

Transitions to more sustainable fashion: relational, transparent, and community building



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Transitions to more sustainable fashion: relational, transparent, and community building

A case of an experiential QR sweater

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community building

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Abstract

This thesis is an exploration of transitions towards a more sustainable fashion industry with a cross-disciplinary project involving Norwegian fashion brand Haik With Us. Together we created a research product that is 10 sweaters with textile QR codes, that are connected to a digital platform. The sweaters were sold in an experimental way where the owners set their own price. After six months we interviewed the ten owners to understand what connection they have to the sweater and how they used the QR codes. These interviews opened up a lot of reflections about what ownership of clothing is and a wide exploration of what values and attachment the owners have to the design after the point of consumption. This design is a local solution grounded in the fashion industry, where a local brand and a local community of owners are involved. The chosen method for this thesis is Transition Design, that gives a framework for working toward change and new ways of designing.

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1. Introduction

1.1 Context

Societal transitions into a more sustainable future (Hackl, 2017) are imperative today. Humans have made such a huge impact on the planet, that scientist state that we have entered a new geological era, the Anthropocene. The Earth is touched by humans in many ways and changed so much that it will never be the same again. We have adopted a lifestyle away from nature but are heavily exploiting the earth's natural resources, and we are the ones that will lose in the end because of it. The earth is not depending on us, but we do depend on it. The unsustainable patterns of human activity are causing environmental challenges such as climate change, and that will demand big changes to all parts of the society (Hargreaves, 2011). In a western lifestyle, which is now becoming global, consumption is a way of living. Like with climate change, we see it but are doing little to mitigate the problem. Instead, we keep consuming more and more. One of the biggest and fastest growing industries is the fashion industry. However, the fashion industry is using up natural resources and causing environmental erosion, pollution of the air, the land and the sea (Conca, 2015). Thus, there is a pressing need to consider more seriously how to change both consumers' behavior patterns and the production processes of clothes.

1.2 Personal motivation

My mindset and fashion consumption practices have changed during the past five years towards more conscious and sustainable choices. I still love and cherish the opportunities that clothing gives me to express myself, and I love exploration and playing with new styles and trends. I consider such activities

to be a part of my personal creativity. I have grown to understand better how the fashion industry works, and how it shapes consumer relationships with clothing and their consumption practices. I want to share my insights, and influence practices of others on how to be sustainability minded. There is a lot that needs to change, as described above. I am finishing my degree in interaction design and so the main tool for me to use effectively towards this aim is technology. Even though the technology is often used to increase consumption, I see possibilities for technology to change the way we consume in a positive and more sustainable direction.

1.3 Research Question

We need to look for new and interdisciplinary solutions to the complex environmental and sustainability issues that we are faced with in today's society. That is why I have chosen to focus on the fashion industry and possibilities that I, as an interaction designer, have to contribute to a sustainable change. Thus, my main question for this thesis has been:

How can interaction design and technology be used to change the consumption of clothing in a positive direction? The positive change implies nudging users to value clothing more, buy less, choose new items consciously, and prolong the use of such clothing (mitigate the throw-away, fast consumption).

This question is rather general, and to answer it, I focus on a set of subquestions:

- 1. By adding QR codes to clothes, can one create a high level of attachment by connecting consumers with designers/producers of the clothing?*
- 2. How can QR codes change the practice of consumption and prolong the ownership of clothing?*

3. What are the leverage points to reduce consumption that could be communicated to users directly?

4. How did the methodology affect the outcome of this project?

These questions were explored through an interdisciplinary collaboration with the Norwegian fashion brand Haik With Us (Haik W/) and Ida Falck Øien who is one of the starting partners at Haik W/. Ida Falck is at present pursuing her Ph.D. at The Art Academy in Oslo (KHiO). We have focused on sustainable design (by Ida) and putting the QR codes on the clothing (for my research purposes). The embroidered QR codes in combination with dynamic web page technology allow me to share information with the owners, such as how the clothing is made, what becomes part of the pricing strategy and other kinds of information. We have then investigated the transaction, owners use of the clothing and the valuing of the piece of clothing through ten interviews with people who bought our designed product. Though the interviews I aimed to understand what effect of the concept and information of the QR codes has, and if it can prolong the use of the piece of clothing.

1.4 Chapter guide

Chapter 2: Background

In Chapter 2, I provide my understanding of the fashion industry, with a brief history of how it evolved, what it is today and what social forces and power it holds in the form of consumerism. Then I explore what kind of sustainability problems the industry faces.

Chapter 3: Background on Sustainable Design

In Chapter 3, I present perspectives on sustainability, and from the perspective of the field of HCI. Further, I take the concept of a research product from Research Through Design and explain how the clothing that we made can be seen as a research product. Then I provide some interesting cases where interaction design and the fashion meet. These cases are both inspirational to my work and that I was critical to regarding sustainability. In the end, I present the brand I am collaborating with and some of their previous work in relation to sustainability.

Chapter 4: Theory

In this chapter, critical theory is positioned as a fundament for how I see the possibilities of making changes in society by designing technology. Then I give a brief introduction into the social practice theory, as the theory of change that I have chosen to work with. In the end, I discuss some concepts relevant to consumption practices.

Chapter 5: Method & Methodology

In this chapter, I explain the methodological approach that I chose, Transition Design. Further, I review other methods used in my thesis.

Chapter 6: Transition Design

In this chapter, I describe how the Transition Design framework is applied in this study by re-visiting its components: Visions for transition, Theories of change, Posture & Mindset and New ways of Designing.

Chapter 7: Case

In this chapter, I describe how my case is situated in the collaboration with Haik W/ and give some information about Haik W/, the project of creating a research product, and how the research product got sold. Then I describe my data gathering and present my findings.

Chapter 8: Discussion and Analysis

In this chapter I discuss the use of methods and connect the findings from the interviews of the owners of my research product with theories and methodology used, discussing also the limitations of the study and the future work.

2. Background

“Fashion is the armor to survive the reality of everyday life.”—Bill Cunningham

2.1 What is the fashion industry?

For this thesis, the fashion industry implies the textile and apparel industry, the clothing industry, the industry that is producing and selling items that decorate or cover the body, like textiles, clothing, and accessories (Ruppert-Stroescu, LeHew, Connell, & Armstrong, 2015, p.168). I have kept the word fashion because it represents the non-material dimension of the industry. Fashion is used to refer to anything from lifestyle, clothing, or the latest trend in a domain, it communicates our taste, values, and image (Crane in (Pan & Blevis, 2014)), and it is something you wear, something you make and that you can express yourself through (Hethorn & Ulasewicz, 2015, p. 1).

2.1.1 A brief history of the fashion industry

Clothing is an everyday necessity. How we dress, the way the clothing is made, and our relationship with it has drastically changed through history. In the book “Sustainable fashion: what's next? : a conversation about issues, practices and possibilities” J.Hethorn and C.Ulasewicz discuss the historical evolution of fashion with a focus on sustainability. Explaining the evolution from preindustrial times when the way of living was sustainable by default, to early industrialization and modern times when sustainability is a conscious choice and a priority for the society. In preindustrial times most materials were natural and it took a lot of physical work to just produce the materials for the clothing. The working class did not need a wardrobe, because they only had two sets of clothing, and clothing for special occasions was kept in a suitcase. Clothing was custom fitted and handmade for the person that was

going to use it, at home or at a tailor. The work to produce a piece of clothing had a high monetary value because the process was advanced and time-consuming. This also made repairing an essential part of owning clothes because it paid off, compared to buying new. An example of this practice is a pair of hand-woven pants exhibited in the University of Rhode Island that is patched 24 times (Figure 1) (Hethorn & Ulasewicz, 2015, p.7).

In the early industrialization, there was invented many new machines that made the process of producing clothing a lot easier. The first spinning machine, spinning jenny (Figure 2), made the spinning process twenty-five times more effective, and the first sewing machine was invented in 1845 and made the joining of the textile easier and faster than by hand. The rise of global capitalism, the factory system, and an increasing amount of retail stores lead to that clothing became a mass-produced product. Clothing was from then produced with standard sizes and sold at set prices (Steele & Major, 2018).



Figure 1: Pants exhibited at Rhode Island that is patched 24 times



Figure 2: The Spinning Jenny

Before the invention and normalization of fashion magazines, to hear about the latest fashion, you had to go and see it yourself at either famous shops, or fashion shows, or get a handwritten letter about it. The development of machines to print patterns on clothing was also a good technology to print cheap fashion magazines, and with magazines, the latest fashion could be spread easily. These magazines were the start of the Couture system that the fashion industry is still working with. It is named after designer Charles Frederick that in 1857 made a pre-designed collection that customers could order specially made copies from. The customers could choose the color, fabric, and details before Frederick made the finished clothing. This was not the way it normally was done at that time. Now, Haute Couture is a protected title, and for companies to use it they need to meet specific standards. The term is also used to describe all high-fashion and specially fitted clothing made in big fashion capitals like Paris, Milan, New York or Tokyo (Hethorn & Ulasewicz, 2015).

Because of the technological evolution in textile production, by the nineteenth century, almost all textiles were made by machine (Hethorn & Ulasewicz, 2015, p.12). The textile industry also developed textiles that were made from nonrenewable resources such as fossil fuel (Hethorn & Ulasewicz, 2015, p.15). Production was and still is, moved to places where the labor is cheaper, which leads to the pricing of clothing going down. It is customary today for a fashion brand to get their fabric from China, design clothes in the United States, manufacture them in Vietnam, put finishing touches in Italy, and then ship it to a warehouse in the United States, where the clothing is distributed. It travels around the globe, sometimes multiple times, to find the cheapest way to make a finished product, disregarding other consequences of these practices (Steele & Major, 2018).

2.1.2 The industry today

In likeness with the internet and its deep, hidden under-belly, the fashion industry has its own. The fashion industry can be divided into different parts: 1. Production of raw materials, 2. Design of products, 3. Manufacturing and production 4. Promotion and advertising and 5. Retail (Steele & Major, 2018). Many consumers see only the finished products and the retail and are never near the production of raw materials, manufacturing of the products or sites where clothing ends up after use, such as landfills in Africa.

Fast fashion vs High-end couture

The quality and prices of the sold products in the industry vary. On the one side of the scale, there are couture pieces and on the other side, high street and fast fashion. High-end couture fashion is cost specific, custom fitted, occasion specific, and of very high quality, and made by hand, from the start to the finish. It is done by people who have highly trained skills and the fabrics used are often expensive and their design unique. The opposite of couture is the high street, brands that are available at the main streets of cities around the globe, the brands that mass produce clothing to a wide audience, ready-to-wear, and change from season to season (Vaishnavi Thakur, 2017). Some of the high street brands are also fast fashion. The fast fashion is the fashion that focuses on the speed and low cost of consumption. To sell more they have new seasons or collections being produced as fast as possible, some brands have 52 collections every year. Examples of fast fashion brands are companies like H&M, Forever 21 and Zara. The designs are often inspired by the more high-end fashion houses, made with cheaper materials and at a bigger scale. Sometimes the designs are even stolen directly from small designers, or big fashion houses (Battan, 2018). The pressure to reduce cost makes it more likely that choices in production are not based on environmental values, but the cheapest and fastest solution (Shen, Li, Dong, & Perry, 2017).

Online sales and marketing

The way we buy clothes has changed drastically. Earlier, the act of buying was a more active choice, now you can buy new clothes at any given time, and in any mood - no need to think too closely. In addition, and because of the low prices, the online fashion market is growing at high speed - 3 times as fast as the market overall. An example of a company that has been at the forefront of this development is the online store Zalando, which started with a novel idea of shoe sales, but has expanded to include all fashion. Their strategy of no cost shipping and no hassle return has been really successful, and they have expanded to 16 countries in just six years (Keller et al., 2014).

Many bigger brands and companies take advantage of the digital shift. Targeted ads online has become commonplace. We are used to getting advertising on Facebook, with exactly what we just looked at using Google, or other search machines, because companies can get customer data from user accounts and all their touchpoints. With this data, algorithms could predict when a specific customer is likely to do another purchase and what they would buy, with high precision and probability. This has recently changed slightly with new privacy laws. However, when, and where people are exposed to new fashion, trends and how they buy clothes remains based on different sources than before the digital era.

Social media has become an important part of the customer's journey (Keller et al. 2014). Young people use Instagram and other digital platforms to get information about the latest trends, exchange experiences, and compare prices. Keller et al. reports that up to 35 percent of consumers follow recommendations from social media when deciding on their purchases. The influence of social media and online habits is illustrated by the example of Adidas. The company promoted a fast fashion brand NEO by installing interactive mirrors in their stores so that the experience of the in-store purchase would more closely resemble an online experience. The mirror

makes it easy for the customer to post pictures on their social media when trying on new clothes so that they can get a response from friends before purchasing (Keller et al., 2014).

2.1.4 Production

There are a lot of problems with clothing production in the fashion industry today, one example described in a new report about viscose factories from Changing markets foundation, is revealing that both H&M and Zara, some of the biggest marked holders in the industry, is buying viscose from highly polluting fabrics in China, India and Indonesia. Viscose is not a natural fabric, it is manmade and has the same use and appearance as silk. To make the fabric, you use wood pulp and treat it with chemicals. Apparently, through this process, pollutants are going into both the air and the water, killing aquatic life, and making the drinking water unsafe. The report on the subject read "Cheap production, which is driven by the fast fashion industry, combined with lacking law enforcement of environmental regulations in China, India, and Indonesia, is proving to be a toxic mix" (Changing Markets Foundation, 2017).

Water is essential to clothing production, it is needed many places in the life cycle of clothing from irrigation of cotton crops to coloring and washing of clothing (Ethical Fashion Group Ltd, 2018). To make one single cotton t-shirt you need 1400-3000 liter of water. The amount of water needed to produce one person's consumption of clothing yearly is the same amount of water that a household of three persons needs for a whole year. A very visual and scaring image of the fashion industry's water usage is the drying of the Aral Sea in Central Asia, that has shrunk to 10 percent of the volume it used to be. The reason for this is the irrigation of cotton farming, and this has of course a dramatic effect on the biodiversity and way of living in the area (Ethical Fashion Group Ltd, 2018).

Working conditions

There are a lot of social implications and impacts regarding the fashion industry, some of which I already touched upon. I do not go into details on this theme, even if it does deserve closer attention. I just wish to mention that many big brands, like the fast fashion brand H&M, have been criticized for not providing appropriate work conditions for their workers and an incident often mentioned is the Rana Plaza disaster in 2013, in which over 1000 workers were killed and thousands more injured after a roof in a sweatshop collapsed (Isaksen, 2014). In many cases, textile workers are working in harsh conditions with dangerous toxins, and are underpaid for such dangerous work. It is happening in all classes of the industry, not just fast fashion but also high fashion brands. For example, the high fashion brand Prada has been accused of taking advantage of illegal Chinese immigrants (Crane, 2016, p.251).

2.1.5 Afterlife

In 2011, Norway produced about 113.000 tons of textile waste, and that is twenty-three kilos for each citizen on average. In the United States, they create 13.1 million tons of textile waste every year, and only 15 percent of it is being reused or recycled (Crane, 2016, p. 250). Even if there is a big amount of second-hand clothing initiatives, the majority of the clothing ends up in the landfills. There are recent efforts to make much better services focusing on re-conceptualization of the second-hand market (Srivastava & Culén, 2018). Landfilling with clothing is problematic. Polyester fiber is one of the most commonly used fibers in clothing, and it can take more than 200 years to decompose (Conca, 2015). The decomposing of clothing is reliant on the material, and there is a big difference between a polyester dress that takes 200 years to decompose and a wool jumper that take 4-5 only years. Next page has an overview of the decomposing of some clothing that many of us have in the closet:



Figure 3: Overview of how long time different types of materials and clothes take to decompose in a landfill (“Fashion Revolution Fanzine,” 2017)

2.2 Consumerism

If you compare the phones we used 60 years ago to what we use now, there have been some big technical changes. Before a phone was an analog device used to make a phone call, now there is almost no limit to what the phone is used for. If you compare the technicality of our devices to the clothes we wear, not much has changed in the clothing. The shape of the suit has had different trends, but it is still a suit made of textile. The fashion industry always finds new ways of marketing new design, even if the clothes we wear is still working, and doing the “job” it was designed for.

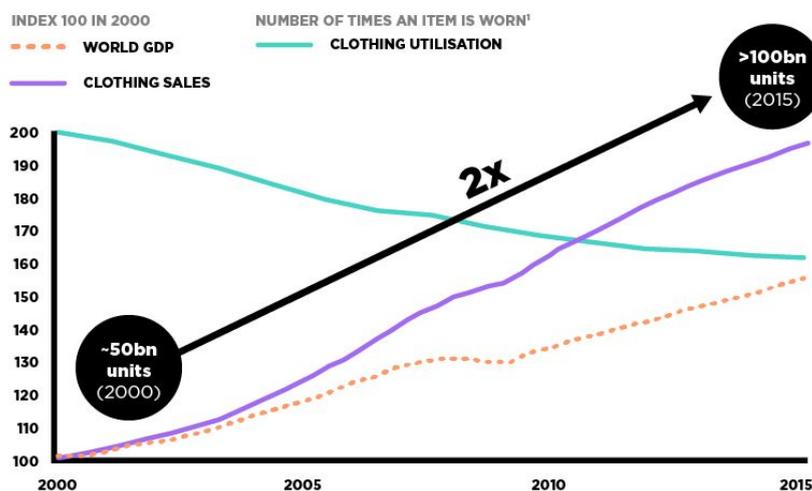
Fashion is a force for consumerism in the fashion industry, but who decides what is in fashion? In (Pan & Blevis, 2014) authors state that Yuniya Kawamura treats fashion as a system of institutions, different stakeholders in the fashion industry beyond the designer, as the consumers, models, shop buyers, celebrities, media, advertising, and branding all decide what is fashionable. All having a will and power to change what is in fashion (Pan & Blevis, 2014, p.1005). For consumers a wish to be in fashion is “to be abreast of what has good standing, to express new tastes which are emerging in a changing world” (Pan & Blevis, 2014, p.1). In different degrees of awareness, people use what they wear to express their identity and status. The brands in the fashion industry need to sell clothes and want to control and be ahead of what is in fashion. The industry has a business model based on using fashion as a way of connecting design to a timeline, and a way of thinking that design is outdated, beyond practical reasoning. Fashion is a strong force in a capitalistic system that makes people buy more clothing than they need, and plays an important role in shaping our consumption practices, this is also known as *consumerism* (Ruppert-Stroescu, LeHew, Connell, & Armstrong, 2015, p.168).

2.2.1 Consumption and Use

The more consumers buy, the more is produced and the more negative environmental impact is made. Living standards are going up, but the price of clothing is going down, and it halved since 1995 (Gjermundbo, 2018). Producing clothing that is loved, cared for and respected is hard in a market where prices are pushed by producing in low-cost countries. It is more tempting, easier and cheaper for consumers to buy new clothing and throw away the old ones, then use clothes until they are broken or repair what they have. Consumption culture is making us buy new clothing before we use what we have.

Norwegians have in average 359 clothes in their closet, and every fifth of these are never or rarely used, and we still buy 13-16 kilos of clothes every year (Gjermundbo, 2018). On a worldwide scale, the average number of use of a garment is decreased by 36% from 2010, and a lot of garment are estimated to be thrown away after just seven to ten wears (Iles, 2017). We are buying more, and that also means we are using what we buy less (Figure 4).

Growth of clothing sales and decline in clothing utilisation since 2000



Average number of times a garment is worn before it ceases to be used
 Source: Euromonitor International Apparel & Footwear 2016 Edition (volume sales trends 2005-2015); World Bank, World development indicators - GD (2017)

tiny.cc/fibres

Figure 4: Graph shows that clothing utilisation is going down, clothing sales are going up (tiny.cc/fibres).

Consumption of clothing with plastic fibers is rising, as the next graph (Figure 5) visually expose. In 1992 the world consumed 40 000 million kgs apparel fiber yearly, and in 2013 it was over 90,000 meaning an increase of 50 000 million kgs in the total fiber consumption, and the percentage of clothing made by plastic fibers are also increasing which is more polluting in production and takes longer to decompose.

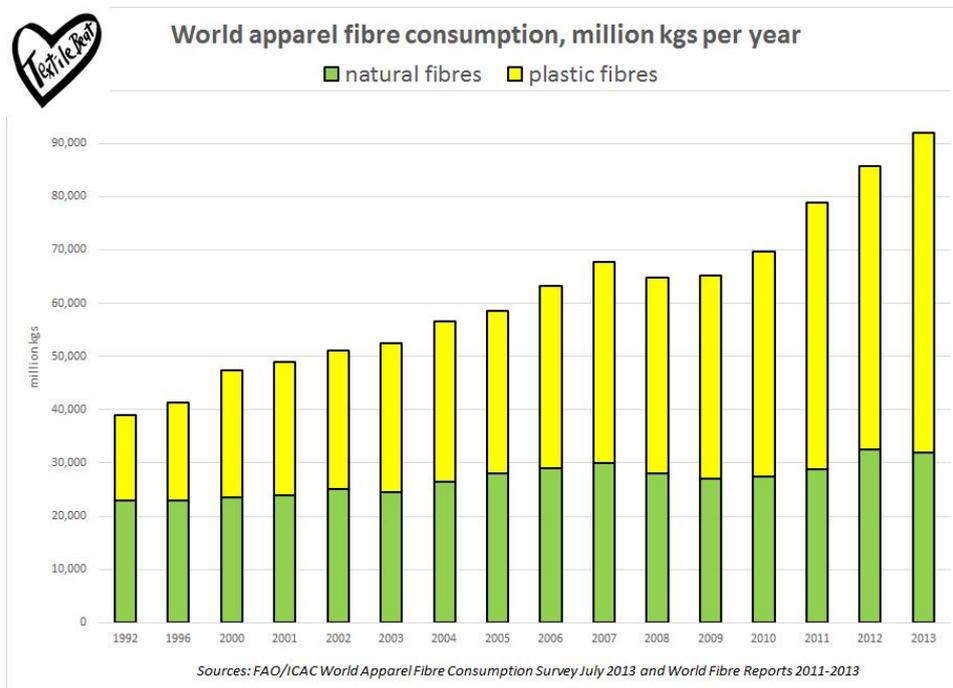


Figure 5: Graph shows the increase of fiber consumption in million kgs per year, divided into natural and plastic fiber between 1992 and 2013.

Another big environmental challenge in the textile industry is that clothing made of microfiber polyester, like fleeces, are polluting the ocean with microplastic. Microplastic is plastic particles that are smaller than 5 mm (Pirc, et al., 2016). A study at the Bren School of Environmental Science and Management at the University of California, Santa Barbara found that when laundering one fleece jacket, 250,000 synthetic fibers finds its way into the water. The study was supported by outdoor clothing brand Patagonia. They calculated the number of fibers being released from the washing of Patagonia fleeces into public waterways per year and found that it is the same as the plastic of 11,900 grocery bags (O'Connor, 2016). Microplastic is of the same size as plankton and that leads to organisms ingesting them. This could lead to a toxification of the organisms, and entering into the food chain. When that happens, it can end up in humans as well.

2.2.2 Consumers

To consume in an ethical and sustainable way is hard for a consumer both intellectually, morally and in practice, and it is hard because there is no set consensus on how to do it. There are many things to evaluate, and often the information is not available, even when the consumer wants it. Unavailable information is one of the major problems for consumers who want to have a responsible consumption habit. When buying the information that the consumer have available are like labels that are often misleading them, and are made with solely marketing and sales in mind (Cervellon and Carey in (Crane, 2016, p. 253)). For some consumers, motivation for buying eco-friendly is for their own health and for status but the factor that affects consumer behavior the most is the price of the item, and that consumers are not willing to “sacrifice function for ethics” (Devinney, Auger, & Eckhardt, 2010).

Fast fashion consumers is statistically young, under the age of 35 years (Cachon & Swinney, 2011). One reason for this is that fast fashion gives young people the possibility to change their expression of themselves fast and at low cost. A study in Hong Kong showed that consumers that care about the environment, that are doing changes in their consumption habit is in other areas like buying organic food, and were not having hard feelings about buying fast fashion (Crane, 2016, p.253). A study of a group of green consumers categorize them as women, younger and more educated than the average American, this is also supported by other studies(Crane, 2016, p. 257).

There is a lot of consumers that have an attitude-behavior gap, which means that the consumer is informed about how to consume more ethically, but are not able to change their consumption habits. To form new ethical shopping habits, there is more than information about sustainable products that are

needed. Old behavior patterns and processes must be taken apart from each other to be built up in a new way, and again made habitual, to ensure that the better choices are made every time a transaction is done. “Breaking old habits and forming new ethical shopping habits, require an effort beyond ethical product selection. Entire behavior patterns, processes, and dimensions must be stripped back, re-layered, built -up and made habitual to enable consistent ethical choice at the cash register”, there is not only new products that are needed but the whole practice of consumption need to change (Carrington, Neville & Whitewell, 2014 in (Crane, 2016, p. 253).

Where is the power?

Consumers have the power to direct what is being produced in two ways: in what they buy, or if they organize or involve themselves in movements or organizations. Economically the consumers have a power to choose from a range of different products, and then in that way “vote” for the product they buy. This kind of conscious voting consumerism is called political consumerism. Through social movements, you can do politics through the market, by utilizing the individuals economic choice and making it a political movement (Crane, 2016, p. 260). A recent Norwegian example of this kind of movement is when influencer and blogger Sophie Elise informed on her blog about the effect of palm oil production, and about products that contain palm oil, this led to a big movement where individuals boycotted the products and that again led to stores changing their assortment (Lorch-Falch, Og, & Dalen, n.d.). Change can come from many places, both individuals through movements, and from the industry itself.

Buying situations

Shopping of fashion clothes is often done in an environment that is producing an “involuntary vulnerability”. Shopping stores and malls are dream-like locations designed to make you impulse buy. Normal shopping conditions are

not the best place for the kind of judgment that is needed to do sustainable purchases. The store environment like lighting, colors, music and other visual communication are all designed to make the consumer buy. Luxury brands and shops are also persuasive in the way that they are trying to associate their products with art by make their stores seem like museums. In fact the Louis Vuitton store in Paris is the seventh most popular attraction in the city. Consumers are also dissociated by the luxury, finish and high-performance branding of the luxury fashion products, and it is hard for them to imagine that the materials of the product is removed the earth by humans or are made in exploited environments and workforces. If you compare luxury products with products like coffee or tea, it is harder to imagine the process of making the product (Crane, 2016, p. 255).

Loss of information in transactions

When a consumer buys a piece of clothing in a store, there is a lot of information lost in the transaction. The normal information the buyer has at hand, is what store the piece is bought at, the price and information about the brand. The clothing in itself hold some information on the label inside, about what type of material it is made of, how to wash it and what country it is made in. Additional information about the brand, is maybe already known to the customer before, or can be supplemented by someone working in the store. The reason for the price of the clothing can be because it is an expensive material, that it had a complicated production, that it took a lot of time to produce, that it is rare or that the brand is just priced in that segment. It is impossible to know how much the person who sews together an expensive leather purse earn, from the pricing of the bag. Information is lost in all the steps of the manufacturing and can rarely be traced back, and presented to the consumer. At a vintage store or a thrift store, there is even less information about the clothing. The clothing gets a new value from what context it is put in, and what vintage trends that are trending. Another reason why it is hard to know what piece of clothing is worth is because most people do not know how to make clothes. You can compare the pricing of clothes with the pricing of

food, but with clothes, there is even a bigger gap of knowledge. Most people have made a meal before, not many have made a pair of jeans.

How much ethical fashion consumption is growing is influenced by the availability of ethical fashion goods and consumer motivation. The ethical and sustainable fashion market is a niche, ethically made clothing is just 1 percent of the global 3 trillion dollar fashion market, this makes the products a lot harder to find for the consumer (Crane, 2016, p. 253). Crane states that companies in the fashion industry are increasingly moving towards sustainability even if the consumers are not.

A major change in the nature of consumption is needed. Consumption has to be in ways that the environment is not harmed in the production, and conservation of resources is a goal, not to create obsolescence of consumer goods. Fashion consumption needs to change radically for the consumer, and the way social identities are constructed through consumption. My focus will be how to change consumption and transfer information from the producer of fashion clothes to the consumer, and look at ways consumption can be changed to a more sustainable practice.

3. Background on Sustainable Design

In this chapter, I present the concept of sustainability and how the Human-computer interaction field relates to sustainability. Further, I present some inspiring and existing cases in the themes of sustainability, technology, and fashion. I then discuss wearable technology and related sustainability issues and possibilities it can have. In the end, I am going to introduce the brand that I am collaborating within my design, giving some context about what they represent regarding sustainability.

A capitalistic mindset of today's society is to support economic growth as if natural resources are endless and the planet spacious enough to provide landfills as a resting place for products waste. The world has come to realize that this mindset is not sustainable and that we do not have endless resources. The consumerism that the fashion industry is supporting has a direct effect on the earth, because the consumption of fashion is depleting non-renewable natural resources, and creates unmanageable amounts of waste and emission (Ruppert-Stroescu, LeHew, Connell, & Armstrong, 2015, p. 168).

Sustainability is "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." defined by the Bruntland Report for the World Commission on Environment and Development in 1992. There are different ways to work with sustainability but the main goal is to make sure that resources are used in a way that there will be resources in the future too.

Today's linear clothing system has damaging effects on society and the environment



Figure 6: A visual explanation of the way the fashion industry is polluting in all the steps of a clothing lifetime(Iles, 2017)

To turn raw materials into ready to use garments, there is a lot of negative environmental and social implications. Some effects are air and water pollution and the exploitation of human resources (Shen, Li, Dong, & Perry, 2017, p.1). It is hard to calculate the overall carbon footprint of the fashion industry because it includes not just the clothing production process but the whole lifecycle of clothing. The farming, harvesting, extraction, manufacturing to make the materials, transportation of the garments, use, and disposal all have a negative effect on the environment (Screen Sumner, 2018). One person in Norway approximate use of textiles is as much CO₂-emissions as that person electricity use from all apparatuses in their house (Gjermundbo, n.d.). The fashion industry is a major source of the complex environmental problems that our society is facing at this time.

3.1 HCI & sustainability

In the field of Human-computer interaction(HCI), there is a growing focus on sustainability. Eli Blevis has a central role in that movement by introducing the term Sustainable Interaction Design(SID) and creating many concepts that stand strong in the research field (Odom, Pierce, Stolterman, & Blevis, 2009, p.1054). Blevis also suggest that sustainability should and can be the central focus of interaction design (Blevis, 2007, p. 503).

Blevis distinguishes between two ways of working with SID, *through* and *in design*. Sustainability *in design* is when working with sustainability as a part of the material design, like creating objects or software that save energy, reduce waste or designing artifacts that are designed for reuse. While sustainability *through* design is to work with design to support sustainable lifestyles and decision-making, through the design of technology. Since technology is very integrated into the most unsustainable lifestyles, that are using most of the world's resources, it is has a great potential to interact with that type of lifestyle. By using design as a tool to change mindsets and decision making into a more sustainable one. This can be done at different levels, on an individual one, for example by giving a person data about their environment, or it can be done by designing for social and cultural changes for the society at large (Blevis, 2007).

Blevis strongly suggests linking invention to disposal already in the design phase of new products. Design, he states, of a new product, technology or a new system, without taking into account what happens at the end of their lifetime, is not a finished design. He is advising to focus on renewal and reuse of existing objects or systems with sustainability in mind, then designing new ones (Blevis, 2007, s.504). Further, Blevis proposed a set of principles for sustainable design that motivates designers to consider how the use of digital materials prompts the use of physical ones. The goal of these principles is to

move the material effects of design from a negative effect, to a more preferred, sustainable one.

Life cycle analysis is a concept of sustainability that was created outside of HCI but has influenced HCI. The idea of life cycle analysis started in 1990 and is focusing on the necessity to pay attention to the whole life cycle as a way to examine the environmental impact of a product. By looking at the whole process of the production, from sourcing of materials, manufacturing, distribution, use, and disposal to ensure sustainability. This inspired McDonough & Braungart “cradle to cradle” model, that advocates a *zero waste* system, where the full lifecycle of the product is being thought of when designing the product. By doing that you can ensure that all the resources are reusable. This process starts with the design of the product itself (McDonough & Braungart, 2016 in Hanks et al., 2008). Verbeek and Kockelkon are criticizing this because it might make new products more sustainable, but it is not addressing the root of the problem that is the short lifetime of our products, that have built a ‘throw away’ consumption culture. “The environmental crisis is not only a technological problem but a cultural problem as well”, this underlines that there are many cultural challenges that need to be considered when it comes to sustainability (Odom et al., 2009, p. 1055).

3.1.1 Understanding why we preserve some things and discard others in the context of Interaction Design

In the paper “Understanding Why We Preserve Some Things And Discard Others In The Context Of Interaction Design” Odom, Pierce, Stolterman, & Blevins (2009) go into this complexity of why we have different relationships to different objects in our life. This is examined by doing home visits and asking people about the likes and dislikes of the things they own, with a focus on

materials with digital technology. They created a framework based on design perspectives suggested by Peter-Paul Verbeek. Verbeek proposes that the durability of design is affected by *function*, *symbolism* and *material qualities*. *Function* is what the object does and what it is designed and manufactured to do. *Symbolism* is what the object means, like the style of the object and expression of identity and lifestyle. *Material quality* is what an object is made of and its broader sensual appeal. Verbeek sees *material quality* as the most important one when it comes to the durability of an object because if the relationship to an object is only based on its symbolism and function then it is vulnerable for replacement of the other product that expresses the same symbolism and does the same job. Odom et. al. see the qualities as mutually important and a that a mutual reinforcement between the interrelations of the three of them, is the best. After doing the home visits Odom et al. explain the function, symbolism and material qualities of the owner's relationships to objects. The examples of the objects with a high level of attachment where very practical objects like a saxophone, a pottery wheel and a typewriter. A common for the objects was that they all needed a skillset to be used and direct physical involvement. From the results of the home visits Odom et al.(2009) made new design principles on how to inspire a high level of attachment, adding on Veerbeks (Odom, Pierce, Stolterman, & Blevis, 2009, p. 1060).

Function: A objects function is always in the treat of being switched out by another object that does the same “job”. But an object with a strong single-purpose can endure if it has any of the other perspectives of a high level of engagement, as a connection to a person's personal history, is durable or can be used in new ways.

Symbolism: It is harder to predict how a objects symbolism evolves, compared to concepts like function and material qualities, since it is most likely built on personal experiences and histories that are created from long use of an object. Nonetheless, when it happens it creates a high level of attachment.

Material qualities: Some materials inspire to a feeling of durability, like materials like wood and metal, and maybe this kind of effect can be the same of digital artifacts that can save memories.

The four new principles that Odom et al. arrived to by doing field studies at people's homes uncover the importance of:

Engagement: It is important to look for ways to create engagement between the owner and the object, and that can be in the tactile ways of using an object for its function. There is a lot that can be explored on how to do this with interactive digital products.

Histories: Patina in furniture can symbolize wear and tear, not in the "needs to be replaced" way, but signaling that the item has history and increasing the significance of the object by time. Digitally it is possible to represent user history in new ways and create a nostalgic value from it. It is interesting how you can show signs of everyday use represented digitally on screen or physical manifestations of digital data.

Augmentation: Customization, reuse, renew and different types of augmentation of an object can create high strength of attachment. Digitally this could be by designs like end-user programming or modular computing.

Perceived durability:

Perceived durability relates to material qualities, but in the way that the object seems durable. To make digital artifacts seem durable it is important to keep universality and standards in mind. From chip level and up to what kind of connections the object has. Concepts like modularity and upgradability contribute to perceived durability. By giving owners greater control of repair, maintenance and customization of their digital artifacts (Odom et al., 2009, p.1060).

The framework presented in this paper is relevant for my work as it provides a way of evaluating what kind of ownership of clothing, we design with the product, what level of attachment they develop and how it relates to creating

value and a sustainable relation to clothing, by extending its lifespan. Another article by Odom, about research products, is important for my thesis. I briefly provide a summary.

3.1.2 Research product

Odom et al. (2016) explore the importance and the use of what they call the research products. The authors points out that prototypes are not always sufficient for researching the complexity of human-technology relations in everyday life, and that research products can create new knowledge about design artifacts. Furthermore research products have the quality in creating engagement in what the artifact is, not what it might become (Odom et al., 2016, p. 2549).

Qualities of research prototypes are that they are *inquiry driven*: that the research product ask distinct research questions about alternative futures. *Finish*: The quality and *finish* of the design is showing the user what it is, rather what it might become, in other words the finish of the design has a high resolution and is ready to be used for it is purpose. *Fit*: Because the aim of a research product is to be lived with and be a part of everyday life, that is why it is important that the product fit these conditions. The artifacts should not be too familiar or too strange in the act of infiltrating everyday life. *Independent*: The research product should be able to be lived with for a longer time period without the intervention of a researcher, implying that the artifact can on a material, technical and design level live an independent life with the user (Odom et al., 2016, p.2551).

Prototypes are a physical representation of a design, before the artifact is final or exist, and are used as open-ended explorations and for testing hypotheses. *Experience prototyping* is a subcategory of prototypes that is aimed at getting a first-hand experience of existing or future conditions, by engagement with prototypes. It is also creating the possibility and practice of using prototypes

to experience sides of potential futures (Odom et al., 2016, p. 2550). In this thesis we use something we can call *experience research products* to understand potential futures and possibilities for design. The design developed in this thesis is a research product because it has a high level of finish, fit and is able to function *independently* in the lives of the user.

3.2 Existing examples

I present some examples of designs that have inspired my view of what can be explored, and what should not be explored in the meeting point of technology, clothing and sustainability.

3.2.1 Everlane

Everlane, with their slogan “Modern basics. Radical Transparency” offers a new business model for online sales through transparency. Everlane is a San Francisco based clothing brand started in 2010. By offering more information about the production and pricing of their clothing in their online stores, they are more transparent than their marked competitors.

Everlane created a concept “Transparent Pricing”, and for every piece of clothing that they sell, on their webpage, they have created an overview (Figure 7) of the expenses of the different parts of the production. For example for a shirt, materials cost Everlane \$35.29, for labor they used \$5.25, Hardware \$2.32, taxes was \$2.96 and the transport was \$0.68, in total that is 47\$. They add 58% of that price or 63\$ on top of that cost for that shirt as their price. 110\$ is the total price for a shirt on their online store. They do not inform about what that 58% is going to, but it is logical that it is used for other expenses of running the brand.

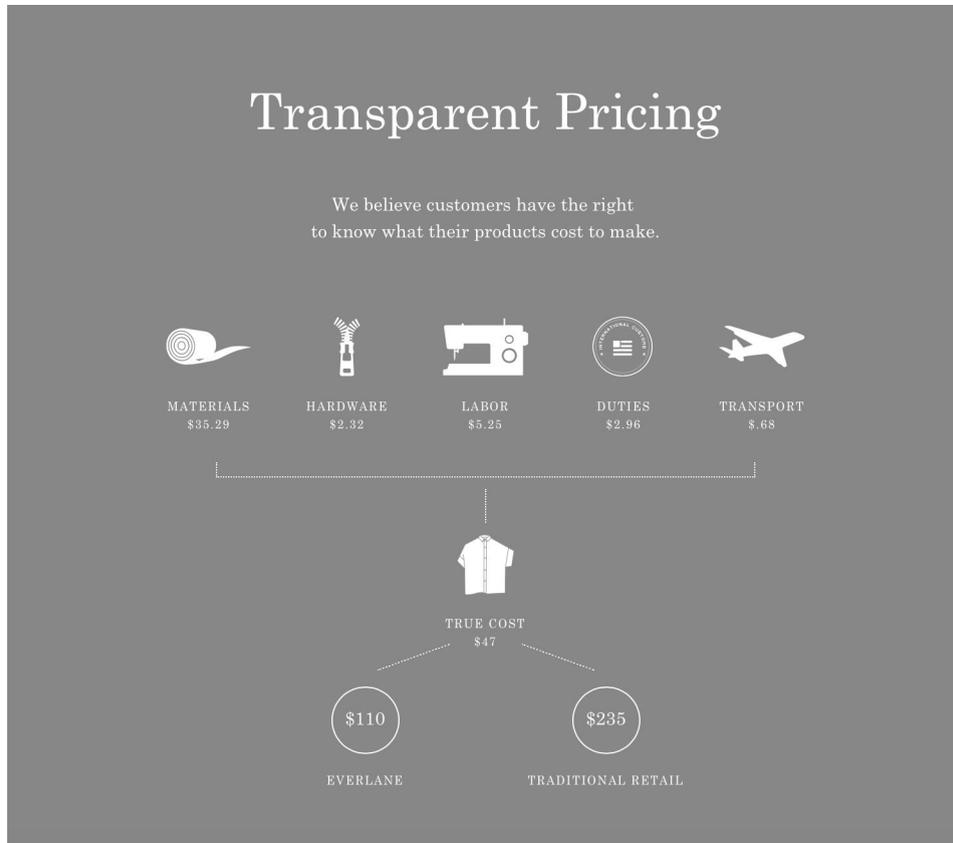


Figure 7: Everlanes visual overview of the cost of a shirt on their website.

The price they offer is also compared to another price that they call “traditional retail”, there's no information about what this price is based on, but it should be similar products on the market. To explain why their price is lower than the “traditional retail” price, they write on their website that since they sell their products directly from their website, not through any distributors, importers, and stores, they are saving money on skipping some parts of the distribution.

For the clothing that are on sale on Everlanes website, they have a concept called “choose what you pay”, where you can choose between three prices. For a 130\$ cotton shirt you can choose between the prices 48\$, 55\$ and 63\$, and for each price, there is an explanation of what it covers. The cheapest price is

covering the expenses of production, gives Everlane 10% and covers the cost of development and shipping to their warehouse. The second price gives Everlane 20% and also covers overhead to pay their team, while the third price gives Everlane 30% and also covers the development of new products. The founder of the brand claims that twelve percent of the people buying at the choose what you pay section is paying more than the lowest price (Segran & Segran, 2018).

For every piece of clothing sold on their website, there is a link to a page with information about the factory of the clothing. On the factory pages, there are often pictures of the owner of the factory, some of the workers, information about how they found the factory, the materials they use, and in some of the cases about their production process. If there is anything special with their factory they highlight it. At their denim factory they write that in the process of making their denim they recycle 98% of the water, rely on alternative energy sources, and repurposes byproducts to create jeans (Bien Hoa factory page). Everlane also has a map on their web page where you can explore the different factories they have around the world. Everlane uses Instagram to communicate and inform their customers in new ways. For example by telling stories about how they turn bottles into puffer jackets, and every Tuesday they have “transparency Tuesday”. Some Tuesdays customers can submit questions to a worker at their main office, and she will go around and ask employees about fitting themes that are their responsibility.

The design of the clothing is very minimalistic and classic, and there is a possibility that this kind of design will last longer, and be used more (Segran & Segran, 2018). What is missing in this transparency? There is no information about how many hours a piece of clothing takes to make, or what the employees get paid per hour, only how much Everlane spent to get it made. The transparency opens up for new questions and makes it easier to see holes in their information. They are also pushed by customers, because they are asking questions, and making sure that they are buying the product and

the brand that they want. The customers seem to be aware of and care about making the right choice when it comes to clothing.

Everlane is an example of a company using information technology to share more information about the production of their products with the customers and making it easier for the consumer to make better choices. Their way of presenting information like pricing and factory information on their site is inspiring. You can argue that Everlane is trying to create this “nonguilty consumerism”, but still selling new clothing and new products that still have an environmental effect. Creating “timeless”, minimalistic and classic designs with high quality can be a motivation for prolonged use.

3.3 Wearables

In this section I give some examples of design that are wearable technology. Wearables are an electronic device with microcontrollers, that can be put into clothing or worn on the body, as accessories or actual implants (“Wearable technology,” 2019). Wearables are focused on mobility and connectivity, so that users can be on the move while having access to online information or communicate with others, or things, and are different from a holdable device because you can wear it (Lee, Kim, Ryoo, & Shin, 2016). Wearable technology creates a new type of HCI, and there have been big expectations of what can be done with wearables (Lee, Kim, Ryoo, & Shin, 2016, p.2).

There has been a lot of optimism of what wearables can do, in both commercial setting and in the HCI field, but there could be a long way before wearables are reaching the functionality that has been envisioned as possibilities (Lee et al., 2016, p. 8). In the field of wearables, there are useful inventions like astronaut suits, to less useful designs like designer bras that have heart rate sensors, clothes that light up for stage entertainment and tattoos that can locate hypersensitive body temperature (Van Dyk Manasseh

Lewis, 2015, p.296). A lot of wearables are developed simply because it can be done (Lee, Kim, Ryoo, & Shin, 2016, p.2). The main evolution of wearable technology is context-aware technology that processes and can analyze collected data to present useful data to the user as in human big data analysis, human data tracking as in sensor devices that can track and collect human data for user monitoring. Wearables that are combining the users physical body and the environment surrounding them, and solutions for connecting different types of wearables. Smart textiles or e-textiles is a branch of wearable where technology is incorporated into the fabric and that sense and respond to environmental stimuli (Cherenack, Zysset, Kinkeldei, Münzenrieder, & Tröster, 2010, p.5178). This gives the possibility to create interfaces and sensors incorporated into the textile.

3.3.1 Tommy Hilfiger Xplore chip

An example of a wearable technology that has entered the fashion industry is the Xplore chip created by Fashion brand Tommy Hilfiger. In 2018 Tommy Hilfiger created a new collection of clothing that has Bluetooth chips incorporated into them, called the Xplore chip. The collection has hoodies, jeans, denim skirts, and a number of accessories. Their outspoken goal is to create “a micro-community of brand ambassadors”. What it actually does is track your movements and how much you wear the garments. There is an app for the collection, it collects data, and you use it to get rewards based on how much you have worn your Tommy Hilfiger items, the rewards are gift cards to clothing in their webshop.



Figure 8: Tommy Hilfiger's promotion of the clothes with the Xplore chip.

In the promotion of the collection, they are describing the app like a game, and you can describe it as gamification of wearing clothes. When wearing the sweater there are bonuses for walking past or staying in the area of some of the Tommy Jeans locations. If the user does not want to be tracked, they can turn the tracking off, but then they are not getting any of the rewards.

Hilfiger's design seems like it is designed with an intention to get people to buy more clothing and create cheap marketing for them. The clothes and the app might motivate people to buy clothing they do not have the need for, but because they have money in the webshop. Getting people to revisit their webshop is also a way to create upselling. It is an attempt at creating a community, but it can seem that the bigger motivation for creating this technology in the clothing is to sell more clothes (Thom Waite, 2018).

Tracking and collection of personal data, like position and how much they use the sweater can be used for marketing purposes.

Hilfiger is using wearables to create a community, but you can argue that motivation is sales and more consumption. This example of Hilfiger's Xplore chip shows how commercial actors in the fashion industry is starting to incorporate wearable technology into their products. The design is gamification of wearing clothes and could change the way the owners wear and buy clothing. It could create a new relationship to the garment that is connecting you to a game. I think that their main motivation is to create more consumption of their brand, by keeping their customers close through the app.

3.2.2 Parley for plastic X Adidas sneaker

A product that is an example of transparency and working with sustainability through and in design is a sneaker made in a collaboration between Adidas and Parley for plastic. Parley for plastic is an organization working to raise awareness and fight ocean plastic pollution. Together with Adidas, they have created a sneaker that is made of around 11 recycled plastic bottles. Every sneaker in the collection has an NFC chip in the right shoe. With a smartphone the owners can access more information about plastic pollution, the collaboration of Adidas and parley for plastic, how to avoid plastic in their everyday lives and how to take part in new and current initiatives concerning ocean plastic. Their aim is to produce over one million pairs of sneakers, and that means that eleven million plastic bottles are being picked up from coastal areas and given a new purpose.



Figure 9: The Parley x Adidas shoe.

Owners of the Parley x Adidas shoe get more information about the product they own than the average shoe in the market, they try to create a community and get the owners involved in initiatives, and building on the relationship to the shoe. It is interesting if the chip is going to be used, and that the owners will have enough motivation to use it more than to “check it out”. A question that can be asked is where should the NFC chip go when the shoe is used up. The shoe is in itself more sustainable than other shoes in the market that are not made out recycled materials (Parley For The Ocean, 2019).

3.2.3 Wearable forest clothing

An example in the HCI field, working with sustainability through design is Kobayashi et al. that in 2009 made “Wearable forest clothing system”, a project trying to create remote interaction with humans and nature. The garment bioacoustically interacts with distant wildlife through a remote-controlled speaker and microphone, to make a non-verbal interaction between humans and nature. By touching textile sensors the wearer of the forest clothing system trigger user-selected, pre-recorded sounds that are being played in the remote position in the forest through speakers. An

example of this interaction could be that a user in an urban location triggers the sound of frogs, in response, there might be actual frogs start croaking back. The aim of this interaction is to create a Zen feeling for the user, just as being in the woods. This is interesting on a conceptual level and might have an effect, and creating a “sense of oneness” between the human and nature. Without humans actually being in nature and making an environmental impact on nature itself (Kobayashi, Ueoka, & Hirose, 2009).



Figure 10: The wearable part of Kobayashi's “Wearable forest clothing system”.

Kobayashi et al. are working with sustainability *through* design by working with the relationship between humans and nature. This relationship as one of the main subjects to our environmental issues, because our relationship to nature has become distant physically and mentally. We feel that we do not need it, and we do not see or feel the consequences of our actions against nature. On the other side, the design is also a way of alienating and creating a binary between humans and nature physically. It is also negatively affecting the environment of the forest to leave speaker and microphones out in the forest, will it be trash if the equipment is broken, or will animals take harm of the objects. This example is outside the fashion industry, focused on research, and not with a business model in mind.

3.3.2 Sustainability issues with wearable technology

The commercial wearables on the market today are mostly fitness related and belong to a “quantify yourselves” trend. A study shows that many users give up their use of commercial fitness wearables after just 6 months of use, which are making wearables, consumer products of short life span (Lee et al., 2016). Electronics and textiles are already consumer goods that have short lives. The fashion industry already has its problems with fast-changing trends and consumer electronics with software incompatibility and lack of standards. When combining these industries in wearable technology, there is a concern that the product obsolescence and short life spans will intensify. Wearables are on the way to be and could be another mass consumed, and mass disposed consumer product. It is forecasted that there will be over 20 billion wearable devices connected to the internet by 2020 (Vaajakari, 2018).

Putting technology into clothing is making production, repair, washing, recycling, and disposal of clothing more complex than it already is. Energy use is an environmental issue and wearables are contributing to power consumption, and the consumption would be higher if we create more of them. When you combine technology with textile it becomes harder to recycle and to reuse the materials. A sweater that is pure wool is easier to recycle than a sweater of combined materials, when you add a copper thread as in smart textiles or sensors to the textile, there is another component to sort out. There will also be more use of the scarce materials that go into making technology, that is hard to reuse. Wearables are also contributing to an always-online culture that our society has and makes it harder for us to relax and can be harmful to human interactions. Many wearables are also collecting a lot of data about the user, that can lead to privacy and security issues (Vaajakari, 2018).

3.3.3 Sustainability opportunities

Wearable technology might have a possibility to change mass consumption patterns. If wearables can lengthen product lifespans, it can slow down the consumption of new products and then, in the end, make clothing more sustainable. Wearables could give products a lengthening life span if it is able to give the product a new meaning, change at the user's needs, create a sense of newness, like changing form or color of the product, changing the material or self-repairing functions (Kuusk, 2016, p.26). If the product can enhance the meaning and relationship between user and product, it will lead to a longer lifespan of the product. There is a possibility in wearables to store information and this could be used to support connectedness between individuals and communities (Vaajakari, 2018).

There are many possibilities in wearables, but I think we have to be conscious to put technology into clothing without a good reason, and knowing that it will have a positive effect regarding sustainability. The examples I presented is making me want to steer away from creating wearable gimmick, that stops being fun after a short time, and end up as trash, or creating new ways to sell more for a company. I am inspired by creating transparency as in Everlane and telling stories to create value in clothes. This research will not design with technology in clothes, just an analog textile solution.

3.4 Haik With Us

Haik with us (Haik W/) is a Norwegian designer clothing brand that I am collaborating with on my design, I present a bit about how they work and in ways their practice is sustainable.

Haik W/ was founded in 2011, clothing designer Siv Størdal took the initiative to form the brand because she wanted to make a "super brand" with fellow

Norwegian designers. Størdal invited her previous assistants Harald Lunde Helgesen and Ida Falck Øien to join her, and together they founded the brand. Haik W/ was made as a common umbrella, where the three designers could work together but on their own initiative, each designer could contribute with a collection every season. Now the brand it is run by Lunde Helgesen and Falck Øien, and together they won the Bik bok Runway award for best collection In 2018, and their runway looks have been bought by the National Gallery.



Figure 11: Haik W/ Ida Falck and Harald Lunde Helgesen in the middle, surrounded by models wearing their collection.

3.4.1 Their design process

Haik W/ collections are often based on research and with an exploring attitude, this is also the inspiration for the name Haik. Their work for a collection is like going out on a haik, and see what they find. The name also explains their way of collaboration interdisciplinary with fields as art, dance, music, and theater. Haik/W clothes are sold in a store in Japan, in a store in Oslo called F5, and they have recently opened up their own shop in Oslo.



Figure 11: Dancers Rannei Grenne and Solveig Styve Holte, and musicians Anja Lauvdal and Heida Karine Johannesdottir performing “Flakkande røynd” with clothes and shoes created by Haik W/. The performance was a collaboration of all the artist and designers. Photo: Ida Falck Øien.

Some of their previous collections were based on repair as a theme. By example creating a collection that had extra fabric in the seam so that the clothes could be sewn in or out, making it possible to change the size of the clothes many sizes up. Falck Øien explains that the design process for that collection had a lot of space for interviews, and wardrobe studies both with quantitative and qualitative data, doing interviews and questionnaire about consumers relationship to repair of clothing. They collaborated with four artists that worked with them in different degree, with their own expression and interests in the theme and in the end, made an art exhibition. Repair was a theme Haik/W worked with over three seasons, instead of one that is the standard in the fashion industry. This is an example of how Haik W/ is working differently than many other fashion brands.

3.4.2 Production

Haik W/ is producing very low numbers of their collections, they produce approximate 15, 20, 30 of each SKU, which is the definition of one type of a specific design with one type of color. The pieces they show on the catwalk is produced in their studio in Oslo, and some of those are never produced because they are made as key garments to express their ideas of a collection, and if anyone wants a piece they make it in their studio. The reason for this is because the production of clothing requires a lot of work, from digitalization of patterns, grading of sizes and working with their factory. What they produce of garments are produced in Lithuania, because it is impossible to sew anything in Norway if you do not create your own factory. Price is also a factor, Falck Øien describes it as a common idea that it is too expensive to produce anything in Norway because of the high wages. At the factory in Lithuania, they know all the seamstress by names, and describe them as proud ladies with great skills, and that the final pieces are made in collaboration with them. Haik W/ is also using fabric from Sjøllingstad wool factory in the south of Norway. This is done in a collaboration with Franz Smith who is a textile artist. Smith reconstructs old fabrics by going to the archive of Sjøllingstad, where they have lots of old qualities that have been laid aside and weavers that have not been used in 40 years. With these fabrics, Haik W/ create jackets and pants.



Figure 13 to the left: One of the wool coats that Haik W/ has made of fabric from Sjøllingstad ullvarefabrikk. Photo: Haik W/Instagram



Figure 14 to the right: The information label inside the wool coat. Photo: Haik W/Instagram

For a collection, that had the theme of representation, was sewn in Ghana and made in collaboration with artist Toril Johannessen, Haik W/ worked a lot with hang tags to communicate with their customers. Hangtags are the paper patches that usually hang on the clothes when you buy them. The hang tags created for that collection included short versions of the history of the fabric that they had used, the artist's intentions behind the fabric, and some questions to create a conversation in the meeting with the customers or that the customer could bring with them in meeting with other people. Some of the information was not concrete and more artistic while some of it was very concrete. They also used text on the garment in the form of prints and some text questions behind the garments. In the coat that it is made of fabric from Sjøllingstad there is a label inside the coat that says that it is Norwegian sheep, wool that is washed in England, the fabric is made on sjøllingstad, giving a description of the production process.

Haik W/ has a special production and position in the fashion field in Norway and also internationally. They are an example of how you can create fashion clothing that has a lot of values included beyond just the style. I am inspired by their research methods, in the way they are sustainable in the quality of their products and the way they are preserving knowledge and practice of clothing production in Norway.

4. Theory

In this chapter, I present theories on what technology could be able to change in our society. Then I will go into what Social Practice theory is and how it can be applied to products.

4.1 Critical theory Socio-technical relations - who is in charge of the future?

There is a wide range of theories that try to explore the relationship between society and technology, different perspectives highlight different aspect of that relationship. The clearest opposing view is between one that sees technology as only having a positive effect, a utopian view, and one that sees technology as only having negative effects on our society, a dystopian view (Quan-Haase, Anabel, 2016, p.42). The Utopian view embraces technology as something new that is achieving progress and is creating more efficiency, control over nature, making our lives easier, and overall improve quality of life. At a Dystopian perspective, technology is seen as a regressive force that hinders the fighting of really difficult problems in society like environmental sustainability, healthcare, and education. A dystopian view gives the possibility to go beyond that technology gives us only benefit, and look at unintended effects it can give (Quaan-Haase, 2016, p.43). This view of only positive and negative effects is, of course, a very simplified view on this complex interrelationship, but it gives an important perspective on the extremes of the effect that the technology has on society, and a grounding to develop other more detailed theories.

Feenberg (1999) has proposed a theoretical model of four central theories of technology and society, presented in a matrix. Critical theory is placed in the lower right, as a value-Laden, human-controlled theory.

	Autonomous	Human Controlled
Neutral	Determinism	Instrumentalism
Value-Laden	Substantivism	Critical Theory

Figure 15: Feenberg's theoretical model of central theories of technology and society.

When focusing on technical development, the model distinguishes between that technology has control over humans, being autonomous, or that humans control technology. The autonomous technology theories argue that humans have little control over how technology will evolve and emerge into society, and that is what change social and cultural values. An example is that when the tv entered the home, the tv changed the family social life, and social time was used for looking at the tv, not having discussions or doing other activities together. On the other side, critics of the autonomous viewpoint see technology as a social constructed entity whose meaning and use is determined by human action and believe that technology is shaped by humans needs and social factors (Quan-Haase, 2016, p. 47-48).

Instrumentalism, sees technology as a tool or instrument, that in it itself does not have an agenda, it is the user of the technology that makes is good or bad. From an instrumentalist point of view, technology is an evolutionary process, and that new technology is based on previous inventions. Substantivism in contrast to instrumentalism purpose that technology can be used for both liberating and destructiveness, but it lays in the nature of the technology itself. The technology is never neutral but is embedded with political and social values. It can act as an independent force that is uncontrollable by humans, it has the ability to change social and cultural conditions.

In the distinction between neutral versus Value-Laden, theories of neutrality describe technology as separate from human activity. Feenberg argues that this gives us little room for analysis of social change. If technology is just fulfilling the nature's mandate, then humans can not use technology to make a change. Another argument against this is when social media mobilize and inform social cause, it can have massive power. An example of this is the *Me Too* movement. The movement grew big in October 2017 when people started to share their stories of sexual abuse and harassment, on social media with the hashtag “#MeToo”. It led to a lot of change, people's awareness changed, and more people found the strength to share their stories. It empowered women to tell their story, not feeling alone, and this led to abusers losing their job. So through social media, an information technology that is designed for humans to be able to tell their stories and communicate, you could see a change in society. Society creates new technology, and technology creates intended and unexpected change in society.

Critical theory is a theory that sees technology as human controlled and Value-Laden and is proposing that technology is the product of both technical and social factors. Technology cannot be understood without its context of use and development, because it can have different possibilities affected by the value and social influence of its users. It is not satisfying goals of linear progress, but an element that can change and adapt in different directions. With a goal of resistance, technology can be used for democratic use, question existing forms of domination in society and create new norms (Quan-Haase, 2016, p. 51). New technology is developed because the society wants it to, but also are affected by human values, and design decisions.

Some people have the view that technology will save the world. I think that technology and humans have agency, and that technology can make positive changes, but humans need to be conscious on how, even if you have good intentions with designing technology, it can have unknown consequences.

4.2 Theory of change: Practice theory

4.2.1 Social practice theory

Social practice theory is suggesting a way of understanding behavior and how to change it, by pointing out that the root to change of behavior is in the development of practices themselves (Hargreaves, 2011, p.81). By moving the focus from an individual perspective to a more socially oriented one, and emphasizes that individuals do not live in a vacuum, and in some cases, the surrounding context overrule the cognitive factors of an individual (Hargreaves, 2011, p. 83). With less focus on individual decision making, there is more focus on the practice of various social practices. The practice is itself becoming the core of the analysis, not the individuals who perform them or the social structures that surround them (Hargreaves, 2011, p. 83). Individuals are just carrier of the activities that the practice requires, and it is through the practices that individuals understand the world around them and the self. This does not mean that individuals are passive, they are skilled practitioners of a wide range of practices in life (Hargreaves, 2011, p. 83).

In the field of social practice theory, there are different approaches to defining practices and ways of creating new practices. Various theorists focus on different elements that are apart of a practice. I will in this thesis adopt the understanding of Heathcotes(2011) of Shove and Pantzar(2005), an empirically helpful understanding of what makes up a practice. They see practice as made up of *meaning* (images, symbols), *skills* (forms of competence, procedures) and *materials*(stuff, technology), these elements are fluently existing in regular and repeated performance (Hargreaves, 2011, p. 83). Hargreaves (2011) gives a simple example of how this can be applied to football, *meaning* could be seen as the rules and the aim of the game, and in the emotional involvement, *skills* like dribbling and kicking the ball, and *materials* in the ball and goal. The skilled practitioners of the practices are

(re)producing and maintaining the links between the elements in a game of football. For shopping or consumption of clothes, the practice can be divided into *meaning* as in getting something that you want and need, the feeling of something new, how you pay with money and get to own the clothing. *Skills* could be knowledge of stores, style, latest fashion, material and price knowledge. *Materials* are the clothes themselves, but also the stores and what they include.

Change of practices

The links between the elements of a practice are made and broken as practices emerge, stabilize and die. To create more sustainable consumption practices the links of old unsustainable elements should be broken in order to create new sustainable ones. New practices evolve both from the inside of practices, when practitioners are changing routines and conventions, and from the outside when practices are mixed with other practices. Social practice theory gives a focus shift from individuals over to how practices are formed, reproduced, stabilized, challenged and in the end ended, and how practices are making practitioners maintaining the practices through performance (Hargreaves, 2011, p. 84). "... pro-environmental patterns of consumption, therefore, does not depend upon education or persuading individuals to make different decisions, but instead on transforming practices to make them more sustainable." (Hargreaves, 2011, p. 83). To create more sustainable consumption practices there should be a focus on creating new practices.

4.2.2 Products and practices

Ingram, Shove, & Watson (2007) present selected concepts from science and technology studies and social theories of consumption and practices. They form a model for looking at design beyond the point of consumption. Most models of development of new products are ending where the consumption begins (Figure 1 in Figure 16), but they argue that elements of consumption practice like meaning, skills and materials that are changing and developing

over time, also create new possibilities of products. Ingram et al. (2007) point out that there is a lack of design knowledge about our relation to products.

Consumption practices are creating opportunities for new products that lead to design, maybe more than specific design problems do. This leads Ingram et al. (2007) to two new models, one that is showing how consumption practices create new design and a circular model that they call the design-consumption cycle. That show how new products motivates new practices. Because new products lead to a change in consumption practice, that again stimulate new product opportunities (Ingram, Shove, & Watson, 2007, p.3). This framework shows the importance of looking at products and practices beyond the point of the product being sold and incorporated in people's lives, to understand the design of products.

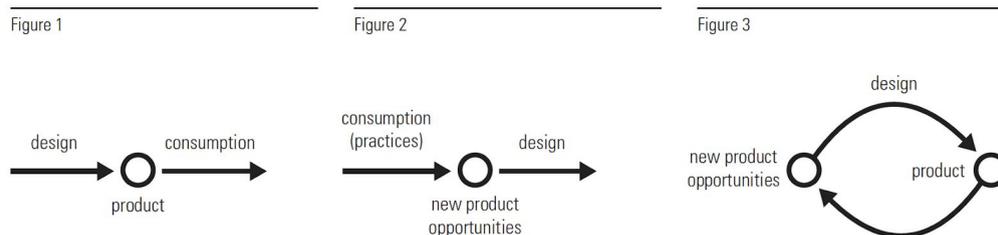


Figure 16: Ingram et al. (2007) of how consumption practices lead to new design, the design-consumption cycle.

Ingram et al. (2007) take some concepts out of the sociological and anthropological debate, that deals with the relationship between things and people, which can be a connection between design and social theory. Theories of consumption and practice from the field of sociology can be helpful in understanding how designed products form and are formed by the context in which they are used (Ingram et al., 2007, p. 4). Ingram et al. (2007) are encouraging to research half of the design consumption cycle that is often missing from design theory (Ingram et al., 2007, p. 15). Ingram et al. are

suggesting some concepts that can be useful when trying to understand how products are affecting the owner's practices.

Acquisition: To understand the wish for consumers to require new things, they categorized four reasons for this desire. Social comparison: when lower classes in society try to imitate higher classes. The creation of self-identity: to use a new thing to create an identity. Mental stimuli and novelty: Buying to waste time, and for occupying time. Matching or the “Diderot effect: by buying one thing, it leads to other needs, like buying a pair of shoes and then a dress to match, or new blankets to the new sofa.

Scripting: scripting is comparable with the scriptwriters of a movie, designers have the same role as scripting “actions” and practices of those who consume and use the products they make. Scripts are incorporated in the design and is affecting the use as an own actor, and they can be intentional by the designer or not. One example of obvious scripting, designed to alter the use of the object in practical ways is found in Ingram et al. (2007, p.7) of a train toilet. It is important that the lid of the train toilet is closed when not in use, and the designer can script this by making it impossible for the user to flush the toilet without putting the lid down (Ingram, Shove, & Watson, 2007, p.8).

Appropriation: How users play an active role in fitting objects into their life. It can be explained as anti-programs, and when the user is going against or around the object's script. An example is when self-closing doors are put open by putting an item in the gap of the door (Ingram, Shove, & Watson, 2007, p.10).

Assembly: Is about how objects are integrated into the existing ways and practices of life. Lifestyle and upgrading can be a factor here, things are acquired to fit with a lifestyle package. If a person can afford a big house, then it would make sense that the person would have a good heating system in the same standard. These systems or networks of products are important in the

way objects are acquired and integrated into lives. When buying technology these connections are being used to the full potential by manufacturers when creating standards for their own brand as a motivation for staying with the brand, because the integration of the same brand is easier than choosing something else. Like when acquired an Apple MacBook computer, it is a lot easier to choose an Apple phone, so the systems communicate with each other. Sometimes the consumer must do all the work of the integration of products themselves, and sometimes it is already done. For clothing it is mostly the consumer who chooses from a range of products and put together what their wardrobe include, on the other side of this is consuming products in packages, as to buy a set of fishing equipment or a whole set of office furniture (Ingram, Shove, & Watson, 2007, p.12).

Normalization: When owning an artifact, after a period of time it goes from being new, to just normal. It is a journey where artifacts and technology are constantly redefined. artifacts change when their relation and status to the wider environment or the market evolves. Ingram et al. (2007) refer to M.Pantzar when it comes to distinct faces of redefinition. According to Pantzar the first face is when an object is a fashionable object of desire, then the consumption of the object acquisition is being reasoned by rational and functional ways, and then it has a period of routinization, and the acquisition does not need a reasoning anymore (Ingram, Shove, & Watson, 2007, p.13).

Practice: Consumer goods are important for the practices they make possible. Not only do consumer goods make practices possible but in the coevolving relationship that can be explained in the way practices are linked. The material component in social practice theory “figures as knots of socially sanctioned knowledge” and “bind human actors and participate in developing specific forms of social order because they allow for common practices to develop.” implying that it is important to look at not just the material aspect of the human aspect but the practice that is binding human and non-human actors.

Social practice theory and Ingram et al. (2007) are underlining the importance to look at clothing after the point of consumption and what kind of practices they make possible, to understand how to change practices. The concepts presented about products and practices could be interesting when looking at the practices that my design makes possible.

5. Methods & Methodology

For this thesis, I have chosen an interpretive research approach by using qualitative research techniques to generate qualitative data about the relationship between a user and an object, more precisely a piece of designer clothing. I use a research product, to understand the design after the point of consumption. With the goal of a bigger understanding of how one could creating a more sustainable clothing and consumption practice. A relationship to a piece of clothing is a highly personal, unique and subjective relationship, and that is why it is interesting to look at that relationship in a qualitative way. It is engaging to explore this relationship to try to understand how it could be possible to create a high level of attachment between the owner and the piece of clothing. The sustainability issues of fashion clothing are placed on many levels, on a personal but also on an industry level. The project is an interdisciplinary project with a clothing designer, which help the project to connect with the industry. As my main approach to the theme of sustainable fashion, I have chosen Transition Design as a methodology for this thesis.

5.1 Transition Design

Transition Design is fairly new design approach that is acknowledging that we are living in 'transitional times', meaning that for the world to transition to a more sustainable future there is a need for change on all levels of the society, and a need for new ways of tackling the problems the society is facing. The main focus of Transition Design is to bring forward ways of designing societal transition towards more sustainable futures, and design plays an important role in this process of transition (Irwin, 2015, p.229). Transition Design can be used as an approach to solving wicked problems as in problems that are very complex to solve. Problems like hunger crisis, maintaining biodiversity, the climate crisis and sustainability issues in general (Irwin, 2015). Wicked

problems have different stakeholders with conflicting agendas, that create complex ecologies, and there is not one solution by one discipline. The reason why Transition Design is formed for tackling or looking into wicked problems is that it is a place where you can base your thinking on longer-term visioning, and linking solutions that are on different time horizons and on many levels of scale. Transition Design is distinct in the way it sees everyday life as a fundamental context for design, focus on a place-based grassroot solution that can be steps to greater solutions, and the designers own mindset is also essential in the design process (Irwin, Kossoff, & Tonkinwise, 2015, pp. 3–4).

Positioning in the design field

Terry Irwin is one of the thinkers behind Transition Design, and sees it as the future for design, as a third approach alongside service design and design for social innovation. These three approaches can be put on an overlying continuum, where Transition Design can be placed at the end of the spectrum, that starts with a design for service, continues with a design for social innovation and ends with Transition Design. The scale of time, depth of engagement and context, that include social and environmental concerns, grow with the continuum. Design for Service is design within existing socio-economic and political paradigms, by gathering information from users, and solutions are found to create benefit and profit for the service provider, and useful services for the users. Next on the continuum is Design for social innovation, design that is challenging existing socio-economic and political paradigms by working with different transdisciplinary stakeholders in commercial, private and public sectors to meet social need better than existing solutions. Transition Design is design within radically new socio-economic and political paradigms by challenging existing paradigms and envisions new ones, and in that way lead to radical, positive social and environmental change (Irwin, 2015, p. 231).

5.1.1 The Transition Design Framework

In Transition Design, there are four main categories of knowledge, action, and self-reflection that are each mutually reinforcing and co-evolving each other (Irwin, 2015, p.232). The Transition Design framework is a tool of 4 building blocks of designing for transition, analyzing where the work is placed to see the bigger picture. Knowledge from one area can lift the other areas on to new levels. I will go through the four elements; Visions for Transition, Theories of Change, Posture & Mindset and New ways of Designing.

Visions for transition

Future visions are a tool for creating discussion and inspire to actual ideas and change. Visions ask questions like what kind of future do you see, and what does the transition to that kind of future look like. When developing visions, one should be aiming for them to be dynamic and grassroots based, grounded especially in and for local conditions and it is important to keep them open-ended and speculative (Irwin, Kossoff, & Tonkinwise, 2015, p. 8). When we design, we still do not know the future, even if we design for it. The changes that happen when we put new material or new thinking into the world are complex in itself, we might make something better, and other problems worse.

The Transition Framework

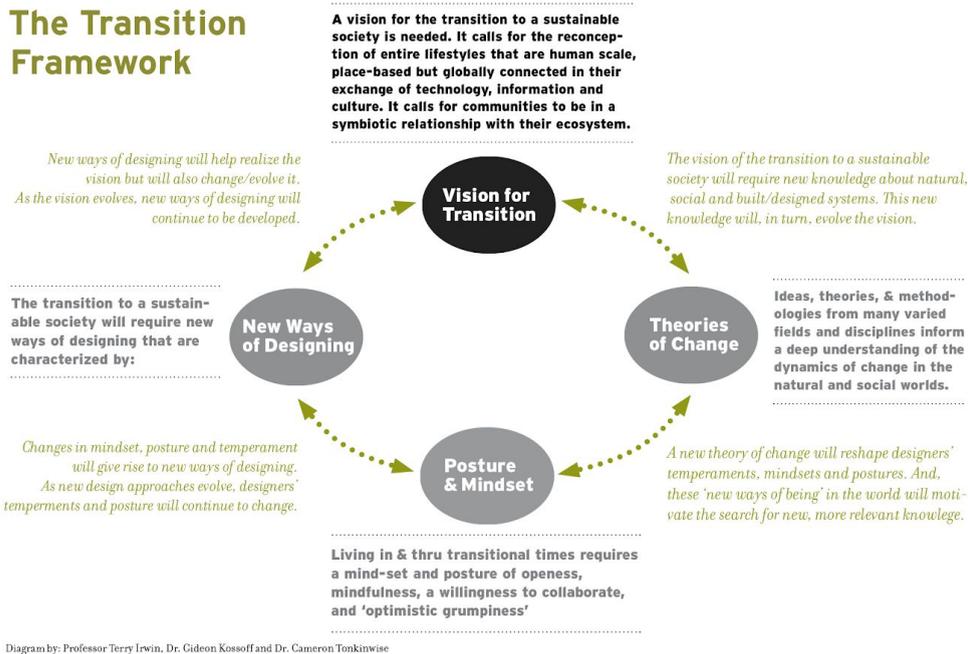


Figure 17: The frameworks four different areas, with different practices proposed and why they are affecting each other.

Theories of change

Theories of change is a central perspective of Transition Design, and function as a co-evolving body of knowledge. Theory of change is always a part of a planned design course even if it is conscious as a tool or not. Ideas from the theories can create new ways of designing and solve problems. Big complex systems can be catalyzed and steered in different directions, but it is impossible to manage or precisely imagen the changes, and its outcome (Irwin et al., 2015). Theories is an important tool to try to explain the dynamics of change. Because of the need for change, there is also the need for the ability to change our ideas of change itself. To explore different ways of ideas for change, the framework recommends many theories and methodologies from many varied fields outside design (Irwin et al., 2015, p. 8).

Posture & mindset

There is no way of coming around that the designer's personal position and mindset always have value in a project. The designers own position, mindset and their situated knowledge will always have an effect on the outcome of a design. Designers position and the effect it has is often not paid attention to, even if it always is a part of framing problems and solutions (Irwin et al., 2015, p. 9). Transition Design wants the designers to look at their own position, their value system and then actively examine what role it plays in the design process. The goal is to strive for a more holistic world view.

New ways of designing

As an effect of the other fields of the Transition Design framework, there should be created new ways of designing, referencing back to that we need change on all levels in the society, and also new ways of tackling these problems (Irwin, 2015, p.229). Transition Designers should be able to design solutions on all kind of scale and timespan, using all parts of the framework, and all levels of design. There should be smaller short term solutions as steps for bigger solutions and that should evolve over a longer time period (Irwin et al., 2015, p. 10).

5.1.2 Vocabulary for Transition Design

In this part, I present some Transition Design vocabulary that represents concepts that I use in my case.

Cosmopolitan localism

In the question of where to focus the design, there is a space in Transition Design where you are trying to save the whole world and is paralyzed by the

complexity of the problem. “Cosmopolitan localism” is a concept that is creating a way to handle this. A project should be regional and focused on the place it starts, but at the same time it is awareness should be global. Finding small solutions that could be scaled up and used for bigger issues. Transition Design has a way of seeing both forward and backward in time, and at the same time out and in, in space (Irwin, 2015, p.229). I believe in this way of thinking when trying to relate to complex issues and works as a mental model and a motivation to how small solutions are a part of the big solution.

Imaginaries

Imaginaries or mental models are for example climate change that is a shared imaginaries of our environmental issues. Lockton & Candy(2018) argument that imaginaries of futures can have an effect on people's action in the present. To investigate imaginaries you start with trying to understand people's individual or collective conceptions of their situation and their perception of the systems around them (Lockton & Candy, 2018). Imaginaries can express the way we see the world around us and be used as translators of mind and ideas and how things are and how they could be. I use imaginaries to explain what kind of users that use my design.

Dark matter

Dark matter is new issues that could be problems in the future, that designers have to think about. When coming up with future visions you can meet unexpected issues and new problems that are not existing today (Lockton & Candy, 2018). I use dark matter to explain the issues that could come up with my design in the future.

5.1.3 Methods for visions

Backcasting

Backcasting is a method for visions where you go from an envisioned future and back to the present, create trajectories to how to get to a wanted future by creating small modest solutions in the present. When having a future vision you ask questions like “what would it take in order for that to happen?”, to look for solutions in the present that can lead to a wanted future. A method to operate backward in time is “Three Horizons”, where you divide the transitional time process into three phases, now, then and a in-between. It is important to create many futures, if you only have one imagined future the vision is incomplete. Backcasting is an effective tool to stretch our mental models of the tomorrow (Lockton & Candy, 2018, p.7-8). I used backcasting to work with ideas of the future to create a product that we had the possibility to make now.

Experiential futures

Experiential futures is a group of approaches that try to make alternative futures present because the problem with 'the future' is that it does not exist. How can we experience the future before it takes place? By creating an experimental scenario, the future is brought to life and collapsing the distance between reality and future to experience the future. Experiential futures is a way of thinking out loud, materially or performatively, creating “what ifs” that feels real enough so the body takes them seriously. It is the design of situations and materials from the future that can create change and insight, by staging interventions that can include a full human sensorial experience. The goal of these experiences would be to create a deeper engagement in ideas, thoughts, and discussions about one or more futures. Additionally, it is the design of the circumstances for thought, that are the main focus and interest, not the design of the even if it is a part of it. In fact, it is the conversation,

insights, and actions the artifact enable that is the center of attention, not the things themselves. My research product is sold in a new way, and this experience for the owner can be seen as a experiential scenario (Lockton & Candy, 2018).

Futuring game

“The thing from the future” is a free board game, for 2-6 players, you can print out from the internet. The aim of the game is to come up with ideas of new, interesting, funny, weird things from the future. It is played with a deck of cards with 4 “suit is”. The four suits is are ARC, Terrain, Object and mood.

“ARC creates a context of what type of future world that the “thing” is from

Growth - a future in which “progress” has continued

Collapse – a future in which society as we know it has come apart

Discipline - a future in which order is deliberately coordinated or imposed

Transformation – a future in which a profound historical evolution has occurred

TERRAIN is the thematic context or location where this object could be found in that future.

OBJECT is the focus for your imagination: a specific cultural artifact that reveals something about how this future is different from today.

MOOD suggests how it might feel to experience this thing from the future.”

Every player gets a dozen cards each, and pick out a card and put it on the table, all the four “suit is” needs to be represented, forming the letters ATOM. Then the players individually draw and write a small drawing and some sentences about an idea that fit is the scenario that the ATOM cards create. After a set time the participants present their idea to the rest of the players and they vote for the best one, giving that player a point. I used this game to

play with Ida to get inspiration and to get creative and explore the different object from the future and different futures.

5.1.4 Transition Design in my thesis

I see sustainability as the main goal to thrive for as a designer, and Transition Design is a methodology that is aiming at change at the level that is needed. The sustainability issues of consumption of clothes is a wicked problem. The issue includes many stakeholders from consumers, industry leaders, producers, farmers, landowners, governments, investors, designers and so on. The issues is also placed at many levels as customers relationships to garments, interests in the industry, changing production, marketing, and new technology. The problems can not be solved by one government, it is an international problem that is inflicted with economical structures and problems with law and regulations. On top of this is the abstract ideas of fashion and trends which also is contributing to this complex ecology of problems.

Transition Design can help me placing my own project in the wicked problem of making consumption of clothing more sustainable. The Transition Design framework helps me to balance the position of theory in a project about actual changes. My project tries to change practice on a small community, but at the same thinking about how to make this change bigger. Working with visions can create trajectories toward wanted futures. In the next chapter, chapter six, I position myself and explain my use of the Transition Design framework.

5.2 Data Collection Methods

5.2.1 Interview

Interviews are an effective method to understand “contexts and contents of different people’s everyday social, cultural, political and economic lives” (Crang & Cook, 2007, p.60). Preparation of the questions for an interview can vary from structured, where there are predetermined questions in a specific order, semi-structured interview where parameters of discussion are planned before, to an unstructured interview, more comparable to just a discussion with a friend (Lazar, 2010, p.189). For the interviews I conducted, some of them in collaboration with Ida Falck, we prepared questions for a semi-structured interview. So there would be room for surprising themes and to go deeper into interesting subjects the interviewee brings up. The length of the interviews varied from 20 minutes to an hour, but all the same thematic was brought up in all the interviews.

For the interviews that I shared with Ida Falck we used the Interviews to meet the owners of, and understand the experience with the clothing we created. We asked questions about the use of the piece of clothing, how the technology affected the use, and what kind of use the sweater had, compared to other sweaters they own, further study and changes in the sweater were also discussed. In addition, I had a one-hour long interview with Ida Falck get more information about Haik W/ and Ida Falck's opinions.

5.2.2 Visual Approaches

Photography and photo documentation has been used for ethnographic documentation for a long time. Photos show a mediated version of reality, because the technology of the camera, everything about what settings that are chosen and the photographer decision making is always playing a role (Crang & Cook, 2007, p. 105). Photos can be an addition to and field notes in itself.

Photography is used for:

1. First, we used photos to tell a story about the sweater, so we had a photographer visiting the Haik W/ studio, where the sweaters were in the making, and then visiting the mall where the materials were bought and where the sweaters were going to be sold.
2. For the interviews of the owners of the QR-sweaters we had photographers with us, this was done so that the photos would have a high level of quality so that it could be used for the later presentation of the project and potentially uploading them into the sweaters as content.

Photo documentation:

For every interview, we made sure we had these photos taken

1. Documentation of the interviews of the owners of the sweaters.
2. Documentation of the owners and how they wear their sweaters.
3. Documentation of where the sweaters were stored, when not in use.

5.3 Content analysis

Content analysis is any technique used to systematically subtract knowledge from a message, the message could consist of text or multimedia content. For text, it can be described as “compressing many words of text into fewer content categories based on explicit rules of coding” (Lazar, 2010, p.285).

Coding is the technique and process used to analyze text, by interacting with the data, categorize it, and comparing data. There are two types of ways to tackle coding of textual data, a priori and emergent coding. For a priori coding, you create the coding category before you start the coding, and is suitable for working with topics that have been studied before, and literature can help establish the codes. Emergent coding is when the codes are developed as the analysis of the text are done, and are found in the text (Lazar, 2010, p.287).

For the analysis for this thesis, we used emergent coding, where the codes were found in the data, and also subcodes were created as the content was found. Textual content analysis was used for analyzing interviews with the owners of the design.

6. The Transition framework in use

In this chapter, I present my positioning and describe how I used the Transition Design framework.

6.1 New ways of Designing

I have come to understand that new ways of designing have to do with exploring how to approach design differently, and one of the things that is considered as important here is opening up for cross-disciplinary collaboration. In the case of this thesis, the collaboration is with Ida Falck Øien and Haik W/.

When I started working on my thesis I was inspired by Ida Falck Øien and her brand Haik W/, our interests in clothing and sustainable possibilities for the fashion field brought us together, and we decided to collaborate. The collaboration is initially with Falck Øien, representing Haik W/. Falck Øien graduated from the art academy in Bergen with a diploma and has a bachelor's degree in design with clothes and costume at KHiO. After finishing her education in 2007, she worked as an assistant and studio manager in the fashion field, and for a longer period for Jeremy Scott in Los Angeles. At the time Falck Øien is doing an artistic Ph.D. at KHiO in design, in combination with working with Haik W/.

This collaboration creates an opportunity of connection to the fashion industry, grounded in a real-world situation and an interdisciplinarity combination of skills and views. It is an interdisciplinary project both on the level of the institutions of KHiO and her having a clothing design education while I am educated in interaction design in the informatics field. We collaborated on the design of the research product, did the data gathering together and some of the analysis of the data, but the documentation and

results presented from the data gathering will be used for our separate purposes, to address our own goals. There are aspects of the design that I would never think of, like the free pricing, and there were questions that she added to the interview guide for our interviews with the owners of our design that I would not have thought of, but that came out as very interesting and valuable also for my thesis.

I believe that this combination of skill sets creates new ways of designing, and the result of this project had not been as interesting or based in the fashion industry if I had done it on my own.

6.2 Posture and mindset

What brought Falck Øien and me together in our efforts to discover new ways of designing, was a mindset of openness and creative exploration at the juncture of technology and fashion.

6.2.1 My Posture and mindset

Personally, as a consumer, I wish my use of clothing and love of new fashion and ideas would not affect the planet in a negative way at all. From a researcher point of view it feels easy to create something sustainable, or frame how a sustainable practice in the fashion industry should be, by being transparent having a green and socially sustainable production and by applying cradle to cradle thinking. When thinking about scalability and positioning in a real-world situation, it becomes more complex. It is hard for brands to create a sustainable business model when the industry and the world is centered around consumerism, that is pushing production and trends faster and faster, and prices lower and lower. If we (as designer and consumer) want a new design and new products, they should last longer. We also need to find new business models that make it possible to sustain a business without contributing to the consumerism of new consumer goods with short lifespans. As an interaction designer, there are many ways to use

my knowledge to tackle my research question. I can work with information on screens, or I can work with tangible objects. It is tempting to work with tangible and wearable technology when working with fashion because there is undiscovered potential and there is an evolution of wearable technology that is going in the direction of fashion. To work with new ways of creating a long-lasting relationship to clothing and in the same time creating new products, can feel like contradicting practices because the design of new stuff is a part of the problem. Especially since the main sustainability issue with the fashion industry is that it is produced so much new clothing. It is important to be careful with what new design you bring into the world, but it is also important to not be paralyzed by the complexity of the issue.

My Focus is to explore how you can create value in clothing to prolong its use, I want to experiment with transferring information and creating communication between a consumer and a designer (in case of Haik/W, Falck Øien is both a producer, a designer, and a retailer). Exploring how to create a longer transaction, to create new value in the clothing after it is consumed. Trying to lower the unsustainable impact of clothing production by helping consumers make more ethical choices and see a high value in clothing. I want to work with sustainability through and in design, but with the main focus on sustainability through design. It feels wrong to try to create awareness about sustainable practices in an unsustainable way. A struggle for more sustainable solutions should be on all levels possible, by creating a design that supports sustainable lifestyle and decision making with objects that have been designed with the whole life cycle of the product in mind.

6.2.2 Ida Falck Øien and Haik W/s posture and mindset

Ida Falck Øien states that Haik W/ have a developing view on sustainability, but have a mindset that well-produced clothing, where the projects behind the

clothing are communicated to the customers, are clothes that the customers will keep longer. Their pricing is in the category of a premium brand and that also implies that the clothes are not just picked up for a practical reason, but because the customers really want that item.

Falck Øien feels like there is no point of creating products that are made in a sustainable way if they are just thrown away and into landfills after short use. That type of consumerism use more energy than creating clothing that can last a decade. Haik W/ have experienced that their customers keep their clothing for a long time. In their branding and communication, they are not fronting a green image, and are afraid of “greenwashing” and “green exploitation”. Especially because they are reliant on their customers to make the clothing long-lasting to make it sustainable. If their production where using reused materials and greener production they would feel more comfortable with having a “green” image. Falck Øien also wishes for Haik W/ to become a bit more sustainable *through and in design (as described in chapter 3.1)*, and that they are moving in that direction. Falck Øien also points out that they are socially sustainable with their production in Lithuania, that are done in an ethical way. Through their production they take care of production history and craft knowledge through wool production in Norway. If consumers lose the connection to the craft and even fewer know how to make clothing then it will create further distance and more misunderstanding of what clothes are worth.

The complicated production chain of clothing makes the price of clothing not representing the product that you buy. It is normal that when a piece of clothing is sold at a store the price is three times the wholesale price the brand sell it to the store for. It is, of course, reasonable for the store to cover their expenses and make a profit, but for Haik W/ it becomes an issue in communication with customers. Price is a part of the design process, you design for a price that you think your customers will buy.

Another factor that makes the pricing of clothing even more complex is that on some items there is no profit, and some there is a lot. The Haik W/ wool coats made in the fabric in Sjøllingstad have such an expensive fabric that they earn minimal on it, to meet a price that their customers are willing to pay. Other designs like cotton t-shirts or hats with a branding logo on, there is a lot of profit and those items are making up for the items with lower earning. Haik W/ have their own store, but they have to keep their price competitive so that they are not making competition with other stores selling their clothing. Ida points out that the stores have a lot of power. Even if Haik W/ is a small brand in Oslo, they are dependent on keeping up with the seasons that the fashion industry operates with because it coincides with when the stores make their budgets and procurement. Some big brands have 16 collections every year, and Falk Øien means that a reason for this is the stores, because they need the news in their stores to make people buy more.

Haik W/ typical customers are people in the “cultural sphere”, either having culture related jobs, practitioners or are people who are just socially engaged. They know their local customer well because they have worked with pop-up stores, now run a shop, and are selling mostly through their network. What the customer knows about their brand and the clothing they buy, depends on who they buy it from. Falck Øien explains that if they buy it from her or Harald Lunde Helgesen, who are the owners of the brand, they get to know a lot, for example they get to know where a piece of clothing is made, a little about the process, materials that are used and etc. But if they buy it from another store that sells Haik W/ in Oslo, then it is hard for Haik/W to know what the staff knows and manages to communicate. The clothes normally have information about how to wash the garment, and any additional information that can be found on the clothing is different from collection to collection.

6.2.3 Difference and agreements of positioning

Falck Øien and I both want a more sustainable fashion industry. I am dreaming of a zero impact industry, while she is more grounded in the real world and based on the knowledge of how the industry works today. These seemingly different perspectives compliments each other well. Coming from the Interaction design field, a life cycle thinking is important to me, and sustainability *in design*. I believe in green branding and transparency, while Falck Øien has experienced how complex it is to create sustainable products that are communicated in a good way, yet willing to try new ways of communication about design.

Opportunities for interaction design

An issue in the fashion industry is to create quality products with great concepts where the values that are put into the clothing is transferred to the customer, after the point of consumption. It is hard for brands to control what each customer get to know about their clothes, and brands do not have time to verbally explain it to all their customers. Pricing is an issue when working with the sustainability of clothing because it is supposed to represent the value of the clothing. The price that is paid for the clothes is supposed to go to make sure all parts of the process are done the right way and, but it is more complex than that. It is hard to know for a customer what the money paid for a piece of clothing is going to. There are opportunities in creating new ways for Fashion brands to communicate the story behind the creation of clothes and what the pricing represent.

6.3 Theory of change

The theory of change I chose for this thesis is Social Practice Theory and is presented in the theory chapter. I want to create new practices of consuming and owning clothes. Social Practice Theory purpose that you can change

practices by creating new practices. By creating visions a special transaction and a design I have created a *material*, *meaning*, and *skills* that can create possibilities for new connections to new practices.

6.4 Visions for transition

6.4.1 The thing from the future

To start the process of making future visions I played the game of “The thing from the future”¹ with Falck Øien. We played three rounds and in the third round, we exchanged the object card (see Chapter 5.1.3) with a card that made pants the object of the game, forcing us to think about the future of pants as a piece of clothing. The future for the pants was in the theme of travel, so we came up with ideas of edible pants and some sort of passport pants. After doing this exercise we kept a discussion going around some future visions for her brand and clothing industry going over a longer time span, and inspired from these ideas I created three visions.

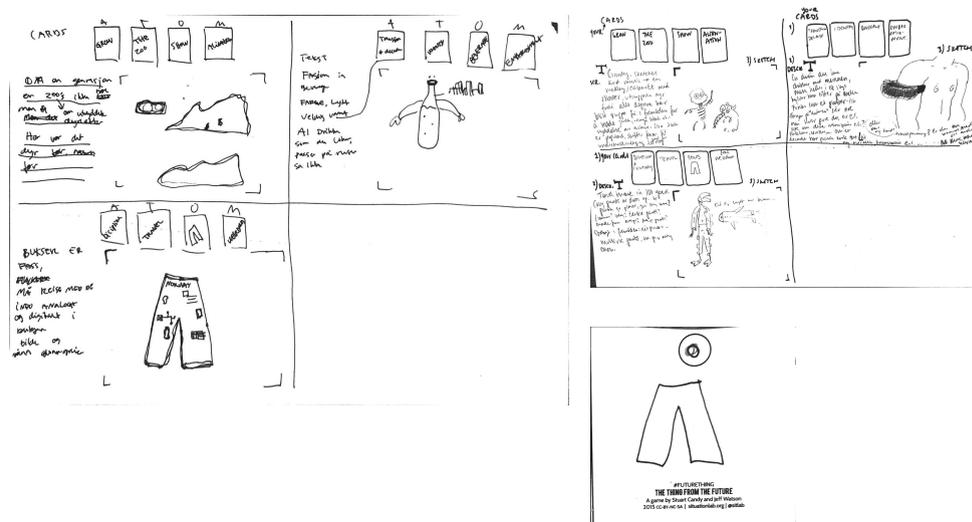


Figure 18: Falck Øien and my sketches from playing the game The thing from the future.

¹ <http://situationlab.org/project/the-thing-from-the-future/>

6.4.2 Future Visions

For each of the three visions I created, I *backcasted* (see Chapter 5.1.3) them by going through the three horizons of in 30 years, in between and now. I did not choose one aspect because there will be many futures existing at the same time in the future. They are utopian perspectives in relation to sustainability because that is the direction I wish to work towards.

1. New ways of production

The production of clothing is going to change and the infrastructure of production will find new models. Haik/W still use paper for pattern development as clothing designers have been doing since the 1400 century. For example, the concept of sizes is very old, but not optimal because very few fit a size perfectly. If the clothing is custom fitted, the owner might value the clothing higher. It is still very rare to have the possibility to work digitally with pattern development. At the design education in KHiO they had the equipment for 10 years but not the right expertise to teach it, and the education is still lacking the education in digital skills. However, KHiO as an institution is moving in the direction towards sustainability.

IN 30 YEARS	Custom fitted clothing 3D printing at home in different kinds of materials. The materials can be reused and printed into new designs overnight. Clothing stores or designs are available in your closet and mirrors.
IN BETWEEN	3D printing of clothing at studios or stores. Development of printers that can print different kinds of materials. Online stores where you can try on clothes with your 3D scanned avatar of your body.
NOW	Sell 3D model files of accessories that can be 3D printed on a PLA printer. More technical skills in education of clothing designers.

Figure 19: Vision 1 - New ways of production

2. New types of transactions - selling experience instead of products

The possibility of “store death” (a disappearance of physical stores) is a discussed theme in the fashion industry. I do not believe that everything will be sold just online, because the customer needs a point of touch and a point of contact, and believe that people want to see materials. These points of contact and points of touch might be more experience oriented and different than stores are today.

IN 30 YEARS	Tactile technology makes it possible to feel fabrics without going to a store. Brands are solely ideas and experience sources, and not reliant on consumption of new products, but new ideas manifested in non physical ways.
IN BETWEEN	Brands are not making profit solely on the consumer goods, but by selling experiences. Their customers are subscribing and renting clothes and experiences. The transaction between brand and customer doesn't stop at the point of sale or subscription, it's a ongoing relationship.
NOW	Stores are interesting places to take selfies, look and feel clothes, and possibility of Renting of clothes. Brands create events and special happenings to meet their customers and influencers.

Figure 20: Vision 2 - New types of transactions

3. Clothing with more information

I believe that the communication and the connection between brand and customers will change. Transparency is developing in the fashion industry and new technology gives new possibilities for access to communication.

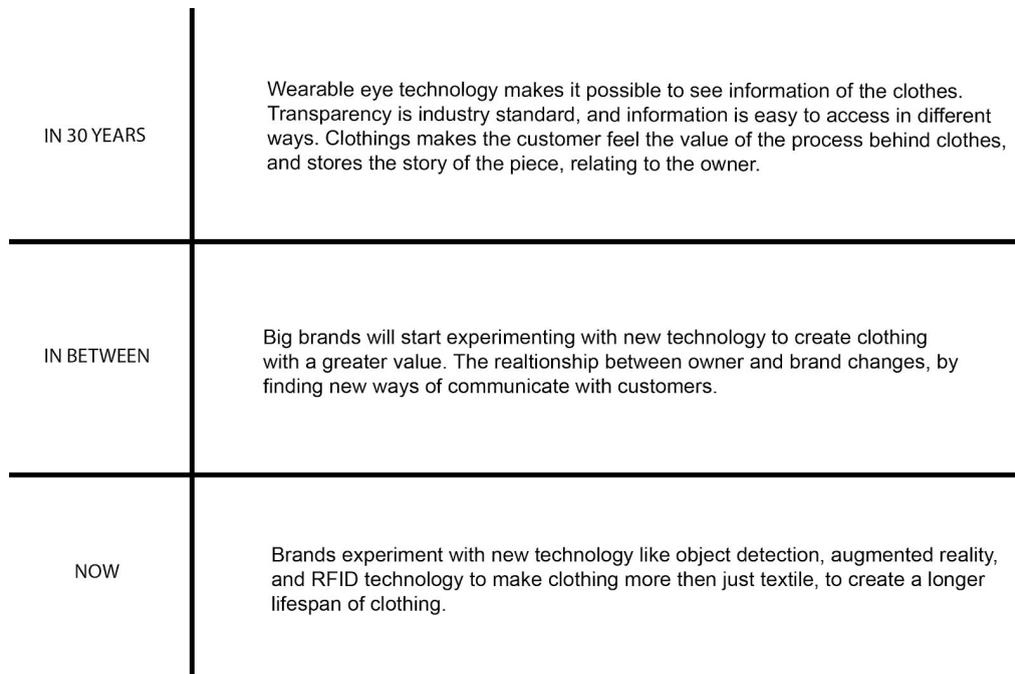


Figure 21: Vision 3 - Clothing have more information

Vision 3 led me to make the first design. I wanted to explore different ways of putting stories and communication into clothing. Originally I was inspired to use augmented technology and object detection, to create digital graphic content that relates to a piece of clothing. In the final research product, I ended up with using QR code technology, because it was easier and faster to set up as a fully working research product. The graphical design of the QR codes also gives a visual implication about its usability in the design itself. We came to name our research product with QR codes an (E)xperiential (Q)R (S)weater (EQS).

7. Experiential QR Sweater - EQS

In the making of the EQS Falck Øien and Haik W/ studio had the responsibility of creating the physical part of the design, I had the responsibility of generating the QR codes and creating the website for the content and editing the content. Falck Øien and I had already been thinking about how to create a deeper relationship between the clothing and the owner. And our idea of how we could do that is to put more content about the clothing in the clothing beyond just the fabric and the labels itself.

7.1 QR-Code technology

QR codes fitted the project because it already has an easily accessible infrastructure. QR codes are short for quick response codes and are a trademark for a specific type of two-dimensional barcode, they became popular because it has more storage and better readability than standard barcodes. QR codes are detected by a 2-dimensional digital image sensor and then digitally analyzed by a programmed processor, in comparison to barcodes that are mechanically scanned by a beam of light. The processor gets the information from the QR-code by locating the three squares that are in the corners of the code and then reading the smaller squares that are in the middle. These dots are converted to binary numbers ("QR code," 2018). The QR codes for my design was generated by a free online generator where you put in the wanted URL for the code, and the QR-code is generated for you. Before you had to have a specific application downloaded on your phone to scan QR codes, but now it can be scanned with the camera application in the newer iPhone. QR codes have mainly been used in Norway for advertisements and it is commonly known that they can be scanned.



Figure 22: A QR code. Photo: Ida Falck Øien

7.2 Concept

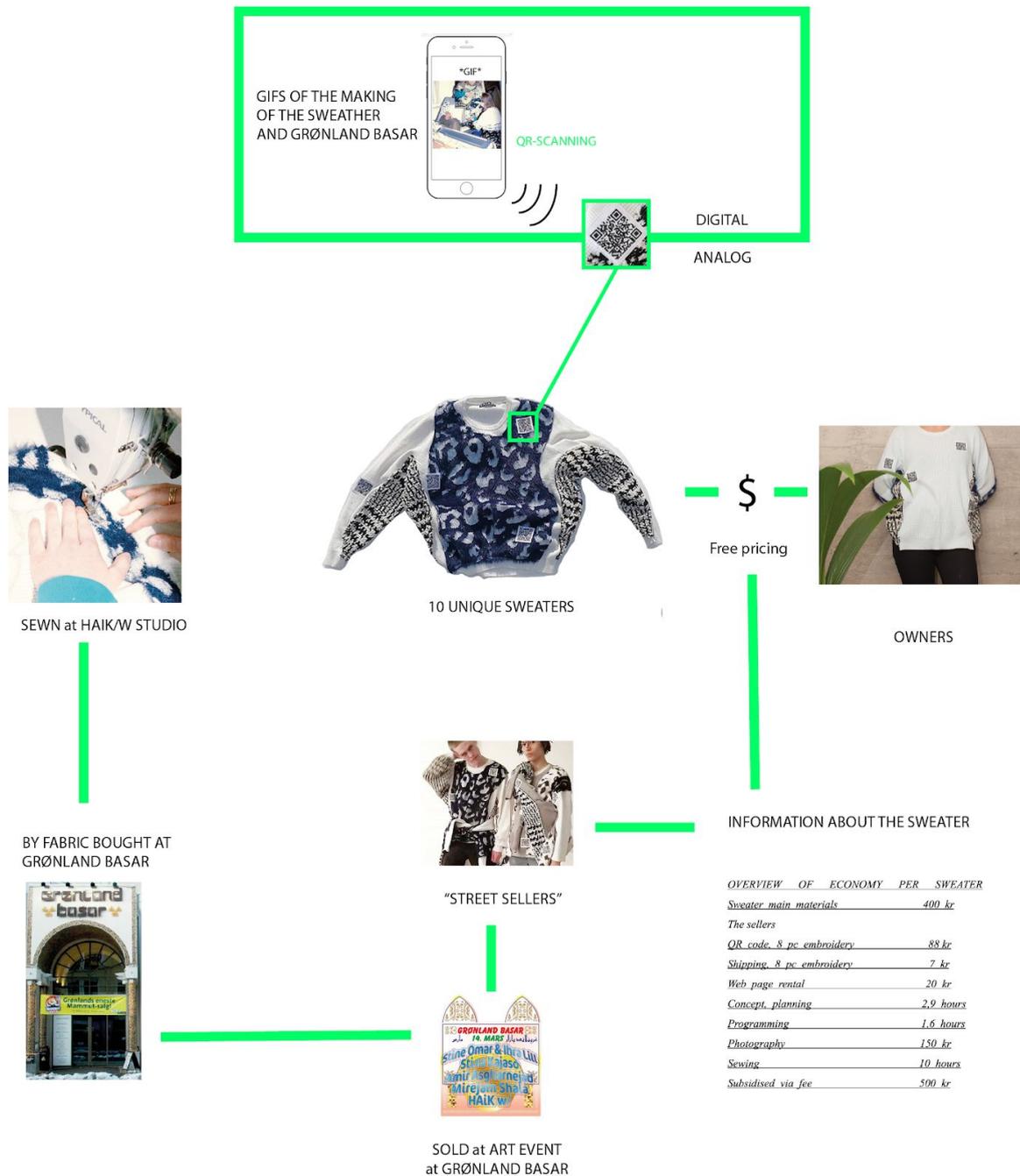


Figure 23: a visual overview of the concept of the EQS.

You can describe EQS as a “hybrid space”, and a bridge between the analog and digital. The design concept for the sweaters is that they supposed to function as a souvenir of Grønland Bazar and for an event. The Haik W/ studio decided to design a sweater collection of 10 sweaters, all with unique design. The sweaters where a patchwork and redesign of sweaters bought in one of the stores at Grønland Bazar.



Figure 24: One of the designs of the EQS. Photo Ida Falck Øien.



Figure 25: Two of the EQS on laying on top of each other, showing the branding and QR codes. Photo Ida Falck Øien.

I made 8 QR codes that led to 8 different webpages. All the sweaters got access to all the different QR codes but placed at different places. The QR codes were embroidered, to create a texture that would work with the sweaters, and have a high-quality finish. The QR code embroidery was made in Lithuania, the factory had never embroidered QR codes before, so they did a test of one code first to find out if it actually would be scannable, and it worked well. The content of the QR codes is trying to tell the story of how the sweater was created, and about where the fabric came from.

7.3 Content

For each QR code, there are different gifs that I made out of pictures from either the designer's process of making the sweater or from Grønland Bazar². The photos were taken by a photographer, giving them an artistic value, and a specific aesthetic that was the same for all of them. Some of the gifs are more abstract than others, to create a more artistic value. I choose gifs over a video to keep it easier and faster uploading but wanted something more exciting than just a picture.

I wanted the content that the QR codes lead to, to only be accessible through the codes. This could have been done in many ways, but I made a solution by buying a domain that was codes³, so it would not be easy to google. The numbers in the domain is the number equivalent to “GrønlandBazaar”. I built the web page in WordPress, by stripping down a simple theme and removing all navigation. When you scan the codes there is only one gif showing, no navigation to access the other codes, making the sweater the main point of interaction, not the phone.

² <http://www.71814121144211915.com/b/1-2>

³ <http://www.71814121144211915.com/b/1-2>

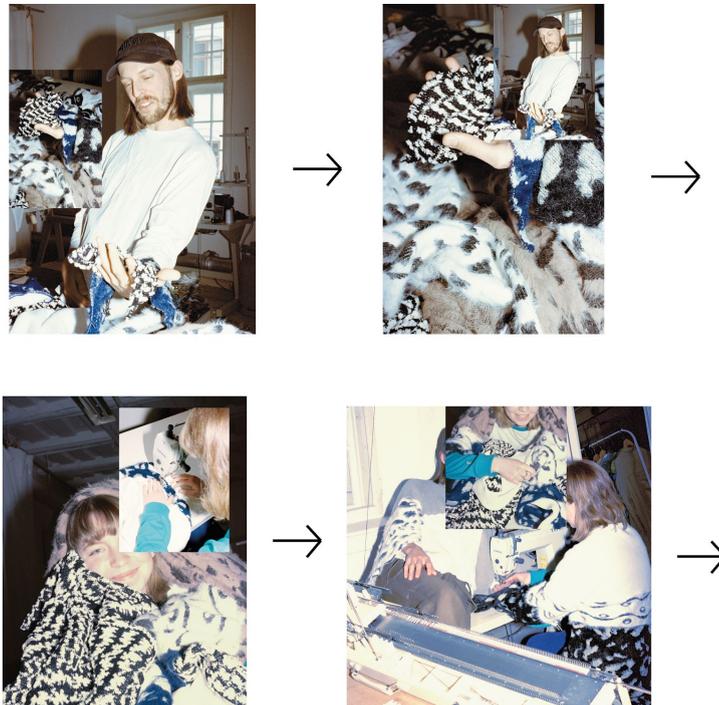


Figure 26: The gifs in the pages that the QR codes lead to are shuffling pictures, this is the pictures shuffling about the sewing of the EQS is in one of the codes. Photo Einar Fuglem.

Sustainability aspects

The design of EQS is sustainable *through* design because there is no technology in the fabric, that means less waste, easier to wash, easier to recycle compared to if the technology was implemented into the sweater. The materials are upcycled materials because it is made out of cheap sweaters that were sold at Grønland Basar. The material that the original sweater was made of is polyester and cotton, and is not the most sustainable materials. The redesign of the materials was done in the Haik W/ studio in Oslo, so the production was done in a sustainable way. How it is sustainable *in design* is more complex, and I will talk about how the owners value the sweater later in the analysis of the design in Chapter 8.

7.4 The event “*Trollkrem import*” - experiential sales of the sweater

Haik W/ was invited to contribute to an event at Grønland Bazar, that was one of several events that is a part of the project “Munch Museet i bevegelse”. Since Stenersen-samlingen and Stenersenmuseet are moving to the new Munch Museum in Bjørvika in 2020, they have created a transition project that is called “Munchmuseet i bevegelse - samtidskunst”. It is a temporary art project that involves young artists in different spaces in the Munch museums neighborhood (“Munchmuseet i bevegelse,” n.d.). A part of this project is called “Trollkrem Import”, a performance program created by the performance group Trollkrem. The program consisted of Trollkrem inviting different artists to create five evenings at different locations. For the first evening, Trollkrem arranged an evening in the mall, Grønland Bazar. Haik W/ was invited together with six other performance artists to create something for that evening, and their contribution was the sale of EQS.



Figure 27: The sellers of the EQS at the event. Photo Ida Falck Øien

The EQS was sold at the night of the event. The shopping experience can be framed as an experiential future, an exploration of consumption and buying in new ways and in new settings. At the event, there were two people selling the EQS throughout the evening as performance in between other performances, that were scheduled for the evening. The concept was that they would act as street sellers, having the sweaters wrapped around themselves and approaching people to buy sweaters. For the pricing, we had an approximate list of work that had been put into making the sweaters, from design work to website building and embroidery. The customer had to choose the price of the sweater, based on the information we gave them. The sale of the EQS was real and the price they chose made them owners of the EQS.

OVERVIEW OF ECONOMY PER SWEATER :

<u>Sweater main materials</u>	<u>400 kr</u>
<u>QR code, 8 pc embroidery</u>	<u>88 kr</u>
<u>Shipping, 8 pc embroidery</u>	<u>7 kr</u>
<u>Web page rental</u>	<u>20 kr</u>
<u>Concept, planning</u>	<u>2,9 hours</u>
<u>Programming</u>	<u>1,6 hours</u>
<u>Photography</u>	<u>150 kr</u>
<u>Sewing</u>	<u>10 hours</u>
<u>Subsidised via fee</u>	<u>500 kr</u>

Figure 28: The price list on the price sheet the buyers were presented with when buying the EQS.

The list mixes hours and price, and not summing it up to a sum. The project was subsidized by KHiO, and this made it easier to experiment with the price. All of the 10 EQS was sold at the event, one was sold in Haik W/s shop later. The names of the buyers were noted down and the price they paid. After six months we decided that we wanted to revisit the sweaters, giving the owners

time to actually use the sweater. What we wanted to understand is how they used the sweaters, their experience with buying the sweater, how and if they used the QR codes, and in what way the QR codes changed their perception of the QR code sweater as a sweater, and in relation to what relationship the owner has to clothes and prices of clothing before.

7.5 Home interviews

The Interviews with the owners of the EQS were done at the homes of the owners. It made sense to visit the owners where the clothing spends the most time, and where the most of the decisions about the wearing of the EQS is made, hoping to get an insight of the practice of the ownership of the EQS. The length of the interviews varied from 20-60 minutes. We asked questions about how the experience of buying the EQS was, how they priced it, how they value it, used it, what the role of the QR codes was, and there thoughts of further plans of updated of the EQS. Some of the answers we got might have been biased by that we had created the EQS and that the owners wanted to show that they liked it and where afraid to be critical.



Figure 29: One of the home interviews. Photo Einar Fuglem.

The same photographer that took the pictures of the content of the QR codes also joined us for the interviews. His photo list was to have a picture of the sweater where it is mostly stored, one where the owner is wearing it and one of the interview situation itself. For the photos of the owners with the EQS we let the owner choose where they would like to have their photos taken, and how the outfit was styled. The photos of where the sweaters were stored, for some of the sweaters we moved it from where it was stored, so it was visible.



Figure 30 and 31: Home interviews (images reproduced with consent, photo: Einar Fuglem)

7.5.1 Selection

We decided to interview all the owners of the EQS, the selection of owners was chosen by who bought the sweater. The selection of owners was also influenced by the setting the sales were taken place. Since it was a cultural event and the artists were from Oslo, the crowd was mostly cultural interested or practitioners. By using an *imaginary* I call this group of people the “cultural sphere”, and they fit the description of the typical Haik W/ customer that Falk Øien describes. The age of the owners vary from the age of 20 and is spread evenly up to the age of 50 years old, three men and seven women. 8 of the ten owners is working or are a practitioner in the culture field, but they are all apart of a “cultural sphere”.

7.6 Content analysis

Analysis of the interviews was done in collaboration with Falck Øien. All the interviews of the sweater were recorded and then transcribed. After all the interviews were transcribed we created a priori categories for the themes we were both looking for. Then we tried to go through the text and create codes in a more emergent way, this created fast too many categories and subcategories, so we had to change the method. We took the transcribed interviews and read

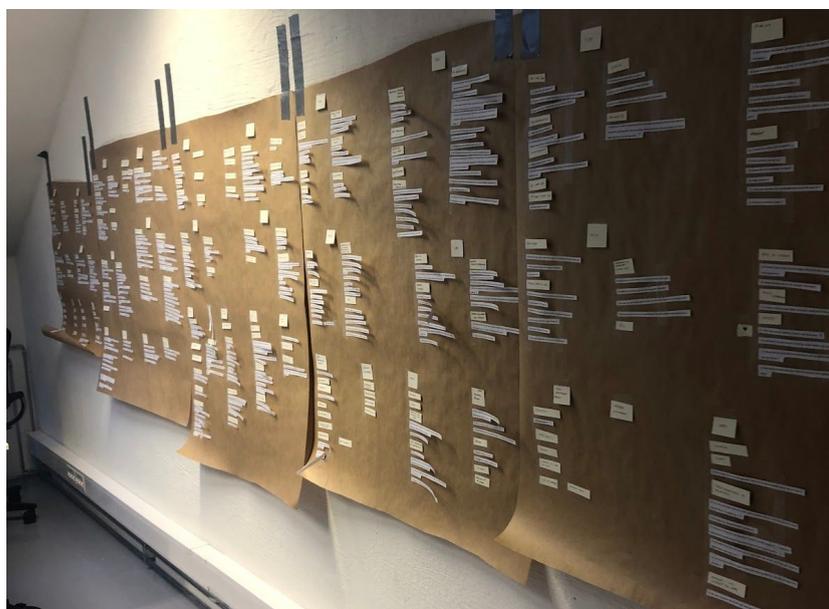


Figure 32: Some of the paper posters of the finds of the home interviews.

through them to look for the most essential “finds” and quotes that were fitting for the categories we already had and put them in a new document with the number of the interviewee and what page the “find” was on. Then we printed out all the interviews and scissored out each “find” and for each interview, we created a paper poster where we categorized the finds of that person. Through the process, we kept the interest field of both of Falck Øien

and me, but I present the most essential finding within each category in relation to my interest in the field of sustainable interaction design.

8. Findings

In this chapter I go through the categories of the most important themes we talked to the owners about, and present some of the most interesting opinions and findings. Each category has a question that represents why it is interesting, and a reflection on the findings.

8.1 The QR codes

How is the QR codes affecting the use and value of the sweater? What possibilities are there in creating a digital platform in clothing?

Five of the owners have a high threshold of using the QR technology and said and described their relationship to technology as “I am an analog person”, “I am digitally lazy”, “I use an app because I am such a grandma that I do not use QR that often”. Only two of the owners expressed that they have an interest in new technology.

The use of the QR codes varied in the group. Overall there was not a lot of use of the codes when the owners where by themselves. The use was mostly by curious people that they met while wearing the sweater. Four of the owners has not scanned the QR codes on the EQS themselves, and two of those had never scanned QR codes before, one did not have a phone themselves that could read QR. The rest of the owners had scanned the codes and two of them said that they thought the scanning of QR was easy. Two owners expressed that they had problems with reading the codes, and at the interview, we found that two of the codes on one sweater was not working, we did not figure out the reason for this. One occasionally checks if there is something new on the QR, while one owner is surprised they still work.

Concept

Some of the owners expressed that the concept of connection to content on the QR codes is more important than the function and use of it. This can be seen in the fact that users refer to the QR function as potential as interesting and important, but that they have not used it significantly. One owner has not used the tags after the purchase, that person did not know if it mattered to the garment. One forgot the about the QR codes, and one states that it do not matter to her if the QR codes work. One of the owners was most concerned about how the sweater looked and chose to remove 4 of the tags and throw them away. He states that he regrets the decision when he heard that we are planning to update them.

One owner liked that the content of the tags is only for those who have the sweater, and think that the sweater gets more depth with the QR codes. There was a lot of statements about the understanding of the concept of the QR codes, expressed in different ways, one said that he experiences the QR codes as a fun bridge between offline and online, and describes the concept of the content on the codes as a story. One owner said the codes of the sweater are a separate universe. One describes the codes as "moving outside my body" and talked about it as a communication channel, and one said that the colors of the contents of the QR codes make the sweater more colorful.

Social interaction

Five of the owners have had other people scanning the codes, and three have met people who are skeptical to the functionality of the QR codes, one enjoys proving those who believe they are not functional wrong. An owner describes the codes as magnetic, and that people are attracted to them, especially when they are drunk. People at one owner's workplace find it fun to test the codes and have a theory that smart people do not scan QR, but just ask if they work and that people think they are festive, and a gimmick. The placement of the QR codes has an effect on the interaction with others for the wearer. One

mentions that it is illogical that others should scan the tags, believes it is more interesting and user-friendly if someone does it, and that people will scan the codes that are not in intimate places.

Skills

Some skills were learned through the use and ownership of the EQS, one owner downloaded an own app to scan the QR codes, but found out during the interview that she already has the possibility of scanning in her photo app, and stated that she will do it more after the interview. One learned to scan QR codes during the purchase of the EQS by the seller.

Content of the codes

Some of the owners wanted content on the QR codes that provide more clear information, preferably statistics or a movie, and criticized that the content does not relate to the pricing list. Commenting on that the content that is on the codes now are too abstract. One says that when other people scan the codes and see the content, they do not understand it, and sometimes it is difficult to explain the contents of the tags. Many of them like the pictures of the process, and described it as “that you buy the whole process” of the EQS. One owner gets associations with the event location and stories about when the photos were taken through the pictures in the QR codes.

The owners do not seem to remember so well what is on the QR codes, one came with vague memories like: “They made the sweater, and some carpets and stuff..” one remember a picture of a plant, one remember it as small videos, one remember that the photos on QR codes were from a drug store and that there could be some pictures of the fabric in the sweater and one remember the colors of the pictures, but not what they were pictures of.

About an update

All the owners seemed excited about an update of the content of the codes, only one was concerned that the content that is there would be gone. Some of the things they said were that the sweater becomes more expensive when the tags are updated and would check if it was updated, and “Updating the QR is a great idea”. The owners came up with ideas for what we could update the content of the EQS with, without us asking for it. An owner thinks it should be a digital presentation, a diagram, where the full history of the sweater is explained chronologically. One thought it would be fun if people could post pictures of different outfits with the sweater, for inspiration, but thought about whether it would contribute to the selfie culture. One would like if there was more information about the owner, and that it had been fun with a timeline in the tags, with regular updates.

Reflection

When seeing the use of the QR codes compared to the ideas and thoughts about the concept of the codes, it seems like the concept of the EQS works best in social settings. The use of the QR when the owner is on their own is not so broad, but that this could change when the content updates. It seems like the most interesting to the owners where the possibility of updates, and that it would lead to more engagement. QR is an easy technology in use, but still, there is a high threshold for some of the owners to use it. What information is planted where on the body can be important in future garments, placing different information in sensitive zones, private zones, and public zones. The content of the codes should be less artistic and more communicative and informative in a future update. It seems like the QR codes are affecting the owner in social settings, and that the functionality is giving debt to the concept of the EQS.

8.2 The Buying experience

How, or can, the sale of clothing make a customer understand the value of the clothing that is purchased? Can there be an increased value of the product through the buying experience? We tried to connect the sweater to the experience that they had of the performance night, and create a special experience by making the buyers set the price themselves.

The setting/location

There were seven of the sweaters that were sold inside the bazaar, where it was planned that the sales would be made. Two of the remaining sweaters were sold at the after-party at a nearby pub, and the last sweater was sold in the store after the event. It was only one of the owners who stated that “the setting was special, and the context was important in the meeting of the garment”, this customer had a close relation to the event location in advance. Three of the owners expressed negative opinions on the experience at the location. One said that the event was unstructured and a lot was going on. Another said that the whole event was not as good as expected. The last one stated that there was too little oxygen at the event and felt that it made it hard for her to think. One of the owner expressed that the location influenced the pricing and buying style conceptually by that the customer felt the urge to make a bargain, because the event was in a bazaar, and that that it is a cultural event it was probably funded, so the price did not matter that much, and thought about it as an experience, not a real buying situation.

Uniqueness

In the choice of the design of the sweater, some of the customers experienced a strengthening of the relationship to the EQS knowing that it is unique since

all the ten sweaters are slightly different in design. On the other hand, one felt frustrated in the lack of choice because that person bought the second last EQS. One of the owners that do not like to dress similar to others, said she and the other owners were in a kinship in this case, that the EQS was unique but a part of something bigger.

Reflection

Location was not made for conscious consumption, and the setting was only creating value in the EQS when the owner had previous experiences of the location. It seems like the owners would be more likely to reflect on the purchase if it had happened in a calmer and more wholesome place. The owners are giving the implication that the EQS being connected to the experience is creating value, but the importance and value they put in it vary. The connection of the EQS to the location could have been done more clear and understandable.

8.3 Price

How can the pricing of clothing be redesigned so that the customer understands the value of the clothes? The price is a representation of the value, but that is only one way to describe the value of clothing. The experiential sales, that made the customer choose the price, gave us some interesting reflections on how the customer understands the value of clothes and the EQS. The reflections gave some implication on and what they would like to know when making their minds up for setting the value. Price is important for sustainability because it is a tool to make all the steps of production right, making sure all contributions are paid, and the right materials and techniques are used.

During the interviews we asked the interviewees to go through the price sheet and give feedback on points they did not understand, things they reacted to or thought were missing. Six of the buyers were introduced to the price sheet during the purchase, while the other four saw it for the first time during the interview.

Advice from the sales staff

During the purchases, the price was explained slightly differently to the different customers. The sales staff were inconsistent and we found that the customers were influenced by the statements made by the seller. Some received direct price suggestions and others rendered the maximum price quoted by the seller, which was based on a misunderstanding possibly caused by poor training of sales staff. The intention was that the seller should give the customer total freedom to determine the price itself, based solely on the information in the price sheet. Some quotes about what help the sellers would give are "Sales staff said I could pay anything from 1 to 1000 kroners." "We met halfway and I paid 500 Nok ". "I thought it was a max price of 3000 kroners because the seller had said from 0 - 3000 kroners ".

The design of the price sheet

The design of the price sheet is problematic, the design made the customers misunderstand it as a calculation, 4 out of 10 have explained afterward that they added the points in the list to get a sum. Four of the owner would have more information about the garment and had the interest and capacity to see even more details about the production of the garment, one said that "I would like to have a bit more context about the points on the sheet". It was also difficult for many of the owners to understand the price sheet because hours and Norwegian kroners were mixed. One person referred to it as "a bit messy" and stated that "I would like to see the hourly wages of those who have done

the various tasks". One of the low-income buyers said that it was "cool to see hours and kroners mixed because then he compared it with his own salary".

Content

Through the review of the price sheet, we found that the buyers were generally surprised at the time it took to sew the garment. When seeing the 10 hours it took to sew the sweater, a person said: "the cost depends on where in the world it is made". Many owners thought it was interesting to the hours of labor and that they learned something. One owner would like to know who had performed the various tasks, including the making of the pricing sheet and several, wanted to know what person had done what labor on the price sheet. Other comments were that the photographer was cheap, that the photographer was expensive, the hours of design work was low and that it is hard to set a price on programming and conceptualization. When seeing how much the materials cost one reacted that it was expensive when compartment to knowing that a Nike sweater cost around 7 kroners to produce in China, but understood it more when he got explained to that it was made of already made sweaters.

Feelings about the price in retrospect

Four of the owners expressed that they felt bad when reflecting on the price they paid, three of those said that they felt ashamed of the price they gave, and one that the price is returning though. One did not get any bad conscience for the price but becomes humble because she thinks about the work behind the sweater, thinking that she should pay twice what she paid when she looked at the price list at the interview.

Feelings about the setting the price was described as a slap in the face, "felt observed and judged, and that is a part of the negotiation", "It is so fucked up...I have no relation to what things cost". Six of the owners expressed that

they felt too incompetent to price the garment. One of the buyers with low-income comments on how difficult pricing can be, both as a practitioner in the design profession and as a buyer. She says she feels that "you should pay properly" and wanted to make "a fair purchase", but the lack of money and the possibility of choosing the price facilitated her to pay what she herself could afford and not what she saw from the number of sewing hours that the sweater would cost in store.

Other thoughts that were mentioned by the owner was that it creates consciousness around consumption and the worth of things, the price list made them think about why clothes are cheap, and one said that it is problematic because the calculation does not add up. One had never had such a strong sense of the inequality between poor and rich and class divisions in the world and said "You know that you earn more per hour because someone else earns less, or we could not have bought clothes, or it would have cost an annual salary...I can only buy it at a lower price than what it is worth...". One did not think so much about the process of making clothes when he sees the sweater, but it makes sense when he sees the price list.

Many of the customers legitimize their own price choice with the personal economy. They mention their self-chosen price as the highest price they could pay at the moment. One said it was because it was late in the month and where therefore broke and put it in context with the rest of the household budget. A person said that since the sweater as a garment is not as important as, for example, a jacket she could not pay more than the selected sum, and said "I paid in the upper layer of what I can pay for a sweater in general, the price is reasonable because I will use it a lot " the price she paid was 800 Kr.

Reflection

It seems like the price sheet would be even more effective if it was designed in a more explanatory and informative way. It is hard to know if they actually

reflected and used the sheet to set the price since it seemed like a lot of them did not understand the information on it. It is also hard to know if the owners, that had the price list at hand, when buying the EQS reflected up on the price list in the sale situation. The price list might have been more effective later when the EQS was *normalized* in their life, and they got presented with it in the home interviews. A lot of the owners says that they want access to more information, but the effect of more information could be less effective. It seems like when the customer gets some information, they become aware that it is more they do not know anything about and that leads to critical thoughts. Maybe more of the sweaters were sold because the price was fitted to the customer by themselves. Using price as a leverage point is effective, and you see it in the way price relates to the feelings of the owners.

8.4 Use

How is the EQS used and worn? Is it different than other sweaters?

At the point when the interview was done, the owners had owned the EQS six months. The use of the EQS varied from using it two times to using it every day for some weeks, but the majority used it 10-20 times. The types of settings the EQS had been used in was also very wide, from using it while going to yoga, skating, work, for special occasions like dinner parties, clubbing or when at home. Some expressed that it had a value in cultural settings and one said: "I would wear this in the art world anywhere because I am proud of having that thing". Some of the owners descriptions of the use of the EQS was "Yeah I feel almost like an animal" (when wearing the EQS), "The sweater makes me look cooler than I am", "I like to use the sweater in places where it is a little unexpected and people are curious, for example at work as a costume designer at the National Theater", "It is good for sitting and writing in or just hanging out", "Others think the sweater is fierce" and one calls the sweater a cyborg sweater.

Washing

There were no washing instructions in the EQS, and only two of the owners had washed the sweater. One of those who did wash the EQS, had the blue material coloring the white part of the EQS, the owner was feeling sad about this and stopped wearing it, but under the interview, she decided to start using it again. The owner's reasons for not washing it was because they were worried about how it would turn out, and one was worried about the mix of materials. Two of the ones that did not wash the EQS said that they were saving it and being careful with spilling, so that they did not have to wash it.

Storage

The storage of the EQS varied from storing it in a drawer with other clothes, in something an owner called “the comfy drawer” a category of comfortable clothes, hanging in the closet, hanging on the wall in the workroom, stored in the cellar for the winter, or just laying around.

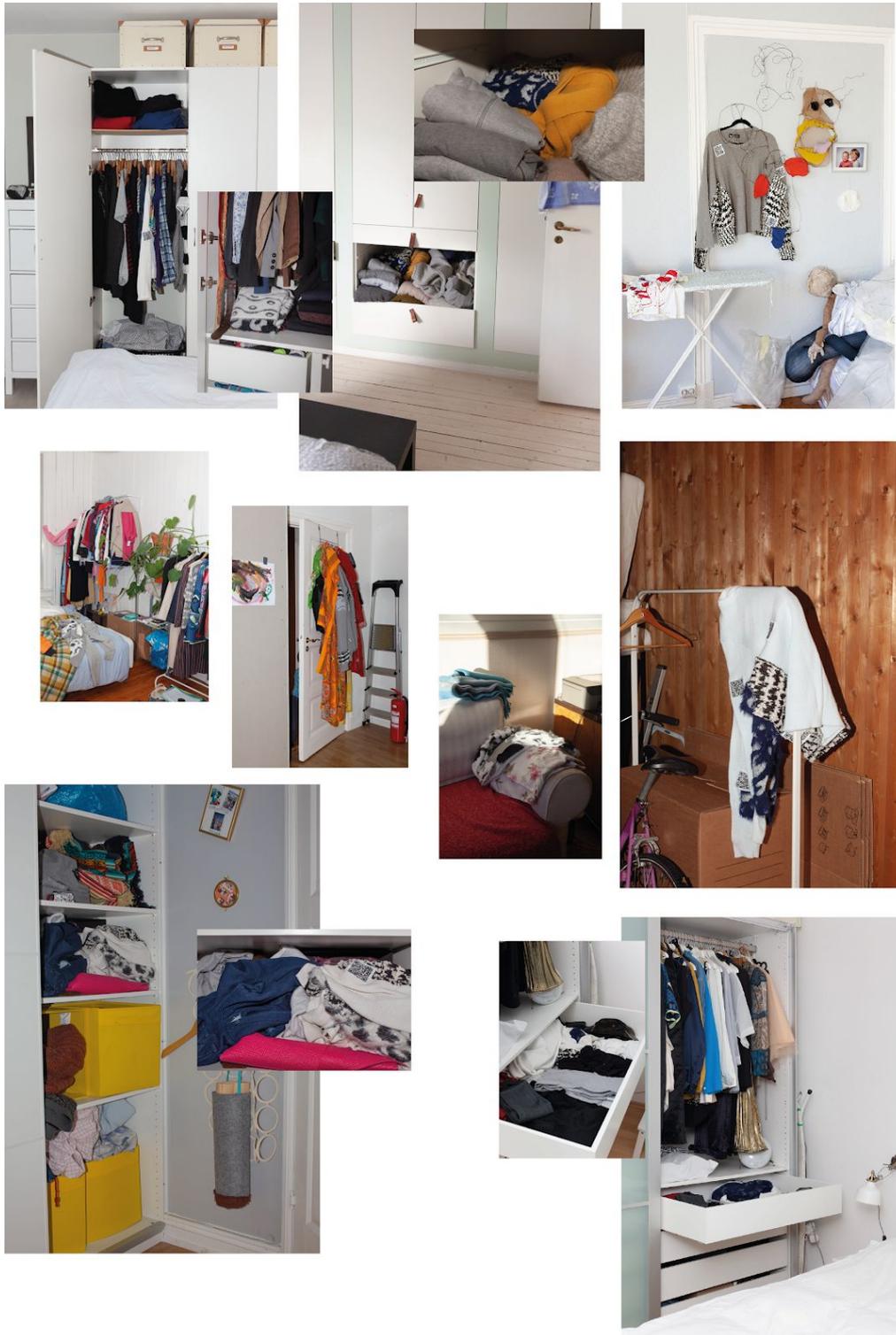


Figure 33: The storage of the EQS at the owner's homes, all the owners are represented. Photo: Einar Fuglem

Reflection

How is the EQS used and worn? Is it different than other sweaters?

The use of EQS is very varied for a lot of different occasions, there are different versions of the design, but the EQS seems versatile in its use. The majority has used the EQS for its purpose, but the owner hanging it on the wall also described the EQS as an art piece that she could afford, making it more of an art piece and had just used it as a sweater a couple of times. When being stored away that can also show that that owner was not so attached to it. You see in the different storing situations, that the different owners value it differently, or have different views on the value of their clothes and ways of storing their clothes. Their description of the use and the EQS shows how different owners relate to the EQS. The EQS seem to have a value inside the “cultural sphere” and the concept and the story of the EQS are important in building this value. The EQS is different than other sweaters both in the physical design and the conceptual as in the description of it as a cyborg sweater. There should be more information about the washing of the EQS.

8.5 Value

Overall what kind of values did the owners see in the sweater?

The experience and a connection to the price

When we asked the owners to explain the purchase of the EQS, it is explained as a special buying situation, that they liked and disliked and that gave them various feelings. The EQS is connected to a price they chose, giving them negative feelings of guilt and shame, but also making them reflect on the production and the differences in the world. These experiences connected to the EQS can create a higher value in the EQS.

Conversation starter

Seven of the owners describe the EQS as a talking point, and a conversation starter, saying "The codes are nice because they are a conversation starter" and "I do not think I've had so many comments on a sweater before as when I wore this to school". The owners told stories about how they got flirted with on the dancefloor, asked by coworkers about the sweater, and that they would not wear it they did not feel like attracting attention. People ask if the QR codes are fake, but love confirming that they are working.

Art piece

The sweater is referred to as "more than just a garment", and often as an art product. One said that many from his school like the sweater because they are art interested and care about fashion - implying that there are some values in the sweater that gives it an art alibi. Many owners express that they think of it as an art piece by saying "When I told them that it was a work of art and someone got to try the QR codes, the sweater went from being weird to Oh, fun!" and "It is an artwork". One of the owners who is an artist said "I look at the sweater as a performative work, because you buy something you can wear and go around as a living work of art that is activated by being able to scan. I have worked to push the boundaries of how to show performance and performative works and believe that the sweater does this" and "I thought it was a cheap work I could afford".

Cyborg secrets

The EQS creates a community or a "kinship" where the owners feel like they know something about the EQS that not everybody else knows. Three of the owners mentions the sweater as a cyborg sweater, and one of those said that the sweater has a secret that goes under the radar and that it becomes like a secret society as with clothing with artificial reality have too. With QR one

sees that there is something there, but not what before one engages the phone. One talks about that "it is very exciting with garments where those who know, they know what it is, and the meaning, the sweater is like that; these are secret messages".

Inside marker and community

The sweater is a marker inside the "cultural sphere". An example of this is, according to a user, that use the EQS in cultural work settings, the EQS was perceived as weird in England, and that it worked better in Oslo, where people knew about the event, and Haik W/. The owners also told stories about meeting with other owners, and discussions of pricing.

Souvenir

For three of the owners, the sweater acts as a souvenir from the event location, but for most, it is not that important. It is mostly those who have a link to the event or location that feels this, "I think it is so nice that there was some kind of tribute to the Greenland Bazaar", "The sweater was based on the idea of the bazaar", "The aesthetics of the sweater will always remind of the event". An one is looking forward to QR codes being outdated - then it is like going around with lots of cassettes", making the EQS a souvenir of the technology of QR codes.

Updatable

The value of EQS being updatable is mostly about the possibilities that lay in having a digital platform connected to the EQS, connecting the designer(us) and the owners. The possibility of updates is a value that can create change and newness in the ownership of the EQS. When we talked with the owners about an update it made all the owners excited.

Home visits

The home visits in themselves might be contributing to creating a bigger attachment and value in the EQS. It seemed like some of the owners got new interest in the sweater during the interview. One had removed some QR-embroideries, but regretted because he wanted to follow the developments on them: "The codes get an extra dimension when they are recharged, regret that I took away 4 of them". Making the owner reflect on the EQS, could create thoughts and deeper relationship to it. They also got to know more about the sweater, and one owner felt privileged to be apart of a science project. There are few sweaters you get visits and interviews from owning. It could be interesting to design "home visits" for Haik/W after their clothes have been sold, and could be done scalable with chatbots, emails or questionnaires.

9. Discussion and Analysis

In this chapter, I discuss my use of methods and connect findings with theories.

9.1 Transition Design

In this part, I answer subquestion 4: *“How did the methodology affect the outcome of the project?”*

Since Transition Design is a fairly new design direction, there are not many examples of cases defined as Transition Design. This is mainly because it is a method that includes long term thinking. This case and a master thesis, in general, is definitely too short to investigate real changes and transitions, but it can be a start. The framework was helpful to steer the focus when dealing with an interdisciplinary project and when trying to design for change towards sustainability.

The interdisciplinarity of this project created something that not Falck Øien or my self would have managed or thought of on our own. I would not be able to create fashion clothes at the level of what Haik W/ created if I would have used my time to learn how to design clothing. It would have affected the time I used on the design of the QR codes and the data collection. Haik W/ also gave my project a foundation in the fashion industry both with the knowledge they shared with me and with their position and ability to sell products. This project could be more interdisciplinary by including more stakeholders as store owners, fashion media, influencers, textile workers, factory owners, governments and etc. The EQS is a local solution that is located locally in Oslo's cultural sphere, but the scalability of it can be discussed.

Scalability

With *cosmopolitan localism* in mind, the EQS should be a solution that can be scaled up. If you think on a very large scale and if every clothing in the future had this engagement and information as the EQS has, would it have the same effect? Consumers do not have the capacity, time or wish to engage with all the brands that they have in their closet, but it can be an alternative and one solution. The design of the EQS was time-consuming and a question is how you can make a business model out of it. The uniqueness of the designs would make the price of the garment very high, and there might not be a market for it. Another question rising is if every garment should be seen as art, and what constitutes the quality that qualifies the garment as art. Is it the location it is sold in or is it the concept it holds. It is also hard to know if this type of ownership would work outside the art world and the “cultural sphere”. What can be scalable is the possibility of having a direct communication channel for brands to communicate with their product owners, and that can open up for new business models and can steer the ownership in more sustainable ways.

Dark Matter

What problems could arise if there would be many products like the EQS on the market? In a possible future, if the content of the codes would be information about the users, there could arise data privacy issues. Issues in what the data can be used for, problems with brands selling data about their users, and use of private data for marketing. These issues should be well thought out if a similar design like the EQS would be scaled up.

Use of visions

The visions I created could be done with more detailed stories of the future. This could have been done by involving other stakeholders in a workshop when creating the visions.

Why not other approaches?

I could have done this thesis in a more Research Through Design-centered approach, and it was my initial plan to work with more iterations of the design. The interdisciplinarity and the new ways of designing with Transition Design opened up to many aspects of the ownership and that became more interesting than focusing on designing new iterations. No other design methodologies that I know of are so directed towards change in the direction of sustainability as Transition Design is, and therefore there are no alternatives.

9.2 Level of attachment

In chapter three I introduced the paper “Understanding Why We Preserve Some Things And Discard Others In The Context Of Interaction Design” by Odom et al. (2009). I revisit the concepts from the article in light of my research, to answer my subquestion 1. *“By adding QR codes to clothes, can one create a high level of attachment by connecting consumers with designers/producers of the clothing?”*. I go through the concepts that Odom et. al (2009) created, and analyze how these concepts can be applied to the EQS.

Function

The EQS has a strong function, in that it will always be wearable as a sweater. The style and design of the sweater itself could go out or in of fashion but it is not connected to a special trend, so it will be wearable in the same use as it is today. The use of the EQS is wide, this can mean two things, that it does not have a special use, making it easily replaceable, or that it has many purposes and making it valuable in its many uses. The function as a connection to a digital platform is mostly valued as a conversation starter and as a concept today but have a possibility of creating new functions. If the QR code scanning technology will go out of standard, that function will no longer be there.

Symbolism

The owners of the EQS implied that they viewed the sweater as an artistic product, and as close to art as possible in clothing. The status as a souvenir for some of the owners is also creating a symbolism in the EQS, making it symbolize a special experience and a place. For some owners, it became a symbol of connectedness to the brand and the community through the QR codes.

Material quality

The production of the EQS is done at a high level, but the material and the design is done in a way that it does not seem that way. There are threads that are coming off and the sweater might color when washed. Through the interviews, the owners expressed that they thought that it was a part of the design and that they liked it. The materials are not wool or leather or any other fabric that is associated with durability or high quality.

Engagement

EQS is creating engagement in the pricing experience and the concept of the QR codes, and that it is a conversation starter. The owners of the sweaters all saw possibilities in communication through QR codes and deeper engagement with the community. For example, updating QR codes were seen as interesting, giving an opportunity for instance, to learn more about other owners and the sweater itself.

History

There is a history about the EQS in the QR codes, the content shows the making off the garments and pictures from the place the garment was bought. The owners wish for more explanatory content not only the gifs that are there today, and an update of the content of the QR codes could show a timeline,

and this could be a possibility to create an extended history of the EQS in the EQS.

Augmentation

Updates of the codes could happen from the user's behalf, this can become a new aspect of the sweater. One of the reasons people buy new clothes is the feeling of newness and this updateable platform could create a community of owners that can create newness for themselves. There is a possibility, inspired by the owner that removed some of the QR codes from the EQS, for owners to remove accessibility to content on the EQS if they want.

Perceived durability

Just one owner reflected on the fact that the technology of QR codes will go out of function, the rest seemed like they would keep the EQS for a long time.

Summary

It is hard to predict how long of a relationship the owners of the EQS will have to the EQS, but it is affected by the level of attachment they have to the EQS, and how they take care of it. Then EQS is touching in on, and have the possibility of fulfilling many of the important aspects of creating a high attachment, especially *function*, *symbolism*, and *history*. Durability is always an issue when it comes to technology because standards are changing fast. If QR code readers are going to stop being a standard in the future the EQS will still have a concept, but not a functional one. If I would add any concepts to Odoms, it would be “cultural context”, how an object relates to social constructions. This added concept maybe correlate or could be put under *history* or *symbolism*, but I think there is one needed for what culture add to an object's value. The fact that the EQS is creating a community of user makes it more valuable, and the fact that the owners state that the symbolism of the EQS is of an art piece gives implications that the owners have a high attachment to the EQS.

9.3 A new practice?

In this part, I answer subquestion 2. “How can QR codes change the practice of consumption and prolong the ownership of clothing?”. Social practice theory is suggesting that to create more sustainable consumption practices there should be a focus on creating new practices. I will investigate what kind of practice EQS is creating.

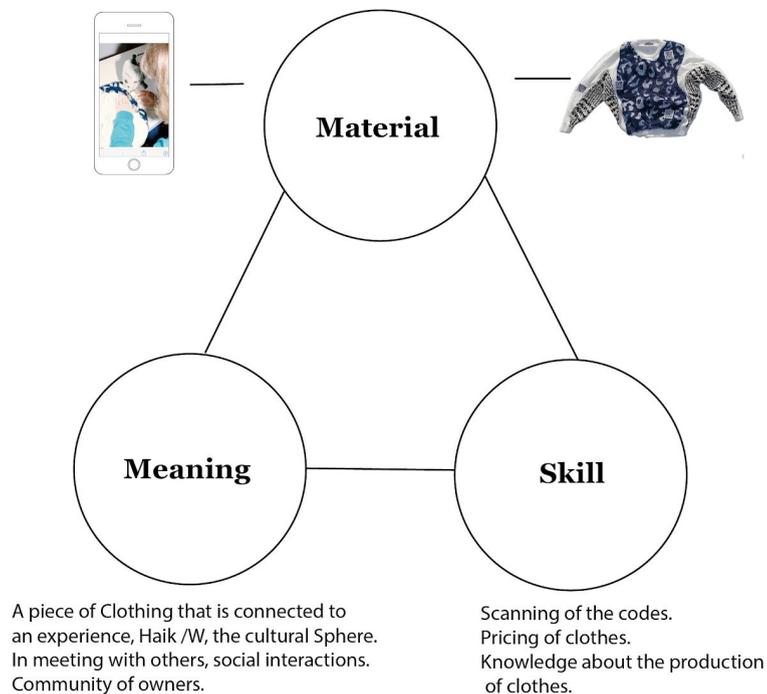


Figure 34: The practice of owning the EQS.

Practice as made up of *meaning* (images, symbols), *skills* (forms of competence, procedures) and *materials*(stuff, technology) (Hargreaves, 2011). The *material* of owning the EQS is the sweater itself and the content of the QR codes. The *meaning* of owning the EQS is that it is connected to an

experience, a place, the brand Haik W/, the “cultural sphere”, in meeting with other people and the community of owners. There are *skills* in the practice of owning the EQS different from owning a regular sweater, skills of scanning QR codes, pricing of clothes and knowledge about the production of clothes.

My intent with QR codes was to, through communication about the product, its materials, designer, use, making, pricing, etc, would be conducive to making new sustainable consumption practices of owning clothes. New practices evolve both from the inside of practices, when practitioners are changing routines and conventions, and from the outside when practices are mixed with other practices. We have demonstrated that a change in the practice of consumption of clothing would be possible. From the inside of the practice of consuming and owning clothes, the owners have experienced a new way of buying and owning a sweater. By pricing it, checking for updates and showing people QR technology on fabric. The practice of owning the EQS also had influence from outside the practice of clothing consumption by that it is mixed with the practices of the art world. The event, the price, the communication of the QR codes all together elements of possible components of new practices. The selling situation was in an art setting, the act of buying was seen as a performance and the sweater and the content of the EQS were perceived as art by the owners. There could be a possibility of making consumers outside the art world learn the practices that the art world constitute.

After the point of consumption, the EQS is *scripted* in the way that it will start a conversation about itself because the design implies that it can be scanned. Updating of the QR codes have the ability to change the *normalization* of the EQS in the day to day life of the owners.

9.5 Future work

9.5.1 Updating the websites connected to the QR codes

We did not have the time to implement an update of the content linked to the QR codes. Our idea, that developed while doing the home interviews is to update the codes with content from the finds and photos from the interviews, making it possible to investigate how updates and new content would affect the use of the EQS. We learned a lot about the EQS that we would have liked all the owners to know. Beyond that, the update could give a further indication if this way of communicating with buyers has the intended effects. There are many ways to design the new content of the codes, but it should engage the owners and inform about the EQS production and story in a more informative way, and washing instructions should be included. When updating the codes we could let the owners know by email to engage them to check the QR codes or make it a surprise when checked by own initiative. We see many possibilities with that the content can be updated.

9.5.2 Reflection on the design of the sweater and QR codes

The EQS was a research product and gave a lot of information about the user's ownership of clothes after the point of consumption. The EQS gives a lot of knowledge of what should be done if I would design a product in the category similar to the EQS. I would design something that would still show that it holds information, but the design of the information would be more explanatory. The positioning of where to access of the content should be designed either for others to access it or for the owner, based on where on the body it is placed. The QR codes give the possibility of a higher conceptuality in the EQS, making it an artwork and gives it a higher value past the fabric and branding of the sweater. There are other technologies that could be explored and would give other opportunities, like RFID chips, AR or object detection, and might have more scalability. With sustainability in mind, I think there are many possibilities without putting hardware into the textile, and if it is the

best solution then the whole life cycle of that product should be thought out well, the repair, recycling, demounting and washing.

9.5.3 Other design opportunities

This part address the subquestion research question "*What is the leverage points to reduce consumption in the fashion industry, where you can communicate with users directly?*".

From the process of creating the EQS and the data collection after the sales, I have distinguished some areas of a sustainable redesign of the fashion industry for interaction design. Focused on creating value in the communication between customer and producer of clothes. Using price and price explanation is a good leverage point for creating value, and can be done both in the buying situation and after the point of consumption when the product is *normalized*.

1. Buying experience

The buying experience is important, and you can build value in the design at this point. For ethical and more sustainable consumption, it should happen in calm places with room for thought. Ideas and possibilities for interaction design lay in creating a special experience that engages the consumer in the product. It could be online spaces or physical, but there are many possibilities in both formats of presenting information about the history of the clothes in both places.

2. Pricing

Pricing is a good leverage point for creating value in a piece of clothing. Prices should be engaging and understandable and not just a sum. The price should explain what kind of work and what kind of process the garment has been through before the point of sale. This can be done with the design of visual and interactive prices online or in stores.

3. Home visits

From the interviews, we saw possibilities of making clothing valuable after the point of sale. There should be ways of making it possible for brands to create value in, and work with the clothes they already sold, without doing it to sell more new clothes. This could be done with a subscription of content, chatbots, community building platforms, or services and tools for sorting and creating knowledge of owners wardrobes.

9.6 Conclusion

This thesis has provided opportunities to explore both emerging transition design as a methodology and a truly cross-disciplinary collaboration. Both have proven to be helpful in finding new ways of designing. This project has been practice-oriented, and has been centered around an 'experiential' sweater (EQS) with QR codes has been designed, produced, and sold. The EQS has many leverage points for the creation of a high level of attachment, especially with symbolism and history. Because of the concept of the QR codes that are integrated into the sweaters, and the content that it gives access to, the owners perceive the EQS more like an artwork than a mere piece of fabric. Those owning the EQS have a visual connection to the production of the sweater and have expressed a feeling of a community with the other owners. These new ways of consuming and owning a piece of clothing can lay a foundation for new practices for the consumption of clothes. The concept of the QR codes has created new possibilities for both owners and designers to understand the use and ownership of clothing in ways that are more sustainable. This project shows that there are many possibilities for interaction designers to create a more sustainable fashion industry. Technology that is directly integrated into the fabric of consumer goods, as wearables, has been shown to often end up as products with short lifespans that is difficult to recycle. This project has explored possibilities of how interaction design can create sustainable practices by transforming aspects of clothing consumption, as our buying experience, our relationship to pricing, value, and ownership.

10. Bibliography

- Battan, C. (2018, August 27). *Trend-Spotting at Zara with Diet Prada*.
Retrieved from
<https://www.newyorker.com/magazine/2018/09/03/trend-spotting-at-zara-with-diet-prada>
- Bleviss, E. (2007). *Sustainable interaction design: invention & disposal, renewal & reuse*. 503. <https://doi.org/10.1145/1240624.1240705>
- Cachon, G. P., & Swinney, R. (2011). The Value of Fast Fashion: Quick Response, Enhanced Design, and Strategic Consumer Behavior. *Management Science*, 57(4), 778–795.
<https://doi.org/10.1287/mnsc.1100.1303>
- Changing Markets Foundation. (2017, June 13). *Dirty fashion: new report reveals top brands including H&M and Zara buying viscose from factories that are wreaking havoc on the environment*.
- Cherenack, K., Zysset, C., Kinkeldei, T., Münzenrieder, N., & Tröster, G. (2010). Woven Electronic Fibers with Sensing and Display Functions for Smart Textiles. *Advanced Materials*, 22(45), 5178–5182.
<https://doi.org/10.1002/adma.201002159>
- Conca, J. (2015, 12). Making Climate Change Fashionable - The Garment Industry Takes On Global Warming. Retrieved January 30, 2019, from Forbes website:
<https://www.forbes.com/sites/jamesconca/2015/12/03/making-climate-change-fashionable-the-garment-industry-takes-on-global-warming>

te-change-fashionable-the-garment-industry-takes-on-global-warming/
g/

Crane, D. (2016). The puzzle of the ethical fashion consumer: Implications for the future of the fashion system. *International Journal of Fashion Studies*, 3(2), 249–265. https://doi.org/10.1386/inf.3.2.249_1

Crang, M., & Cook, I. (2007). *Doing ethnographies*. Los Angeles: SAGE.

Devinney, T. M., Auger, P., & Eckhardt, G. M. (2010). *The Myth of the Ethical Consumer Hardback with DVD*. Cambridge University Press.

Ethical Fashion Group Ltd. (2018, February). The Issues: Water. Retrieved February 26, 2019, from Common Objective website:
<https://www.commonobjective.co/article/the-issues-water>

Fashion Revolution fanzine #002: Loved clothes last. (2017). Retrieved April 27, 2019, from Fashion Revolution website:
<https://www.fashionrevolution.org/resources/fanzine2/>

Gjermundbo, T. (2018). Hva gjør klesforbruket ditt mot miljøet? Retrieved January 31, 2019, from www.fretex.no website:
<https://www.fretex.no/hovedmeny/miljo/hva-blir-toyet-til/klaer-og-miljo>

Hackl, E. (2017). 3. You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete (Buckminster Fuller). In S. Sonvilla-Weiss (Ed.), *VIS-A-VIS Medien.Kunst.Bildung* (By S. Amann, A. M. Erber, E. Hackl, L. Kieslinger, R. Reichert, P. Reis, ... A. Strasser).

<https://doi.org/10.1515/9783110498516-004>

Hargreaves, T. (2011). Practice-ing behaviour change: Applying social practice theory to pro-environmental behaviour change. *Journal of Consumer Culture*, 11(1), 79–99. <https://doi.org/10.1177/1469540510390500>

Iles, J. (2017, November 28). Circular economy offers a new vision for the fashion industry. Retrieved January 28, 2019, from Circulate website: <https://circulatenews.org/2017/11/circular-model-fashion-industry/>

Ingram, J., Shove, E., & Watson, M. (2007). Products and Practices: Selected Concepts from Science and Technology Studies and from Social Theories of Consumption and Practice. *Design Issues*, 23(2), 3–16. <https://doi.org/10.1162/desi.2007.23.2.3>

Irwin, T. (2015). Transition Design: A Proposal for a New Area of Design Practice, Study, and Research. *Design and Culture*, 7(2), 229–246. <https://doi.org/10.1080/17547075.2015.1051829>

Irwin, T., Kossoff, G., & Tonkinwise, C. (2015). Transition Design Provocation. *Design Philosophy Papers*, 13(1), 3–11. <https://doi.org/10.1080/14487136.2015.1085688>

Isaksen, K. K. (2014, April 24). – Rana Plaza-kollapsen var mord. Retrieved March 11, 2019, from NRK website: https://www.nrk.no/urix/_-rana-plaza-kollapsen-var-mord-1.116786

27

Janet Hethorn, & Connie Ulasewicz. (2015). *Sustainable fashion: what's next? : a conversation about issues, practices and possibilities*

- (Second edition.). New York: Bloomsbury, Fairchild Books, an imprint of Bloomsbury Publishing Inc.
- Keller, C., Magnus, K.-H., Hedrich, S., Nava, P., & Tochtermann, T. (2014, September). Succeeding in tomorrow's global fashion market | McKinsey & Company. Retrieved May 23, 2018, from <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/succeeding-in-tomorrows-global-fashion-market>
- Kobayashi, H., Ueoka, R., & Hirose, M. (2009). Wearable Forest Clothing System: Beyond Human-Computer Interaction. *Leonardo*, 42(4), 300–306.
- Kuusk, K. (2016). *Crafting sustainable smart textile services*. 125.
- Lazar, J. (2010). *Research methods in human-computer interaction*. Chichester: John Wiley.
- Lee, J., Kim, D., Ryoo, H.-Y., & Shin, B.-S. (2016). Sustainable Wearables: Wearable Technology for Enhancing the Quality of Human Life. *Sustainability*, 8(5), 466. <https://doi.org/10.3390/su8050466>
- Lockton, D., & Candy, S. (2018, June 28). *A Vocabulary for Visions in Designing for Transitions*. Presented at the Design Research Society Conference 2018. <https://doi.org/10.21606/drs.2018.558>
- Lorch-Falch, S., Og, & Dalen, A. (n.d.). Rema vraket Freia-godt med palmeolje – gikk til konkurrenten for å lage egen vri. Retrieved March 10, 2019, from E24 website: <http://e24.no/a/23944925>
- O'Connor, M. C. (2016, June 20). Study: Your Fleece Jacket Is Awful for the

- Environment. Retrieved May 24, 2018, from Outside Online website:
<https://www.outsideonline.com/2091876/patagonias-new-study-find-s-fleece-jackets-are-serious-pollutant>
- Odom, W., Pierce, J., Stolterman, E., & Blevis, E. (2009). *Understanding why we preserve some things and discard others in the context of interaction design*. 1053. <https://doi.org/10.1145/1518701.1518862>
- Odom, W., Wakkary, R., Lim, Y., Desjardins, A., Hengeveld, B., & Banks, R. (2016). *From Research Prototype to Research Product*. 2549–2561. <https://doi.org/10.1145/2858036.2858447>
- Pan, Y., & Blevis, E. (2014). *Fashion thinking: lessons from fashion and sustainable interaction design, concepts and issues*. 1005–1014. <https://doi.org/10.1145/2598510.2598586>
- Parley For The Ocean. (2019, March 20). adidas X Parley: From Threat into Thread — PARLEY. Retrieved March 20, 2019, from <https://www.parley.tv/updates/2016/11/3/adidas-x-parley-the-first-performance-products-from-parley-ocean-plastic>
- Pirc, U., Vidmar, M., Mozer, A., & Kržan, A. (2016). Emissions of microplastic fibers from microfiber fleece during domestic washing. *Environmental Science and Pollution Research*, 23(21), 22206–22211. <https://doi.org/10.1007/s11356-016-7703-0>
- Quan-Haase, Anabel. (2016). Ch.3:Theoretical Perspectives on Technology. In *Technology and Society, social Networks, Power, and Inequality 2016 ss.42-61*. Oxford University Press.

- Ruppert-Stroescu, M., LeHew, M. L. A., Connell, K. Y. H., & Armstrong, C. M. (2015). Creativity and Sustainable Fashion Apparel Consumption: The Fashion Detox. *Clothing and Textiles Research Journal*, 33(3), 167–182. <https://doi.org/10.1177/0887302X15579990>
- Segran, E., & Segran, E. (2018, February 22). How Everlane Is Building The Next-Gen Clothing Brand. Retrieved December 5, 2018, from Fast Company website:
[https://www.fastcompany.com/40525607/how-everlane-is-building-t
he-next-gen-clothing-brand](https://www.fastcompany.com/40525607/how-everlane-is-building-the-next-gen-clothing-brand)
- Screen Sumner. (2018, February 22). Fashion Industry's Carbon Footprint Wearing on Our Environment. Retrieved January 31, 2019, from Climate Action Business Association (CABA) website:
[https://cabaus.org/2018/02/22/fashion-industrys-carbon-footprint-
wearing-environment/](https://cabaus.org/2018/02/22/fashion-industrys-carbon-footprint-wearing-environment/)
- Shen, B., Li, Q., Dong, C., & Perry, P. (2017). Sustainability Issues in Textile and Apparel Supply Chains. *Sustainability*, 9(9), 1592.
<https://doi.org/10.3390/su9091592>
- Swati Srivastava, & Alma Leora Culén. (2018). *Transition-oriented Futuring: integrated design for decreased consumption amongst millennials. Proceedings of DRS 2018*, 3 (9), 927–940. DRS
- Thom Waite. (2018). Tommy Hilfiger's new clothing knows how much you wear it (and where) | Dazed. Retrieved March 13, 2019, from <http://www.dazeddigital.com/fashion/article/40809/1/tommy-hilfige>

r-jeans-bluetooth-wearable-tech-tracking-rewards-xplore

Vaajakari, J. (2018, September 17). How sustainable is wearable technology?

Retrieved March 19, 2019, from Data Driven Investor website:

<https://medium.com/datadriveninvestor/how-sustainable-is-wearable-technology-88608a932cb4>

Vaishnavi Thakur. (2017, October 23). Do you know the difference between

high street and couture brands? Retrieved January 31, 2019, from Be Beautiful website:

<https://www.bebeautiful.in/fashion/trends/difference-between-high-street-and-couture-brands>

Valerie Steele, John S. Major. (2018, December 20). Fashion industry.

Retrieved January 31, 2019, from Encyclopedia Britannica website:

<https://www.britannica.com/art/fashion-industry>

Van Dyk Manasseh Lewis. (2015). *Treatise for Fashion Sustainable Thinking*.

<https://doi.org/10.5040/9781501312250.ch-011>

Wearable technology. (2019). In *Wikipedia*. Retrieved from

https://en.wikipedia.org/w/index.php?title=Wearable_technology&oldid=887896814

Appendix A

Interview guide following up on the sweaters

Hjemmebesøk/ Home visits

Samtykke

Få underskrift.

Fotoliste:

Genser i sitt naturlige hjem – skuff, skap eller annet

Genser på sin nye eier

Intervjusituasjonen, Maria og Ida og intervjuobjektet

Spørsmål, kategorisert:

Kundens opplevelse av kjøpet:

Kan du beskrive opplevelsen da du kjøpte genseren ?

Bruken av genseren:

Fortell om bruken av genseren.

Anledninger?

Med hva annet?

Hvor mange ganger er den brukt?

Planlegger du å bruke den nå som høsten er her?

Hvis nei: 1. hvorfor ikke? 1b. Hvis nei til bruk; Skal du beholde den eller gi bort?

1c. Hvis beholde, men ikke bruke: hvorfor?

Angående selve QR-kodene:

Beskriv hvordan du opplevde QR-kodene.

Teknisk:

Fungerte det ok?

Innhold:

Beskriv hva du så, hvordan du opplevde formidlingen.

Har du hatt samspill med andre/vist frem: evt hvilke reaksjoner har du fått?

Hva gjør det med kjøperopplevelsen at det fantes en interaksjon i form av QR-kodene?
(førsteintrykket).

Hva gjør det med bruken at det finnes en mulighet for interaksjon med QR-kodene?

Teknisk sjekk:

Fungerer QR-kodene etter bruk/vask/oppbevaring?

(Notér evt problemer med lesning/ websiden e.l.)

Genseren som suvenir:

Hvilke minner har du, knyttet til stedet, den kvelden hendelser der genseren kom deg i hende? Beskriv.

Genseren ble laget som en del av Trollkremes event på Grønland.
Er den idag et minne for deg fra den kvelden, de menneskene, det stedet? På hvilken måte?

Vekker QR-kodenes innhold slike minner? Beskriv.

Prisingen:

Gå gjennom listen:

Kan du resonnerer høyt gjennom listen over utgifter i tillaging av genseren?
(Evt spørsmål osv?)

Hva tenker du om timer vs. kroner?

Hvordan oppleves det å se "arbeids-stasjonene" knyttet til tilblivelsen av genseren?

Vil du si hva du betalte?

Kan du gi plagget en verdi, uavhengig av hva du betalte?
(Gjen-salg/utenfor pengebeløp?)

Er det noen mangler i listen, andre ting du ville likt å vite mer om?

Oppsummering:

Er du fornøyd med kjøpet av genseren?

Er det noe forskjell på denne genseren og andre gensere du eier? I så fall fortell om dette.

Videre planer:

Det er 10 stk som eier en unik versjon av denne genseren.

Vi vurderer å feede nytt innhold inn i gensere basert på input fra intervjuer.

Hvis innholdet var om deg, ville du helst at det skulle være anonymisert?

Det kan være billedmateriale. Statistikk vil uansett være anonymisert.

Er det ok at det evt forbinder deg til de andre med samme genser?

Er det fint med QR-kodene for å snakke med andre/visе frem eller er det mer personlig for deg selv?

Hvordan føles det at QR kodene skal oppdateres?

Mulige kryss-sjekk i garderoben:

Hvor mange andre ullgensere/gensere som gjør samme nytten eier personen?

Hva koster de ulike genserne i denne kategorien?

Appendix B

Samtykkeskjema

Ida Falck har en stipendiatstilling på KHIO, og Maria Hilde studerer Informatikk ved UIO. Sammen gjør vi et prosjekt der vi undersøker mulighet for bruk av teknologi i klær, med fokus på transaksjoner.

Kontaktinformasjon

Epost: idadfalck@gmail.com & maria_hilde@me.com

Tlf: 97879209 & 47075178

Formålet med intervjuet er å få mer informasjon om genseren solgt på Grønland Bazaar, forbi punktet den ble solgt, om selve transaksjonen og eierens forhold til genseren.

Vi informerer om at det vil bli gjort notater og opptak under intervjuet som vil brukes til videre forskning. Intervjuobjektet holdes anonymt. Om noe vurderes publisert, blir intervjuobjektet informert.

Samtykke kan trekkes tilbake. Tilbaketrekingen av samtykke må skje skriftlig eller personlig til ansvarlig.

Samtykke

Jeg har lest og forstått informasjonen over og gir mitt samtykke til å delta i intervjuet

Sted og Dato

Signatu

Appendix C

Intervjuguide Ida/HaikW

Kan du si sånn kjapt hvilken utdanning du har?

Hvor du har jobbet?

Haik

Hvordan startet Haik?

Hvordan vil du beskrive HAIK/W?

Har dere en slags visjon/hva står haik for?

Hva slags prosjekter har dere? er de annerledes enn andre merker?

Hvordan vil du beskrive en vanlig designprosess for HAIK/W

Struktur, kan du fortelle om arbeidsfordelingen i HAik?

-Feks hva skjer på studio?

Hvor produserer dere klærene deres?

Hvordan tenker dere når dere prissetter klærne deres?

Hvordan vil du beskrive en Haik kunde?

Motestrukturer

Hva er deres forhold til Sesonger i moteindustien?

Kan du beskrive det norske motemarkedet?

Hva vet kjøperen om et Haik plagg når de kjøper det?

Hva tenker Haik/W om bærekraftighet i moteverden? Om dere selv og andre...
ansvar?

Framtidsvisjoner?

Hvordan kunne ønske at transaksjonene av klærne dere lager skjedde i en drømmeverden?

Forskning

Hva er din motivasjon til å jobbe med transaksjoner?

