

7.3. Developing effective communication for Sowecare.

Guided by the eight steps that developing an effective communication consists of, a communication tool was developed. However, only four out of the eight steps were followed. After the selection of the communication channels, there was no need to follow the steps anymore. Partly because there was not enough time during the assignment, so measuring the results could not have been possible, as well as the managing of the integrated marketing communications. The other two steps – establishing the budget and deciding on the communication mix – were not followed, because these steps would be something the company has to decide for themselves, and the required knowledge to implement these steps was not available.

Identify the target audience.

The target audience will mostly be the dealers and the occupational therapists. The occupational therapist recommends LeChair to the user, and most of the time it is dealers who buy LeChair from Sowecare. It is not often, but sometimes the user will buy LeChair himself, so the user is also a part of the target audience. A more elaborate explanation of the target audience can be found in chapter 4.

Determine the communications objectives.

The biggest objective is brand purchase. With the communication tool, Sowecare would like to raise the sales. However, this is not the only objective that is pursued with the communication tool: brand awareness is also an objective. With the communication tool, Sowecare would like to show their customers what LeChair is, what it can do, and why it is better than its competitors – mainly Doge and Fitform. With this, they would like to express their brand to their customers and let the customer have the right view of their brand.

Design the communications.

The design of the communication will be done through co-creation of value, together with the customers. From the outcomes of the PMS, recommendations were given about what information the communication tool should contain.

Select communications channels

An elaborate research was done to find which communication should be used. This can be found in Appendix J. Because it is quite a complex message that Sowecare wants to send – their unique selling point, which lies in the movement of the chair – and more people should be attracted to buy the chair, a promotional video would be best to use as a communication channel. This is because it has a high range of people and complex messages can easily be explained, through speech and images. Besides that, a video can be published on a lot of different media, such as Facebook, YouTube, and their website, and it is also easy to show during trade fairs and demonstrations.

7.4. Conclusion

After analysing what is necessary to develop a communication channel, and researching what current communication channels Sowecare already uses, a communication channel was developed. For this, first the target audience was identified, which are the occupational therapists and dealers, and occasionally also the user. The objectives for the channel are brand purchase and brand awareness. In order to translate these objectives to the target audience, after an extensive research, a promotional video was found to be the best channel.

8. Promotional Video

From the PMS, it was clear what everyone thought was important to put in the promotional video:

- Show that the user is happy with the product.
- Show the options and possibilities of LeChair.
- Have clear explanations.
- Use 'real' people.
- Show that it is a medical device (and not furniture).
- Show the movement of LeChair
- Show that the user is more independent because of LeChair.
- Show the strong aspects of LeChair.
- Show the autonomy of the user.
- Make a short video, which contains only the important information.

These inputs will be implemented in the setting and the script.

8.1. Preparations

Setting

As came out of the PMS, it is important to use 'real' people and a 'real' environment. This means the main character must be someone of the target audience. Both elderly people and people with certain disabilities are the target audience. The video wants to show that it is a medical device, so thus it would be better to show people with decubitus or oedema. However, those people might be hard to find and they may not be willing to cooperate. Besides that, Those disabilities mainly occur at a later age. So, when using an elderly person, the video includes most of the target audience. That it is more specifically targeted to people with disabilities like decubitus and oedema can be addressed in other ways.

That is why the choice was made to use a person above 65 years old, to use a nursing home as scenery.

Script

Previously made script

Previous people already made up a script. This can be found in Appendix K. It does contain a lot of valuable information, especially on the medical front. However, not everything corresponds with the input from the PMS. So, with this script and the input from the PMS, a new script was created.

Reviewing the former script.

- Scene 1:
 - The idea is good. However, it would be better to use both visual and audio for this, instead of only text.
- Scene 2:
 - The idea of showing how the movement is going is a good idea.
 - The sticker on the lumbar is vague. The sticker cannot be seen when filming, because someone is sitting on the chair. So this part will be left out of the video.
 - It is not clear from which view point the filming should be.
- Scene 3:
 - Addressing the different pressure point is a good idea.
 - Using arrows to point where the pressure points are might not be the best way to show it. Rather, it would be better to use dots.
- Scene 4:
 - This scene's facts are not right, they are mixing things up. Oedema can happen because of different reasons. When oedema is exercise-induced, for example, the body has had too much effort, and needs rest (Tadlock, 2013). However, most of the time this is not the target group for LeChair. The target group that does experience oedema, on the other hand, experiences the symptoms because of too little movement, bad blood circulation, or heart failures. Then oedema mostly occurs in the legs. For these people, sometimes it can be helped *with movement* (Stacey,

2016). Another possibility is to relieve the pressure of the feet and put them up. That is why the foot rest of LeChair can go higher than horizontal. This way, the blood can flow back to the heart through gravitational force, which reduces the fluid in the legs.

- Scene 5:
 - This is the unique part of LeChair, the movement. It should be more in the beginning of the video.
 - It really should stress that this is the unique part of LeChair.
 - The explanation of the movement is good.
- Scene 6 & 7:
 - The idea of the scenes are good. However, the whole chair is about sitting right, not only when users have scoliosis, lordosis and kyphosis. So it is a more central thing than something mentioned at the end.
 - The explanation of the bucket for scoliosis, lordosis and kyphosis is good.
- Scene 8:
 - The concept is good. However, it would be better to put more stress on the custom-made, and that it is adjustable to the user, with a lot of different options.

New script

With the input from the PMS in mind, together with the insights from the previously made script, a new script was designed. The script was divided in eight scenes, in which one scene is the introduction, and one scene is the end. The script, including the voice over, can be found in Appendix L.

The video focuses mostly on different indications and why LeChair is a solution for those indications. In order to explain that, the movement of the chair is also explained. In the end, a whole bunch of photo's are displayed after each other, to show all the possibilities there are or can be.

8.2. Implementation

Filming on location

That filming costs a lot of time, should be taken into account. For every scene, it is important to think about time, place, light, position of the camera, et cetera. Because this takes a lot of time, most of it was already taken into account while making the script.

While filming, for every scene several shots will be created. This ensures that for every scene, the best possible material will be available, so the best possible video can be created. Afterwards, while editing, the best shots will be chosen to put into the video.

Audio

Voice over

The voice and pronunciation of the voice over is very important for a successful video. That is why two specific people were chosen, because of their easy-going, clear way of speaking. The voice over was recorded at a small studio, to make sure the sound was of the right quality.

Initially, the video was supposed to be in Dutch, English and German. However, no one could be found with a good enough German speech who had time during the day to record the voice over. Because of this, for now the choice was made to only do the promotional video in Dutch and English.

Background Music

To fill the empty spaces in the audio, background music was used. It also can be used as a guideline for the video. The choice was made to use a happy melody, to create a positive effect for the viewer, but not too "bouncy".

8.3. Results

The final video is 2:51 minutes long for the Dutch version and 3:08 minutes long for the English version. It contains all the important parts coming from the PMS, and suits the target audience. The videos were uploaded to the YouTube canal:

Dutch: https://youtu.be/VOfk7at0t_g

English: <https://youtu.be/IkvuqRa3MFU>

Every video contains tags, which ensures that the video can easier be found on the Internet. The video will also be put on the website.

8.4. Conclusion

All the insights that were given about the promotional video in the PMS were implemented:

- In figure 15 can be seen that the person in the video is smiling, and thus looks happy, while using the product.
- All the different options were shown in a slideshow of photo's of different chairs. An example for this can be seen in figure 16.
- Using 'real' people was implemented by using a women of 75 years old in the video. Although she is still mobile, she can pass as a person who might need the chair.



Figure 15: The user is happy in the promotional video.



Figure 16: Different options in the promotional video

- Showing that the chair is a medical device was implemented through explaining why the chair is good for a lot of different disabilities. In figure 17 can be seen how it is explained why the chair is good for decubitus.
- The movement of LeChair is shown by a dot and two lines, who follow the chairs movement. This can be seen in figure 18.
- Showing that the user is more independent through the chair is shown by having the person use the chair without any help.

- Showing the strong aspects was done by showing the movement of the chair, showing why it is a good chair for different disabilities, and showing all the different options.
- Showing the autonomy of the user is also shown through letting the person use the chair without any help.
- Making the video short was implemented by making the video only around 3 minutes long.

All the photo's can also be viewed in a larger size in Appendix M.



Figure 17: Decubitus explained in the promotional video



Figure 18: Movement of LeChair explained in the promotinal video.

Discussion

Throughout the assignment, it becomes clear that three months are too little time to extensively develop all the separate parts of the assignment. All these separate parts are necessary for the development of the thesis, but this means that all parts could not really be developed to their full extent. This can be seen in several things.

The literature research

Where it is most clear, is in the literature research. What is written in the research is all important to be able to implement it in the further stages of the thesis. However, it is only a start of a research. Explaining what value co-creation is and what their building blocks are, is important to know, but actually are only the starting points for a further research. This further research has been done by researching how co-creation can be used in practice. This is also a good starting point, but could be elaborated more. Four ways of putting value co-creation in practice (co-design, participatory design, comarketing, and value-in use for consuming) for four stages of the value chain is not so much. There could be a lot more processes to put value co-creation into practice, but this research does not show those and give only a very narrow view. There are two big consequences to this.

First of all, it would mean that designers would not have the opportunity to choose which approach they prefer to implement in their process, since there is only one, or maybe two, methods per process. Since a lot of designers have different views and preferences of the design process, different processes would be preferred. When more options would be given, more designers would agree with at least one of the processes. So then a lot more designers would use the co-creation tools, then they would do now with only those few processes. Of course this research now was not created to make a roadmap for all designers or companies to implement the co-creation tools into their design process, but only to use as a tool for the single person who worked on this thesis. Nonetheless, it

would be better to research for more processes. Because if there are more processes, it would also give a lot more credibility to the research. If those four processes would actually be the only ones that could be practices of value co-creation, this would not be the case. However, there is a big chance that there are more processes that could work with co-creation, processes that might even work better than the ones presented now. Because those possibilities were not researched, this question could not be answered, and thus would reduce the credibility of the research.

Not only the amount of processes could be elaborated, but also the processes itself. Right now there is only a short introduction into the processes. However, this is very superficial. What especially is missing from it, is how the processes could be performed. Right now the processes are explained, but how could a designer actually integrate these processes into their design process? What questions could he ask? What materials does he need? How can he interpret the inputs of the participants? Those are questions that could be important, even for this thesis, and are not really answered.

The last thing that is debatable about the literature research, is the topic itself. The research only elaborates on value co-creation as a tool to involve users in the value creating process. Even though value co-creation is an umbrella term for a lot of practices to involve users into the value creating process, there could be other practices which would involve users in the process, but would not fall under either coproduction or value-in-use.

The post market surveillance

The other part where the signs of a short assignment time is clear, is in the post market surveillance. The first encounter is that there were only ten people who participated in the PMS. Even though a valid analysis could be made, the credibility will not be a hundred per cent. When writing the recommendations, this

was already kept in mind, and thus the analysis was read critically and reviewed with common sense. But still, it would only be the opinion of a small percentage of the stakeholders, and thus does not really give a full image of the reality. Besides the shortage of time, there was another part that was encountered when performing the post market surveillance. In a lot of the interviews, participants only gave very shallow responses, like "goed", "prima", of "geen opmerkingen". Even though it seems like it is a good thing, because it would mean that there is nothing wrong with that function of the chair, the writer thinks it is rather that the participants are not fully participating in the interview. This can be because of different reasons:

- They do not have a lot of time. Then they would fill in the questionnaire very fast and not really think of it.
- They do not have enough knowledge of the chair to give the full answers.
- They do not think critically enough.
- They do not have the creativity to engage fully in the questionnaire.
- They do not want to think that there are any bad parts to the chair.
- They just do not feel like fully participating in the questionnaire.

Implementing the value co-creation.

A last thing that can be doubted in this thesis is the way co-creation of value is implemented in the marketing strategy of Sowecare. In the thesis it is only implemented in two ways: with value-in-use by asking the insights of users and occupational therapists - people who have knowledge of the chair and have created value-in-use - and with co-production/co-marketing by using the PMS and its outcomes to create the recommendations and the promotional video. However, there are some more options of how different stakeholders could be involved in this thesis.

First, stakeholders could be further involved in the recommendations and the redesign of

LeChair. Now they are only used to give some insights, and then the recommendations are made. However, when a redesign of the chair is made, then there can be involvement of the stakeholders again. The redesign could be presented to the stakeholders, and they could give their insights and suggestions.

Another way to involve stakeholders in the thesis is by creating value-in-use with the promotional video. Because of the short time, this was not possible to do, but when the stakeholders see the promotional video, they create their own thoughts and images of the company and the chair. This creation is a form of value-in-use. Had there be more time, this part of value-in-use would also be analysed, to see if the video really had the expected impact.

So, although value co-creation was implemented in this thesis, or at least in the way that it was described in the literature review, it could have been better. Especially for the co-production, that only contained the interviews. To further engage users in the value co-creation process, it would have been better to involve them more. For example, a co-design session could have taken place to create the script for the promotional video. Or there could have been a discussion group about the script that was already created.

Conclusion

The goal of this thesis was to create a communication channel for the new image of the riser-recliner chair of Sowecare BV, by implementing co-creation tools on their marketing strategy.

Before the communication channel actually could be developed, some important steps had to be taken. First of all, research was done to figure out what the building blocks of co-creation were and how it could be implemented in a marketing strategy. Co-creation can be implemented by different processes in the value chain, like codesign or participatory design in the development phase, co-marketing in the marketing phase, and receiving value-in-use in the consumer phase. The second step was to do a target analysis, where was concluded that the target audience are elderly, people with specific illnesses like decubitus, edema, or parkinson, and occupational therapists. These groups have to be convinced to buy the chair.

For the post market surveillance, ten people were interviewed. Even though it is a small amount of people, a solid analysis was made from which recommendations were made for the communication channel and the redesign of the chair.

These recommendations, together with a full marketing communication analysis, concluded that a promotional video would be a good communication channel. This video should on the one hand raise the purchase of the product, but on the other hand should raise the brand awareness of Sowecare. For this it was important to show the unique movement of LeChair, why it is a good solution for different illnesses - to really stress that it is a medical device - and that all the chairs of Sowecare are fully adjustable to the wishes and requirements of the user. These aspects were all put into the video.

For spreading the video, YouTube was a good platform, because through this it can be put on other platforms, like the website or social media. So this would be the easiest way to spread the video in a wide way.

The promotional video is made in both Dutch and English. Both Sowecare and the writer of this thesis is satisfied with the results, especially for the short length of the thesis.

Further Research

Even though the results are satisfactory, there are also some things that could be changed or further elaborated in future research.

First of all, the literature research could be further elaborated. The research should be both in depth and more broad. There should be a more in depth research of the current findings. For different aspects there should be taken a broader look. First of all, there should be a research for more processes that can be used for value cocreation.

Second, a research should take place to see if there are other ways to involve people in the value creating process, instead of co-creation of value.

Third, when implementing the recommendations given in chapter six, they should be reviewed critically, to make sure the recommendations are valid. This is because there were only ten people interviewed, which is only a small percentage of the target group.

Another research should be done how the target group can be fully involved in the co-creation process. The research should contain why people are not fully participating in the process, and research has to be done about how to improve this.

At last, for implementing the co-creation of value in this thesis, this could have been more elaborate. If another assignment like this one would take place, it might be a good idea to do a co-design session in order to create the script. Or to do a discussion group session where different stakeholders have a critical look on the promotional video.

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