The work on sustainability in the use and disposal stage of a garment’s life cycle

- The perspective of three Swedish clothing companies

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Abstract

Title: The work on sustainability in the use and disposal stage of a garment’s life cycle - The perspective of three Swedish clothing companies

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Purpose: The aim of this study is to identify how clothing companies are striving for sustainability within their product life cycle; to which extent these companies are working on the sustainability of the use and disposal stage; and their willingness to interfere more in these stages by improving the use and disposal habits of their customers by offering care, repair and end of use services.

Research questions: What activities are the clothing companies undertaking in order to improve the sustainability of the use and disposal stage?
   o How are the clothing companies communicating correct use, maintenance and disposal of their products to consumers?
   o What are the difficulties the clothing companies are facing in their efforts to become more engaged in the use and disposal stage?

Method: The research was conducted with an inductive approach, by collecting secondary data from previous studies and theories, and by accumulating primary data from semi-structured interviews with the CSR coordinator of Didriksons, the Director of Sustainability of Haglöfs and the CSR manager of Nudie Jeans.

Findings: Throughout the study acknowledgements have been received about the ongoing activities, the possible difficulties, and the communication in regards to the three clothing companies work on sustainability in the use and disposal stage. The results pointed out the differences between the companies concerning the ways of offering services in the use and disposal stage, and their ways of communicating these services to consumers. The key findings showed that the companies find consumer education important, however each company could improve their communication towards consumers in some of the discussed stages. Governmental support and more advanced recycling technologies are of importance in order to facilitate the aim of creating a more sustainable use and disposal stage.

Keywords: Sustainability, Use stage, Disposal stage, Maintenance, Communication, Repair, Recycle, Service, Life cycle
# Table of Content

1. **INTRODUCTION........................................................................................................... 6**  
   1.1. BACKGROUND ........................................................................................................... 6  
   1.2. PROBLEM DESCRIPTION ......................................................................................... 7  
   1.3. PURPOSE .................................................................................................................. 8  
   1.3.1. Contribution ......................................................................................................... 8  
   1.4. RESEARCH QUESTIONS .......................................................................................... 9  
   1.5. DELIMITATIONS ...................................................................................................... 9  

2. **METHODOLOGY........................................................................................................... 10**  
   2.1. QUALITATIVE RESEARCH METHOD .................................................................... 10  
   2.2. SAMPLING .............................................................................................................. 10  
   2.3. INTERVIEW METHOD ............................................................................................ 11  
   2.4. METHOD OF ANALYZING PRIMARY AND SECONDARY DATA ......................... 12  
   2.5. RESEARCH QUALITY ............................................................................................. 13  

3. **THEORETICAL FRAMEWORK ................................................................................. 14**  
   3.1. A CLOTHING GARMENT’S LIFE CYCLE ................................................................ 14  
   3.1.1. Environmental issues in a clothing garment’s life cycle ....................................... 14  
   3.2. SUSTAINABILITY IN THE CLOTHING INDUSTRY .............................................. 15  
   3.2.1. Governmental influence .................................................................................... 16  
   3.3. A VIEW ON CONSUMER BEHAVIOR ..................................................................... 17  
   3.3.1. Use .................................................................................................................... 17  
   3.3.2. Repair ................................................................................................................ 18  
   3.3.3. Disposal .............................................................................................................. 18  
   3.4. MINIMIZING THE ENVIRONMENTAL IMPACT ..................................................... 18  
   3.4.1. Design focus ...................................................................................................... 18  
   3.4.2. Consumer focus ................................................................................................. 19  

4. **INTRODUCING THE COMPANIES .......................................................................... 22**  
   4.1. DIDRIKSONS ......................................................................................................... 22  
   4.1.1. Didriksons’ expressions regarding sustainability ................................................. 22  
   4.2. HAGLÖFS ............................................................................................................... 24  
   4.2.1. Haglöfs’ expressions regarding sustainability ..................................................... 24  
   4.3. NUDIE JEANS ...................................................................................................... 26  
   4.3.1. Nudie Jeans’ expressions regarding sustainability ............................................... 26  

5. **RESULTS FROM THE INTERVIEWS ........................................................................ 29**  
   5.1. DIDRIKSONS ......................................................................................................... 29  
   5.1.1. Sustainability ...................................................................................................... 29  
   5.1.2. Design stage ....................................................................................................... 30  
   5.1.3. Product maintenance ........................................................................................ 30  
   5.1.4. Repair service ................................................................................................... 31  
   5.1.5. End of use ......................................................................................................... 32  
   5.1.6. Communication with consumers ..................................................................... 32  
   5.1.7. Future perspective ............................................................................................ 32  
   5.1.8. Governmental influence .................................................................................... 33  
   5.2. HAGLÖFS ............................................................................................................... 33  
   5.2.1. Sustainability ...................................................................................................... 33  
   5.2.2. Design stage ....................................................................................................... 34  
   5.2.3. Product maintenance ........................................................................................ 35  
   5.2.4. Repair service ................................................................................................... 35
1. Introduction

1.1. Background

The clothing industry has been altered in terms of faster paces of value chains, and in general, shorter product life cycles. Quickly changing fashion trends and consumer demands have transformed the clothing market into a much more volatile and unpredictable arena for companies (Fisher, Hammond, Obermeyer & Raman 1994). The industry of today consists of complicated global supply chains, driven by excessive consumption. Materials are often sourced from locations far overseas and the production has moved to low-cost, developing countries to enable a large increase in production volumes and a reduction of prices. Now sustainability has become a sensitive matter within the apparel supply chain, as the price reduction and shorter product life cycles have caused poorer conditions in terms of production quality and the quality of the final product outcome. It brought along several negative effects on the environment: the heavy use of energy, large water consumption, the release of toxic chemicals and high waste volumes have caused severe pollution and have contributed to climate change (Allwood, Laursen, Malvido de Rodriguez & Bocken 2006, De Brito, Carbone & Blanquart 2008, Dickson, Loker & Eckman 2009, Caniato, Caridi, Crippa & Moretto 2012). This ‘fast fashion’ movement has stimulated overconsumption in our society and has led to a ‘throwaway culture’, as it turns clothing garments into low quality products without significant value to the consumer (Svengren Holm & Holm 2010). This has led to the fact that consumers are disposing of their garments quicker than before and this causes substantial waste problems, because a major part of the disposed clothing is not being used for re-use or recycling purposes, but is ending up in landfills (Allwood et al. 2006, Birtwistle & Moore 2007, Fletcher 2008).

Media attention and pressure of non-governmental organizations (NGO’s) have enhanced the consumer awareness of the environmentally harmful effects of clothing production and disposal (Park-Poaps & Rees 2010). The growing concern of these stakeholders has forced clothing companies to reexamine their products’ life cycles and to alter their production processes in benefit of the environment. A large number of clothing companies are expressing that their products have become ‘environmentally responsible’ or ‘green’ (Chen & Burns 2006). They have come to the understanding that sustainability has become an urgent matter (Pookulangara & Shephard 2013). Clothing companies such as Nike and Levi’s Strauss have been facing public accusations from their stakeholders regarding poor labor conditions and environmental harm that arose during the production of their products. This have made them change their supply chain processes drastically (Caniato et al. 2012). For example, Levi’s has gained more environmental awareness and has incorporated that in their design and production. In 2011 Levi’s introduced their Water<LESS™
collection, which decreased the water use during production drastically (Levi’s | Sweden 2014).

While clothing companies are working on a more sustainable supply chain, overconsumption is still a main driver for the clothing industry, as the company’s profit is often the main priority. This overshadows the care for the environment and contradicts the values of sustainability (Fletcher 2008, Minney 2011). The amount of clothing that is being purchased by consumers is not the only thing that is of importance; the way clothing garments are used and disposed of is crucial as well (Niinimäki & Hassi 2011). Based on these facts it can be said that consumers have an essential role to play in decreasing the environmental impact of the clothing industry, as consumers are the ones who control the length of the use stage of a garment and how the garment eventually will be disposed of (Chen & Burns 2006, Laitala & Boks 2012). Yet consumers are of the opinion that clothing companies have to take on the responsibility for fostering sustainability within the clothing industry (Hill & Lee 2012). Since the use stage is the most energy-demanding stage of a clothing garment’s life cycle, it is of great importance that clothing companies educate consumers about the correct use and maintenance of a clothing garment to extend the use stage and to teach them the right way of disposal (Laitala & Boks 2012).

1.2. Problem description

Clothing companies can play an important part in the creation of sustainability awareness among consumers and stimulate more sustainable consumption as they are in a vital position in-between the producers and the consumers (Jones, Comfort & Hiller 2011). Unfortunately, it can be said that at the moment, the sustainability of the two stages of use and disposal are not considered at the desired high rate. Most clothing companies that enhance sustainability focus their activities mainly on the sourcing, production and distribution of their goods, although studies focused on Life Cycle Assessment (LCA) have shown that the use stage of clothing has the highest energy use of the whole life cycle and has possibly the most pollution as well (Jones, Comfort & Hiller 2011, Laitala & Boks 2012). Also consumers usually do not consider the use and disposal stage when they are thinking about the environmental impacts within a garment’s life cycle (Niinimäki & Hassi 2011). Furthermore, consumers have become dissatisfied regarding the low quality of clothing nowadays and the lack of information about the proper use and maintenance of clothing garments. They are experiencing a lack of additional services from clothing companies after purchasing a garment and therewith, clothing companies failed to fulfill the needs of the consumers (Niinimäki & Hassi 2011). So one could discuss whether or not it is within the responsibility of clothing companies to be more engaged in the use and disposal stage to ensure the sustainability of the entire life cycle of their products. Or, if is the point of sale is the designated point where clothing companies will let go of their responsibility of their products and
leave the responsibility of the use and disposal stage fully up to the consumer (Cepolina 2012).

### 1.3. Purpose

Most previous studies on sustainability in the clothing industry were either mostly focused on the design, sourcing, production and distribution stages of a product’s life cycle or on consumer behavior in the use and disposal stage of a product’s life cycle. A company’s perspective of sustainability in the use and disposal stage has not yet been well addressed in former research studies.

The aim of this study is to identify how clothing companies are striving for sustainability within their product life cycle; to which extent these companies are working on the sustainability of the use and disposal stage; and their willingness to interfere more in these stages by improving the use and disposal habits of their customers by offering care, repair and end of use services. This will complement the study of Niinimäki and Hassi (2011) that has indicated that consumers are interested in these extra services and that consumers are demanding more information regarding the use and maintenance of clothing.

The intention is to increase the awareness of clothing companies regarding the environmental impact of the use and disposal stage and the importance of minimizing the environmental impact of these stages to truly make their whole product life cycle more sustainable. Care for the consumer is needed for this matter, as the consumer’s use and disposal behavior determines the size of impact (Fletcher 2008, Laitala & Boks 2012). That is why clothing companies need to understand the necessity of being more involved in the use and disposal stage to decrease the environmental impact and to improve the ability to meet the needs of consumers.

### 1.3.1. Contribution

With this study the need of enhancing the sustainability practices of clothing companies in the use and disposal stage of their products’ life cycle will be addressed. Clothing companies can use this study to as a guidance in their efforts to decrease the environmental impacts of use and disposal. When clothing companies take on more responsibility in the use and disposal stage and consumers become more educated, the environmental impact of the entire clothing industry can be reduced. Therewith this study contributes to the industry. With the main focus on how companies act within the use and disposal stage instead of consumers, this study will bring new knowledge to the academic field.
1.4. Research questions

It seems that clothing companies are mainly focused on the product development stages of their products’ life cycle with their sustainability efforts and do not enhance the sustainability of the use and disposal stages to the same extent. In order to examine if these assumptions are true and to understand to which extent clothing companies take the responsibility to decrease the environmental impacts of the use and disposal stage in their products’ life cycle, this study takes a look at the work of three Swedish clothing companies in order to answer to the following questions:

- What activities are the clothing companies undertaking in order to improve the sustainability of the use and disposal stage?
  - How are the clothing companies communicating correct use, maintenance and disposal of their products to consumers?
  - What are the difficulties the clothing companies are facing in their efforts to become more engaged in the use and disposal stage?

1.5. Delimitations

This report discusses the responsibility of clothing companies regarding the sustainability of their total product life cycle and has its main focus on the use and disposal stage. Emphasis will be on the environmental issues that are included in a garment’s life cycle, social issues will not be addressed.

The selection of clothing companies to participate in this study has been limited to those that are based in Sweden, since the companies that were willing to participate were all located in Sweden. The companies that are involved in this study are the clothing brand owners who hold the position of the focal company within the clothing supply chain; suppliers and independent retailers are left out of this study. The focal company is the company within the supply chain that is managing the sustainability and communications strategies and therefore the most relevant to examine. The interviewees are the ones who are responsible for the Corporate Social Responsibility (CSR) and sustainability activities within the participating companies. Given the fact that qualitative interviews have been done with clothing companies that are already working on sustainability in their supply chain and express their sustainability efforts in their marketing and branding statements, the study will not be examining clothing companies in general. Companies that did not fulfill these requirements have been excluded from this study.
2. Methodology

This chapter provides descriptions of the research methods that has been employed within the research. It will describe the criterions for the sampling, the interview method, and the methods of analyzing primary data and secondary data. Observations and considerations has been contemplated throughout the entire research, in regards to the research quality.

2.1. Qualitative research method

In order to gain deeper knowledge and receive an overview of a clothing company's perspective of its role towards a more sustainable use and disposal stage of its garments’ life cycle, a qualitative research method was used. The qualitative research method is based on an inductive and interpretative approach in order to get a better understanding of a certain social phenomena. One essential feature of a qualitative research is that words are more emphasized than quantifiable measures in regards to collecting and analyzing data. The intention of performing an inductive research is to develop theory from analyzed collected data (Bryman 2012). The research method is based on previous studies and theories, and by conducting interviews with the three companies - Didriksons, Nudie Jeans and Haglöfs, a clothing company's perspective will be investigated.

The primary data was collected from interviews that were conducted with the CSR coordinator of Didriksons, the CSR Manager of Nudie Jeans and the Director of sustainability from Haglöfs. The Coordinator, Manager and Director have been interviewed in order to get their opinions in concerns of the research topic. Also the companies’ expressions on their webpages and social media platforms regarding sustainability, use, maintenance and disposal of clothing garments have been analyzed. This has been done in order to examine if the information provided by the respondents during the interviews is also available for the consumers to find. During the preliminary phase of the study, secondary data was collected that consisted of important and relevant information about the subject. This information was collected from various journals, articles, books, other published works and web pages. Secondary data was collected before the primary data to get an overview of previous researches in this subject, therefore one could say that the research was partly conducted in a deductive way (Bryman 2012).

2.2. Sampling

The participating companies in this study have been selected by using non-probability sampling, based on judgment sampling (Blumberg, Cooper & Schindler 2008). Clothing companies have been contacted that fulfilled certain criterions to participate in this research. These criterions are that the participating clothing companies are those who claim to be working with sustainability and environmental
issues of a higher degree. These companies were also chosen because of their strong commitments and expressions in regards to environmental, social and economic responsibilities, and their extensive work on CSR.

The respondents in this study are the ones who are responsible for the work on sustainability at the Swedish companies Didriksons, Nudie Jeans and Haglöfs. Didriksons and Nudie Jeans are medium-size companies. However, Haglöfs is since 2011-2012 somewhat larger than the European Commissions’ definition of a medium-sized company.

2.3. Interview method

The data was collected through semi-structured interviews that were conducted in person. When conducting a semi-structured interview, the interview is divided into themes, where topics that will be discussed are covered with several relevant questions (Kvale 1996). The themes used in the interview are: about the brand; sustainability; design stage; product maintenance; repair service; end of use; communication with consumers; future perspective; and governmental influence. The themes have been used as a guideline for the interview guide, but the sequence of the questions has been changed during the interview based on the respondents' answers. Semi-structured interviews are most often based on an interview schedule, but the sequence of questions can be changed due to the answers of the respondents (Bryman 2012). This interview method granted the opportunity to ask further questions based on the given answers.

The interview was accumulated with an interview-guide in order to receive new knowledge, and to be able to find the right kind of information. Another purpose with the interview guide was to reassure that the respondents were given the same general questions to ensure the validity of the study (Kvale 1996) The interview guide can be found in the appendix I.

All of the interviews were recorded and during the interviews notes were taken. The interviews are added in written form and can be found in the appendix II, III and IV to ensure the reliability of the data from the interviews.

According to Kvale (1996) it is important to have a structure of the interview research, and therefore the research was conducted with "The seven method stages", which is a technique for designing a linear progression throughout the investigation. The seven method stages worked as a framework during the interviews, and ensured that the initial aim and engagement was retained throughout the study.

The first of the seven stages is Thematizing to define and clarify the purpose of the investigation, which is to investigate different clothing companies' perspectives and possibilities of emerging in to a more sustainable use and disposal stage of a garments life cycle. The second stage is Designing, which included the planning and organization of the methodical processes and structuring the interview questions in order to obtain the wished-for knowledge. The third stage is Interviewing. Before the
interview was conducted, all respondents were informed about the aim and the progression of the interview, the future use of the interview, moreover the respondents were informed about the confidentiality of the interview and were thereto offered anonymity. This is important for both parts to be able to confide in one another and to be capable to create a trustful relationship, so that the respondent feel the ability to be completely open, and answer in an honest way (Kvale 1996). Leading questions have been avoided throughout all of the interview as it could influence the answers remarkably (Holme & Solvang 2010). The fourth stage is Transcribing, for which the recordings have been played back several times to write down the respondents answers and to prepare the data for analyzing. The fifth, of the seven stages of Kvale (1996) is Analyzing. The interviews were critically examined and the statements of the respondents were carefully interpreted. The sixth stage - Verifying – involved determining the generalizability, reliability and validity of the findings. Throughout the interviews and during the analysis of the interviews, all of the interview questions have been critically examined in order to strengthen these three crucial elements. This is explained further in the section 2.4 of this report. The last stage of "The seven method stages" is – Reporting. While writing the result, discussion and conclusion an ethical point of view was considered to communicate the findings in the appropriate scientific way (Kvale 1996).

2.4. Method of analyzing primary and secondary data

As mentioned earlier, secondary data was collected before the primary data to be able to determine whether or not the companies comply with the previous studies on this topic. The information on the three companies websites and social media platforms, and the communication towards consumers were analyzed in separate from the results from the interviews. The information from the companies websites and social media platforms are described in the chapter of 'Introducing the companies', and the primary data collected from the interviews are introduced in the chapter of 'Results of interviews'.

The interview questions have been based on the theoretical framework and the research questions. The answers of each interview have been analyzed and reviewed separately, based on the different themes, and thereafter the results were written. The results from the interviews have been thoroughly analyzed and critically compared to what is stated on the official websites and the social media platforms used by each of the companies. Since the communication of the companies is being analyzed, the statements from the three companies websites and social media platforms will be explained separately from the results from the interviews. Also similarities and differences between the three companies have been described. In order to ascertain the extent of sufficiency and relevance to the research questions, the results were supervised and analyzed. Thereafter, a comparative analysis was made to correlate the accumulated primary data and secondary data. This comparative analysis was
made with the intention to investigate whether or not the result can be verified or refuted with the current theoretical framework of this topic.

2.5. Research quality

In order to ensure the quality of this research, validity and reliability have been considered throughout every stage of the research. Reliability has been emphasized during the interviews by recording and transcribing each interview in order to get sufficient notes (Silverman 1997). Validity in concerns of a qualitative research can be divided into two types of categories: internal validity and external validity. Internal validity was highly considered during the design of the research, and the various stages of the investigation were delineated to be as compatible as possible with the aim of the research. In order to enhance the internal validity, all of the respondents had the ability to go through the research, and decide whether or not to approve the data, before the research was published. External validity refers to the generalization of the research and whether or not it can be applied beyond the environment of where it is carried out. With the aim of investigating how to incorporate sustainability more into the business practices of clothing companies, with all of its possible benefits and difficulties, and to learn more about the communication of the importance of sustainability between companies and consumers, one could assume that this study could be used for future research. Another factor that has been concerned throughout the research in regards to validity, is to have a critical mind-set both towards this study and towards all the information sources and explorations that this research has been influenced and attested by (Kvale 1996, Bryman 2012). Throughout this research there has been awareness of possible criticism towards incapability of replicating the interviews and that it might be considered as a deficiency within the validity of the report. Another aspect that has been considered is the fact that the respondents of the interviews might have a social bias, because of their positions at corporations (Kvale 1996). However, the paramount reason for this research was to understand and to be able to compare the theory with the results and the observations from the interviews.
3. Theoretical framework

The theoretical framework contains results and theories from previous studies in regards to the use and disposal stage of a clothing garment’s life cycle. First, the life cycle of a clothing garment will be explained to get a better understanding of the complete cycle and the environmental harm that comes along with it. Secondly, the work on sustainability within the textile industry is explained in general, based on existing theories. Furthermore, consumer behavior during use and disposal of clothing garments is addressed, because knowledge of consumer behavior is needed for clothing companies to understand how to address consumer education and the necessity of changing consumer behavior in order to decrease the environmental impacts of the use and disposal stages of a garment’s life cycle. Finally, theories on how clothing companies can reduce the environmental harm during garment use and disposal are given.

3.1. A clothing garment’s life cycle

The long and complex life cycle of a clothing garment holds a large number of stages from raw material extraction to disposal of the final product (Allwood et al. 2006). The life cycle starts with harvesting raw materials: this may include the agriculture industry for gaining natural fibers or oil and chemical industries for retrieving synthetic fibers. To process textile fibers, they will have to be washed, pre-treated, dyed and spun into yarns. Then the yarns will be either woven or knitted into fabrics and a finish will be applied. Patterns that have been made for the designed garment will be cut out of the developed fabrics, sewn together and trimmings will be added to complete the garment. The finished garment will be packed and shipped from the production facility to the retailer, who will distribute it to the designated store. Once the consumer has purchased the garment it will be worn and undergo acts of maintenance, which means that the garment probably will be washed, dried, ironed and dry-cleaned. After the consumer use stage the garment will be disposed. It can either end up in a landfill or it can be re-used or recycled (Kozlowski, Bardecki & Searcy 2012).

3.1.1. Environmental issues in a clothing garment’s life cycle

Unfortunately a garment’s life cycle also include several factors that have a negative environmental impact. The most harmful impacts can be designated to the heavy use of energy and toxic chemicals, large water consumption and high waste volumes (Allwood et al. 2006). Looking at the different stages of a clothing garments’ life cycle, these major effects to the environment can be categorized into three different stages: the production stage, use and maintenance stage and disposal. The production stage involves the use of non-renewable resources, high use of energy for agricultural machinery, electricity for production and for heating water and air during the laundry process. Toxic chemicals are used in forms of pesticides used on cotton fields, chemicals and solvents used during production and processing. These chemicals are
released into wastewater, which is causing a pollution of natural water resources and is a major threat to the life situated in these waters. Also the production is dealing with large amounts of waste products (Chen & Burns 2006). Maintenance activities in the use stage such as washing and dry cleaning have an immediate impact on the environment caused by the use of energy, water, detergents and chemicals. Tumble-drying and ironing will increase the energy use for the maintenance of a clothing garment even more (Chen & Burns 2006, Fletcher 2008, Gwozdz, Netter, Bjartmarz & Reisch 2013). Lastly, the disposal of a clothing garment will create more waste in landfills when the product is not recyclable or biodegradable (Chen & Burns 2006, Allwood et al. 2006).

The use of Life Cycle Assessments (LCA’s) to detect the environmental harm of every stage of clothing garment’s life cycle has identified that the consumer use stage is the most harmful to the environment (Allwood et al. 2006, Chen & Burns 2006). It has the highest energy use of the whole life cycle and is possibly the most polluting stage as well (Laitala & Boks 2012). The use and maintenance stage of a garments life cycle is also often the most forgotten stage by as well companies and consumers when it comes to addressing the environmental impacts of the clothing industry (Chen & Burns 2006). It seems like the moment of purchase is the designated point most clothing companies let go of their responsibility of their products and leave the responsibility of the use and disposal stage fully up to the consumer (Cepolina 2012).

3.2. Sustainability in the clothing industry

In attempt to decrease the environmental harm of clothing garments, several clothing companies have started with developing Corporate Social Responsibility (CSR) guidelines and have put effort in changing their production processes to make their production and products more friendly for the environment (Madsen, Hartlin, Perumalpillai, Selby & Aumônier 2007, Chen & Burns 2006). The production stage is a notable one when it comes to efforts for sustainability, but the post-consumer stage is often not under a company’s attention (Fulton & Lee 2013).

Statistics gained from the Higg Index Benchmarking of the Sustainable Apparel Coalition (SAC) have proven that the engagement of clothing companies during product use, maintenance and disposal is still very low. The SAC is an organization that encompasses a collaboration of manufacturers, brands, retailers, governments, non-governmental organizations and academic experts that was established to reduce the social and environmental harm within the clothing and footwear industry. The SAC has developed the Higg Index – a self-assessment tool for companies in the clothing and footwear industry – that measures the social and environmental impacts of their products’ life cycle and value chain (Sustainable Apparel Coalition - Home 2012). A benchmarking was performed based on the data collected by the Higg Index, which included the analysis of 28 brands and 132 facilities from 22 different countries. The statistics show that the participating clothing companies have solely addressed the durability and longevity of their products to improve the
environmental impacts coming from the use stage. Product care, repair and the communication of these services have not yet been developed. When it comes to taking care of the end of life their products, some clothing companies have started with collecting and progressing old garments, but complete end of life programs, design policies and clear communication towards consumers are missing (Young 2013).

The main reason for the lack of recycling post-consumer waste is the difficulty to recycle this textile waste as a clothing garment often consists of several different materials such as natural and synthetic fibers, dyes and trimmings that can be hard to separate (Chen & Burns 2006). A possible reason for the lack of attention to the use and maintenance stage is that clear assessment of the total environmental harm of the use stage is rather hard, because of the wide variety of clothing garments, different use and maintaining habits and the difference in longevity (Birtwistle & Moore 2007).

Clothing companies have to take into account that the longevity of the garment influences the impact of total product life cycle as the length of the consumer use stage determines the relative environmental impact of the production and disposal stage. The impact of these stages will increase relatively when the consumer use phase is shortened (Laitala & Boks 2012). Prolonging the use period of garments will diminish the demand for new clothing and therefore the environmental impact of the production stage will also be reduced (Allwood et al. 2006). So in order to improve the sustainability of the full product life cycle, the consumer use stage of a clothing garment has to be prolonged (Fletcher 2008).

3.2.1. Governmental influence

During production, clothing companies have to deal with a large amount of governmental regulations, such as restrictions on chemical use, pollution and waste control (Lo, Yeung & Cheng 2012). At the post-consumer stage on the other hand, governmental influence is lacking, as European legislations regarding textile waste reduction have not been developed yet (Tojo, Kogg, Kiorboe, Kjær & Aalto 2012). This could explain why the production stage has received more attention from clothing companies than the use and disposal stage.

Both the behavior of clothing companies and consumers are affected by governmental policies (Stern 2000). Therefore governments are able to foster the enhancement of sustainability practices of companies with regulations, taxes and subsidies. This can be needed as a clothing company can see the implementation of more activities for sustainability as an extra cost that will increase the sales price and affect the company’s profitability (Allwood et al. 2006, Ghosha & Shahb 2012, Goworek, Fisher, Cooper, Woodward & Hiller 2012). Also, governments can support clothing companies with taking or buying back garments to develop the textile recycling streams within the clothing industry (Joung & Park-Poaps 2013).
While clothing companies are already taking a certain amount of responsibility to decrease environmental harm, a collaboration with governments and consumers can positively improve and ease the companies’ efforts for sustainability (Chen & Burns 2006).

3.3. A view on consumer behavior

A consumer’s behavior towards the environment is influenced by different factors. A consumer’s knowledge, skills, habits and financial means are of influences of personal ground. The environment that the consumer is surrounded by, is also having its influence: the community the consumer is in; the advertising the consumer is facing; governmental regulations and public policies; and facilities, products and technologies that are available to support the wanted behavior (Stern 2000).

Most consumers are unaware of the full life cycle of a clothing garment and the environmental harm it brings along. Those consumers that are rather aware, are often of the opinion that the clothing producer is the one that holds the responsibility. Consumers are missing knowledge regarding the environmental impacts caused by clothing garments and how to repair and dispose them (Birtwistle & Moore 2007, De Brito, Carbone & Blanquart 2008, Laitala & Klepp 2011, Laitala & Boks 2012). A study of Niinimäki and Hassi (2011) has proven that of the full product life cycle, consumers are the least worried about the use and disposal of the product (Figure 1) although the use stage is the most harmful to the environment.

![Stages of the product life cycle that worry consumers](image)

**Figure 1:** Stages of the product life cycle that worry consumers (Niinimäki & Hassi 2011).

3.3.1. Use

A major part of the clothing garments consumers own are not used to the full extent and disposed earlier than necessary (Allwood et al. 2006). A survey performed by Laitala and Boks (2012) has indicated that consumers are more prone on using their clothing garments longer if they would be of higher quality and if they are better resilient to loss of shape, pilling and color changes. This relates to the fact that
consumers get most dissatisfied if the quality of the clothing they own turns out to be low while using and maintaining it, as it is for most consumers hard to estimate the quality level of a clothing garment when they buy it (Niinimäki & Hassi 2011).

3.3.2. Repair
The motivation of a consumer to repair one of their clothing garments is dependent on how valuable the clothing garment is to the consumer, the consumer’s sewing skills and the amount of time and material the consumer has available. Simple repairs like attaching a button or sewing an unraveled seam are usually within a consumer’s mending skills. When it comes to more advanced repairs such as a zipper replacement, the clothing garment is habitually disposed and replaced with a completely new garment. Garments that are of great value to the consumer, are often repaired, but nowadays a lot of clothing garments are so affordable that consumers often do not see the value of repairing anymore. It has become easier to replace the garment as the price is not an obstacle anymore (Niinimäki & Hassi 2011, Laitala & Boks 2012).

3.3.3. Disposal
The primary reasons for clothing disposal are often the worsening of the look and quality of a clothing garment – caused by changes in size and fit, fabric damage, pilling and color fading – and if the owner of the garment is of the opinion that the garment is not suitable anymore to be worn by someone else. Besides sending clothing garments into landfills, consumers often give their old garments to nonprofit organizations (Chen & Burns 2006). Although consumers are concerned about the amount of waste that is arising from their overconsumption, they still lack knowledge in regards to how and where to dispose their old clothing garments in an environmentally friendly way. This lack in knowledge could be blamed to the absence of media attention on the environmental impact of clothing disposal (Birtwistle & Moore 2007, Goworek et al. 2012).

3.4. Minimizing the environmental impact
To minimize the environmental harm caused within a clothing garment’s life cycle, the material flow in both production and consumption stages have to be reduced. In order to succeed, a company’s service level has to be increased with the aim to close the loop of their products’ life cycles, diminish consumption and improve a garment’s longevity. The impacts of the use and disposal stage of a clothing garment can be reduced through the combination of different approaches: a focus on design improvements and a consumer focus with the implementation of value-adding services (Mont 2002). Launching value-adding services is essential to become a more sustainable company within the global clothing industry (Niinimäki & Hassi 2011).

3.4.1. Design focus
Product design should aim to reduce the environmental harm that is caused by the use and maintenance; upgrade the longevity of the product; and benefit reuse, recycle
or proper disposal at the end of the product life cycle (Roy 2000). By focusing on the
design of the product the impact of laundering can be reduced with the selection of
fabrics that are suitable to wash on cool temperatures and who dry fast to avoid
tumble drying. Another option is using fabrics that are stain and odor repellent. The
construction of the garment can also play an important part as modular design can
decrease the necessity for washing and therewith decrease the amount of laundry
through the application of detachable parts on places that will get dirty the quickest.
Already during the design stage a designer could take an easy repairable design into
consideration. Detachable parts can be used on places that wear out fast; for extra
strength and easy replacement (Fletcher 2008, Laitala & Boks 2012). When designers
are more conscious about use and repair ability of the garments they design, and
when consumers enhance their knowledge about clothing quality and their capability
of repairing clothing, the lifetime of clothing can be extended drastically (Laitala &
Klepp 2011).
The durability of clothing garments can be increased by selecting materials of higher
quality, increased quality control during production and by educating consumers
regarding the durability of the quality (Niinimäki & Hassi 2011, Laitala & Boks 2012).
A higher quality will make clothing garments more suitable for repair, reuse and
recycling and therewith the longevity will be improved (Madsen et al. 2007). Clothing
garments with higher durability even have financial benefits for the consumer,
because when they last longer they do not need to be replaced as often as before
(Chen & Burns 2006).

3.4.2. Consumer focus
Improving the sustainability of the full product life cycle needs more than optimizing
design and production processes, because the consumers’ choices regarding the use
and maintenance of the product and the regularity of washing will influence the
positive impact of product improvements and the longevity of the product.
Therefore stimulation of more environmental conscious consumer behavior is

Consumer focus is essential to influence and improve use, maintenance and disposal
habits and therewith reduce the pollution from the consumption of clothing
garments (Chen & Burns 2006, Fletcher 2008). Consumer behavior is affected by
culture and consciousness; therefore it will be the hardest to change. It is easier to
make adjustments to the product, but these adjustments will only bring a small step
forward to a more sustainable use stage (Fletcher 2008). A change in consumer
behavior is reliant on the access to the right products and technologies; access to
information; their knowledge; and the preparedness to make a change (Laitala, Boks
& Klepp 2011, Niinimäki & Hassi 2011). Therefore, consumer engagement,
education and the availability of information regarding this matter are crucial
(Allwood et al. 2006, Niinimäki & Hassi 2011).
Teaching the consumer possible ways to reduce the energy during the maintenance of a clothing garment is key, because a wrong maintenance of clothing will affect the environment and a consumer's finances. Consumers often do want to become more environmentally friendly, but do not want to spend extra money nor put a lot of effort into it (Laitala, Boks & Klepp 2011, Gwozdz et al. 2013). It may be important to communicate the financial benefits a change in maintenance behavior brings along for the consumer. For example, lowering the washing temperature will cut the energy use with approximately 10 percent with every 10°C temperature drop. The elimination of the tumble dryer, that is responsible for around 60 percent of the total energy use in the use stage of a garment, together with out-ruling ironing and washing at colder temperatures, can the reduce the energy use with 50 percent (Allwood et al. 2006, Fletcher 2008). These changes will not only save energy, but will also halve the consumer’s energy bill (Laitala, Boks & Klepp 2011). The type and quantity of detergent used is another influence on the environmental impact, as consumers often use more than needed. Therefore stimulating consumers to use environmentally friendlier or biodegradable detergents and educating them about the actual amount of detergent that is needed can be beneficial in attempt to minimize the environmental harm (Fletcher 2008, Chen & Burns 2006).

Even a larger impact can be achieved by diminishing the frequency of washing and using line drying instead of tumble drying. It will decrease the environmental harm by lowering the use of energy, water and chemicals and even decrease the risk of damaging the clothing garment as the washing process does not only clean the garment, but it also causes damage to it. Besides, sometimes is washing not even necessary: airing a garment or removing a stain on the spot is often enough to make a garment look and smell fresh again (Laitala, Boks & Klepp 2011, Jack 2013).

A study by Niinimäki and Hassi (2011) has indicated that consumers are highly interested in design strategies and services, such as customization, repair and modification. Also consumers wish to receive extra guidance with the maintenance and repair of their clothing garments. Clothing companies can address the consumers’ need for these services by offering a repair service or by supplying consumers with repair kits and guidelines to encourage consumers to repair their clothing themselves (Goworek et al. 2012). Educating consumers to amend their repair and sewing abilities is an important asset to lengthen a clothing garment’s life (Laitala & Boks 2012). A deeper involvement in the use and disposal stage will improve a clothing company’s responsibility of their total product life cycle, as the loop of the cycle will be closed. This can be beneficial for a clothing company, because consumer relationships will develop through intensified contact and sharing knowledge and information. The product value will increase for the consumer through the added services and a higher quality of the product, and an increase in profit will no longer be dependent on a growing number of sold products when consumers will start paying for extra service. Finally, the implementation of take-back programs will intensify the usefulness of the products even after its use as it enables reuse and recycling (Mont 2002, Allwood et al. 2006, Niinimäki & Hassi 2011, Kozlowski, Bardecki & Searcy 2012). Taking back or buying back garments –
by rewarding customers with a discount on the new collection in return of handing in old garments – is a strategy that is already being used by clothing companies such as Patagonia, Levi’s and the North Face. Buying back garments can be an extra stimulation for consumers to hand in their old garments, because of the financial benefit they gain from it (Kozlowski, Bardecki & Searcy 2012, Joung & Park-Poaps 2013).

As most clothing garments are not used to its full extend and disposed to early, renting instead of buying clothing can be considered to intensify the use per garment and to decrease the demand of new raw material (Allwood et al. 2006)
4. Introducing the companies

Three Swedish clothing companies are participating in this study in order to get an insight into the perspective of these clothing companies on their work on sustainability, with special regards to the use and disposal stage of their products’ life cycles. Didriksons, Haglöfs and Nudie Jeans are clothing companies that are expressing their work on sustainability towards consumers, which is of relevance for this study. This chapter will give a comprehensive introduction to Didriksons, Haglöfs and Nudie Jeans and their expressions regarding the work on sustainability with an emphasis on the use and disposal stage of their products’ life cycles. The information is mainly collected from the companies websites and social media platforms to illustrate their own expressions.

4.1. Didriksons

Didriksons is a Swedish company that was started up in 1913, by Julius Didriksons in Grundsund, on the west coast of Sweden. It started up as a company that manufactured oil garments that were used by the local fishing industry. Didriksons is now market leader of functional clothing and its clothing garments are used by people with active lifestyles. The company is manufacturing garments for hunters, golfers and fishermen, but it also creates functional garments for leisure purposes. During the 1930s the oil garments got replaced by rubber material and the last 30 years its material assortment has been amplified immensely with materials that are breathable and waterproof (Didriksons 2014c).

Didriksons does not have own retail stores, nor a web shop. Its garments are being sold through retailers such as Intersport, Stadium and Team Sportia, and through various web stores (Didriksons 2014b).

4.1.1. Didriksons’ expressions regarding sustainability

Didriksons is working with numerous efforts and commitments in order to reach long term and short term social, environmental and economic goals, and the company owns memberships at a number of organizations which all are aiming to improve the standards of manufacturing products under better circumstances, with less environmental impacts (Didriksons 2014a).

The company states on its website that it is taking responsibility by working in a economically, socially and environmentally sustainable way. All of the manufacturers are outsourced, though the requirements and standards of Didriksons must always be followed. The company has since 2010 a representative office in China where its employees are closely located to the suppliers to discuss quality levels, working conditions and the regulations of environmental standards. Throughout the work of product development the company strives to create products by using less environmental harmful materials. Materials such as fur, leather and down do not
exist among the assortment, and fluorocarbon is no longer used in water-repellent impregnations (Didriksons 2014a). Also information can be found on the Didriksons’ website about the different CSR-related memberships Didriksons is involved with. One example of these involvements is Didriksons membership since 2010 at STWI (Swedish Textile Water Initiative), which is a project that aims to develop sustainable guidelines regarding the use of water in the production processes of textile and leather (Didriksons 2014a, About STWI 2011). Didriksons is also a member of the Swedish Chemicals Group within Swerea IVF, an organization that keeps companies within the textile and electronic industry updated regarding chemicals and environmental subjects and legislations (Didriksons 2014a).

In order to increase the longevity of the products, Didriksons uses materials that are sustainable and that comply with the demand of the intended area of application. The children’s clothing collections have a system built in to the garments, where the product can be extended to one size bigger by unzipping a special inside seam. This application is called ‘Extend Size’ and will lead to a longer garment life cycle, since it grows according to the pace of the owner (Didriksons 2014a).

On the website of Didriksons, links are provided to the company’s accounts on the social media platforms Facebook and YouTube. The company’s official channel on YouTube, called ‘Didriksons Official’ holds 26 videos at the moment, that are either focused on the promotion of specific collections, products, or the brand in general. Subjects like sustainability or environmental awareness are not covered in the videos. For consumers, there is not much information available regarding Didriksons’ work on sustainability on the company’s social media platforms. Though there is information on its Facebook page about the support and acknowledgement of Earth Hour, by shutting down the Didriksons’ website during that hour. It is also stated that the company supports the World Water day, which is an initiative from the organization UN Water and the support of the organization Water Aid (Didriksons - International 2014, DidriksonsOfficial - YouTube 2014).

Care instructions
Care instructions are provided on Didriksons’ website in order to make consumers more aware about how to take care of Didriksons clothing garments to enhance the length of the products’ life cycles. After each care instruction intended for a specific type of material, for example the waterproof garments with wax surface or the heavy knit garments, Didriksons is stating:

"IN ORDER TO PRESERVE OUR ENVIRONMENT AND EVEN THE CLOTHES, DO NOT WASH UNNECESSARILY!" (Didriksons 2014a)

Didriksons does not only inform consumers about the benefit of a prolonged longevity that comes along by washing the garment less often, but also that this is a way of reducing the amount of energy, water and detergent (Didriksons 2014a).
On the website and social media platforms of Didriksons no information can be found regarding a repair service or end of use purposes.

4.2. Haglöfs

Haglöfs is a Swedish company that develops clothing, footwear and hardware especially for advanced outdoor, nature-related activities, which are also suitable for daily use. The company was founded by Wiktor Haglöf, who started as a small-scale backpack manufacturer in 1914. Haglöfs has grown into a global outdoor company, who is nowadays the largest company supplying outdoor equipment to the Nordic market (Haglöfs in brief 2012, HISTORY | Haglöfs 2014). It likes to be perceived as one of the top innovative brands within the outdoor equipment market that takes its responsibility when it comes to sustainability. This suits to the company’s vision “…to position the brand as a leader in the areas of Technical Outdoor and Sustainability in all the important world markets.” (BUSINESS | Haglöfs 2014)

Since August 2010, the ownership of the Haglöfs Holding AB has been designated to the ASICS Corporation (OWNERSHIP | Haglöfs 2014)

Haglöfs is focused on the development of technical outdoor products that are described as: functional, minimalistic, innovative, durable and versatile products with high quality and a long life span. The Haglöfs products are sold – besides in the own brand stores and brand outlets – by outdoor specialists, partner stores, sports retailers and department stores with sportswear departments and at shop-in-shops (Haglöfs in brief 2012).

4.2.1. Haglöfs’ expressions regarding sustainability

Haglöfs started in 2008 with the incorporation of sustainability in its business development and ever since it has been included in the company’s vision and business concept. (Sustainability | Haglöfs 2014) Now Haglöfs claims to be aware about the environmental consequences of its actions and has sustainability deeply rooted within the company’s culture. It is integrated into the company’s daily activities and is not only initiated through management decisions, but it is also supported by the employees. Awareness, responsibility and commitment within the company are of great importance at Haglöfs. That is why the employees of Haglöfs get trained in dealing with sustainability issues at The Sustainable Fashion Academy (SFA) (Haglöfs in brief 2012, Sustainability | Haglöfs 2014).

Haglöfs is of the belief that the environmental impact of a product is defined through the way it is designed and developed. The fundamentals of Haglöfs’ sustainability work are to produce high quality products with a long life span, as the company states to be aware of the fact that the longevity of a product determines the size of the environmental impact caused during the complete product life cycle. So in order to minimize the environmental impact throughout the company’s supply chain and to guarantee materials of good quality, Haglöfs became a member of the bluesign® system and tries to include as many bluesign® approved and recycled
materials in its products as possible (Haglöfs in brief 2012, Sustainability | Haglöfs 2014). The bluesign® system is bringing all the entities within the textile value chain together – like chemicals suppliers, textile manufacturers and brands – with the aim to reduce the social and environmental harm within the industry (Vision | bluesign global website 2014). A material that is approved according to the international standard of bluesign® is free from harmful substances; water, soil and air pollution have been minimized during the material production; water and energy use have been diminished as much as possible; and the worker’s health and safety have been secured during manufacturing (Sustainability | Haglöfs 2014).

Haglöfs’ sustainability program is expressed towards consumers under the label of its ‘Take Care’ concept. Starting from the fall/winter season of 2014, Haglöfs will make its sustainability program more visible for consumers through the introduction of the ‘Take Care’ symbol on the labels and hangtags of the company’s products that represent a more sustainable choice. A Haglöfs product will be marked with the ‘Take Care’ symbol when the product consists of either a bluesign® certified material, recycled material or organic cotton. Already more than 60 percent of the collection will be labeled with the symbol at the launch of this project (Sustainability | Haglöfs 2014).

There is a lot of information on the sustainability work of Haglöfs available on the company’s website, as Haglöfs has published its sustainability report online. In Haglöfs sustainability report of 2013 the company acknowledged: “For a product to be ‘truly’ sustainable, it is also important for end consumers to know the best way to use, care for, wash and keep the product so that it does not affect the environment more than is necessary.” (Sustainability | Haglöfs 2014) A reason for Haglöfs to train its retailers is to be able to provide the end consumer with information on product properties, wash- and care instructions (Haglöfs in brief 2012).

**Care instructions**

On the company’s website care instructions for every material are explained extensively. It is stated that the care instructions are given so that consumers will take care of their products in the best way to make them last as long as possible. When reviewing the care instructions that are available on the company’s website, an advice to reduce the frequency of washing and use of detergent is not often given. It is only mentioned at the care instructions for wool fibers as: “The surface of the wool fiber is water repellent and odor inhibiting in itself and does not need to be washed as often.” (CARE INSTRUCTIONS | Haglöfs 2014) And to keep down products in good condition it is also suggested “…to air the product instead of washing it too often…” (CARE INSTRUCTIONS | Haglöfs 2014). When it comes to drying garments Haglöfs often suggests drying its garments in a drying cabinet, because tumble dryers can cause more damage to the garment. The option of air drying is not promoted (CARE INSTRUCTIONS | Haglöfs 2014).
Repair service
Information regarding a repair service is hard to find on Haglöfs’ online communication channels such as the company’s website and its social media pages. Within the Q&A (question & answer) section on the website it can be found that customers should go back to the point of purchase or contact Haglöfs by e-mail if their product has broken. It is stated that the stores have good procedures to take care of claims, but the option for repair is not mentioned (Q & A | Haglöfs 2014). Also on Haglöfs’ social media platforms the repair service is not mentioned. When customers post warranty claims on their Facebook page, the customer is often suggested to contact the brand by e-mail (Haglöfs 2014).

End of use
When it comes to the end of use of the Haglöfs’ products consumers can find on the company’s website information about its second-hand concept called ‘Swapstories’. It is stated that consumers can bring back their used Haglöfs products to the company’s own brand stores in return of an in-store discount of 20 percent (SWAPSTORIES | Haglöfs 2014).

4.3. Nudie Jeans
Nudie Jeans is a company that was founded by Maria Erixon and Joakim Levin 2001, with the vision of being a jeans brand. The brand is specialized in making raw and pre-washed denim jeans, however the collections include other products such as jackets, t-shirts and accessories. The company was one the forerunners when it comes to organically grown cotton during the early years of 2000. In 2006, the company set the goal to produce a 100% organic cotton collection, which was reached in the year of 2012 (Eliasson no date, Borromeo 2014). The company’s products are being sold through Nudie Jeans own retail stores in Europe, the United States and Asia, through various department stores and through the online store (Store List - Nudie Jeans 2014).

4.3.1. Nudie Jeans’ expressions regarding sustainability
On the Nudie Jeans website it can be read that the company works on every stage throughout its products’ life cycles. Nudie Jeans is a member of several non-profit organizations and uses certified materials to ensure production quality in terms of social and environmental issues. The company wants to ensure that the working environment within all of the factories that collaborates with Nudie Jeans, has a production that is safe, fair and ethical. All of the suppliers have to act with accordance to the Code of Conduct. Textile Exchange is such a non-profit organization that Nudie Jeans is involved with, which provides support of the farming and trading of cotton that has been organically grown. The larger part of the organic denim that is used, is certified by GOTS (Global Organic Textile Standard), which is one of the leaders in the world of textile processing standard - in
conjunction with both social and ecological criteria (Responsible production - Nudie Jeans 2014).

During the production stages there are no environmentally harmful chemicals used, and the certification of the OEKO-Tex Standard 100 guarantees this throughout the stages of production for the denim weave. OEKO-Tex is a certification being used all around the world to make sure that the three stages of raw materials, intermediate and end products are being produced under right circumstances (Nudie Jeans Production Guide 2014). For packaging and shipping the company makes sure to choose the most environmental option available (Eliasson no date, Borromeo 2014).

Nudie Jeans is communicating the brand through the official website, as well as the social medias of Facebook, Twitter, Google+, YouTube, Instagram and Pinterest. When communicating through the Nudie Jeans website, the brand has a great emphasis on presenting information regarding how to use and maintain the jeans that are bought from the company in the tab sections of "Break in", "Repair", "Reuse", "Recycle" and "Responsibility" (Nudie Jeans - The Naked Truth About Denim 2014). There is also a production guide available where consumers can get specific information about where the different products are being produced and information about the manufacturers. Photos and addresses of the locations of the factories are attainable. Consumers can receive information regarding audits and subcontractors, which is constantly being updated with new information (Nudie Jeans Production Guide 2014).

Care instructions

"The naked truth about denim" is one of the headings on the Nudie Jeans official website. There it is described that jeans are meant to be shaped by the user: the more you use them, the more character they will get. The dry-denim jeans are colored with indigo that cannot be entirely fixated to the weave, therefore the jeans will bleed and the color will slightly fade. Consumers are advised to not wash their dry denim jeans, at least not within the first six months of use, since the effect of the break-in will not have the same outcome if the jeans get washed. The effect of the break-in of a pair of jeans is on the website compared to craftsmanship that is something that the customers will get rewarded with when the jeans demonstrates how they have been used with "abrasions and scars". On the website and the Facebook page, Nudie Jeans wants to illustrate how this break-in appearance looks like by showing how private individuals, and even how the jeans of the CEO of Nudie Jeans looks like after a couple of months without having them washed (How to Break-in a Pair of Dry Jeans - Nudie Jeans 2014).

"REGARDLESS OF YOUR LIFESTYLE, YOUR JEANS BECOME A LOG OF THE MONTHS GONE BY.” (How to Break-in a Pair of Dry Jeans - Nudie Jeans 2014)

In consideration of care instructions there is a flow chart available for customers illustrating the necessity of whether or not it is needed for consumers to wash their jeans. For the dry jeans, it is advised to avoid washing as long as possible after
purchase. Airing the jeans and local stain removal is promoted. Though this is only advised for the dry-denim jeans. The pre-washed denim jeans are advised to wash whenever the customer feels like it and it is stated that there is no point of waiting with washing them, since they have already been washed. The advice when washing the dry jeans, is to use non-bleach washing powder that is environmentally friendly, turn the jeans outside in, and then to let the jeans air-dry. It also says that the jeans should be washed in 40-60 degrees Celsius, and the warmer the water is, the higher the contrast will be. Care instructions for the other product groups like T-shirts, shirts, sweaters and jackets are not given (How To Wash Your Jeans - Nudie Jeans 2014, How to Break-in a Pair of Dry Jeans - Nudie Jeans 2014).

Repair service
In the stores of Nudie Jeans, customers can get their jeans repaired free of charge, or if customers want to do the repairs themselves, the brand will provide the customers with repair kits, together with a ‘Repair kit handbook’ that includes whatever that is needed in order to mend the jeans. On the website of Nudie Jeans there is also an instructional video of how to mend a hole in the jeans. The repair service is offered for jeans, but not for the other products in the product range of Nudie Jeans (Repair and Take Care of Your Jeans - Nudie Jeans 2014).

End of use
Regarding the end of use of the jeans, Nudie Jeans wants to emphasize to the customers that jeans should never be thrown away.

“It is deeply rooted part of Nudie Jeans to encourage the care of things that actually get more beautiful as they age. Things that bear your own history and are timeless. That’s we continue to pass on the message about preserving what you love and is worth looking after.”

(Jeans are meant to be used - and reused - Nudie Jeans 2014)

Customers can hand their old jeans in, and get a 20 percent discount on a new purchase. The jeans that are handed-in are either being repaired and sold again as secondhand jeans with the label ‘Good environmental choice’, or being used for other purposes that would give the pair of jeans a second life (Jeans are meant to be used - and reused - Nudie Jeans 2014). These other purposes could be to recycle the jeans into fibers for making new jeans, making rugs or upholstering of furniture, but the jeans can also be used to create other things. The rugs that are made from recycled jeans are as well as the second hand jeans being sold. The website provides information about how all of the processes are performed, and there are videos that shows how the reuse and the recycling are done. However, the customers are also encouraged to create something new with the jeans for themselves when the jeans cannot be used anymore. It is stated on the website that the service of the reuse and repair is provided in order to prolong the product life cycles (Recycling jeans - let us break it down for you - Nudie Jeans 2014).
5. Results from the interviews

The results are based on interviews conducted with the CSR coordinator of Didriksons, the Director of Sustainability at Haglöfs and the CSR manager of Nudie Jeans. The results will describe the work of sustainability of these three companies throughout the stages of design, product maintenance, repair service, end of use, communication with consumers, future perspective and governmental influence.

5.1. Didriksons

At Didriksons the interviewee was the company’s CSR coordinator. She describes that the core values of Didriksons are to create products that give value for money. A key term often used by the company is 'products with function'. The CSR coordinator explains that it is important to be perceived as a company that is doing things in good way and to give the customers products with value so they will take care of their products properly.

5.1.1. Sustainability

Didriksons names sustainability as something that involves internal and external goals of the company, its work on CSR and everything that is affecting the three areas of the social, economic and environmental activities. The respondent describes that the consideration of sustainability has grown the last years within all of the daily activities. Many changes has been done over the last years, some of them are smaller steps of ‘improvements’, however the respondents says that it is important to implement these steps within the entire company. Though there can be difficulties when it comes to implementing the ideas of improvements and solutions of sustainable character. To be able to encourage the team at Didriksons to work with sustainability, it sometimes can be necessary to prove the eventual benefits, such as profits that will come out of it, or that the company actually saves money by doing it. Another problem that the company is facing, is the ability to accurately estimate how much extra the customers are willing to pay for products with a higher level of sustainable quality.

As Didriksons also states on the official website, the respondent explains the importance for Didriksons to decrease the amounts of chemicals, water emissions and energy emissions in all of the stages of production, packaging and transportation. Tools for measuring sustainability efforts are not used by Didriksons at the moment, although it has been discussed to implement a tool that is suitable for the size of the company, to be able to create better product life cycles.

Didriksons finds it essential that all of the suppliers in the factories are having good working conditions, since this will also have a positive influence on the final outcome of the products. Through the product life cycle, there are many performances done in order to improve the sustainability of their products, such as finding suitable
recycled material, finding the most appropriate ways of finishing, coloring and dying the materials. For example, Didriksons is now using biodegradable dyes and also 30% recycled polyester for the fleece garments. According to the respondent there is a great amount of diligence behind the aims for improving the fabric production, and that this might actually be the stage of the product life cycle that receives most attention.

5.1.2. Design stage

According to the respondent, the designers of Didriksons are young and very well aware of environmentally harmful activities. Throughout the design process, the functionality of the Didriksons’ products is one of the key things that is incorporated in order to create more sustainable products. All of the functionalities are critically examined whether or not they serve a purpose for the intended utilization.

“We always ask ourselves what the products will be used for; what functions are really needed. That is our starting point with all our products.”

This is sometimes a dilemma of disagreements, since the employees responsible for sales often want to add things to the products to improve sales numbers. The functionalities have to be accurate for the purpose, and characteristics like tear-strength, water- or wind proofers are only incorporated if needed. For instance, some of Didriksons garments need the function of extra tear-strength at the shoulders to stand wear and tear caused by wearing a back pack. One of the ideas of increasing the longevity of a garment is the ‘extended arms and legs’ technology that are applied on the jackets for children. The respondent further explains that this idea met criticism when it was first introduced, as some of the sales people that did not see the potential of the proposal, but actually this function led to selling more jackets than what was expected. With the function of the arms that are extendable the jackets can be used longer for the child, which means that it extends the length of the products life cycle.

When the respondent was asked about how much Didriksons is considering the maintenance of the products when designing, the explanation gets elucidated by describing the differences in the company concerning the opinions about how important the CSR work actually is. The last couple of years Didriksons has been focused on using better chemicals and coatings, which means that they are much more environmentally friendly.

5.1.3. Product maintenance

The CSR coordinator explains that it is important for Didriksons to make consumers aware of how to wash and dry their clothes. Didriksons has care instructions available on its website, and all products are provided with a QR-code so that the customers can scan with a smartphone to find out how to maintain that specific garment in the best possible way. One example of a care instruction Didriksons find
vital for the customers to know about, is to reheat some of the waterproof garments in order to re-activate the water repellence. If consumers do not know this, they might find the function of the garment useless, and as a consequence of this they might buy a new rain jacket. Another aspect of this is that the respondent believes that people want to care about the maintenance of their garments, but that they are not aware of how to do it the best way. Didriksons wants to educate their customers about how to take care of the Didriksons products in the best way possible, so that they last longer. With the care instructions on their website, Didriksons also wants to advise consumers to restrain the consumption of water by washing less often. The respondent also mentions the differences between outdoor garments and daily wear basics, that presumably it is more likely that a t-shirts gets washed too often, not the outdoor garments. Whether or not Didriksons has gained any benefits from providing the care instructions is difficult to determine, but the company finds it valuable to show the customers that they care.

5.1.4. Repair service

When asking the CSR coordinator about possibilities for customers to get their garments repaired, it turns out that customers can send their garments to Didriksons’ head office to get them repaired. The company does not have any information about the repair service on its website nor on social media that is being use to communicate with customers. The company tries to make the retailers that sell their garments to help the customers at place, so that the garments do not have to be sent back to the head office.

“So we try to help as much as possible. Of course we can’t do too much goodwill either, but the mentality here is of course to try to help the customers as much as possible.”

In addition to the repair service Didriksons offers at its head office in Viared, some repair instructions are provided to its customers on the website. For instance, instructions are given for how to replace the zipper puller. This is a common part that gets broken. Together with a new zipper puller these instructions get sent to the customer. First the respondent says that it could be a good idea to make videos of how to fix parts that are broken, and one minute later regrets the idea because of how consumers might perceive that the brand markets products that easily get broken. Though, the respondent emphasizes on the fact that Didriksons wants to be recognized as a transparent as possible.

“We don’t want to illustrate how easily Didriksons products break, that wouldn’t be a good image! Though I think it is important for us to be as transparent as possible.”

Taking into account that Didriksons still considers the rain wear to be the key products, the majority of the products are not very easy to repair entirely because of
the risk of losing the water repellence. The waterproof garments have to be taped, glued or sealed properly to remain waterproof.

5.1.5. End of use
The CSR Coordinator explains that Didriksons does not collect used garments for reuse or recycling, and further says that it is very hard to recycle garments. Especially with Didriksons products it might be difficult to separate all of the different parts and functions. The respondent believes that the outcome will be better when having larger amounts to recycle, and that this is something that is more manageable for bigger companies. The respondent wishes for easier ways to recycle and has a very positive approach towards companies that recycles products. The respondent supposes that it might be possible to have a legislation for clothing companies to take the responsibility for the disposal stage of their products, and mentions a law that is introduced in the electronics industry that forces companies to take the responsibility of taking care of their disposed products as an example.

At the moment Didriksons is not giving its customers any advice through the website or through social media for how to dispose products, although the company often sees examples of products from Didriksons that has been used for an exceptionally long period of time that still work perfectly well. So the respondent believes that the products in general have excellent quality and durability. Later on the respondent informs about a box at the office where clothes that are considered being inadequate from being sold at the retailers are collected, and get send away for charitable purposes, so that people that are in need of clothes can use the highly functional clothes of Didriksons.

5.1.6. Communication with consumers
The respondent considers it to be important to express that Didriksons is a company that works with sustainability and the ongoing improvements are done in order to become even more sustainable. The CSR coordinator believes that in order to get people to care, consumers have to be educated and informed. Therefore the communication with the end consumer is fundamental. Through the social media platform Facebook and its website, Didriksons want to stay in touch with the customers after its products have been purchased. On the website consumers can get information about how the brands work on sustainability, although the respondent thinks that the information is not sufficient and that there should be more information available. One thing that the respondent got surprised by, was that Didriksons received a prize from Modegalan, for being considered as a company that informed consumers about the work on sustainability in a good way.

5.1.7. Future perspective
Didriksons wishes to get more involved in the entire life cycle of its products, but this is a work in progress. When everyone within the company gets more involved, the use and disposal stage will unquestionably be more concerned. The respondent mentions that the company is willing to expand the product maintenance and repair
service, and in addition develop some sort of recycling service, but first a life cycle assessment tool has to be implemented. The respondent compliments Nudie Jeans’ repair kit and repair instructions that are provided to the customers of Nudie Jeans. When being asked about whether or not Didriksons sees any opportunity in renting garments out, she explains that she does not see it for the Swedish market. She believes that Swedish people in general, would rather own their garments since there is always a necessity of having clothes for all types of circumstances. However, she sees the potential for providing a service for renting garments out in connection to outdoor activities.

5.1.8. Governmental influence
Regarding what role governments play in order to make the use and disposal stage more sustainable, the respondent believes that the decisions that are made by governments play a key role:

"GOVERNMENTS PLAY A VERY IMPORTANT ROLE IN DECIDING NEW LAWS AND REGULATIONS IN ORDER TO GET COMPANIES TO CHANGE. IT IS VERY HARD FOR US, AS A SMALL COMPANY TO DO THESE CHANGES; WE NEED THE HELP FROM GOVERNMENTS."

The CSR coordinator believes that it is necessary to make the recycling business ‘more attractive’, and that it is required to develop new ways of recycling materials. The fact that recycled fibers are more expensive than virgin materials is one thing that the respondent finds to be peculiar; she believes that it might be good to put a higher tax on new materials.

5.2. Haglöfs
The interview with Haglöfs was conducted with the Director of Sustainability of the company. He explains that the Haglöfs brand is built on eight core values: to nurture relations; be authentic; be engaged and show passion; mutual care to develop the brand; unpretentiousness; teamwork; quality in every aspect; and responsibility. Sustainability is part of the company’s core values and its vision and mission. Both the technical outdoor aspect and the sustainability aspect of the brand are of equal importance.

5.2.1. Sustainability
Sustainability within the company of Haglöfs is defined underneath three pillars: the environment, which relates to the environmental issues during the production stages; social responsibility that covers good working conditions at the production facilities; and global environmental issues that addresses CO2 emissions among other things. The work on sustainability has been intensified over the years. It started off by taking care of the social responsibility with the development and implementation of a Code of Conduct in the late 1990’s. The environmental activities were starting to gain
attention from approximately the year of 2005, as a result of an increasing awareness about the harmful effects of chemicals. From there onwards the company has been working on the reduction of chemicals in its production processes and tries to minimize the CO2 emissions throughout the company's supply chain.

The Director of Sustainability believes that Haglöfs works on every stage of the supply chain in its efforts for sustainability, but probably the most time is invested in the material selection and production. The material production stage of Haglöfs' product life cycle is where the most chemicals are used and therefore it is a crucial point. To keep the environmental impacts of this stage under control, Haglöfs is relying on the bluesign® system and is stimulating its suppliers to get all materials bluesign® approved. The Director of Sustainability points out that Haglöfs’ target for 2015 is to have at least 80 percent of all clothing garments sold made of bluesign® approved materials. A clothing garment will receive the bluesign® label when it consists of at least 90 percent bluesign® approved materials.

Since 2013 Haglöfs is using the Higg Index from the SAC as a life cycle assessment tool to measure the environmental impact throughout its supply chain. The Director of Sustainability at Haglöfs mentions that bluesign® approved materials receive a very good score at the Higg Index. He expects that the Higg Index will become the tool for all brands to use, but that it probably will not face the consumer within the coming 4 to 5 years as it will take time to get it fully implemented.

To ease the work on sustainability within the company it is important to get it fully integrated in the company, so that all employees know how to work in a sustainable way. The Director of Sustainability is of the opinion that:

“The most important thing is that you have owners, board members and management teams that show the direction the company has to go.”

Haglöfs sends yearly eight employees out for training at the Sustainable Fashion Academy, who will spend four full days discussing sustainability issues within design, sourcing and communication. Around 30 employees have been trained by the SFA so far, which is according to the Director of Sustainability of importance to create the internal awareness for sustainability.

5.2.2. Design stage
The respondent explains that sustainability is already incorporated within the design briefing. The requirement for all product segments is that all products should have a sustainable design, starting with the selection of sustainable materials. The material department determines the functional requirements the materials have to fulfill, which is followed by the search for bluesign® approved or recycled materials that comply with the functional requirements. The durability of Haglöfs' garments is ensured by the material selection, the way the garment is constructed and the execution of quality- and functionally tests are of importance. The recyclability of its clothing garments is also thought of, but the respondent points out that this is hard
to implement. The use of only single materials is preferred for optimal recyclability, but material blends – which are more difficult to recycle – are still being used.

5.2.3. Product maintenance
Providing the end consumer with care instructions is part of the sustainability strategy at Haglöfs. For this service the Director of Sustainability got inspired by the report “Well dressed? The present and future sustainability of clothing and textiles in the United Kingdom.” written by Allwood et al. (2006), in which it was stated that consumers wash their clothing too often and use too much detergent.

5.2.4. Repair service
Haglöfs is offering a repair service, because the company values satisfied customers. Repairs are done at the company’s warehouse in Avesta and at repair units in the brand stores in Stockholm, Oslo and Copenhagen. Haglöfs keeps a large variety of spare parts and fabrics in stock to ease product repair. In most cases repair is free of charge, but in case of an relatively old garment a small refund will be requested from the customer. The respondent explains that repair instructions are not offered as Haglöfs product range is too wide to supply proper repair instructions for each garment. Besides, it is hard to determine per garment where problems that ask for repair will occur. Extending the repair service in the near future is not on Haglöfs agenda. The company is of the opinion that its products are strong and therefore repair is usually not needed.

5.2.5. End of use
For the end of use the Director of Sustainability at Haglöfs refers to the concept called ‘Swapstories’ to take care of the end of life of the company’s own products. The reason for this concept is to stimulate reuse, as the Director of Sustainability at Haglöfs explains:

“OUTDOOR GARMENTS CAN BE USED FOR A VERY LONG TIME, SO WE TRY TO STRETCH THE LENGTH OF THE LIFE CYCLES. OFTEN GARMENTS STAY IN PEOPLE CLOSETS FOR A VERY LONG TIME AND WE WANT TO STIMULATE TO REUSE, THAT IS WHY WE HAVE THE ‘SWAPSTORIES’, SO THAT THE PRODUCTS CAN BE USED AGAIN.”

With the ‘Swapstories’ concept customers have the opportunity to hand-in their old Haglöfs garments at one of the brand stores and will receive a discount of 20 percent on the new collection in return. The discount is used to stimulate people to take their old garments out of their closets. The money Haglöfs earns with this concept is invested in the charity cause ‘Vi-skogen’. Customers that are not in position to visit one of the brand stores are expected to take the responsibility for correct disposal themselves.

“THE MOST IMPORTANT OF THE SUSTAINABILITY EFFORT IS THAT WE PRODUCE GARMENTS WITH A LONG LIFE CYCLE AND GOOD QUALITY, I THINK THAT IS WHAT IS
Currently Haglöfs does not have a recycling program. The Director of Sustainability believes that at the moment reuse is more important than recycling, as there is a lack of recycling possibilities. The respondent argues that at the moment it is technically not possible to fully recycle its clothing garments and currently there are not enough recycling facilities available in the world. Often old clothing garments are down-cycled when they cannot be reused and a large amount is shipped to developing countries in Africa and Eastern Europe. Unfortunately this has a downside, as it ruins the textile industry in those countries. Research on the recycling processes is still ongoing and Haglöfs is joining and following several research projects to stay up to date on the developments. When the technology allows proper recycling of clothing garments, Haglöfs will grasp the opportunity immediately to close the loop of their products’ life cycle completely.

5.2.6. Communication with consumers
The respondent expresses that it is very important for Haglöfs to communicate its work on sustainability to consumers, but – in the opinion of the respondent – Haglöfs could improve its expressions on sustainability. Currently is Haglöfs’ work on sustainability published via the company’s webpages, social media, press releases, printed- and online media sources. The social media platforms such as Facebook are used to be in dialogue with the end consumers on a daily basis.

In store, the information can be provided by the sales staff. The Director of Sustainability tells that retailers that sell products of Haglöfs are trained by the company’s sales force – that is based in every country – at the start of every new season to ensure that the retailers will have the needed knowledge to inform the end consumer correctly regarding topics like the products’ function and sustainability. Also extensive information can be found on the products’ hangtags, as the Director of Sustainability at Haglöfs believes that consumers cannot always rely on the store staff.

5.2.7. Future perspective
To broaden Haglöfs’ work on sustainability in the future, the Director of Sustainability is referring to the expansion of the ‘Take Care’ concept and the ‘Swapstories’ concept, and a possible introduction of a rental service. He explains that Haglöfs is working on the communication of the ‘Take Care’ concept to consumers. This includes the promotion of products made out of bluesign® approved material, recycled material or organic cotton. The concept will be launched with the collection of next fall (2014) to clearly express the sustainable choice the company is offering. Haglöfs hopes to expand the ‘Swapstories’ concept beyond their own company and brand stores; starting with an expansion to other retail stores that sell Haglöfs’ products to make the concept available for a wider audience. Haglöfs is talking to its independent retailers to convince them to take back Haglöfs
garments for reuse. The Director of Sustainability mentions that this is a difficult task, because the retailers have to make space for it in their stores, but will not gain anything from it. A rental service has been under discussion at Haglöfs to make the outdoor sports area more accessible for families to try out, as purchasing the needed equipment for all family members can be quite expensive. If the service will be launched is not decided yet.

5.2.8. Governmental influence

The Director of Sustainability at Haglöfs believes that governments can have a positive influence on the sustainability practices within the clothing industry, especially when it comes to controlling chemicals. For example, Haglöfs stopped using PVC, but it is still being used by other companies. Governments can set up new legislations to ban more harmful chemicals out of the industry. This will force more companies to follow sustainable initiatives.

5.3. Nudie Jeans

The interview with Nudie Jeans was conducted with the CSR manager of the company. The CSR manager describes that the company is passionate about jeans and therefore the most important aspiration for the company is to create “good jeans”, without any compromises. The ambition has always been to make the best jeans possible and to be perceived as a jeans brand. The founders of the company did not want to create just another fashion brand.

“For example, our so called ‘backbone’ collection is all made of fair-trade cotton. We could push that out more to the consumers, but that is not something we do.”

The respondent further clarifies that Nudie Jeans does not publish sustainability reports or materials similar to that on its website or on social media. The most important thing for them is just to integrate sustainability in every aspect from fiber to the recycling of the product.

5.3.1. Sustainability

Sustainability has always been an important subject for the brand. The concern for reducing environmental impacts and creating good working conditions throughout the supply chain was initiated from the very start of the company. There have always been goals set for the company to reach. One of the goals that was set some years ago, was to use 100 percent organic cotton in the collections, which was impossible to reach at that time. However, this goal was actualized later. Another component that makes this goal hard to accomplish is that customers of Nudie Jeans want to have jeans with stretch - which means that the cotton is blended with elastane to obtain the wanted quality.
When being asked about what stage of the life cycle that receives most attention the CSR manager estimates that the production stage gets the most emphasis. In addition the respondent explains that this is the stage where the company can exert more influence that has a direct impact. Then again, the repair service could also be considered as one of the stages that receive more focus, since it is the stage where in most man-hours are invested. The CSR manager elucidates that offering a repair service and giving customers advice about how to maintain their jeans, is all the company can do. The willingness of actually going through with it has to come from the customers.

To measure the company’s environmental impact, Nudie Jeans recently started using the Life cycle assessment tool SimaPro 8, which is the world’s leading software, adequate to measure life cycle impacts with a calculation engine, and the water use and water footprint (SimaPro 8 | Webinars | PRé Sustainability 2014).

5.3.2. Design stage
The designers at Nudie Jeans are very committed to work on sustainability, so when searching for fabrics this is something that is always incorporated. Often the designers try to find smaller amounts of fabrics or left-over leather from shoemakers to use for the labels on the jeans. Maintenance is something that is not considered during the design stage, since 80-90 percent of all of the products being sold are jeans. Nudie Jeans finds it arduous to try to design jeans that are easier to maintain. The wish is that the durability of products is to be preserved by the way the company tries to encourage customers to repair their jeans, and advises them to wash less.

5.3.3. Product maintenance
The CSR manager clarifies that the purpose of giving care instructions on the official website is to make consumers aware of the break-in that might be vanished if the dry jeans are washed during the first months.

“THE WHOLE IDEA WITH JEANS IS THAT THEY GET MORE BEAUTIFUL THE MORE YOU WEAR THEM, SO WE NEED TO EXPLAIN THIS TO OUR CUSTOMERS.”

The environmental effect of washing less is also important to communicate. When the CSR manager receives a question concerning if the company has seen any benefits from providing care instructions, the answer is that the company does not perform any kind of customer surveys, and that the profit is impossible to measure. The owners of Nudie Jeans want to offer the repair service and care instructions due to their personal belief and are staying true to what they want to do.

5.3.4. Repair service
The CSR manager says that the repair service is free of charge for its customers. Customers that do not live close to a Nudie Jeans store, can get the repair kit sent home to them. Repair instructions are available on the website, but can also be found in a booklet that provided with the products as well as in the stores. The company
has received positive feedback from providing this service, as customers show appreciation and the company gets positive media attention from it. The CSR manager describes that the life-span of the jeans are lengthened with the repair service and if there is no chance of using or repairing the jeans anymore, the jeans will get recycled.

5.3.5. End of use
Customers can hand their old jeans in one of Nudie Jeans’ own stores, where the jeans are reused or recycled in some way. Besides its own stores, the company does not see the opportunity in letting Nudie Jeans products be handed in for disposal at other retail stores where products from Nudie Jeans are being sold. This is due to the matter of solving the logistics behind it. At Nudie Jeans’ own stores the products can be easily collected without the commotion. The CSR manager elucidates that the company is trying to do its best in communicating the importance of recycling products when they no longer can be used. The respondent also explains that the company’s web shop sells its products all over the world and that it is hard to know what the best solution of disposing garments is for each of the countries were the products of Nudie Jeans are sold. The only thing that the company can do, is to give the customers advice. When being asked whether it is only the jeans that can be handed in at its disposal service, the CSR manager assumes that it is solely the jeans.

5.3.6. Communication with consumers
The CSR manager points out that the information available for the customers through the company’s website and its Facebook page is a good way of communicating the ‘stories’ of how jeans have been used and how pleased people are with their jeans. The employees of Nudie Jeans yearns to talk about their passion for denim. New staff in all the Nudie jeans stores gets an environmental training from an external organization within the first working year and they also describe to the customers how to maintain the garment best way possible. In the stores booklets are available for customers to read about how to maintain and repair. The repair service is highly visible in the store for the customers, due to the ample ‘repair’ sign and the big sewing machine.

5.3.7. Future perspective
The CSR manager explicates that there are plans of expanding the ways of collecting jeans at the other retail stores that are not owned by Nudie Jeans. The company has not been considering a renting service as a future opportunity, though admittedly it has not been discussed at the moment. Nudie Jeans is continuously trying to develop creative new ways of giving the collected old jeans new purposes and will continue to develop art projects and other ways to give the jeans a second life.

5.3.8. Governmental influence
The CSR manager believes that governments could play an important role in order to enhance the opportunities of recycling. In addition he mentions that at present there are not enough recycling plants in the world. He contemplates that if there were
more opportunities to recycle, it would be very valuable for a company like Nudie Jeans, in view of the fact that the company is trying to incorporate it to a bigger extent.
6. Analysis

The results of this study are analyzed to determine to which extent the participating clothing companies incorporate the work on sustainability within the use and disposal stage in order to decrease the environmental impacts of these stages. The results of Didriksons, Haglöfs and Nudie Jeans are examined with reference to the theoretical framework to verify if they comply with the current theories on this topic. Both the differences between the companies and in regards to the theoretical frame of reference are analyzed and explained.

6.1. Sustainability

For both Didriksons and Haglöfs CSR guidelines have been implemented in the companies’ daily activities over the last couple of years and the work on sustainability has been increased. At Haglöfs this has been a result of the increasing awareness for the harmful effects of chemicals. The work on CSR is often fed by the demand of consumers, pressure of NGO’s or governmental regulations (Kozlowski, Bardecki & Searcy 2012). However, at Nudie Jeans this is a different story. From the start of the company the work on sustainability has been important at Nudie Jeans. Not because of external influences, but because the owners of Nudie Jeans were personally concerned about the environment. It must be noted that Nudie Jeans is fairly young company compared to Didriksons and Haglöfs and that the global environmental awareness was much higher when Nudie Jeans started compared to the time when Didriksons and Haglöfs were founded. This could explain why Nudie Jeans has implemented CSR activities from the start and why Didriksons and Haglöfs have implemented it later.

The fact that the production stage is receiving a lot of attention in the work for sustainability can be confirmed (Fulton & Lee 2013). At Didriksons the most time is invested in taking care of the fabric production, but also giving care instructions to consumers has been a major attention point within the company’s efforts for sustainability. Material selection and production receives the most attention from Haglöfs, as the material production creates a significant impact on the environment with all the chemicals that are included in the production process. The use of organic cotton is an important aspect of the Nudie Jeans products, therefore the production stage is the key attention point for Nudie Jeans as well. However, the CSR manager of Nudie Jeans points out that probably the most man-hours are invested in the repair service.

Internal awareness and commitment to decrease environmental impacts has come up as an important factor to ease the work on sustainability and to get it integrated within the company. The Director of Sustainability at Haglöfs points out that it is necessary to have owners, board members and management teams who emphasize the importance of sustainability to set an example for the employees. Therewith the
company has managed to incorporate sustainability within the company culture. Since "value for money" is one of the most important factors within the company of Didriksons, the work on sustainability is not always the number one priority, as would be wished for according to the respondent. The work of sustainability could easily be convinced by having the priority of an increase in sales and therefore also profit, but it could be hard to go through changes towards sustainability if it requires "big costs".

Nudie jeans and Haglöfs have recently implemented LCA-tools to be able to measure their products environmental footprint of the total product life cycle. Didriksons is discussing which LCA-tool is right for them to use within the near future. It can be said that all companies have acknowledged the importance of executing a life cycle assessment in order to improve the work on sustainability throughout the whole product life cycle.

6.2. Design stage

Laitala and Klepp (2011) argue that clothing designers must be conscious about the way the garments they design are used and how they can be repaired, as it influences the longevity of the garments. The durability of clothing garments can be increased by selecting materials of higher quality and increased quality control during production (Niinimäki & Hassi 2011, Laitala & Boks 2012). Haglöfs is addressing this by sending its designers out for training at the Sustainable Fashion Academy to learn how to deal with sustainability issues during the design stage. Also Didriksons’ designers are engaged to develop products in a sustainable way. Material quality, functionality and longevity are important and critically examined during the design stage at Haglöfs and Didriksons. The CSR manager at Didriksons points out that the designers always review their designs to examine which parts are unnecessary parts and can be removed and which parts of the garment will endure heavy wear during use and need to be strengthened. At Haglöfs the quality is ensured through the use of bluesign® materials and the execution of quality and functionally tests. Nudie Jeans also has an emphasis on the selection of materials, especially organic cotton is important.

6.3. Product maintenance

As wrong maintenance of clothing garments has a negative effect on the environment and a consumer’s finances, it is important to teach consumers possible ways to reduce the energy during the maintenance of clothing garments (Laitala, Boks & Klepp 2011, Gwozdz et al. 2013) All three of the companies participating in this study have confirmed the importance of providing care instructions to consumers in order to decrease environmental harm. The CSR manager of Didrikson believes that education is important, because a lot of people want to take
care of their garments in the right way, but often do not know how. This assumption can be supported with the study of (Niinimäki & Hassi 2011) that indicated that consumers would like to have more guidance with the maintenance and repair of their clothing garments. Didriksons’ care instructions are given with the aim to decrease water use and to make the products last longer. Haglöfs is providing the end consumer with care instructions, to stimulate correct maintenance and therewith enhance the longevity of its garments. For Nudie Jeans, the main reason for providing care instructions is to teach consumers how to give their jeans a worn out look, which is considered as beautiful in the jeans segment. Another reason is to decrease environmental harm.

According to previous studies, a reduction of environmental harm can be achieved during maintenance by diminishing the washing frequency and replacing tumble drying by line drying. Washing is sometimes not even needed, as airing a garment or removing a stain on the spot make a garment look and smell fresh again as well (Laitala, Boks & Klepp 2011, Jack 2013). Nudie Jeans’ care instructions for its dry-denim jeans comply to all of these points. However, for the other product groups care instructions that are aimed to decrease environmental harm are missing. Didriksons advises its customers to not wash unnecessary. Regardless the kind of garment, this advice is always mentioned. When critically reviewing the care instructions on the Haglöfs website it can be said that Haglöfs’ care instructions do not address the reduction of water and energy use so well, as advice given regarding the frequency of washing and the elimination of tumble drying is lacking.

6.4. Repair service

Goworek et al. (2012) plead that clothing companies can address a consumer’s need for repair by offering a repair service or by supplying the consumer with a repair kit and guidelines to encourage the consumer to repair their clothing themselves (Goworek et al. 2012). Didriksons, Haglöfs and Nudie Jeans are all offering a repair service, but not all to the same extent. Haglöfs is doing repairs for its customers, but repair instructions are not offered, although educating consumers how to repair can lengthen the consumer use (Laitala & Boks 2012). At Didriksons repairs are done for its customers and some repair instructions are provided, but only on request of the customer. Both Haglöfs and Didriksons do not clearly communicate nor promote the fact that consumers can bring their garments in for repair. In contrast to Haglöfs and Didriksons, Nudie Jeans is actively promoting its repair service and addresses all aspects mentioned by Goworek et al. (2012). The company has a free repair service in its brand stores and consumers can request a free repair kit to do repairs themselves with the repair instructions given on the Nudie Jeans website.
6.5. End of use

As mentioned in the theoretical framework, consumers are not using their garments to the full extent, and recurrently garments are discarded earlier than necessary (Allwood et al. 2006). Haglöfs and Nudie Jeans both emphasize that reuse is important in regards to generate prolonged product life cycles. This is made visible at the official websites of both companies. The two companies have created similar concepts for taking back garments at the end of use; they have both started second-hand concepts in their own retail stores. Nudie Jeans uses the majority of the collected garments for second-hand purposes. The garments that no longer can be used are disposed for art projects, for making rugs and furniture, and some of the jeans are processed into new fibers.

Haglöfs and Nudie Jeans choose to reward the customers that are handing in their garments by offering a 20 percent discount if the customers buy a new garment from the company. Both of the two companies considers the discount as an encouragement for their customers to hand in their old garments for reuse and recycle purposes. Nudie Jeans want to refer this encouragement to be similar to the Swedish 'pant-system', which is a deposit system for products like plastic bottles among other things, in order to ensure that the products are disposed in the best way possible. The financial benefit a consumer will gain from the take-back service is an extra stimulation for the consumer to hand in its old garments (Kozlowski, Bardecki & Searcy 2012, Joung & Park-Poaps 2013).

Didriksons does not collect used garments for reuse or recycling, and also mentions that it is difficult to recycle its garments at the moment as the materials are hard to separate. This is a circumstance that has been pointed out by Chen and Burns (2006). The main reason for the lack of recycling post-consumer waste is the adversity to recycle textiles that consist of several different materials such as natural and synthetic fibers, dyes and trimmings, that are hard to separate (Chen & Burns 2006).

Didriksons is not giving advice regarding proper disposal on its website or social media pages. Also Haglöfs does not offer any other recommendations to customers of how to discard their garments in other ways than their own stores. Customer that are not able to visit the stores will have to take the responsibility for the disposal stage themselves. Nudie Jeans however elucidates the importance to customers to never discard jeans and encourages the customers to create something new out of them to give them a second life. In the communication towards customers it says that if the jeans can no longer be repaired, the customers can hand in their jeans to a Nudie Jeans store for recycling.

Both Haglöfs and Nudie Jeans mention the difficulties in having a collecting service in the stores that are not owned by the companies, but the aim is to expand the collecting to these stores as well. Haglöfs believes that it would be hard to convince the independent retailers because of the space they have to make available that cannot be used for selling new products and therefore can lead to a loss in profit.
The manager of sustainability of Nudie Jeans also describes complications of logistics that would occur.

Out of the three companies Nudie Jeans is the only company that recycles its own garments. Haglöfs believes that it is more important at the moment to reuse garments since there are no proper opportunities to recycle. It is technically not possible to fully recycle its clothing garments and currently there are not enough recycling facilities available in the world. All of the three companies underline the same obstacle in regards to recycling; there are no adequate ways to recycle garments available.

### 6.6. Communication to consumers

In order to stimulate environmental conscious consumer behavior, education and the availability of information is needed for consumers in order to know how they can change (Allwood et al. 2006, Hiller Connell 2010, Laitala, Boks & Klepp 2011, Niinimäki & Hassi 2011). All respondents confirmed the importance of educating consumers about sustainability and that the companies communicate the ways of working with it. The Coordinator of sustainability at Didriksons believes that educating consumers is the way to proceed if you want consumers to care about the environmental impacts. She acknowledged that the information provided on Didriksons website is currently not enough and that Didriksons wants to broaden the information it in the near future. Also Haglöfs could improve its expressions for sustainability. Although Haglöfs’ Director of Sustainability stated that providing the end consumer with care instructions is part of the sustainability strategy at Haglöfs, are ways to reduce of the environmental impact of maintenance not clearly given to the consumer. It can be concluded that the companies are aware of the fact that providing consumers with the right information is necessary in order to educate consumers, but how to clearly communicate it is somewhat of a struggle.

### 6.7. Future perspective

The findings from the Higg Index benchmarking that was explained in the theoretical framework, referred to the increased amount of clothing companies that have started with collecting and processing old garments to be able to take care of the end of life of their products and that complete end of life programs, design policies and clear communication towards consumers are missing (Young 2013). The three companies show disparate involvements of this. Didriksons wishes to be more involved with the entire product life cycle, but it is under progress. The CSR coordinator at Didriksons explains that the current absence of not having an involvement in the complete life cycle, is that there has not been sufficient capabilities. The CSR coordinator says the company is willing to expand the product maintenance and repair service and hopes to develop a recycling service. The
respondent compliments Nudie Jeans’ repair kit and repair instructions as she believes Nudie Jeans sets a good example.

Haglöfs will implement the 'Take Care' symbol on the hangtags of their products, to make a sustainable choice easier for consumers. Also the company hopes to expand the 'Swapstories' concept to other retail stores besides its own retail stores. Nudie Jeans is also looking for new ways to collect its old jeans and wishes that the independent retailers that sell Nudie Jeans will start collecting old Nudie Jeans products as well. Another part that the company is looking for, is to develop more reuse- and recycle-projects for the handed-in jeans, to lengthen the products life cycles.

One way of intensifying the use per garment could be to provide a rental service, since most clothing garments are not used to the full extent before it gets discarded. The rental service would also decrease the need for new raw material (Allwood et al. 2006). Haglöfs is discussing the fact that a rental service could be used for the outdoor sports area, and Didriksons agrees with the statement that it could have potential, but they do not see that it would fulfill a purpose in the daily wear section. Nudie Jeans has not been discussing rental services so far.

### 6.8. Governmental influence

As mentioned in the theoretical framework, both the behavior of clothing companies and consumers are affected by governmental policies (Stern 2000). If governments would support the recycling streams by raising the awareness of what happens with the waste and by supporting taking-back or buying-back programs the possibilities for companies to create better product life cycles would increase. (Joung & Park-Poaps 2013). All of the three companies think that the clothing industry would be able to create better use and disposal stages if there was more governmental involvement and more regulations in regards to these matters. The CSR coordinator of Didriksons finds it peculiar that recycled material is more expensive than virgin material and believes that higher tax on virgin materials could help to stimulate the use of recycled materials. All companies are of the opinion that there is a lack of recycling opportunities in the world at the moment. It could help companies to incorporate recycling services to a higher extent, if the recycling business was more accessible. This should be supported by governments. There should also be stricter regulations for using harmful chemicals, as the Director of Sustainability at Haglöfs believes that it would be beneficial to ban them entirely from the industry. Since governments are able to foster the enhancement of sustainability practices with regulations, subventions and taxes, this might be what is needed to actually make the changes within the textile industry (Allwood et al. 2006, Ghosha & Shahb 2012, Goworek et al. 2012).
7. Discussion

The argument of Cepolina (2012) that most clothing companies let go of their responsibility at the point of purchase, is not applicable for the companies in this study. The use and maintenance stage of a garments life cycle is definitely not forgotten in contradiction to the theory of Chen and Burns (2006). Care, repair and reuse services are utilized by the clothing companies with the aim to lengthen the use period of the companies’ products. This will, according to Fletcher (2008), improve the sustainability of the entire product life cycle.

The companies are of the opinion that consumers should be aware of how to take care of their garments in order to improve the longevity of the products. Therefore they offer extensive care instructions. It must be noted that these care instructions often do not include suggestions of possible ways to decrease energy use during the maintenance of a garment, which is according to Laitala, Boks and Klepp (2011) of importance. For example, Nudie Jeans only provides care instructions for its jeans, which are even suggested to be washed at 40-60 degrees Celsius. A reduction of this washing temperature could further decrease environmental harm.

Repairs are also taken care of within the consumer use stage. Nudie Jeans widely promotes its repair service, but Didriksons and Haglöfs do not communicate the option of repairs to customers. The customers have to make a request for this service. An argument for that could be that both Didriksons and Haglöfs market garments for outdoor activities, which are designed to be strong and durable. Promoting a repair service might undermine the companies’ brand image, as the CSR manager of Didrikson argues that consumers could interpret that the products will break easily and therefore need repair. For jeans, wear and tear marks are considered to be beautiful and the needed repair that comes along with it is more accepted.

When analyzing the results of this research, it can be said that they do not fully correlate to the statistics gained from SAC’s Higg Index Benchmarking, which suggests that the engagement of clothing companies during product use, maintenance and disposal is still very low and product care and repair services have not yet been developed (Young 2013).

In regards to the fact that consumers still lack knowledge of how and where to dispose their old clothing garments in an environmentally friendly way (Birtwistle & Moore 2007), Haglöfs and Nudie Jeans promote consumers to hand-in their old garments at one of their brand stores, so these garments can be reused again. Didriksons does not own stores and is therefore not in the position to offer a similar service. All clothing companies could take into consideration to inform its customers other ways to discard their old garments when they are not in the position to bring back them back to one of the companies’ stores to prevent that the garments will end up in landfills.
Although the willingness is there, it is sometimes hard for the companies in this study to implement more activities to improve the sustainability of their products’ use and disposal. A lack of internal commitment is one factor that can obstruct further enhancement of sustainability. To get everyone within the company to acknowledge the importance of the work on sustainability is essential. Also technological shortcomings can hinder the development of sustainability in the use and disposal stage. This is the case when it comes to clothing recycling. The use of single materials is preferred for optimal recyclability, but material blends are still used in clothing garments to meet the needed functional requirements. Current recycling technologies are not advanced enough to fully recycle these mixed materials. Didriksons, Haglöfs and Nudie Jeans cope with this issue by putting more emphasis on increasing longevity and stimulating reuse of their clothing garments instead of recycling. Besides, the number of available recycling facilities is not enough to deal with all the textile waste when more clothing will be collected recycling purposes. Therefore it has to be taken into account that it is not always within the capabilities of clothing companies to meet up with the desired efforts for sustainability. In regards to this issue, governments could support clothing companies with the development of the textile recycling streams within the clothing industry (Joung & Park-Poaps 2013).

The above mentioned findings have been produced with the used qualitative research method, which has accomplished the purpose of this study to identify how the interviewed clothing companies are working on the sustainability of the use and disposal stage of their products’ life cycle. The interviews were indispensable to manage a comparison of the actuality of companies reasoning, and what has been said in previous studies relating to this matter. The knowledge gained from previous studies was used to analyze the results of the primary data. The theoretical framework strengthened and increased the validity for the collected primary data. The findings are suitable to use in the clothing industry today, as it focuses on the changes that are inevitable for clothing companies to be able to obtain a more sustainable product life cycle. It also highlights the benefits and difficulties that clothing companies have to take into consideration in order to achieve this aim. The statements that have been made by the respondents regarding the communication towards consumers have been critically examined and compared with the visible expressions made on the companies' websites to ensure the validity of the findings.

With the participation of the companies Didriksons, Haglöfs and Nudie Jeans, the findings of this study are limited to the functional and outdoor clothing segment and the jeans segment within the clothing industry. The findings are not generalizable for the entire clothing industry, but could be used as an example or a guideline for other clothing companies that wish to extend their work on sustainability within the use and disposal stage of a garment’s life cycle.
8. Conclusion

In order to improve the sustainability of the use and disposal stage the clothing companies Didriksons, Haglöfs and Nudie Jeans already start their efforts in the design stage. The selection of materials is carefully considered in terms of quality, durability and functionality and the material production is coordinated in order to enhance the quality and longevity of the end product. At Didriksons and Haglöfs, use and maintenance are also considered during the design stage. After the point of purchase all companies are providing its customers with care instructions and a have a repair service. The aim is to extend the use stage by promoting correct maintenance of the products and repairs are done to postpone disposal.

When it comes to the end of use, Haglöfs and Nudie Jeans have established a take-back program. At Haglöfs the handed in garments are solely used for reuse. Nudie Jeans on the other hand also has some recycling projects. Both companies are of the opinion that reuse or increasing use through repairs is more important at the moment, because good recycling opportunities are lacking.

Care instructions are published on the companies’ websites. Also information is available on the products itself in the form of either a hangtag, a booklet or through the use of a QR code. The retail staff of Haglöfs and Nudie Jeans is trained to provide their customers with use and maintenance instructions at the moment of purchase. Clear expressions to consumers to decrease the environmental impact and advice regarding the reduction of water and energy use during maintenance are often missing. However, washing less is sometimes mentioned. Nudie Jeans’ repair service has an obvious presence on both on the company’s website and in its brand stores. In the case of Didriksons and Haglöfs a repair service is offered, but not promoted nor clearly communicated. The offered take-back programs of Haglöfs and Nudie Jeans to stimulate reuse are easy for consumers to recognize.

Social media platforms (e.g. Facebook) are used by all companies to stay in touch with its customers. These online platforms enable the companies to go into dialogs with their customers when questions occur during the use of the companies’ products. Statements regarding sustainability are not often done on social media.

Sustainability has to be integrated within a company’s culture in order to avoid difficulties in the execution and development of a company’s work on sustainability. Another difficult point for the clothing companies is the implementation of recycling in their products’ life cycle. The reasons indicated by Didriksons, Haglöfs and Nudie Jeans are the lack of recycling facilities in the world and the fact that currently recycling technologies are not evolved enough to separate all the different materials to fully recycle clothing garments. The fact that governmental influence is lacking within the use and disposal stage is making it harder for the clothing companies to take full responsibility in the use and disposal stage. Didriksons and Nudie Jeans point out that more legislation and governmental support is wished for.
8.1. Future research

Since this study has been limited to clothing companies that produce functional, outdoor and jeans products, there are many other segments within the clothing industry that have not been investigated in this area of research, for example fast fashion companies could be desired to analyze further.

The effects of governmental involvement in the use and disposal stage in the clothing industry is another field that could be examined in follow up on this study, because the companies involved in this study have expressed that a higher governmental influence is wished for in terms of more support and regulations. Also new opportunities to recycle or other purposes for discarded clothing garments can be searched for in order to find an alternative use for textile waste until recycling technologies and facilities are up to date with the demand.
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Appendix 1: Interview guide

Introduction of the research:
This interview has the purpose to learn more about the core values of the company, its view on sustainability and how it is incorporate it into the business. The questions are about the influence of sustainability on the design, use, maintenance and disposal of the company’s products, and the communication to its customers. Also the difficulties the company is facing, the benefits it is gaining from working on sustainability and its future perspective are of interest.
- Can we use the name of the company in our report?
- Can we use the name / job position of the respondent in our report or does the person want to be anonymous?

About the brand
- What are the core values of the company?
- What is the goal of the company? (Mission/vision)
- What makes the brand stand out from the competitors?
- How does the company want to be perceived by consumers?

Sustainability
- How does the company define sustainability for themselves? (what is the perception)
- Has the work on sustainability always been an important subject for the company or has it been developed later?
- Are there any environmental goals set by the company to reach? What are the goals?
- How does the company measure its sustainability efforts?
- Does the company use a life cycle assessment tool? (example Higg-index or their own?)
  - If not, why not?
- What activities is the company undertaking in order to improve the sustainability of their products' life cycle? (What are the first things that they come up with?)
- What stages of the product life cycle receive the most attention?
- What difficulties is the company facing with their sustainability efforts?

During design phase
- How does the company incorporate sustainability in the design process?
- What does the company do during the design phase in order to enhance the reparability, upgradability and recyclability of their products? (e.g. material choice or buckles, zipper pulls, components and accessories)
- What does the company do to make the garments more durable? (ensure longevity)
- Is maintenance of the garments something considered during the design phase? (in terms of decreasing the environmental harm)

**Product maintenance**
- Beyond what is required by regulations, such as product care labels, does the company provide any care instructions to customers with the aim to minimize the environmental impact?
  - What do they advise their customers to do?
- If the company does **not** give service regarding garment care:
  - What is the reason of not providing this service?
- If the company does give service regarding garment care:
  - Why did they start with this service?
  - Has the company gained any benefits from giving this service so far?

**Repair and service**
- Does the company offer any repair services? If so, in what way?
- Does the company offer repair instructions, so consumers can do it themselves?
- If the company does **not** give service regarding garment repair:
  What is the reason of not providing this service?
- If the company does give service regarding garment repair:
  - Why did they start with this service?
  - Has the company gained any benefits from giving this service so far?

**End of use**
- Does the company inform their customers of how to dispose their products?
  What is their advice? (donate to charity, dispose in recycle bins etc.)
- Does the company collect used garments for recycling?
  - If so, do they only collect their own garments, or do they collect garments from other brands as well?
  - Do the customers get anything in return for handing in garments? (Discount?)
  - If the company collects garments itself, what are they doing with the garments? (reuse, repurpose, recycling, donate to charity)
- If the company does **not** give service regarding garment disposal:
  - What is the reason of not providing this service?
- If the company does give service regarding garment disposal:
  - Why did they start with this service?
  - Has the company gained any benefits from giving this service so far?

**Communication with consumers**
• Is it important for the company to express their work on sustainability to consumers? Why?
• Does the company keep consumers updated on the ongoing improvements regarding sustainability?
• How does the company make their efforts for sustainability visible for consumers?
• If the company does offer garment care, repair and disposal instructions, where are these available for their customers? (website / social media / in-store / trained staff)
• Does the company train their staff or retailers to educate their customers about garment care, repair and disposal?
• Does the company try to stay in touch with their customers after they have purchased a garment?
  - In what way are they in contact with their customers and with which purpose?

**Future perspective**

• Does the company want to be more involved in the use and disposal stage of their products?
• Is the company willing to offer / extend product maintenance, repair and recycling services in the near future?
• Does the company see any opportunity in leasing garments? (or have considered)
• In your opinion, what role can governments play in order to make the use and disposal stage more sustainable? (control or support)
Appendix 2: Interview questions Didriksons

Introduction of the research:
This interview has the purpose to learn more about the core values of the company, its view on sustainability and how it is incorporate it into the business. The questions are about the influence of sustainability on the design, use, maintenance and disposal of the company’s products, and the communication to its customers. Also the difficulties the company is facing, the benefits it is gaining from working on sustainability and its future perspective are of interest.

- Can we use the name of the company in our report?
  Yes.
- Can we use the name/job position of the respondent in our report or does the person want to be anonymous?
  Yes, both name and position.

About the brand
What are the core values of the company?
We make products take gives value for the money. Products with function. We started off with rain wear as our key business, and products connected to that. Street collection and the everyday life and the outdoor segment with more edgy products, and the big kids collection with contains a lot of function parts.

What is the goal of the company? (Mission/vision)
Of course it is making money, that is the key part of having a company, but we want to do it in a good way of course. All people working for Didriksons should have a good time that is a really important part of the company.

What makes the brand stand out from the competitors?
The design, I would say. Taking off from where we started, to where we are today - we have always been working with our own products. We have our own designers, so we work with our products from the start. I think that many companies choose among existing designs and only change the colors, but Didriksons really start from scratch with our designs. I think we have really good value for the money. The family is the main costumer. Function for families.

How does the company want to be perceived by consumers?
Well... being the CSR coordinator, I would like the customers to see us as a good company, doing things in a good way. Of course we need all of the design in order to sell our products, otherwise we wouldn't sell any products, but to give the customer a value, make the customers take care of the products.. I believe that if the products have been very much worked with, the customers will not just through them away... It should be a product that we use! We really look into what sorts of chemicals we use for our products, for example PFC-based finishes are no longer used at Didriksons. We have been working with this since 2009, so all products we sell from
2015 are completely free from this. We have replaced it with Rudolf -ECO finish, so it's completely PFC-free. There is a Norwegian legislation that has decided regulations about different dangerous chemicals, such as PFOA, and we have always been below that. So chemicals are very important for us to consider when it comes to all of our products, we only use chemicals when it is really needed! "We always ask ourselves what the products will be used for, what functions are really needed, that is our starting point with all our products."

We are discussing a lot me and the designers and product developers, and we have a very good communication with our fabric suppliers. We actually nominate the different fabrics by the suppliers, so what we know them. A lot of the other companies just buy their garments without having any contact with the fabric suppliers, the buy them directly from the garment suppliers. We have direct contact with our fabric suppliers so that we can talk with them. This makes our chain at least a bit shorter, but of course our goal is to have control over the whole chain.

**Sustainability**

**How does the company define sustainability for themselves? (what is the perception)**

We name sustainability as something both internal and external, and we have something we call "lokalsamhälle". It is about the society around here. That is about our internal goals, our CSR work and how we can work the best in these three areas. These goals concerns three different subjects were we want to do our best. These are about the social, economical and environmental activities. That starts from the start of the products, and we question ourselves about what we need for the products. But it can also take off from other things. We like to talk to students, so that we can learn from them, but also get "good" students to come and work for us later.

We also have external goals. We have many environmental goals. We have done some changes during the last years, some of them are just small things, but we also believe that the small things lead to a step of improving. By telling the employees how to take care of the environment, you also tell them that you care about them. Some of the things that have been implemented were first seen as something as bit silly, but then the colleagues started to do it, and after a while most of them taught it was a "fun thing to do". For example we park in reverse since it is less environmentally harmful to start driving forward when the engine is cold, instead of reversing as the first thing. That will both be safer and cause less energy. Turning off the lights when we are not at the office. Using less water. "It is a good thing to learn people how you can do things in an easy way, in order to do it more sustainably. It is fun when you get people to think."

**Has the work on sustainability always been an important subject for the company or has it been developed later?**

Yes, it has. But of course it has become a bigger matter the last years; also as we have grown to become a bigger company, it has been a bigger matter.
Are there any environmental goals set by the company to reach? What are the goals?
Oh.. As I mention earlier, the goals are many! From the small things such as reversing the cars, to the decision when the employees should send in-voice or calling/e-mailing, instead of having meetings so they don't have to travel for sharing information. And when there are meetings people should take the train instead of the cars. Not to fly... These are a few of those internal goals.
The external goals are.. We start with the product, and we don't use harmful chemicals. We substitute the bad ones if we even need them. Another very important factor for us if water. we want to use as little water as possible. I don't know if you heard about the organization STWI, Sweden Textile Water Initiative? We are members there, and what we try to do is to save as much water as possible, for example in the production processes of our products. I don't have the specific number right now, but we try really hard to do the best, and be better by taking additional steps. We want to have numbers in our goals, so that we can achieve those specific measurements, and we have made guidelines for how to do this. There is a problem though, to find specific things to measure in numbers, but of course there are things to measure, like the usage of papers, in order to use less paper..

How does the company measure its sustainability efforts?
We measure some of our activities, and when we do that, someone has the responsibility of that specific goal but it is really important that everyone cooperates with this goal in order to achieve it. For example, the guy that is responsible for buying soaps at the office comes to me to show that he has found ecological soaps and things like that. Another very important thing is the packing. Packing is very important to consider in order to decrease the environmentally harmful effects. We try to pack as much as possible together, but there is also hard to get this to work since it is dependent on the shipping supplier. It could sometimes be very hard to make the suppliers understand why it is of importance to us. When you communicate these things in the company, it can also be hard to communicate it the ones that are responsible for the economy of the company. It is always easiest to illustrate the benefits by doing better sustainability choices in packing and shipping, for the reason that the company actually saves money by doing it. About STWI, the water initiative, it is hard to measure how much money we save by decreasing the usage of water. I believe that the cost of water will be more in a couple of years, and then it might be easier to find out exactly how much money we save. The big challenge with this work is to find savings or profits. If good examples can be showed it is much easier to work for changes and get with the team.

We believe that if we can make a better environment for our suppliers in the factories, that we also get better products. This in turn will help us in getting less returns. It is hard to measure things like this, but I think that it is grand for us to work with our suppliers so that they have it good there, that is valuable. The management has really understood it now how valuable it is to work with matters like these. It is good for the brand. Venture capital firms has the last years been
much more interested to get involved with these questions, and the choose companies that are really involved with CSR, so there has been a big change. Companies can now see that it is very valuable, and of course some companies value their work in sustainability in how much money they earn, and some companies see it as something that enforces the brand.

**Does the company use a life cycle assessment tool?** (example Higg-index or their own?)

No, not at the moment or not a good one for the products. My plan is that we will start up "Reindeer" with a reign dear working for a better LCA. That is my next CSR work; to find a good tool for going in deeper with how the products should be assembled, together with the designers, and as quickly as possible. I think the best start of that is to go through one or two products, to begin with, in order to see how the chain works. Earlier we have done easier life cycle analysis, but I think we need to go more in to depth with it. There is a lot of companies doing that now, so that is a move forward. But there are a lot of alternatives when it comes to these tools, and we have to find the one that suits us the best, and at the moment we are looking for the tool that suits us the best.

Yes, from our school they are working with Sustainable Apparel Coalition, and they have now the Higg-Index. That is what we have discussed a lot about now in school as a LCA-tool.

Yes, we were talking about that... I think it was about a year ago... But that is one of the LCA-tools we have been discussing here when we have had meetings but... I think that one of the problems is that Didriksons are not that big of a brand, as the big companies... Not as big as companies such as H&M, KappAhl and Lindex. But of course we need to find a proper LCA-tool, the problem at the moment, is to find the time to investigate further which is the most suitable tool, and see whether if I, as a CSR coordinator will have the time for it soon. We have recently changed our computer system to a PDM-system here, to a program called PISA, where we have all the information about the products. I have personally not been working with it that much yet, but I think it is a good system to have all of the information about all of the products and their fabrics and what they consist of. I think that this is one good start to the project of implementing a LCA-tool. That would also lead to a better transparency in the company.

**What activities is the company undertaking in order to improve the sustainability of their products' life cycle?** (What are the first things that they come up with?)

We do a lot of investigations regarding recycled material. 30% of all products in fleece that we produced is from recycled polyester, and we intend on increasing it. We are also aware of which methods regarding dying and colorations that are better or worse, and we always choose the better alternatives. This could save big amounts of water. We work a lot with our fabric supplier in order to have more recycled fibers and to make sure that they use as little water as possible. Water is an important
matter, with the STWI, and also with Water Aid. We celebrate the world water day, and we give donations each year. On our web page and Facebook page, we show our customers that we care, and we also encourage other people to do it. Water Aid also write about us, in order to make other companies engaged as well, as we are. Earth Day is another thing we bring up, and here at the company during Earth hour, we turn down the home page "with the sign that it is earth hour" and also the lights here at the office of course... We believe that by doing small things, we can show that we really care.

What stages of the product life cycle receive the most attention?
I would say the fabric production stage. We also have done a Life cycle "help" for care instructions on our web page, in order to make the customers aware of how to wash and dry their clothes, and most importantly to use less water. QR-signs are used on all of the products, so that you can, together with your iPhone find out more about how to maintain the product. This is not only for the water part, it is also to make sure that the customer takes care of the product the best way possible. This will lead to a product that lasts longer. We also have in our kids collection, the "extended" arms and legs, so for example, the arms of the jacket can get longer, so that the kids can use their jackets and clothes for a longer time. Actually, first when this idea was introduced, one of the seller said; "but we want to sell more garments"! But then after a while we discovered that it really is of value for the garment, and this of course led to sell them even more because of this feature! We also state that, in order to make the water repellency of garments good, the user have to activate it again by reheating the garment. It is important to educate the customers of how to take care of their garments in the best way possible.

What difficulties is Didriksons facing with their sustainability efforts?
How will that value the garments of course... It is of course easier to motivate in some parts, since you can see that you save money, but the other ones. it is hard to see what is of value for the brand. Is this of value for the customers? Do people buy the products just because it's a Didriksons jacket, or do they buy it because it is a cheap jacket? The communication between us and the customers about sustainability is one of the most tricky parts. The other major thing is that it all usually starts with the money, what are the customers ready to give? Five years ago we started our office in China, and this has been a great thing for Didriksons. We have daily communication with them, and they have the main communication and connections of the factories, and therefore we have created a much shorter distance between us and the factories. It feels really good to be able to have direct contact with them and the factories we work with. There is a big difference of reading a report from a factory, and to actually be able to have someone from the company going there and making sure that it is not only a safe place to work at for the employees, but also a factory where there is a good social environment. It has always been important for us that everyone in the supply chain takes the Code of Conduct seriously, and implements it in their daily work. We have also started to work with factories in Bangladesh and this has in a way led us to create a even more extensive Code of
conduct now, and we are discussing that a lot. We are also considering taking help from some organization in order to get a better CoC.

**During design phase**

**How does Didriksons incorporate sustainability in the design process?**

We have young designers that are also very much involved with the work of sustainability in the design process, they try to find solutions that are as sustainable as they can be at the moment. For them it is really important to do the best we can, from the beginning, which of course makes my work a lot easier. So we do the best we can for the money, it needs to fit our customers as well.

For us the product is very important, since 80% of the environmental impact starts with the design of the product.

Together with the designers and product developers, we carefully go through the specifications and instructions of garments, before we send it to the suppliers. We find it important to go through because we want to get rid of all unnecessary parts of manufacturing, and also reduce the amount of elements that are not necessary for the product. This will also save time and samples will not have to back and forth several times.

**What does Didriksons do during the design phase in order to enhance the reparability, upgradability and recyclability of their products?**

(e.g. material choice or buckles, zipper pulls, components and accessories)

Yes, we have replacement parts here for the customers, such as zippers, buttons and other accessories. My goal is to create a garment where all parts break at the same time, now it is most usually the zipper that breaks first and all the other parts are still perfect. The problem with rain wear is that if the garment would break somewhere, it is hard to fix it completely so that it will remain water proof, if you don't tape it, glue it or seal it properly.

**What does Didriksons do to make the garments more durable?**

We try to really look in to the garments and to see if the functionality of the product is accurate for the purpose. Since we have clothes for different purposes, the garments have different functionalities. Function for purpose is really important for us. There are some garments that are used for outdoor activities, and they might need the function of extra tear-strength at the shoulders, if the wearer will be wearing a back pack for instance. Another jacket might need a embroidery on a piece of cloth on the jacket to increase the appearance of the image. So some products are more focused on whether they need a certain function or not, while others are more focused on the image and the design of the garments. So of course there is function - and image.

The "extended arms-jackets" could in one way also be considered as way of extending the life of the garment. They can be used for a longer time, and doesn't have to be replaced that quickly. So they have a longer life cycle.
Is maintenance of the garments something considered during the design phase?
The designers have it in mind when designing, so they think about it pretty much. The sales people can be a bit tougher when it comes to the CSR-work, and wants to add things.

**Product maintenance**

You said earlier that you already have put out the care instructions on your website, what the customers are set out to do and so on, but are the instructions also informative on for example how to minimize the environmental impact and wash less?

Yes we have a extra written instruction where we explain to our customers...

Yes, I think it says, further down on the page, that we should all should use less water, and also with the statement "Do you really need to wash?". I think it is usually garments like t-shirt and daily wear like that that gets washed too much, I don't think the outdoor clothes are washed that often, if it's not necessary. Many of the children's clothes are made from PU, so you can just wipe them off to get them clean.

**Why did they start with this service?**

We think it is a part for the customers to become more sustainable.

It is a lot about the education. How can we educate our customers? I also think that it is, for the whole world, a lot about education. People want to care, but they don't know how to care. So... I hope, and think, that we will do more like films and instructions for the customers, so that they know how to care of impregnations and things like that. To make it easier for them to know how to take care of their products.

- **Has the company gained any benefits from giving this service so far?**

I don't know, customer service will have to answer that. And for the environment.. I don’t actually know.

(A question from a colleague comes up regarding an article concerning tests of different brands garments, whether or not they might be including some kind of harmful chemicals, and our respondent starts to explain about the test that is made:

Previous years the test has always found some dangerous chemicals in garments from some of the brands products that has been tested, but our respondent says that the most important thing to do if you get questioned about it, is to really demonstrate how hard Didriksons are working for making garments that are free from dangerous chemicals, though it is very hard to control every stage of the manufacturing processes. The most important thing concerning things like this is to make sure that you educate the manufacturing suppliers how important it is for Didriksons to NOT use the hazardous chemicals. I believe that it is wrong to control every single step, I believe that it is much more useful to educate instead.)
Repair and service

Does Didriksons offer any repair services? If so, in what way?
As I said earlier, we have buttons and zippers here, and we have a lady here where we and customers can send their garments to if something is wrong, but we also try to get the shops that sell the garments to help the customers at place, instead of sending the garments around. And we give the money of course. So we try to help as much as possible, of course we can't do too much goodwill either, but the mentality here is of course to try to help the customers as much as possible.

Does Didriksons offer repair instructions, so consumers can do it themselves?
Yes, for example we have instructions for how to put on a new zipper puller. We send these instructions out together with a new zipper puller. But we can definitely be better at this, we should make more films about how to repair things, that is an easy way of showing how to treat it the right way, like the zipper puller for example. Maybe not put these films on our website because then it might be strange... We don't want to illustrate how easily Didriksons products break, that wouldn't be a good image! Though I think it is important for us to be as transparent as possible. (On our website we describe exactly how it is, about the chemicals. We do not say that we have zero percent of some chemical, because it can sometimes be traces of some chemical from the production, like contaminated water or so... I think it is very important to be transparent. We do this to make people more educated. If we show a little bit more than what we need to, we can also show our customers that we know, and that we care.)

Has Didriksons gained any benefits from giving this service so far?
I think the value of the brand. For me that values the brand at least.

End of use

Does the company inform their customers of how to dispose their products?
It is really hard to recycle garments. It is not that much that gets recycled, so it's not a good outcome from it, I think you need big amounts for that. We do jackets in polyester with a sort of lamination of polyester, so that it can be easier to recycle them. But we do a lot of garments with so many different parts and different functions, which makes them hard to recycle. They are very complex. It is easier if you make a t-shirt or a garment only in cotton or polyester, or like our fleece sweaters without zippers....
I believe this would be easier for bigger companies to do. I really hope that the industry will make it easier to recycle and I am very positive towards companies that do recycle their garments; because that shows that it is possible in the future...

Do you advice your customers of how to dispose garments?
No, we need to do that better I think. We have worked with trying to get coatings that are "better" for the environment when they are burned, than the old material that was used. These coatings create shorter molecules, so that is good.
Does Didriksons collect used garments for recycling?
No. Though we have really good durability on most of our garments, and we want our garments to last as long as possible. We have seen examples of some of our garment that has lasted ////////// time.
I think that it might be a law where it says that we should take care of our products, but I am not really sure. Isn't there any law that the company should take care of their garments? I think that companies that manufacture electronic devices might have that law... But we do have a box where we keep clothes that are reclaimed for not being "good enough", though we think that they still are working excellent. These clothes later get send to people that are in need of these clothes, like charity, but we don't have any information to our customers that we do it. With the samples that we have, we do a sell out each year, and if we still have any garments left after that, we send it to charity.

Communication with consumers
Is it important for Didriksons to express their work on sustainability to consumers? Why?
Yes, I think that it is really important, and we need to work with that even more. As I said earlier; to educate and to inform is a way of getting people to care. So that is a big part, communication with the customers, especially for me as a CSR coordinator.

Does Didriksons keep consumers updated on the ongoing improvements regarding sustainability?
Yes, on the website. We try to put some information for example of the CSR work and the code of conduct, but of course we could do that more. At that moment I think it might be too little, but we got a prize from Modegalan partly because of the fact that we had information about our work on sustainability on our website, so I was really surprised. Maybe there are not that many companies that are describing their work on sustainability?..

If Didriksons does offer garment care, repair and disposal instructions, where are these available for their customers?
On the website, yes. And with the QR-code that I mentioned earlier, we try to send it out through the garments as well.

Does Didriksons try to stay in touch with their customers after they have purchased a garment?
Well yes, through our website and our Facebook page, but we don't have a member list or anything like that. The people in the shop is also a way of keeping in contact with the customers in a way, I hope they can provide with a message of the brand.

- In what way are they in contact with their customers and with which purpose?
Educate, I think.
**Future perspective**

**Does Didriksons want to be more involved in the use and disposal stage of their products?**

As I said, with the life cycle, the next step will be the entire life cycle, and then the use and disposal stage would be more involved, we will work with it more. But we are not there yet.

**Is Didriksons willing to offer/extend product maintenance, repair and recycling services in the near future?**

Yes, it will be more developed when we start to work more on our life cycle. Maybe you have seen the work Nudie Jeans are doing, with their repair kit, and instructions? I think that that is a good way to go at it. As I said earlier, I really want to do more films and stuff like that on our homepage, but yes, it is something that we have to work with in a while.

**Does Didriksons see any opportunity in leasing garments? (or have considered)**

Well not at the moment. But we are members of the SOG Swedish Outdoor Group, so we are out on hiking and things like that sometimes, and then there is journalists and different people testing our garments. One of these times we were out kayaking, and then I tried to get the kayaking company to by some of our clothes, so they could rent them out to the kayakers, but of course then we wouldn't own the garments anyway but... I believe that some of our outdoor garments could be used for leasing in connection to outdoor activities, but I believe that in Sweden, people would rather want to buy the garments instead of leasing them, since we have very variable weather, we need the different types of garments here in Sweden.

**In your opinion, what role can governments play in order to make the use and disposal stage more sustainable? (control or support)**

Maybe put a higher tax on new fabrics..haha.. I don't know. Use more recycled material. But I believe that in order to do that, the recycling business has to be more attractive.

If you hadn't said "use and disposal stage" in that question.... I think governments play a very important part in these kinds of subjects. Governments play a very important role in deciding new laws and regulations in order to get companies to change. It is very hard for us, as a small company to do these changes; we need the help from governments.

We need to find new ways of recycling garments. I think that it is bad that the recycled fibers are more expensive. It is strange that they are more expensive than the virgin materials. And I heard that the polyester will have to be recycled in order to keep on being used as fibers, otherwise there will be no left in 5 or ten years, I am not sure... I believe that, by doing small things, you can make a big difference. You don't have to do everything, but these small steps are valuable as well.
Appendix 3: Interview questions Haglöfs

Introduction of the research:
This interview has the purpose to learn more about the core values of the company, its view on sustainability and how it is incorporate it into the business. The questions are about the influence of sustainability on the design, use, maintenance and disposal of the company’s products, and the communication to its customers. Also the difficulties the company is facing, the benefits it is gaining from working on sustainability and its future perspective are of interest.

- Can we use the name of Haglöfs in our report?
  Yes, no problem.

- Can we use the name/job position of the respondent in our report or does the person want to be anonymous?
  Yes, use both name and position.

About the brand

What are the core values of Haglöfs?
Well, we have 8 core values of the company. Do not know them by heart I must agree... Let me see.. Relations - to nurture relations, to be authentic in everything we do, to be engaged and show passion, mutual to take care of and develop the brand, unpretentiousness, teamwork, quality in every aspect and responsible. We have them written down, but of course we try to act according to them in every aspect.

What is the goal of Haglöfs? (Mission/vision)
The vision is to be leading in technical outdoor and sustainability in all of the important markets in the world. So we have both the technical outdoor and sustainability and are as equally important.
Mission is to offer a responsible brand which meets modern day demands with products of high functionality high level of design and good value for money for those who invest in an active outdoor lifestyle. Sustainability is incorporated as well. And when we say 'invest' we do not mean money, we mean time. So as you can see, sustainability is a part of both the core values and the vision and mission.

What makes the brand stand out from the competitors?
Hopefully it is what we "load" the brand with. How we load the brand with the products, the design philosophy with clean style products, and also sustainability efforts , I would say we have come a long way on our journey.
How does Haglöfs want to be perceived by consumers?

I think that could be explained with our vision; A brand that creates technical outdoor equipment in a really sustainable way. We have the payoff line "outstanding outdoor equipment". If we are perceived like that - it would be fantastic!

Sustainability

How does Haglöfs define sustainability?

We have 3 pillars: The first we call environment - that means mainly that we are focused on the chemical contents in products, environmental issues related to the production, and how it looks like around all of the premises of were fabrics and were colors are produced, so that we don't ruin those places where we produce. For example like it has been shown on TV, especially when you come to factories in Bangladesh and India, the usage from the dying factories, the dye goes directly in to the nearby river making it all yellow, blue or red depending on what color is used. So there are many steps in the production that harms the environment.

The second one is the social responsibility. That is mainly that workers that are producing our garments should have good working conditions. And the third one are the global environmental issues - like co2 emissions. 3 pillars we consider when going through our supply chain. And when we know that, it is easier to attach those problems in a more strategic and better way.

Has the work on sustainability always been an important subject for Haglöfs or has it been developed later?

It has been increasing over the years. We started quite early with social responsibility and we wrote our first Code of Conduct in the late 1990's, when every factory of ours had to sign that Code of Conduct. And then these environmental activities started growing from 2005 I think. I've been working with production before, but then I have been working as CSR manager since 2007, and from then on we really started to reduce the amounts of chemicals and also the co2 emissions at four different areas. So it has been an accelerating journey the last 4-5 years.

I think people in general were not that aware about chemical aspects before, and that the amount of reports that has come the last years have been one of the reasons. We joined Bluesign in 2008, and it is the most important way for Haglöfs to get control on environmental issues.

We saw on the website of Haglöfs that you have environmental targets to reach until the year of 2015, does Haglöfs use a certain tool for measuring these kind of efforts?

Of course, CO2 emissions are measured, and we use the KPIs for that. The environmental goal is to have Bluesign products. And a Bluesign product is when a product is 90 percent Bluesign approved fabrics. Our goal is to have 80 percent of
our sold products Bluesign approved in 2015. The actual figure of sold products in 2013 was 57 percent Bluesign approved.

It is not a very sophisticated tool, we just have to count it... The normal tool that has been used and will be continued to use is the Higg index from SAC. We started to use it from 2013 internally. But it will not be consumer faced in the coming 4-5 years. It will take time to implement it. I think this will become the solid tool in the future all brands will use. Higg index scores Bluesign products very high. One problem I think that could occur when this index becomes available is that it might be hard for the customers to evaluate, but

What activities is Haglöfs undertaking in order to improve the sustainability of their products' life cycle?

We have a default, when designers are starting to work they start with a take care product - Bluesign product, organic cotton or recycled material, and that is the default of all design. All of the designers are educated at the Sustainable Fashion Academy. We send 8 people every year, it is about 4 full days over 4 months where they discuss and go into depth with issues like design, sourcing and communication. I think that it is about 30 people that have done this education so far, and it is important to create awareness internally. Material department looks for the materials and have to fulfill the functional requirements first and then will look for Bluesign products, or recycled fabrics. We are producing in 35 factories around the world. All factories follow labor guidelines of the Fairwear Foundation. So for all of the fabrics we are following these requirements. We also cooperate with other companies in order to see that the workers at the factories are working under good conditions. Measuring CO2 emissions and try to reduce it as much as possible with responsible transportation is important to us. We are only using green energy in all of our premises, and we also have a strict regulation regarding company cars.

When the product comes to the end consumers (end of life), we have something called Swapstories, where people can reuse products. Outdoor garments can be used for a very long time, so we try to stretch the length of the life cycles. Often garments stay in people closets for a very long time and we want to stimulate to reuse, that is why we have the Swapstories, so that the products can be used again.

When it comes to recycling, we actually don't have a program for that yet. The reason for that is that recycling is not really possible yet as it still on the research level. Haglöfs are following and participating in different research projects and when it will become technically more possible they will jump on it immediately, in order to close the loop entirely.

What stages of the product life cycle receive the most attention?

For us I would say... In hours or in time... One crucial part is the material production as it is where the most chemicals are used. There we rely a lot on Bluesign products and accessories. If we don't find Bluesign products or have suppliers who don't have it, we will stimulate these suppliers to start using Bluesign. We have succeeded a
couple of times with those factories that has put in a lot of effort, to become Bluesign approved. I think that is the way to solve that problem. In sewing factories Haglöfs put a lot of effort into auditing discussions such as living wages, overtime and other labor conditions. The ones working with logistics put a lot of time into finding the most responsible transportations. So I think Haglöfs works on pretty much all stages of the supply chain to get more sustainable, in my opinion.

**What difficulties is Haglöfs facing with their sustainability efforts?**

In these days it is not so difficult at all anymore. It is fully integrated in the company, so everyone knows what to do now. In the beginning it was more difficult when it wasn't implemented the way it is now. The most important thing is that you have owners, board members and management teams that shows the direction the company has to go. The discussion price vs sustainability is always the difficult one. If there would be discussions of whether or not to invest time and money into producing in a more sustainable way, of course that would be a big problem.

**During design phase**

**How does Haglöfs incorporate sustainability in the design process?**

When the designer makes the design briefing it is already fixed because they have to incorporate sustainability and look for sustainable materials, we have the different segments of trekking, trekking pro and so on.. and when the designer gets the design brief, there is always that default, that they have to have a sustainable design, all the way from the materials and forward. So there is no problems anymore I would say... especially not on clothing. Footwear is more complicated than clothing, because the footwear industry has not come that far as clothing yet when it comes to sustainability.

**What does Haglöfs do during the design phase in order to enhance the reparability, upgradability and recyclability of their products?**

Haglöfs tries to do the best, but it has not come that far, to use only single material, we still use blends, like polyester and polyamide, which are harder to recycle. Another problem is that there are not enough recycling plants available in the world. There are not that many. There is a good one in Japan, and they mostly use postconsumer goods to make plastic bottles, but a lot of the school-clothes garments they use these recycled fibers. I would say that less than 1 percent is still possible to make new fibers out of it. No matter if it is treated with DWR or not.. The problem is not the treatment of the fabric, but the lack of opportunities to recycle the materials.

**What does Haglöfs do to make the garments more durable?**

It starts with the design, and the selection of materials, the construction of the garment (sewing threads), does the fabric meet the standards of our functional testing, tensile strength and all of those functionalities that are demand.. It is all about the amount of love and passion that are put in to the product.
Is maintenance of the garments something considered during the design phase? (in terms of decreasing environmental harm)

In some way it is. Take shell layers, it is a product that use a membrane or a micro porous coating (?) that creates a waterproof barrier. On these products we are still using fluorocarbons, but we are using C6 which does not contain PFOA. The reason that we still use fluorocarbons is that they meet our requirements of the DWR, when it comes to the products that need a high level of waterproofing. Another reason is that the garments that need a high level of being waterproof, if the consumers would buy those spray bottles of impregnation they would do more harm. When it comes to products that don't need a high level of repellence we use non-flour DWRs.

Part of this is also what temperature to wash the clothing, and in general we say 40 degrees for everything. Generally the garments of Haglöfs are easy to maintain for the end consumer.

Product maintenance

We can see on your official website that you are giving care instructions to your customers, why did you start with this service, and what is the aim?

It is part of the sustainability strategy. I don't know if you have read the Allwood - "Well dressed" from 2006 I think? There it is stated that consumers wash too much, use too much detergent and... 70 percent of the environmental impact stands for the end consumer. That is a part of our sustainability strategy, to reduce the amount of washing and so on.

Has Haglöfs gained any benefits from giving this service so far?

Well commercially I am not really sure about, but a lot of goodwill from colleagues of other brands. Haglöfs haven't communicated it fully yet to the end consumer. Started with offering this at winter 2014, when we give consumers the choice to actively choose Haglöfs as a sustainable choice. So we will have to wait for winter 2015 to see what the results will be.

Repair and service

Does Haglöfs offer any repair services? If so, in what way?

Yes, Haglöfs has it both in the warehouse in Avesta in Sweden where we have repair services. We are quite willing to do that, even if it is past the time for doing repairs on a specific garment. Sometimes against a little funding if the garment is a bit too old, but most often it is free of charge. In our brand stores in Stockholm, Oslo, Copenhagen, we have repair units in the stores. And small accessories are also available in our shops.

Does Haglöfs offer repair instructions, so consumers can do it themselves?

Not really. The reason is that you never know how the problems occur. They have around 220-250 styles which all could have different problems. This can be an intensive work to supply repair instructions.
Why did they start with this service?

We have always had that strive to get satisfied customers. If a consumer has a product that has been broken in some way... I think it is a good way to make the end consumer happy. We have always tried to do that, and it felt natural when we started the brand stores. In the head office of Haglöfs there are quite a lot of spare parts and fabrics so it is easy to repair products.

Are there plans to extend these services in the near future?

No not really. We don't see the need for it as our products are strong and often don't need repair.

End of use

On the website of Haglöfs we could see that garments can be handed in by customers and will be sold at the second-hand concept of Swapstories, are there more options to where the garments might end up in sense of reusing or recycling?

Not really. We have discussed a rental service, but it has not been launched yet. The most important of the sustainability effort is that we produce garments with a long life cycle and good quality; I think that is what most important thing is. But it is more up to the end consumer how long they want to use it. We want to see will Swapstories can be extended outside the company in the future, not only at the retail.

It is also mentioned that customers can hand in their garments in the Haglöfs brand store in Stockholm and Oslo. Is this the only place where customers can hand their garments in?

It is also in brand store in Copenhagen. We don't have a solution for customers that are not able to go there. These consumers have to take the responsibility themselves. But we hope to expand the Swapstories concept to retail stores that we don't own ourselves, but of course that is up to the retailers. The biggest problems/treats for this is the fashion aspect of it... If people get bored of their garments or the color is wrong... Or if a new product has come up that is a little bit better or cooler, the customers want to change to that one instead. So I would say it is more up to the end consumer.

Does Haglöfs inform their customers of other disposal options for their products? What is their advice? (donate to charity, dispose in recycle bins etc.)

That is the problem; there isn't any real options in the textile industry today. Often companies collect them, but they don't know what to do with them. H&M is a different story as they are working together with I-collect from Germany, the biggest textile sorting company in Europe. There are huge amounts collected at H&M these days... The majority of these clothes can still be used. Often these articles are down-cycled if they cannot be used anymore, so they can be used for insulation among other things... 85-95 percent of that they ship to Africa or Eastern Europe, and that is good that they can prolong the life cycles of those products, but this has almost
ruined the whole textile industry in those countries, so there is always two sides of
the coin.

**Does Haglöfs only collect garments from the own brand, or is Haglöfs willing to collect garments from other brands as well?**

Today in the Swapstories is only own products.

**We saw that Haglöfs offers a discount of 20% on a new garment, when handing in an old garment. Why did you decide to offer this discount?**

Discount is a good incentive for people to take the old stuff out of their wardrobe. Haglöfs donate all of the money we get from it to a charity cause called "Vi-skogen" (We-forest), and also to another project. So in a way it is only an incentive. Plant a tree in Africa

**Why did Haglöfs start with the recycling service, and what have the consequences been?**

Haglöfs started because we wanted to do something regarding reuse as we believe it is more important than recycling, in these days, because of the lack of recycling opportunities. The idea came from two employees in the company, and it think it got developed since we had a good supply chain, but this was something that we felt that we did not cover at the time.

**Are there plans to extend this service in the near future?**

Yes, as I said, we have been in contact with other independent retailers about this, but it is difficult though, since it would take up a lot of space in the retail stores, where they do not get anything out from it. So it is easier to do it at our own stores, and the difference is that the other retailers that sells our products of course want to make the most profit out of every square meter.

**Communication with consumers**

**Is it important for Haglöfs to express their work on sustainability to consumers? Why?**

Yes absolutely. We have not been very good at it before, so we felt that we wanted to do homework first, and communicate it after that. But we have started it now, with this Take Care concept now, starting from fall 2015, in order to offer a sustainable choice for the consumers.

**Does Haglöfs keep consumers updated on the ongoing improvements regarding sustainability?**

Yes, both on the homepage and social media we are quite active I would say. We noticed consumers have become more and more interested, especially younger people.
Besides from the website and social media, where do you provide garment care and information about Swapstories, where are these instructions available for their customers?

I think that is the media that we are mostly working with, our web page, but also social media, press releases, printed and online media.

**Does Haglöfs train their staff or retailers to educate their customers about garment care, repair and disposal?**

Absolutely, the sales force in every country, when every new season starts, have clinics with the sales staff, talking about the products, about the functionality and sustainability and other things. So that is a part of their job to do that, and hopefully the staff in the other shops than Haglöfs shops capture some of it so that they can explain the products to the end consumers.

We are also quite informative on our hangtags, and I think that is quite important because it is hard to always rely on the staff in stores.

**Does Haglöfs try to stay in touch with their customers after they have purchased a garment?**

People in the company are working on social media and Facebook every day to communicate with end consumers and they answer their questions very quick.

**Future perspective**

**Are there any plans to extend the product maintenance, repair and recycling services in the near future?**

Not more than what have been said before. We are already involved in a very high rate and do not see the necessity to expand it with the level that we have today. When it comes to recyclability, as I said earlier, when the problems are solved with making new fibers out of old garments, we will be one of the first to jump on that wagon.

**Does Haglöfs see any opportunities in leasing garments?**

Yes we have thought of it. Because if a family goes up to a mountain, for trekking or skiing, for the very first time and for one week or so, it can be a good choice to lease garments since it would be quite expensive to buy all products needed for every family member. So to be able to rent the products you need could definitely be a choice. But it is something that is decided yet, we have only been discussing it so far.

**In your opinion, what role can governments play in order to make the use and disposal stage more sustainable?**

That is a tricky question. When we are talking about governments, we are talking about laws. Absolutely. One way could be like what is happening in Norway, that the Norwegian government ban the use of PFOA impregnations on products, with the big aim of getting rid of fluorocarbons completely from the industry. I think it will
come a complete ban from fluorocarbons in a couple of years. Law will force companies to follow such initiatives directly. I think that this change can occur when it comes to the different groups of harmful chemicals. At Haglöfs we are totally PVC-free, but there are a lot of companies and in different types of industries that still use it. In my opinion governments can really make a difference in controlling chemical use more. DWR- durable water repellency. C6 on shell layers is less dangerous than PFOA since they have only six coal atoms, while PFOA are in the C8-group, with eight coal atoms.
Appendix 4: Interview questions Nudie Jeans

Introduction of the research:
This interview has the purpose to learn more about the core values of the company, its view on sustainability and how it is incorporate it into the business. The questions are about the influence of sustainability on the design, use, maintenance and disposal of the company’s products, and the communication to its customers. Also the difficulties the company is facing, the benefits it is gaining from working on sustainability and its future perspective are of interest.

- Can we use the name of Nudie Jeans in our report?
  Yes.
- Can we use the name/job position of the respondent in our report or does the person want to be anonymous?
  Yes, there is no need to be anonymous.

About the brand

What are the core values of Nudie Jeans?
Hmm, I don't know. It think that a lot of brands are having their sustainability reports or some other type of listing, but Nudie Jeans does not that way really. The ambition is to make good jeans, and the owner has the ambition that this is going to be done in a good way. Nudie Jeans is not willing to make any compromises in doing it. as you might have seen, we do not publish our sustainability reports or other material like that. We really try to make the products sustainable, from the production of the fiber to the recycling of the product. I think that at the start it was the ambition of being a jeans brand, to do the best jeans, you know there was never an ambition to start a fashion brand.

What is the goal of Nudie Jeans? (Mission/vision)
It is more of a big corporate question... It all started off with three persons, and they still work in the company on daily basis. It's not like we have those corporate slopes? On the wall with the mission and vision, and these three persons that started it really have a passion for denim. This was what they wanted to do, so from the beginning it has always been to do it the best way possible. And if you go to our websites you can see that we don't use those kind of phrases as those other companies might be using, a kind of "corporate talk".

What makes the brand stand out from the competitors?
Regarding sustainability?

Well, yes, in total. What makes Nudie different than the other denim brands?
Well I am mostly working on the sustainability... Something different is that the core of it is that it is a jeans brand that wants to make good jeans. The mission is not to be a fashion brand. But in practice what makes us stand out from the competitors is regarding sustainability. We are more transparent than our competitors, and if you
just look at our jeans we have organic cotton. We strongly emphasize the consumers, of how to use for the garments in a sustainable way. We want to prolong the life of our garments by providing the repairs. If consumers don't want to repair them we will take them in and repair them for second hand. The consumers then get a 20% off for a pair of new jeans. If the jeans can't be repaired anymore, they hand the jeans back to us to get them recycled; we will recycle them down into fibers. Either into a new project or we will recycle them into a new pair of jeans. If you look at our competitors, I don't know of any brand who has this kind of program, looking at the total life cycle of the jeans.

How does Nudie Jeans want to be perceived by consumers?
I think we want to be perceived as the best jeans brand. We don't want to promote ourselves as an eco or organic alternative. That is not the market that we want to be in. We want people to buy our jeans just because it is good jeans. The sustainability part is just a part of what we do when we are making jeans. For example, our so called "backbone" collection is all made of fair-trade cotton, we could push that out more to the consumers, but that is not something we do.

So, it is more important for the owners to do it, not to necessarily to "sell it" that way?
That is not what we want to sell; we want to sell good jeans. And what we want to do is to do a good product; the sustainability part is just a part of that.

Sustainability
How does Nudie Jeans define sustainability?
I don't think we have. Sorry, really boring answer. But I don't think they have been sitting together and writing it down, "what is sustainability for us?... But now for example we are doing a life cycle assessment of the environmental impact of the jeans, to see where we can reduce the environmental impact in our jeans production, and I don't we have defined sustainability there either.. But if you should look after a sort of definition, it is what we do on our website, with the code of conduct, but it is not trying to define sustainability either. It is more explaining how we want to work with the environmental impacts and working conditions, and the life cycle impact of our garments.

Are there any environmental goals set by Nudie Jeans to reach? What are the goals?
Of course there has been some goals set up, like we want to do 100 percent organic cotton, that is our target. But when the target was set it was impossible, with the production of denim, so there is still a lot of work to reach that goal. So there are goals like that set continuously. The same thing with repair for example, it should be measured how many pairs of jeans per month is repaired and so on...

How did Nudie Jeans measure its sustainability efforts before?
I don't think we have been very good at measuring it. The closest thing we have been to having goals is to measure how close we are to using 100 percent ecological cotton, so that is what we have been measuring. Like some other companies measure their CO2 emission each year, we haven't had time, the capacity or ambition to do it so far. Although we have been looking into transporting issues, and we try to use recycled material for the packaging, but if you ask me how many percent of the packaging is recycled today, I wouldn't be able to tell you, because so far we haven't been working with that kind of internal reporting. I think that has to do with the size of the company. We don't have the capacity to be reporting in that way, like what the dye is made of... I have seen that we are close to having 100 percent organic cotton but we haven't written it down, everyone knows that we are supposed to use it.

So, why did you start with the life cycle assessment, and what do you want to reach with it?
Well I think it started with wanting 100 percent organic cotton... We wanted to know "okay, what is the next step in order to reduce the environmental impact"? So, the life cycle assessment was a good tool in order for us to understand where we could do that.

Okay, so are you already done with the life cycle assessment or is it ongoing?
No, we are working with it now.

Is it a specific tool that you are using for this?
Eh, I don't remember the name of the program that they are using for this life cycle assessment... If it is important, I can look it up? Well there are not that many software programs you can use for life cycle assessments, and I can look up the name of it if you are interested?

Oh yes, that would be nice!
(Email the answer later; SimaPro8)

What stages of the product life cycle receive the most attention?
We spend most time on the production I guess, because that is where we have the most influence. We can inform the customers to wash their jeans less, and we can inform our customers that they should repair their garments and they should take care of them, but that is what we can do... When it comes to the production, that is where we really have an direct impact. Then again, depending on how you measure it, the most hours are invested in the repairs, and I am working full time on CSR... So, in our repairs, I guess that is where most man-hours are going. So, it depends on how you look at it.

What difficulties is Nudie Jeans facing with their sustainability efforts?
I think that when we started it was to get organic cotton, and denim in the qualities we wanted, that was the biggest challenge.
**During design phase**

**How does Nudie Jeans incorporate sustainability in the design process?**

Hmm.. I am not a designer... What I know is that they are often inspired by materials so... So if they apply recycled wool in the garments I know that they like the nice story behind, that it is recycled. It is often a nice story, and they do something nice.. I think that they look for small kind of ways, for example the leather labels on the jeans, they contacted a shoe maker and asked them if we could use their leather scrap-out /leftovers, for some of our labels. So those kind of thoughts "pop up" here and there in the production. I think our head-designer, and also the other designers are really engaged with sustainability, so that is something that is with them when they are looking for material, and ways to do it. But of course it can be tricky to find the right material, and there is a certain amount needed. So it a way of putting in effort and thoughts into it...

**What does Nudie Jeans do during the design phase in order to enhance the reparability, upgradability and recyclability of their products?**

I don't know to be honest... For example, the stretch in jeans reduces the recyclability, but then it is not 100 percent cotton.. But we have some jeans with elastane, because customers want that. But most of our jeans do not have elastan. I would have to talk with the designers more I think to get to know more about what they are doing regarding this.

**What does Nudie Jeans do to make the garments more durable?**

Well we have the free repairs, and we also send repair kits all around the world to the Nudie customers, so those that do not have close to one of our repair shops, can get this repair kit. And of course the way we are encouraging the people to no wash their garments, that also increases the life-span of the garment.

**Is maintenance of the garments something considered during the design phase?**

Over 80 percent of what we sell, it has been close to 90, are jeans. I would say no. A pair of jeans is a pair of jeans. So the design is.. we have some different jeans models and some more "vintage looked" and so but I don't see how maintenance would come in there.

**Product maintenance**

We can see on your official website that you are giving care instructions to your customers, why did you start with this service, and what is the aim?

Well first of all the aim is to make the jeans look more beautiful, the whole idea with jeans is that they get more beautiful the more you wear them, so we need to explain this to our customers. And of course it is about the environmental effect of this.

So, did you start off with this idea as a own initiative or was it something that customers were asking for?

Well it started off as a way of showing how you can take care of your jeans.
Did you notice any benefits from providing this service?
Well if it makes our customers wearing them in the correct way, yes. There is a lot of questions of what we do, and what the benefits are from doing it, but we haven't done any customer survey, like "why do they buy our jeans", "because they are eco?" or "is the repair service good?", I think it is all about that the owners want to do jeans in this type of way, this is how they want to work. Of course we look at what pair of jeans sells, and things like that, but still they stay true to what they want to do. If they want to do the repair, they don't go and ask the people if they like the repairs.

So you don't know the difference from what it would be like if you didn't offer the repair service?
No we do not know what the difference would have been if we did not have the repair service, no. But we see that we get a lot of positive press from it, and that the customers appreciate it, so we receive positive feedback from it. It is not like "is it worth the effort for us?".

End of use
It is mentioned on the website that customers can hand in their old jeans in one of three different stores in Stockholm, Gothenburg and London. Why only in these stores, and does Nudie Jeans recommend other disposal options?
I think it has been updated, or if it has not been updated it is in all of our stores now. But is our stores, it is actually a question of logistics, so if we are selling our jeans at Åhléns or another big warehouses, we can't make them send back our jeans for that. So it is basically a logistic issue, in our own stores we can easily take care of it ourselves.

Do you also mention other ways of dispose garments to the customers, like to charity or other recycling facilities or..?
Yes, on our homepage we are really making a point out of recycling things, so of course we want them to recycle the product when it no longer can be repaired. Well we say that they should sell the jeans, but also that they should repair them until they can't be repaired anymore. But I mean we sell our jeans in South Korea, Australia, Mexico, Canada from our web shop so we don't know what they best way of disposing and recycle textiles there are. We can only recommend them to do it.

Does Nudie Jeans collect jeans only, or also other types of garments?
That is a very good question. I don't know and I assume it is only jeans at this point.

Does Nudie Jeans only collect garments from the own brand, or is Nudie Jeans willing to collect garments from other brands as well?
Yes

Is there willingness to collect just random jeans and garments to use them as well or is it just from the own brand you want to take back?
Yes it is only from our brands. Recycling clothes... that is a political issue.
We would be happy to see a law to say that we need to take care of our products, we need to recycle etc. But we can only take care of our own products, not start to recycle H&M jeans.

We saw that Nudie Jeans offers a discount of 20% on a new pair of jeans, when handing in an old pair. Why did you decide to offer this discount? To make sure that people recycle their jeans.

Do you think that otherwise people wouldn't do it, if they didn't get a reward for it? I think more people will do it when you get 20% off. I think it is like, in Sweden we have the "pantsystem" on the bottles, I think it is the same here, a form of "pant". I think that is well proven that that increases the recycling.

On the website of Nudie Jeans we could see that the garments that are handed in by customers are sold again as second-hand, or used for making rugs and furniture, are there more options to where the garments might end up in sense of reusing or recycling? Yes, we use them for making new cotton, grinding the jeans down and using the fibers and making new jeans. We also use them for art projects, cutting them into pieces and sewing them up into a completely new garment. We try to find new projects of how we can do this, for example the rugs, the making economic sense for us as well.

Why did Nudie Jeans start with the recycling service, and what have the consequences been? I guess, because of the environmental reasons, that is the only reason.

What has the consequences been, because I imagine that it is pretty hard to take care of the whole recycling thing? Yes but some of it we make money out of it, and some of it we do for fun, like the art projects. And making the new jeans, instead of buying new cotton.

Communication with consumers

Is it important for Nudie Jeans to express their work on sustainability to consumers? Why? I think mostly so far, we wanted to communicate about how our products and our jeans are made, denim material... That how the people at Nudie Jeans are... they want to talk about their passion. And now when we have gotten pretty good on sustainability, we can communicate more on sustainability.

Does Nudie Jeans keep consumers updated on the ongoing improvements regarding sustainability? Yes, through our website, that is our main channel. Booklets and other printed materials about our jeans and sustainability can be found in the stores.
Besides from the website where you offer garment care, repair and disposal instructions, where are these instructions available for their customers?
Yes on they are in booklet forms as well, which you can find in the stores.

Does Nudie Jeans train their staff or retailers to educate their customers about garment care, repair and disposal?
Yes, I don't know exactly how it works, but it is very visible in the stores with the big sewing machine and the repair sign. They talk with the customers of how to use and wash their garments, all the staff in all of our stores is getting a training, so all of our employees have to go to a environmental training within the first year, that is done by an outside organization.

Does Nudie Jeans try to stay in touch with their customers after they have purchased a garment?
Well you know we have the stories, people put out their stories about their jeans and how the look, have they have been worn, several of these stories shows jeans that has been worn a year or so. These are available in social media like Facebook and at our website.

In what way are you in contact with their customers and with which purpose?
It is a way for us to communicate our products I would say. So that other consumers can see how people have been wearing them for a long time, and how happy they are with the look the jeans have after have been worn for years.

Future perspective
Does Nudie Jeans want to be even more involved in the use and disposal stage of their products?
Yes, well we are looking at new ways of collecting our jeans, at the other retail stores that we do not own, how we could expand the service to a wider range for our customers. So we are looking at the project for our recycled products.

Has Nudie Jeans considered to offer a leasing service, or have you seen it as a future opportunity?
No not at the moment, not that we are against the idea, we just haven't discussed it.

In your opinion, what role can governments play in order to make the use and disposal stage more sustainable?
I think that right now there are not any good opportunities to recycle in any country in the world. That would be really helpful for a company like Nudie Jeans, we try to incorporate recycling more.. So I think that is the biggest part.