
# SUSTAINABLE FASHION:

## NEW APPROACHES

Aalto University

Kirsi Niinimäki (ed.)

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# FOREWORD

The idea for this publication emerged while organising the international seminar and exhibition "Sustainable and Innovative Fashion" in Aalto University, Finland, on 2–3 October, 2013. The event was part of the Baltic Fashion project, where Aalto University focused strongly on producing new knowledge on the sustainable fashion field. The book sets out some of the themes presented in the seminar and exhibition. Additionally it focuses on new sustainable design and business thinking while opening views on experimental design and green business approaches through real-life cases.

This publication is intended to be used as a source of inspiration for designers and companies, and all stakeholders whose interest lies in the area of sustainable fashion. While the strategies for sustainability are complex and approaches are many, this publication presents only a few ways to approach sustainable fashion. I hope the publication offers inspiration on how to make positive change in current practices and how to effect new mindsets, creating transformative fashion.

Theoretical texts and the individual design cases and real-life business examples presented in this book show that a change in mindset is possible. They illustrate how we can challenge our traditional thinking and make manifest new ways to frame the problem and seek creative solutions. Moreover when problem areas are seen as opportunities where design thinking can help create successful outcomes, the chapters offer examples of how to do fashion and business differently. Even the wildest design experimentations are beneficial and meaningful if they open new kinds of thinking or even question the current fashion system.

This book presents sustainable fashion as an approach that encompasses future-oriented value, as transformative and re-directive design envisioning the future, as design and business strategy, as change agent experimentation, and as reframing business thinking. The content is divided into six themes: the basics of sustainable fashion, ethics and aesthetics, critical and social design, product-service systems, innovation for green business and collaboration.

I wish to thank all writers, researchers, designers and companies who contributed to this publication with their best knowledge, writing, visuals and photos, and brave experimentations in the field of fashion.

And before you start this literary journey I want to emphasise that sustainable fashion is a creative process where design, quality, value, collaboration and networks form the core, not fashionable appearance and cheap prices. Enjoy the experimental journey!

In Tuusula, Finland
December 2013

Kirsi Niinimäki

# ABBREVIATIONS

**BSR** Baltic See Region
**CEO** Chief Executive Officer
**CSF** Centre for Sustainable Fashion
**CSR** Corporate Social Responsibility
**C2C** Consumer to Consumer
**DfE** Design for Environment
**DIT** Do-it-Together
**DIY** Do-it-Yourself
**DPC** Designer-Producer-Consumer
**EMAS** Eco-Management and Audit Schme
**EPR** Extended Producer Responsibility
**LCA** Life Cycle Analysis
**MSI** Material Sustainability Index
**NGO** Non-Governmental Organization
**PSS** Product-Service System
**SAC** Sustainable Apparel Coalition
**SME** Small and Medium-sized Companies
**ZWF** Zero Waste Fashion
**ZWPC** Zero Waste Pattern Cutting

## THE BALTIC FASHION PROJECT

Despite dramatic changes within the last decade resulting in a loss of a third of its volume and jobs, the fashion sector still plays a highly important role throughout the Baltic Sea Region (BSR): not only that it is characterised by a high number of small and medium-sized enterprises (SMEs) and female employees, but it is also an important source for creativity and identity-building throughout the region. Recent innovations and transnational cooperation as well as trends towards sustainable consumption offer important opportunities for Baltic fashion designers and companies.

Against this background, the Baltic Fashion project partnership, composed of representatives from government, industry and education, explored possibilities for transnational cooperation in Baltic fashion support. As part of the Baltic Fashion project, they:

- analysed innovations within the industry, which are of relevance to Baltic fashion SMEs in view of offering them unique selling points, lowering production costs and/or expanding to new target groups,
- strengthened business cooperation in the BSR by compiling a comprehensive mapping of local production sites and organising BSR-wide business cooperation events. Based on current trends as well as strengths and weaknesses of each country, an analysis on possible scenarios for local production in the BSR countries was developed,
- collected information on the current support offer for fashion businesses and conducted direct surveys with fashion SMEs to enquire about their needs. Based on the results, they developed and tested fashion business support measures as well as training,
- organised roundtables with national stakeholders to discuss actions to further support the Baltic fashion industry in the future, and
- explored how cooperation within the Baltic Fashion project could be continued in the future.

All information, either collected or generated in the project, was fed into the Baltic Fashion Information Portal, the first-ever comprehensive web platform on Baltic fashion, accessible at www.balticfashion.eu.

The Baltic Fashion project was supported by the ERDF-financed Baltic Sea Region Programme 2007–2013 under the priority “innovation”. It was implemented between December 2010 and December 2013.

## ACKNOWLEDGEMENTS

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# SUSTAINABLE FASHION

*Contemporary aesthetic norms are based in capital-intensive, highly automated, unsustainable procedures. These procedures tend to reduce the potential for fulfilling employment and often ignore social and environmental losses. (Walker 2007, 76.)*

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Walker, S. (2007). *Sustainable by Design Explorations in Theory and Practice*. London: Earthscan.

# TENENTS OF SUSTAINABLE FASHION

Kirsi Niinimäki

# INTRODUCTION

To unpack some of the complexity surrounding the sustainability issues in the fashion field, this chapter briefly discusses some of the principles behind sustainable fashion. The chapter begins with manufacturing and consumption, moves to design principles, discusses the use phase and CSR (Corporate Social Responsibility) issues, and finally moves to new technologies.

The environmental impact of garments can be decreased during:

- fibre production, finishing, dyeing and printing processes
- global logistics during manufacturing and sales
- the use and the maintenance of the product
- disposal of the product.

In all these phases there are myriad possibilities to lessen environmental impact. Recently ethical and sustainability issues have entered the discussion and have received a lot of attention, as fashion manufacturing has moved to lower cost and mainly Asian and Far East countries during the last 25 years.

Current design and manufacturing systems as well as economic models lead to unsustainable fashion consumption. The whole situation can be seen as a complex problem that needs creative problem solving, brave design thinking, questioning of current practices, and open collaboration between different industrial and marketing partners.

## THE FASHION INDUSTRY AND GARMENT CONSUMPTION

To understand the scale of the problem in the current fashion system, the following paragraphs will give some key figures on the global textile and fashion industry. The textile and fashion industry is one of the biggest and oldest industrial sectors in the world. It uses more water in its processes than any other industry except agriculture, and it releases huge amounts of toxic chemicals into the environment. The total volume of textile and fashion production at the global level is estimated to be more than 30 million tons annually, and therefore the environmental impacts of this industry are remarkable (Chen & Burns 2006).

The textile and clothing industry has moved with increasing speed and volume into low-cost Asian and Far East countries during the last 25 years. For example in Finland the watershed year was 1987, when textiles and clothing export figures were bigger than import rates for the last time; in the following year these figures reversed (Moilala 2013). Today it is estimated that in Finland, for example, about 95% of sold garments are imported; this figure is by and large the same in all Western countries (mostly between 90-95%). And production has not only moved into long logistic chains, but it also has grown and is still growing. It is estimated that the global textile industry grew 25% between 2002 and 2010 (Economy Watch 29.6.2010). Yet this tendency started already in the 1980s: industry growth at the global level stood at 143% between the years 1979–1990 and the Far East had the highest textile export growth of 430% during that period (Lim 2003).

On the consumption side rapid growth is also evident. For example in the UK the consumption of fashion has increased by 37% between 2001 and 2005 (the amount of clothes purchased per capita) (Allwood et al.2006). In Sweden the amount of clothes and home textiles released on the market rose by 40% between the years 2000 and 2009 (Carlsson et al. 2011 in Tojo et al. 2012). In Finland the total volume of clothes sold in 2010 was 70 212 tons (Tojo et al. 2012), which, for a population of 5 426 674, equals an average of 13 kg of textiles per person. This Western overconsumption causes environmental and social problems on the other side of the globe, where the fibres are cultivated, fabrics are woven, dyed and finished with chemicals, and sewn into garments in poor working conditions.

Efficient mass manufacturing in lower cost countries has brought about low end-prices of garments. Cheap product prices lead consumers to impulse purchases and unsustainable consumption behaviour: overconsumption, very short use time of products and premature disposal of the product (Niinimäki 2011). Growing consumption also leads to increasing textile waste streams. The American consumer disposes of 31 kilograms of textiles and clothing each year, most of which ends up in landfill (about 85%), and it is estimated that in the UK over 900 000 million items of clothing are disposed of each year (Brown 2010). Finnish consumers discard nearly 17 kilograms of textiles and clothing a year, 75% of which ends up in landfill (Moisala 2013).

Fashion markets are oversaturated and because of the extremely effective mass manufacturing system, the world is full of not only new fashion items and fashion shops but also unsold clothing. Discount sales in fashion shops seem to be a permanent phenomenon. In addition not all new garments even enter the market; some go to landfill directly from the factory, because of imperfect quality. Furthermore some garments are never sold to consumers from the shop because there are too many offerings on the market, which is oversaturated. No one actually seems to know the amounts of these unsold garments, which end up in landfill. It is estimated that these unsold garments may account for even 5-10% of the whole fashion production. Fashion companies try to maintain their brands' reputations in this risky business and would rather destroy the unsold garments than discount them and release them onto the market in too big quantities.

Some fashion companies are trying to build a positive reputation by working together with designers in a new way with these unsold garments. In some cases young designers are invited to create unique fashion collections made of unsold clothing. These redesigned collections are presented at social events with the help of the media. One example of this phenomenon was the second ReUse Republic event in Helsinki (8–9 April 2011), where thirteen young designers sold their unique fashion made from fashion brand donations, pre-consumer garments made into new apparel.



*ReUse Republic event in Kamppi shopping centre in Helsinki, Finland (Photo: Kirsi Niinimäki)*

## SUSTAINABLE DESIGN

Textile and clothing consumption is estimated to comprise about 5% of the environmental impact and carbon emissions of households. Even if that figure is relatively low, textile and clothing consumption is ever increasing (e.g. Spangenberg 2001), and the more recent shortening of the life spans of especially fast fashion items increases the environmental burden of the industry: all those resources are wasted if the garments are worn for only a very short time or even not at all. Furthermore textile waste is growing problems in all Western countries and additionally the chemical burden of textile manufacturing is a huge problem in Asian countries.

In landfills most textiles do not decompose (polyester not at all while some natural materials do but often too slowly), and the problem is that they are not planned to be suitable for composting. Fibres include many toxic chemicals, colours and finishings, and most garments are made of blended materials unsuitable for composting. Composting is also problematic from the environmental viewpoint as it produces a lot of methane, which contributes to greater greenhouse gas emissions and global warming.

Many consumers donate their old garments to charity shops, where some garments are resold to consumers and some are transported to other destinations like Africa. In Africa this invasion of Western garments has largely destroyed local textile and garment production. In this way Western consumers have moved their consumption problems to the developing world and simultaneously helped to destroy the cultural value of local production and local textile traditions.

In the 1970s, when environmental thinking started, the focus was more narrowly on solving waste problems caused by industrial production; currently sustainable thinking looks for ways to find sustainable balance in the use of economic, social and environmental resources while simultaneously taking care not to destroy the ability of future generations to fulfil their needs in a sustainable way. The notion of the triple bottom line means taking into consideration all three areas: people, planet and profit in a sustainable manner. Additionally sustainable design and business strategies today include ethical and value-based thinking. While true sustainable thinking is rather wide and needs a holistic understanding and approach on many levels, it is more common to focus on one narrower approach to eco-design and sustainability, for example focusing on the environmental impacts of manufacturing, substituting materials with eco-materials, or focusing on ethical issues in manufacturing (e.g. CSR, corporate social responsibility). This same kind of narrow thinking is also seen in the use of eco-labels. Even though all these aforementioned approaches are important, and it is positive that companies are interested in eco- and sustainable fashion, according to holistic thinking these strategies are limited and very often do not face the real problem areas. Such narrow approaches alone therefore cannot solve the actual problem, the overproduction and overconsumption

of clothing. The fashion discipline is far behind for example industrial design in producing scientific environmental knowledge for designers' use, trying new design methods to solve problems in more creative ways (Thomas 2008), or engaging consumers in sustainable transformation processes. We need more creative thinking in designing, manufacturing, consuming and doing business in the sustainable context.

By definition eco-design and design for the environment (DfE) include environmental consideration and especially life cycle thinking. The sustainable design approach adds to the aforementioned the ethical and social dimensions of the product, in its manufacturing, use and disposal phases (Tischner & Charter 2001, p. 120). Environmental consideration means that we use all renewable resources in a manner where the use does not jeopardise the resources' ability to renew: there has to be a balance. The use of non-renewable materials should be minimised, all materials should be recycled effectively, waste should be avoided, and any waste that is produced should be treated appropriately without environmental risk. Social sustainability involves considering the well-being of individuals, communities and societies at large. Finally, since the triple bottom line approach includes environmental, social and economic approaches to sustainability, financial feasibility is accordingly an important aspect (Elkington 1994). This notion is also known as "People, Planet & Profit" (alternative prosperity) (Visser et al. 2008).

The European Commission has defined principles of environmental design as follows:

- Use low-impact materials whenever it is possible: non-toxic, sustainably produced or recycled materials which require little or no natural resources (such as energy and water) to transport and process, and whose use does not threaten bio-diversity
- Focus on resource efficiency: create manufacturing processes, services and products that consume as few natural resources as possible
- Invest in high quality and durability: longer lasting and better functioning products, which age aesthetically and therefore reduce the impact of product replacement
- Reuse, recycle and renew: design products that can be reused, recycled or composted (SEC 2009, p. 21).

Sustainable fashion should include life cycle thinking, which takes into account all phases: design, manufacturing, logistics, retail, use and disposal. It is said that it is better to design life cycles instead of products; sustainable design includes consideration of the use phase and end-of-life thinking. At best the product has the possibility to have several life cycles: it should be designed how the product can be used after the first life cycle is over. From the environmental point of view it is best to use the product as it is, the second best option is to redesign a new product from it (e.g. through minor modifications), and the third option is to recycle the materials.

In the fashion field several guidelines and checklists have been created in recent years. Sandy Black (2011, pp. 46–47) gives the following guidelines for a sustainable fashion designer: design for the entire garment's life cycle (including use and disposal)

- reuse waste materials
- recycle
- upcycle
- repair and remodel garments
- recreate (e.g. existing design concepts)
- reduce (use of resources and creation of waste)
- use ecological materials
- use mono materials
- use new technologies
- create longer lasting products
- design multifunctional clothes
- design for delight.

## CRADLE-TO-CRADLE

The cradle-to-cradle principle was originally suggested by Stahel in the 1970s (Lovins 2008, p.38) and again at the beginning of the new millennium by McDonough and Braungart (2002). According to this principle a product is designed and manufactured in such a manner that multiple life cycles of the product or materials are possible. The cradle-to-cradle principle counsels that after the use phase the product will continue in technical or biological life cycles, meaning it will be recycled into a new material or it will be composted. This means that materials, dyes, chemicals and auxiliaries have to be suitable either for recycling or composting (i.e. be biodegradable). This is a challenging task since, for instance, only few textile colours or chemicals in the fibres can be composted without environmental problems.

## REDESIGN

The redesign of old materials into new fashion products has become popular at the beginning of the 21st century. Reuse and redesign is sometimes called an eco-efficiency approach (Fletcher 2008) even though these strategies do not address the real problem: the increase in production and consumption. Reuse and redesign need no changes in current consumer practices, so it is easy to accept. And since we have huge amounts of textile and clothing waste, redesign has begun to be a popular and trendy fashion design approach. In the redesign approach it is beneficial to remember that all textile materials are not designed for clothing purposes, which might make them feel uncomfortable in use and even unsuitable to wear against the skin.

## RECYCLING

Recycling means that the product is recycled into new material or fibres. Recycling can mean downcycling or upcycling. In downcycling processes we lose some of the value of the material and the quality is lower than in the original material. Therefore downcycled material is mainly used for filling purposes. Upcycling, in contrast, aims to keep the product's quality high and it can even mean increasing the value of the material e.g. through design.

The recycling approach needs mono materials, which means that the whole garment is made from one material only (including threads, buttons, zipper etc.). This makes it easy to recycle as one piece and one material (e.g. as with Patagonia's products). Another possibility is that all parts are easy to disassemble and products have to designed in this manner. But this is complicated to realise in clothing where disassembling would be too time-consuming and costly. Mono-materials in fashion items are also not very common and nearly all garments are made of fibre blends that are complicated or impossible to recycle.

If we accept the current consumption practices as they are, and the concomitant huge amount of textile and clothing waste, we have to invest in a recycling economy; then polyester is our choice. Polyester can be melt-spun and this results in high quality material. Even though we see savings in e.g. energy, the process still needs a certain amount of virgin polyester material, and this approach locks us into polyester production and the accompanying oil production.

## MATERIALS

We do have more and more environmental information about textiles' impacts during cultivation, manufacturing processes and the use phase. While a full compendium of this information is out of the scope of this publication, a short summary of materials' environmental impact is given below, as choosing materials for garments is one of the most problematic phases in the sustainable fashion design process.

Even though new materials are entering the field of fashion, the most commercially important fibres used in the fashion industry are cotton and polyester, together accounting for over 80% of all fibres, and the use of polyester has grown each year. Fibre consumption figures for the year 2005 are shown in Table 1.

Table 1. Fibre use (Simpson 2006)

| FIBRES USED WORLDWIDE IN 2005 (MILLION TONS) | |
|---|---|
| NATURAL FIBRES | |
| Cotton | 24.4 |
| Wool | 1.23 |
| Silk | 0.13 |
| | Total 25.76 |
| MANUFACTURED FIBRES | |
| Cellulosics | 2.53 |
| Synthetics | |
| Acrylic | 2.63 |
| Nylon | 3.92 |
| Polyester | 24.70 |
| | Total 33.78 |
| TOTAL | 59.54 |

Because diversity is an important value in sustainable development it is important to have variety in textile fibres. Accordingly the current predominance of cotton and polyester can be seen as a problem from the viewpoint of diversity. More recently hemp, which is considered a more environmentally friendly alternative to cotton, has increased its share in sustainable fashion markets. Hemp grows fast, produces long fibres and needs little pesticide. It even improves the soil structure and can be cultivated in colder climates. Environmental friendly enzymes can also be used in hemp processes. A similar fibre is flax (linen).

It is not possible to say which fibres are more environmentally friendly, natural fibres or manufactured fibres. Each fibre has its own environment burden. Production of acrylic, viscose and cotton into fibres needs a lot of water, and acrylic, polyester, viscose and cotton need a lot of energy in the production process. The land area used to cultivate natural fibres might be better used in food production, and some natural fibres have a big environmental impact during cultivation, e.g. the water and pesticide use in cotton cultivation. In this regard organic cotton is a better choice; its cultivation uses fewer chemicals (pesticides and fertilisers).

Many synthetic fibres are by-products from petroleum production and they are not renewable; on the other hand they can be recycled more easily into good quality material (e.g. polyester) while cotton is mainly downcycled. Nonetheless high quality and recycled cotton has recently entered the market.

New fibres are being developed and bio-based plastics, for example, offer future potential also in the fashion field. These fibres can be produced from e.g. corn or soybean protein. Milk (casein) can also be used for fibre production. The best situation would be that all these new materials are by-products from agriculture, should be biodegradable, and from renewable sources.

The ecological viscose Tencel (lyocell) is made from wood pulp and from trees specifically cultivated for this purpose. Tencel processing has been developed to have low environmental impact and the material is biodegradable and renewable. (Chen & Burns 2006)

Bamboo is a contradictory material: while it is marketed as an ecological choice (fast growing and renewable), in reality, its viscose process from fibre to yarn has a rather large environmental impact. However it is also possible to process bamboo fibre in a more environmentally friendly way, not in a viscose process but as a normal fibre process. This environmentally better bamboo fibre has been developed in Switzerland (Steffen at al. 2013).

Some synthetic fibres have bigger environmental impact because they induce more sweating during use and need to be washed more often than garments made of natural fibres. Recent research has pointed out new problem areas in the use of, for example, polyester. Microplastics from washing machine wastewater are polluting beaches and marine environments. These tiny particles come loose when clothes made from synthetic fibres, like polyester, acrylic and polyamide, are being washed. (Browne et al. 2011.) Frequently laundered polyester sport clothing especially causes this problem.

The organisation Made By has categorised textile materials according to their environmental impact (see Table 2). Class A consists of fibres that have the lowest environmental impact (according to Made By).

Table 2. Textile materials' environmental impact (Made by http://www.made-by.org/benchmarks/environmental)

| CLASS A | CLASS B | CLASS C |
|---|---|---|
| Recycled cotton<br>Recycled nylon<br>Recycled polyester<br>Organic hemp<br>Organic flax (linen) | Tencel® (Lenzing lyocell product)<br>Organic cotton<br>In conversion cotton | Conventional hemp<br>Ramie<br>PLA<br>Conventional flax (linen) |
| **CLASS D** | **CLASS E** | **UNCLASSIFIED** |
| Virgin polyester<br>Poly-acrylic<br>Lenzing Modal® (viscose product) | Conventional cotton<br>Virgin nylon<br>Rayon<br>Bamboo viscose<br>Wool<br>Generic viscose | Silk<br>Organic wool<br>Leather<br>Elasthan<br>Acetate<br>Cashmere wool<br>Mohair wool<br>Fibre-based bamboo, etc. |

When choosing materials for garments, the material's attributes and how they suit the particular wearing practices have to be considered carefully. It is also important to evaluate the material's aging process so the material does not look old too fast. Studies have shown that materials that are considered to age aesthetically include high quality wool and leather (Niinimäki 2010). In contrast materials like acrylic look old after a rather short use time, as pilling will occur. This is also seen with commonly used soft fleece-type polyester.

## THE USE PHASE

Textile maintenance uses much energy and water, in washing, drying and ironing. We know that only 7.5% of laundry is actually heavily soiled. The majority is washed more for cultural or behavioural reasons (Catton 2007). Garments frequently washed have the highest environmental impact. By optimising the best textile materials, fit and colours for each purpose and use, the designer as well as the consumer can minimise the number of washes.

Garments and workwear textiles have a large relative environmental impact during use, compared to their impact during production and disposal which is estimated to have a small relative impact (Fletcher 2008). Depending on the material and its need to be washed frequently, the impact of consumer care can e.g. be as high as 75–80% of the total environmental impact of a cotton shirt (Lewis & Gertsakis 2001). In this case eco-material choices do not actually offer much improvement to the environmental footprint in the total LCA (Life Cycle Analysis).

While the goal in EU energy efficiency policy is to decrease the use of energy, new problems are arising also in clothing care. The EU demands that all new laundering machines have a 20°C temperature washing programme. Washing garments in cold water saves energy but on the other hand stronger chemicals are needed to get all dirt away from the fibres. This causes a new environmental problem because strong chemicals stay in the wastewater. Furthermore the use of stronger chemicals in laundering might stimulate allergic reactions. Therefore it might be better to use higher laundering temperatures instead of lower temperatures with stronger washing powders. (Vaatteiden Kylmäpesu Voi Lisätä Kemikaalien Käyttöä 2013)

Chemical use in general is an increasing problem in the textile and fashion industry. Production processes might include a lot of chemicals which are a risk not only for textile factories' workers but also for the end-users. Lately we have seen several product recalls where garments have contained too many harmful chemicals. In the EU the REACH chemical regulation tightly restricts chemical leftovers in textiles and garments as well as chemical waste in the textile industry. Therefore if the garment is made in EU countries, it has a higher guarantee that it is safe for the end-user.

One of the most important factors in the environmental impact during the use phase is the garment's lifetime. Currently garments are far cheaper compared to household incomes than a few decades ago. Textile and clothing prices have fallen, and currently the consumer possesses more and more impulse-buy cheap garments and low quality textiles. These kinds of low quality and cheap garments are easy to discard. Extending the life span of garments is one of the most critical issues for sustainable development.

In the UK a study showed that almost half of people's clothes have sat in a closet without being used during the last twelve-month period. It is estimated that this means 2.4 billion items in the UK alone. And most of these unused clothes are owned by young consumers aged 25–34. (Belz & Peattie 2011, p. 125) Another study from the Netherlands showed that the average piece of clothing is owned for three years and five months. During that time it is worn for only 44 days and laundered after being used for 2.4 to 3.1 days. (Uitdenbogerd 1998, as cited by Fletcher 2008)

Contrary to the current system, product durability and long-term use are prerequisites for sustainable consumption (Cooper 2005). To slow down consumption it is important to invest in good quality and durability as well as in aesthetically aging materials, high design and lasting style. In this regard services that aim to extend how long garments are used offer value in the sustainable development context. One challenge in the current system is how to design products added with services that encourage consumers to adopt more environmentally responsible behaviour.

When focusing on ethical and sustainable use and consumption, the following issues should be considered:

- Purchasing fewer garments
- Investing in meaningful garments (promoting emotional bonding)
- Investing in durable garments, more classical style and high quality
- Investing in eco-materials and eco-labels
- Extending garments' owning time and using them more frequently
- Washing less, letting garments rest and air between use times
- Maintaining garments, also repairing
- Using services to intensify use and to extend the use time (e.g. repair, upgrading).

Consumption and consumerism lie at the core of Western societies. Consumption is an important function in people's everyday life. Current consumption patterns are strongly connected to industrial manufacturing systems, economic systems and the underlying economic values supporting this unsustainable system. Consumption and purchasing situations often involve a strong emotional experience for consumers. Therefore we should also create systems that offer other kinds of emotional experiences and satisfaction than from buying new stuff. This could happen for example through strategically sustainable design that includes services (Niinimäki 2011).

## CSR AND SUBCONTRACTING

In today's reality in the fashion field more and more garments are manufactured in other countries, very often on the other side of the globe. Globally about 80% of clothing exports are shipped from undeveloped countries to developed economies. For example in Finland about 90% of sold garments are imported from Asian and Far East countries, about 5% from EU and other countries, and only about 5% are manufactured in Finland. In this fragmented and globalised supply network the main issue is risk management. From the recent accidents and fires in Bangladeshi textile factories we know that lack of awareness about the weak points in the supply chain create a reputational risk, at the very least. Corporate Social Responsibility (CSR) tackles these issues: i.e. what enterprises' responsibilities are regarding their impacts on society. Additionally corporations should integrate social, environmental, ethical human rights and consumer concerns into their strategy in cooperation with their stakeholders. Corporate Social Responsibility is used in parallel with the terms Corporate Citizenship, Corporate Responsibility and Corporate Sustainability.

If the producer wants to address sustainability issues in the supply chain to a greater extent, it is important to select subcontractors well and demand good practices. Code of Conduct principles help companies in this process, and standards like SA 8000, ISO 14001 and EMAS help when considering environmental and social aspects in design and manufacturing practices. Additionally the UN has defined ten principles called the "Global Compact" to set standards for subcontractors (http://www.unglobalcompact.org/AboutTheGC/). These principles take account of issues from human rights, labour issues, environment initiatives and issues in anti-corruption. Several companies have voluntarily accepted these principles and follow them in their own subcontracting arrangements, for example Puma, GAP and Nike. Checklists exist where producers can pick requirements for their subcontractors (e.g. http://www.csrcompass.com/).

Better than just giving the code of conduct list to manufacturers is to work in collaboration to improve the situation. Working with subcontractors and establishing good and tight relationships, mutual understanding and trust takes time. The producer's goals and requirements in sustainability have to be well communicated and preferably based on mutual motivation. Furthermore to build motivation it is good to show good successful examples of how to work with sustainability in the fashion field. (Kruger et al. 2012)

Companies can benefit and gain great advantages by using charity or donation in their CSR

strategies. The charity work should be rooted in the companies' actions strategically so that it engenders long-term business opportunities and "improves the competitive surroundings through charity…". (Porter & Kramer 2006, as cited by Kruger et al. 2012, p. 15) It is important to realise that acting responsibly and promoting CSR do not necessary mean direct revenues to the company. The motivation to act responsibly is based on values other than economic but actions might also be (or should be) economically successful in the long run.

The sustainability strategies should also be included at all levels inside the company. All departments should commit to sustainability practices and all processes and products should include sustainability principles. Furthermore the sustainability of business is most important so the business must be profitable. It is also important to understand that sustainability and CSR needs constant evaluation; therefore it is a constant commitment and learning process (van Dyk 2008).

Transparency is important in the fashion field, and all actions should be opened up to build consumers' trust. This can also mean publishing all information about the supply chain, the names and locations of the suppliers and sub-contracting partners. A good example of this practice is the company Patagonia, which has been a leader in supply chain transparency for many years. Patagonia has set sustainability principles as a core in their strategy. The company offers information not only about all its manufacturing locations worldwide, but also background information about the factories they are collaborating with, as well as general environmental and social information about global manufacturing. Consumers can find all this information in Patagonia's webpages.

In the global fashion business it has become challenging to identify the origin of a product since production processes are fragmented into several countries and supply chains are complex. Yet this information is valuable for consumers, and more transparency is demanded especially in clothing manufacturing. The "Made by" label is based in the Netherlands, and its goal is transparency in clothing manufacturing. For a consumer it is possible to trace the manufacturer of a garment through a code and use of the internet. (Fletcher 2008, p. 68)

## LOCAL PRODUCTION

Some companies have chosen the strategy to produce locally and even in their own factories to prevent risk in subcontracting. One example is the company American Apparel, which doesn't outsource any of its operations. All products and all processes, e.g. dyeing, cutting and even packing, are done in its own factories; the company employs 5000 workers in southern California. According to the company their workers earn the highest pay worldwide in the textile and apparel field. They say that through this strategy they gain better and more consistent quality, environmentally better processes (following regulations) and stronger employee morale. (Briefing: supply chain 2012) While the use of global supply chains creates risks, keeping or returning manufacturing to the local level lessens risks and ensures quality in the manufacturing. It is also good to remember that environmental regulations and laws are tight in EU countries while the situation is totally different in many Asian countries, which causes risk from the environmental point of view. Moreover many chemicals that are banned in EU countries are largely still used in textile factories in undeveloped countries, which causes risks to the workers, the environment as well as for the product's end-user.

Another example of local production is the Finnish M.A.S.I Company, which produces jeans in its own factories in Keitele, Finland, and

## EXTENDED PRODUCER RESPONSIBILITY (EPR)

Estonia, for, for example, the brand Lee Cooper. This allows the company to easily control production, working conditions and the quality of the product. M.A.S.I does not do any sand-blasting of jeans, which is most harmful for workers and lowers the quality of the denim, weakening it. They also invest in better fit for consumers, by developing their own standards: i.e. measuring 250 consumers to create better fitting jeans measurements and focusing on styles that highlight the behind. (Moilala 2013.) Good fit is the most important design aspect in jeans design.

Recently the approach of extended producer responsibility has gained a lot of attention and discussion in the EU. Extended producer responsibility (EPR) requires the original manufacturer or producer to take back the product after its use. In EPR the goal is that already in the design phase producers think about and plan how they can reduce environmental impact of the product after its use.

This post-consumer waste should be reused, redesigned or recycled. In this concept companies are forced to have a waste management system and preferably take-back systems based on closed or open loop thinking, or, if not, pay waste treatment costs. Closed loop thinking means that all off-cuts, waste and products after their use time are treated inside the factory's own processes and open loop means that leftovers are handled by some other outside partner. The principle is familiar in e.g. electronic products but not yet in textiles.

EPR doesn't yet cover the fashion and textile field but it soon might, and this would change fashion companies' action logic, as old garments mean extra cost through waste treatment. EU policy aims for waste prevention, closing landfills and effective material recycling systems. This would also cover textiles and fashion. Right now textile waste ends up in landfills or as energy waste in most European countries. France is one exception. There producers, distributors and importers of clothes, linen and footwear have had to take back old products since 2008. A company has to have a take-back system itself or it can join a scheme, which is accredited by the French government, and pay into it (right now EcoTLC). (Tojo et al. 2012.)

## GREENWASH

Because Western consumers' environmental interest is rising, companies may be tempted to use sustainable and environmental arguments merely to increase sales. And because environmental and sustainability issues are complex it is also easy to mislead consumers. Companies can use sustainability as a "marketing ploy" (Goworek et al. 2013, p. 388) – something that can be seen as greenwashing.

To prevent greenwashing too narrow a focus on environmental issues should be avoided and a more holistic understanding is needed. For example if a fast fashion company uses eco-labels on some of its products or one product line, it doesn't truly change the fashion system or the economic logic behind it; the company's environmental load is still huge since it produces too much stuff in extremely fast cycles. A similar example is where a fast fashion company uses paper bags instead of plastic ones. The business logic does not change with this small detail. The company's values have to be grounded deeply in sustainability and its principles should be included and implemented substantially at all levels and functions.

The other aspect to consider is that all information about the environmental benefits of the product has to be proven. In this regard eco-labels are much better than the company's own environmental statements. Eco-labels (certificates) are based on an independent organisation's tests and evaluation criteria and are thus more objective and reliable than the company's own information. All irrelevant or confusing information should also be avoided.

## NEW TECHNOLOGIES

New digital technologies offer the possibility to produce locally and with lower environmental impact than traditional industrial mass manufacturing. New digital machines are not big investments and make it easier to start production locally. With digital technologies, like textile printing and 3D knitting, it is possible to produce smaller quantities, avoid surplus production, and even produce according to orders only. Moreover digital manufacturing allows individual and unique designs to be produced. And garments that are produced locally and close to end markets can also represent huge savings in logistics.

Digital textile printing offers the chance to do things differently. It brings the opportunity to produce locally, to produce only limited amounts or according to orders only, and to produce based on customization and unique design. Conventional printing systems use large quantities of chemicals, dyes and fabric. For example the industrial rotation printing technique needs several metres at the beginning of the print process before the print quality and colours are adjusted to look as they should (the imperfect pre-printing can take even 15–20 metres). Digital textile printing thus offers environmental benefits in comparison.

The environmental benefits of digital textile printing compared to rotation printing are as follows (Digital inkjet textile finishing 2013, p. 35):

- savings on energy up to 60%
- savings on water up to 80%
- savings on inks up to 90%
- savings on colour waste up to 90%
- reduced stock up to 70%.

The amount of dye applied on fabric is precisely controlled in digital printing and this saves on the use of dyes. It is also possible to print only according to need or according to orders and therefore surplus production is avoided. Furthermore it is possible to print small amount of fabrics or even inside the garment's patterns. This saves dye as well as fabric.

*Miu's digital printed fashion (Photo:Otto Nieminen)*

*Miu's digital printed fashion (Photo: Otto Nieminen)*

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# ETHICS AND AESTHETICS

*This relationship between personal values and professional practice has inspired a new type of designer, one who is a strategic thinker, a successful creative maker, and an experienced communicator driven by values-based decision making (Sherin 2013, 6).*

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# VALUES AND GREEN AESTHETICS

Kirsi Niinimäki

# INTRODUCTION

Values and ethics are fundamental grounds for sustainable fashion. It would be fruitful for designers to consider whose values are included in the design process and on what basis. It is also good to remember that there isn't any value-free design. We should design and construct a new system and basis for value creation, to help us face future challenges in the sustainable fashion discipline. Such a system could serve to evaluate design proposals and their benefits for sustainable development. Furthermore manufacturing processes, business models and marketing could be included in this value evaluation process. However we need novel knowledge on how to embed the dimension of environmental value and future-oriented thinking into the current fashion system.

Our human values are based on ethics. While in fashion aesthetic experiences and evaluation are usually the most important, this chapter not only discusses values but also green aesthetics. Green aesthetics is an approach that combines aesthetic experiences and evaluation with sustainable values, and it offers an opportunity to mature our aesthetic experiences in the context of fashion.

## VALUE CREATION

Design forms an integral part of our culture and values within. This means that sustainable design should not only take into account economic values, but cultural, social, ethical and environmental values should also be included in the sustainable design process (e.g. Tischner & Charter 2001). Designing could change and become a more proactive and participatory process aiming for aesthetic sustainability (Niemelä 2010, 60). To this ambition it can be added that sustainable design can also be a proactive process that aims to transform consumption patterns towards more sustainable ones and therefore it includes future-oriented thinking (Niinimäki 2011). It is important to understand how current design, manufacturing and business practices effect unsustainable consumption patterns. Products actually configure consumers' needs and use patterns and hence design can be said to be "practice-oriented", which leads to certain everyday consumption habits (Shove et al. 2007, pp. 134–136). Therefore designers, manufacturers and companies are responsible not only for the environmental impacts of the fashion industry but also for the unsustainable consumption behaviour of consumers and the increase of waste streams.

Designers can even destroy the value of the product by creating fast-changing trends that quickly outdate the products and render them valueless. The product itself may destroy something valuable, such as a craft skill or local knowledge (Fry 2009),

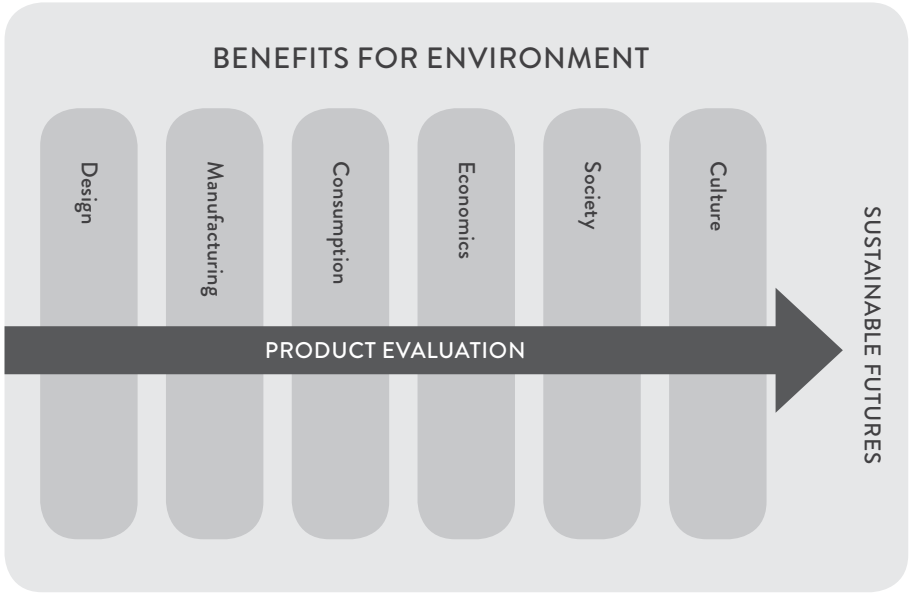


*Figure 1. Future-oriented product value evaluation (based on Niinimäki 2011, 62)*

something we already have seen in the area of fashion: manufacturing locations are far from end markets and local manufacturing skills have diminished or disappeared. At the same time only few consumers can repair their own garments or have skills to create garments themselves; many do not even own a sewing machine. Thinking about what we design and produce, and why, as well as what consequences our design may bring forms the basis of ethical thinking and future-oriented value creation.

Future-oriented value creation as an approach guides designers and manufacturers towards far-sighted products and far-sighted business thinking, transforming current practices towards more sustainable societies. Figure 1 presents a way to evaluate future-oriented value in the fashion system. Each design and manufacturing decision has to include consideration of the future: how the product will be used, how it will age, how it will be disposed of, and what environmental impact the product will have (during manufacturing, use and after use). Furthermore the business model and its influence on consumption practices are included in this evaluation process (e.g. a slow system versus a fast system). What consequences do the product and its manufacturing have with regard to environmental, societal and cultural values? All these aspects have to be considered before the product is designed or manufactured. And is there the possibility

to completely avoid materialistic consumption and do business differently? Radical thinking (e.g. a PSS approach to fulfil consumers' needs in a dematerialistic way) is needed to create a new value creation process in sustainable fashion.

At best, a new kind of sustainable fashion system can create value for people, planet and profit (see Figure 2). For people the system can create a safe environment through the use of fewer chemicals in production, i.e. safe products for end-users. This system can also promote greater product satisfaction through better quality and longer lasting products. It can promote well-being and happiness through less materialistic consumption. We can learn to invest in higher quality and more expensive products, use them longer, own less and take good care of our possessions. Furthermore such a system can mean more social justice and better working conditions for textile factories' workers, while through slowing the system it is possible to increase the end price of the product and invest in better factories. For the environment, through cleaner production and perhaps even less industrial production and waste, the benefits for slower cycles are clear. For business new models to make profit in an environmentally beneficial way have to be created. New systems thinking and these radical green business models can afford new business opportunities through e.g. a service approach, to encourage less materialistic industrial manufacturing.

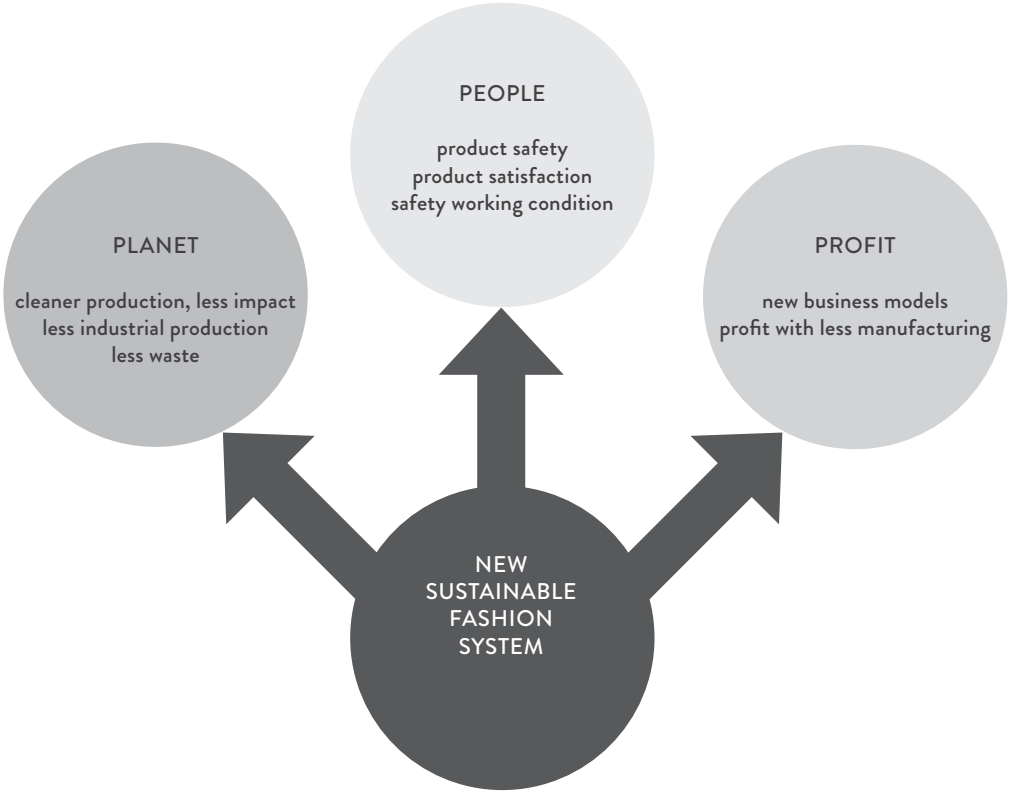


*Figure 2. Sustainable fashion system can create value for people, planet and business.*

## GREEN AESTHETICS

Beauty and aesthetic dimensions are the most significant when consumers are choosing clothing and designers are creating new garments. Nevertheless current consumption as well as our aesthetic preferences are on unsustainable ground, and a new ethical consumer culture and radical changes towards sustainability are needed. Green aesthetics offers the possibility to combine environmental values with aesthetic experiences.

Aesthetics is the most important consideration when designers are creating fashion items. It is even more important when consumers are forming attachments to their clothing and long-term commitment (Niinimäki 2011). What do we then understand about fashion aesthetics? The aesthetical aspects in fashion include beauty, style, colour, fit and positive tactile experiences (e.g. comfort). Additionally the beauty experience is emotional and individual, while connected to time, culture and acceptance of others, and therefore aesthetic perception is never only a pure physical or psychological experience.

Green aesthetics is grounded on environmental values. We should evaluate products not only based on functionality and appearances but also based on the values products embed. We should redirect our aesthetic preferences towards better environmental solutions, and we should educate our aesthetic taste to appreciate environmental values (Saito 2007). We already know that personal ideologies, such as environmental concerns, affect the aesthetic appreciation of products (e.g. Niinimäki 2010; 2011). Green aesthetic evaluation means a deeper evaluation process, which includes critically examining qualities of the product as well as the ethics and morality behind a product or a company. Having knowledge about an artefact affects the way observers see, experience and respond to the object (Walker 2009) and by feeding new knowledge into an aesthetic experience, it is possible to rethink and re-evaluate the aesthetic qualities of a product in a sustainable context (Brady 2002).

We thus have to evaluate a product's beauty according to certain information: its environmental impact during manufacturing, logistics, use and disposal. We also have to evaluate how the product is manufactured: in what kind of environmental and working conditions and where. Moreover information about the company behind the product is important: does the company have a sustainable value base? Based on this background knowledge it is possible to argue that fast fashion, for instance, is not beautiful or aesthetic in the context of sustainability.

Green aesthetics is a profoundly new way to align a design-for-sustainability value base with aesthetic evaluation in our understanding of material culture and its consequences. It expands and deepens our understanding of how our consumption patterns impact the environment. Green aesthetics is normative, and it enables us to cultivate our aesthetic preferences according to sustainable values. Furthermore it extends our possibilities to evaluate design objects and commodities on the ground of aesthetics.

## CONCLUSION

Sustainable fashion must fundamentally be based on values and ethics. The whole understanding of value and how it is created in the current fashion system simply must change. This is a challenging process and needs new awareness, a lot of information, and wide and open collaboration with various partners. More future-oriented thinking might help us in this process of planning and gauging how our design will affect consumption and the environment – tomorrow and even further.

We need to create both new knowledge and understanding on values, ethics and green aesthetics and educate designers, manufacturers, companies and also consumers if we are to change the system. Our decisions today do lead us to some kind of future – hopefully a more sustainable one.

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# WHAT IS THE ROLE OF AESTHETICS IN SUSTAINABILITY?

Maarit Aakko

# INTRODUCTION

On a functional level, we wear garments primarily to cover our bodies and stay warm. We may have to wear particular clothes for professional or cultural reasons. Or we may want to dress in a certain way to support our identity or as a sign of belonging to a certain group. There are numerous reasons for what we choose to wear, but in many cases – perhaps most – choices are guided by the look that clothing creates, the aesthetics.

Today, there is certainly no lack of choice in clothing. Many fashion chains offer good-looking garments at very affordable prices, and for example Zara (www.zara.com) brings new items into the stores every week. At the same time, through the joint effort of researchers, media and activists, the awareness of the problematic environmental and ethical issues in the clothing and textile industry has risen, such as pollution and unfair working conditions to mention only two. Therefore, even companies usually seen as fast fashion, are increasingly including sustainability in their agendas. For example, H&M (www.hm.com) is committed to "provide fashion for conscious customers" and "use natural resources responsibly" with its Conscious line. However, as in H&M's case, the speed of change that is being promoted by suspiciously cheap clothing, constantly new products, frequent sales, and excessive marketing is anything but sustainable.

Slowing consumption is one approach to ensuring more sustainability in fashion. As aesthetics play such an important role in clothing choice, it matters equally in the context of sustainability. In terms of developing attachment to clothing and therefore lengthening their lifespans, the aesthetic dimension is significant. An aesthetically successful garment that is also of high quality is a more likely candidate for longevity.

# AESTHETICS AND FASHION

The environmental impacts of textile and clothing production, such as energy consumption, use of toxic chemicals and high volumes of waste, both in the manufacturing phase and in the disposal of products, are serious concerns. In addition, social aspects such as working conditions with regard to safety, child labour, working hours and wages are other problematic issues in this sector (Allwood et al. 2006, p.2, p.14). Addressing these and many more difficult questions in this industry has led to a quest for more sustainable production and consumption of clothing, typically referred to as 'sustainable fashion'.

Reusing, repairing and reconditioning garments are some of the most sustainable choices (Fletcher 2008, pp.99–103), but when talking about new production, practically grounded solutions, for example regarding fibres, fabrics and production methods, are key to lessening environmental impact in fashion. Even so, making garments that only aim to comply with sustainability principles does not necessarily create a desirable product.

Viktor Papanek, who discussed environmental issues in design already in the 1970s, regarded aesthetics as an inseparable aspect of functional design.

*Nonetheless we know that aesthetics is a tool, one of the most important ones in the repertory of the designer, a tool that helps in shaping his forms and colors into entities that move us, please us, and are beautiful, exciting, filled with delight, meaningful (Papanek 1971/1984, p.22).*

However, if aesthetics can be a tool in design, its rather abstract nature is hard to describe. Along the lines of Papanek, aesthetics is something we can delight in and that can provide us pleasure in life. In general, aesthetics often deals with *beauty*, but it does not equate to beauty (Welsch 1996, pp.8–9).

Aesthetics is related to perception, for example, what we can see or hear, and to sensation, the emotional reaction evoked by perception (Welsch 1996, pp.8–9). In clothing, aesthetics is comprised of different elements such as form, colour and texture; details such as buttons, darts and stitching; and the ensemble they create. Another level of aesthetics emerges when the garments are worn; each person's own appearance makes the garment look different. An aesthetic experience of clothing can be expanded to how one feels when wearing certain clothing, for example, the touch of the fabric and the weight of the garment, like it was our second skin. (Kupfer 1994, pp.97–100.)

Similar to aesthetics, the concept of "fashion" is not easy to define. In everyday use the words "fashion" and "clothing" do not have such clear boundaries and are used even interchangeably, but they are different concepts. From a sociological point of view, clothing is a material object while fashion is something immaterial. They are very much connected, though; fashion can be regarded an immaterial concept that is manifested through clothing. Thus clothing is the generic raw material that one wears, and fashion is a symbolic product, "the invisible elements included in clothing". (Kawamura 2005, pp.1–4.)

Change is central to fashion. The socially constructed system of fashion provides the means by which fashion keeps changing. Novelty is another significant characteristic. The fashion system encourages changes in style, which simultaneously creates a sense of novelty. Fashion changes have been ever-present throughout history. (Kawamura 2005, pp.5–6.) We can therefore presume that change will not cease, neither will the desire for novelty. By accepting change, and embracing novelty and aesthetics as elements of fashion people are generally drawn to, it is still possible to affect the speed of change and focus on slowing down and on longevity.

## AESTHETICS MATTER

I*n a world of abject want, a preoccupation with only making things pretty is a crime against humanity. But to design things that work well but fail otherwise is an equally fundamental error (Papanek 1971/1984, p.327).* Thus, successful design couples function with aesthetics. We can assume that even if a piece of clothing was made according to all known sustainability principles but was not aesthetically appealing, it wouldn't serve the multiple meanings that clothing does. Without these meanings and their various roles, i.e. if clothing only delivered the function of covering the naked body and protecting from the weather, most likely we wouldn't be facing the problems resulting from the incessant desire for new things.

In fact, many consumers regard aesthetic qualities as more dominant factors than ethical principles when purchasing clothes. Even if ethical and environmental values are important to some consumers and guide their choices, all consumers consider aspects of quality and aesthetics as highly important. (Niinimäki 2010, p.150, p.166.)

The aesthetic dimension is also fundamental when people form attachments to clothing. According to Niinimäki and Koskinen (2011) the most important attributes associated with long-term use of clothing and textiles are quality, the aesthetic dimension and functionality. Aesthetic attributes such as beauty, style, colour and fit have an emotional effect on the wearer, which can be created by a personal experience of how one feels when wearing it as well as developed in social situations. These emotional bonds are central to product attachment and satisfaction, which in turn play a role in long-term product relationships. (Niinimäki & Koskinen 2011, pp.254–258.)

Yuriko Saito (2007) argues that regarding animals, people are more inclined to protect and take care of aesthetically appealing creatures versus aesthetically unattractive ones. This principle can be applied to the aesthetics of everyday objects, and people act more responsibly toward artefacts when they feel an aesthetic attraction to them (Saito 2007, pp.58–60). In the same sense it can be assumed that we will take better care of our clothing if it is aesthetically appealing.

## WHAT KIND OF AESTHETICS?

The aesthetic quality of an object, clothing in this case, cannot be measured and judged in an objective way. As Kupfer (1994) explains, in terms of a piece of clothing, its aesthetics are composed of details but the aesthetic experience of it resides in its entirety (Kupfer 1994, p.97). Naturally, in the context of sustainability, we face questions about what aesthetics may better ensure longevity and whether any such guidelines can be given.

Discussing everyday aesthetics, Saito (2007) notes that some qualities of artefacts, for example the production process, usage and disposal, are not visible or sensed and therefore these issues would not be known to a consumer through the mere object. Furthermore Saito claims that … *most of the time we don't know who the designer of the object is, let alone her state of mind at the time of designing, her intention, or her oeuvre* (Saito 2007, p.209). As a result, the object itself, entailing its design features, will be judged as it is. Similarly, in the case of sustainable fashion design, the question whether sustainable practices were applied in the design and production processes or not will not be visible in the garment, unless the designer somehow embeds these attributes visually or explains them on the tag.

Saito (2007) calls for the linking of environmental values and aesthetics in artefacts. She balances between reflecting ecological values and conventional appearances, suggesting that products should embody their environmental values, yet through a somewhat familiar aesthetic appearance. As favourable "green aesthetics" Saito includes minimalism, durability and longevity, fittingness and site-specificity, perceivability of nature's function, health, care and a sensitive attitude (Saito 2007, pp.88–96). These qualities may promote sustainability in fashion; however, aside from minimalism, they are actually mainly associated with functional details, not aesthetic. Instructing on how to design the aesthetics of longevity remains quite a difficult task. Also, methods considered more sustainable than conventional ones may impose limitations, and this challenge leaves a designer balancing between her aesthetic visions and sustainable methods (see Aakko & Niinimäki 2013).

On the contrary, mere aestheticisation of products does not promote sustainability. As Welsch points out, […] *aesthetics renders even the unsellable sellable.* […]*The aesthetic aura is then the consumer's primary acquisition with the article merely coming alongside* (Welsch 1996, p.3). The first appearance, the aesthetic aura, blinds the majority of consumers instantly so that considering quality, functionality or anything beyond the look is easily forgotten. This also explains so fittingly why today, we have mountains of discarded clothing.

## CONCLUSION

What people wear is connected to the cultural and sub-cultural surroundings, as well as to the current time, the *zeitgeist*. Clothing serves many functions from covering the body to building identity, and aesthetics play a significant role.

However, the textile and clothing industry has a huge environmental impact and faces numerous ethical issues. The high volumes of waste, both in the manufacturing phase and in the disposal of products, indicate that slowing down clothing consumption and cultivating the longevity of clothing is essential if we want more sustainable practices in the field of fashion.

Although practically grounded solutions such as sustainable production methods bring tangible benefit, aesthetics must be taken into account in order to create clothing that people want to wear. The aesthetic dimension is also fundamental for people forming attachments to clothing, valuing and taking care of it, thus lengthening its lifespan, cultivating longevity, and promoting the ideals of sustainability. In the end if clothing is made in an ecologically sound way but does not appeal to many, the change towards a more ecological system remains equally small. Although aesthetics itself seems to be an abstract concept, at the same time it is a concrete tool that can always be considered together with other methods. Therefore it is important that both issues, the practical methods and aesthetics, are addressed together to meet sustainability goals in fashion.

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# ETHICAL DESIGN

Kirsi Niinimäki

# INTRODUCTION

As today it seems the possibilities to make ecological and ethical choices are limited, designers and producers do what they can, a situation that can be described as realistic thinking. This kind of value-based, yet realistic, approach to sustainable fashion is the most common approach currently existing in the business. Best practice can be defined to mean that designers and companies choose the best environmental and social solution that exists. Especially small- and medium-sized companies have to make their choices from limited possibilities. Finding suitable eco-materials that can be ordered in small amounts, to give only one example, can be most challenging for small companies. What an entrepreneur can do is thus limited and defined by the resources available. Accordingly available resources create the action framework for sustainable-oriented designers: i.e. what kinds of design and production choices they can make. The bigger the fashion company, the more power and possibilities they have to influence sustainable practices in the field.

This chapter talks about ethics in sustainable fashion through designers' choices and design examples.

## ETHICAL DESIGN

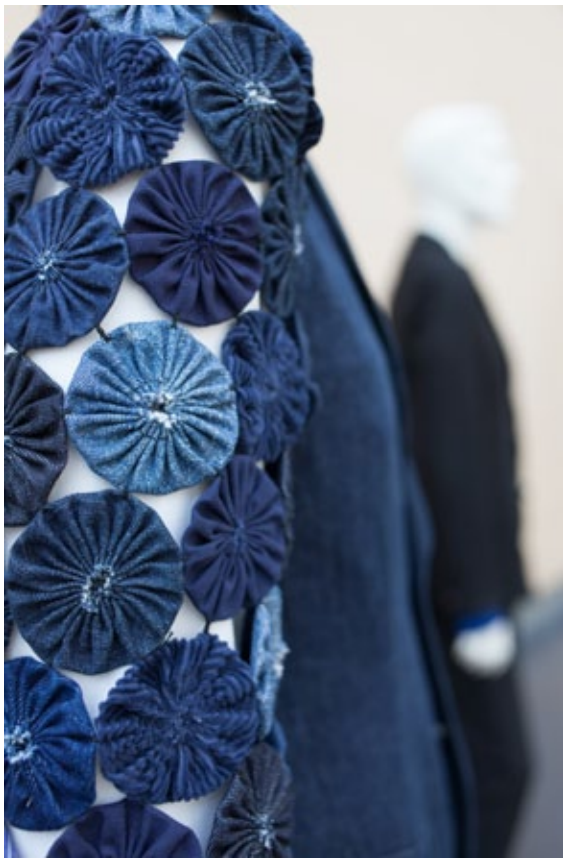
Despite these limitations, it is important that designers and companies identify their own value base, act accordingly, and inform their customers about their values and ethical actions. One good example of ethical design is the company FRENN. FRENN clothes are designed for urban working men. The design goal is to create new kind of relaxed yet official appearance for men working in office surroundings. Every article of FRENN clothing aims to symbolise respect for the people that made it and for the natural world. The premium materials, craftwork, and iconoclastic style have strong roots. The orange button thread in the suit's sleeve is a sign that this is a garment worth holding onto. This small detail is designed by designer Antti Laitinen; it informs the consumer of the best quality and classic tailoring and works as a designer's signature. The clothes feel comfortable from the moment the customer first put them on and they never lose their shape, which creates long-lasting and durable aesthetics. Considering how products age aesthetically is one of the most important design tasks when aiming for long clothing lifetimes.

FRENN owners Antti Laitinen and Jarkko Kallio believe it is possible to meld credibility, comfort and individuality in men's workwear. The line consists of relaxed, stylish, easy-to-combine blazers, trousers, button-down shirts and knits. Outerwear is also part of the collection. The premises behind every FRENN design are a perfect fit, interesting detailing and materials that stand out and feel good. Traditional denim, nubby linen and luxurious wool only get better with wear, and bamboo caresses the skin like silk. FRENN arose from a desire to create pieces that people would cherish for years, if not decades.

The company actualises as far-reaching ecological and ethical thinking as possible through each design choice. FRENN clothes are manufactured in nearby Estonia under monitored conditions. The company owners know the subcontractors and have visited each factory. The line's fabrics come from EU countries such as Italy, Portugal and Lithuania, and 80% have been granted the international Öko-Tex 100 certificate, a guarantee that the material is safe for the environment and the wearer alike.

The company states that their values are humanity, responsibility and individuality, and the owners say that these values reflect themselves too. They maintain that many people are tired of the "evilness" and extremely hectic reputation of the fashion business, and they want to change this state of affairs by offering friendliness instead (the company's name comes from the word 'friendliness'). This also means respecting the client in a new way and offering deeper product satisfaction through high quality design, good fit and good manufacturing quality. This approach offers the possibility to extend the time clothing is used. The company invests in good fit through high quality tailoring, which according to designer Antti Laitinen has been forgotten and has disappeared by and large in industrial mass manufacturing. [1]

[1] This description is based on the company's webpage and its poster displayed in the Sustainable and Innovative Fashion exhibition in Aalto University, autumn 2013.



*Ethical fashion from FRENN (Photo: Aino Huovio)*

NURMI

HEMP JEANS

These jeans are designed with love and respect for the environment and people around us.

WE HOPE YOU'LL CHERISH THEM FOREVER

55% hemp

GROWN IN CHINA

45% ORGANIC COTTON

grown in Turkey, certified by IMO

LOW IMPACT DYED YARN

Fabric woven in China

Cut, sewn & finished in

Keitele, Finland

NURMI

www.nurmiclothing.com

*Jeans from NURMI Design (Photo: Antti Ahtiluoto)*

## ETHICAL AND TRANSPARENT

Since global manufacturing systems are complex, transparency is important in the sustainable fashion field and all actions should be opened not only towards consumers but all stakeholders to build trust. Publishing all information from the supply chain, the names and locations of the suppliers and subcontracting partners, sends a positive message. For example in Finland Finatex has published a guidebook on corporate sustainable responsibility issues, which gives good guidance on how to implement these principles in business.

One good example of ethical and transparent actions is Nurmi Design. With Nurmi jeans, for example, all principles for design and further details about the production processes and locations are clearly described in the company's website. Designer Anniina Nurmi is behind the brand. In her jeans collection, she uses denim consisting of 55% hemp, cultivated in China, and 45% organic cotton from Turkey, and the material is woven in China. Low-impact dyeing processes are used and environmentally-friendly enzymes improve the smoothness and strength of the material. Other denim used in the Nurmi Design collection is recycled cotton, made of pre-consumer waste. The textiles company Pure Waste produces this material from waste and off-cuts from clothing factories.

Nurmi strongly emphasises local production. Cutting, sewing and finishing is done in Keitele, Finland. The jeans' leather label is made of vegetable tanned leather from Denmark and its finishing and laser cutting is done in Helsinki. (Anniina Nurmi 15.10.2012) In future Nurmi Design is substituting the leather label material with recycled car tyres. [2]

[2] This description is based on the company's webpage and personal information from Anniina Nurmi (10 December 2013).

## ETHICAL FUR

Animal ethics are largely discussed in the fashion field, yet the issue is controversial. Animal products are used in wool, silk, feather, leather and fur production. Some animal materials such as leather come as leftovers from food production, and this can be seen as a valuable and sustainable resource in the fashion industry. On the other hand fur farms are considered as unethical practices in many countries and they raise much discussion and counter-reactions among stakeholders because of the animal welfare. Even though circumstances on the fur farms are improved, discussion on ethics and animal rights is continuing. Nevertheless clothes made from fur are expensive, valuable, durable and long-lasting, and they need little maintenance during use. Very often fur coats are passed on for generations, which makes these items connect with fond memories and emotional attachment may easily form to these kinds of special possessions. It is also possible to redesign old fur clothes with high quality manufacturing processes so they look like new. Therefore durable and long lasting fur is a potentially sustainable alternative.

WILD Concept by Marita Huurinainen offers one sustainable way to find other fur resources than farmed ones. WILD Concept's furs come from animals that have been hunted in the wilderness. In Finland, many thousands of animals need to be shot every year to maintain balance in the ecosystem, especially to protect other animal populations, and normally these carcasses are disposed of as waste. The fur used for the WILD Concept is bought directly from registered Finnish hunters who hunt the animals within the quotas allowed by the government. The wild origin of the furs is assured by the Wild Finnish Fur label. Together with the Wild Finnish Fur Association (Luonnonturkisyhdistys) designer Huurinainen has developed this alternative fur concept in order to prevent hunted animal carcasses ending up as waste. It can be guaranteed that the animals used for the WILD concept have not suffered to become a clothing item. What makes WILD unique is that it offers an ethical and responsible way to wear fur, as fur of farmed animals is not used.

By focusing on smaller and lighter clothing items – such as gloves, hats, scarves, vests and capes – WILD is consciously taking a different style approach from conventional fur fashion. The WILD accessories are beautiful and elegant pieces with the primary aim to look and feel good. The idea behind most pieces is that they are an accessory to other clothing items, like evening dresses, and give the entire outfit as well as the person wearing it a distinct character. Depending on the purpose of the item the fur used is either wild marten, fox, raccoon dog or mink. In terms of colour the items come in natural and/or black.[3]

*Ethical fur, designed by Marita Huurinainen, WILD (Photo: Courtesy of Marita Huurinainen)*

[3] This description is based on the company's webpage and its poster in the Sustainable and Innovative Fashion exhibition in Aalto University, autumn 2013.

## ETHICAL LUXURY

Another ethical fur example comes from designer Laura Merz, who uses the skins of 'city bunnies' (Oryctolagus cuniculus), an invasive animal species in Finnish nature. The wild rabbit is not an indigenous species in Finland and they are seen as a threat to the city environment. The species was first discovered in the wild in the mid-1980s in Helsinki, and since then it has caused much damage in city park areas. Because this animal has no natural enemies in Finnish nature the population has grown alarmingly large, and Helsinki city tries to control the population by hunting these wild rabbits. Hundreds of rabbits are killed as pest control by the city council every year. Laura Merz has developed a design concept called Kanirukka, a collection of mittens made of recycled leather and wild rabbits' fur from those caught in the Helsinki area. Wild rabbits' skins often have faults and tears, but thanks to the unique style of the Kanirukka mittens, fur that is not suitable for the commercial fur industry can be used to create beautiful luxury accessories. Each mitten is handmade from start to finish and each pair is different in its cut and colour.

This project returns to the roots of Finnish folklore in search of inspiration for a more environmentally, economically and socially responsible approach to design.

The aim of the project was to seek solutions where the environmental values and the craft traditions of the nomadic peoples of the Arctic areas are applied in our urban culture. These values are made tangible in the form of a quirky, practical product.

Kanirukka mittens are designed to keep their bearer's hands warm, whilst representing important sustainable design values. Local production, use of locally sourced waste material and practicing traditional trades with skilled handicraft and careful design are important factors in the production of these mittens. The designer herself states that, *The Kanirukka concept encourages people to rethink their consumer choices and examine the effect their choices have on the environment more carefully*. [4]

*Mittens designed by Laura Merz (Photo: Aino Huovio)*

[4] This description is based on the company's webpage and its poster in the Sustainable and Innovative Fashion exhibition in Aalto University, autumn 2013.

## CONCLUSION

As designers' and companies' reality today is that they have to make their choices from the limited possibilities and offerings that exist on the current market, the end design result is not always the ideal or perfect one. Yet we need strong and brave designers and companies who question today's practices and examine how to do things differently. Moreover these change-makers can demand sustainable change from their suppliers, subcontractors or manufacturers and through this pressure create change in the fashion industry. Bit by bit the change is happening. These designers' own value base is a strong driver for fashion change.

The design examples presented in this chapter show that good and aesthetical design is a crucial aspect also in sustainable and ethical fashion. The values behind the product and company create the foundation upon which good design is built: design that is also easy to fall in love with. This – we strongly argue – is the way to do sustainable fashion in practice in future.

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# ARTISANAL AND SLOW: THE CASE OF ANNA RUOHONEN

Maarit Aakko

# INTRODUCTION

Fashion connotes novelty and change (Kawamura 2005, pp.5–6), and it currently operates at an accelerated pace, with continuously shifting trends, fast manufacturing, endless shopping opportunities not bounded to time or place, coupled with cheap prices keeping today's consumers easily in vogue. Although clothes offer us much more than just function – they may bring us emotional satisfaction, confidence, a feeling of belonging or simply beauty – at some point the more we buy the less we are assured of feeling satisfied. Current consumption patterns of buying too much and keeping too little, of throwaway fast fashion, deplete natural resources and negatively impact the environment and the society at large.

Fortunately, there are alternatives to the current flood of mass-produced, disposable garments. *Slow fashion* and *artisanal fashion* are two such alternatives. Labels based on these ideas have different emphasis in their ways of working. While utilising some of the elements that fashion celebrates, such as newness and change, they operate with a different, anti-mass-market mindset and at slower speed.

Slow fashion, which stresses especially traditional skills, small-scale and local production, and a search for balance in the fashion system together with economic, social, and ecological systems, is often associated with a more sustainable system of fashion (see e.g. Clark 2008; Fletcher 2010). The concept of slow fashion is derived from the philosophy of *slow food* that cultivates especially taste, quality and a rich variety of food (www.slowfood.com). Today, *artisanal* is also often associated with food, from bread and cheese to coffee and chocolate. It denotes the making process, typically handcrafted and based on traditional methods or recipes, which are fairly easy to understand in terms of cooking and baking. Artisanal is also paired with *fashion* to signify a certain type of fashion [1] similar in spirit to other artisanal products and thus referring to handcrafted, non-industrial, traditional and small-batch production. However, the term a*rtisanal fashion* has not been discussed in the academic context and does not have a precise definition. The concept of artisanal fashion is obviously close to that of slow fashion, and sometimes an artisanal type of fashion production is included as an element of slow fashion. One distinctive feature of artisanal fashion is that it highlights the fashion designer's skills.

Paris-based fashion designer Anna Ruohonen seems to embody both approaches to fashion, slow and artisanal. This case study looks at Anna Ruohonen's design philosophy and strategies in these two contexts [2]. Based on existing definitions, the case explains and illustrates the concept of slow fashion. Since artisanal fashion is not well defined, this study explores the concept and aims to outline some of its central elements with the help of the Anna Ruohonen case [3].

This case study does not intend to provide an explicit definition of artisanal fashion; instead it suggests what basic elements could form and contribute to it. With the concepts of slow and artisanal fashion, the aim is also to search for more considerate ways to produce and consume garments and thus examine their potential to advance more environmental and ethical practices in the field of fashion.

[1] For example, fashion designer Maison Martin Margiela established the fashion line "0", also called "Artisanal", already in 1988, which consists of unique pieces reworked entirely by hand from used garments and objects (Motwary 2010). Additionally, an Internet forum dedicated to men's fashion, StyleZeitgeist (stylezeitgeist.com), has discussions about "artisanal fashion".

[2] The data includes interviews with the designer Anna Ruohonen and with a staff member of the company, visits to the atelier in Paris and the showroom in Helsinki, a fashion show, newspaper articles and the company's website.

[3] This case study is a small contribution exploring the fields of artisanal and slow fashion. Acknowledging that one case is not substantial for generating explicit definitions or theories – more comparative data and case studies would be needed for such work – for the purposes of this chapter this particular case is opened up as an initial exploration and to show part of a work-in-process. Outlining the elements of artisanal fashion has been conducted following inductive reasoning, approaching the subject only with general knowledge and not on the basis of preconceived theories. This allows significant incidents and salient themes to emerge from the data itself, which may further be compared to other incidents within other cases. Exceptionally, using abductive reasoning, a dictionary definition is included in the analysis. (See Glaser & Strauss 1967; Timmermans & Tavory 2012.)

## THE CASE OF ANNA RUOHONEN

Anna Ruohonen [4] is a Finnish Paris-based fashion designer and founder of her own eponymous clothing label. The line, founded in 1999, consists of women's and men's wear and has been located in Paris from the outset.

Ruohonen's label operates in a similar way to the traditional Parisian fashion houses – the designer herself designs and makes patterns; the rest, samples and production, is done by her in-house team. Almost everything is produced at her atelier and only knitwear is outsourced to a knitwear studio in Paris. Ruohonen's fashion house is a small-scale business: the atelier has six full-time employees and occasional interns in Paris and one full-time and one part-time employee in Helsinki, Finland.

Everything in Ruohonen's line is made-to-measure, as it was in traditional haute couture maisons. The designer has two showrooms, one in Paris and one in Helsinki. The customer may choose the style and fabric amongst the available choices, and the order is produced according to her measurements taken at the showroom. The orders placed in Paris are delivered in approximately 3–10 days; orders placed in the showroom in Helsinki are produced in Paris and delivered in approximately three weeks.

The main showroom and atelier operate in the same building in the 14th arrondissement in Paris. The building consists of six floors: the ground floor and basement operate as the showroom and the floors above house manufacturing, patternmaking, the design studio, the office and a staff's area.

The concept of Ruohonen's label is quite unique in the contemporary fashion world. The label consists of two lines, White Label and Black Classics. The White Label is a seasonal collection, which follows the regular fashion cycle of spring/summer and autumn/winter. In contrast, the Black Classics line is a "timeless collection" in which the pieces stay unchanged season after season; currently the oldest piece has been produced for twelve years. The Black Classics collection is on continuous display in the showrooms and online in their web store and can be ordered throughout the year. All the sample garments in this collection are black, but they can be made in different colours and fabrics depending on the season's selection. Otherwise the production process and the quality of garments of the Black Classics line is the same as it is for the White Label.

Although Ruohonen shows the White Label collection twice a year, she does not follow the traditional fashion calendar. She shows men's and women's collections together twice a year both in Paris and in Helsinki on her own schedule, not in conjunction with Paris's fashion weeks [5] when most of the other fashion labels show their collections. Compared to typical fashion retail, in Ruohonen's system one step, the store buyers, is absent. The clients basically replace them, as they are the audience of her fashion shows and place orders directly with the company.

## SLOW APPROACH TO FASHION

*Fashion* can be seen as a concept that is immaterial itself but is manifested through clothing. Although from a sociological point of view, *clothing/garments* and *fashion* are different concepts, in everyday language they are used as synonyms. Fashion can be used to refer to the material aspect, to clothing, especially when examining fabrics, patternmaking and production. However, sometimes the same word signifies the symbolic aspects of fashion, especially when discussing emotional values associated with clothes, as well as trends and other aspects of the fashion cycle. (Kawamura 2005, pp.1–2) When adding the attributes *fast* or *slow* to fashion, it denotes both the material but even more so the symbolic aspects of fashion.

> *Slow fashion stands in opposition to everything that fast fashion represents – it moves at a slower pace, disregards trends, is concerned with a classic or "signature" look, and stresses the importance of artisanal production and emotions attached to the clothes we own.*

Since fashion connotes change, fast/slow fashion could be read as clothing that is consumed fast/slow. Even so, as Fletcher (2010) explains, the terms signify more than just the tempo of production and consumption. Fast does not only involve

[4] Interviewed on 28 June 2013.
[5] For example, women's fashion week in Paris for the SS14 collections was in September 2013 (Mode à Paris); Anna Ruohonen showed her SS14 collection in November 2013.

speed, but also producing and selling garments in large quantities; slow is a symbol for a worldview that emphasises small-scale production, quality and traditional craftsmanship (Fletcher 2010, pp.260–264).

The slow approach to fashion has its origins in the Slow Food movement, which began in the 1980s as a reaction to fast food. As the Slow Food manifesto [6] from 1989 declares: *In the name of productivity, the 'fast life' has changed our lifestyle and now threatens our environment and our land (and city) scapes*. The core idea of Slow Food is to link the pleasure of good food with a commitment to community and the environment. Taste, quality and a rich variety of food are cultivated through local cuisines and old-fashioned food traditions. (www.slowfood.com)

Embracing this philosophy, slow fashion favours small-scale production, traditional craft techniques, local materials and local markets. At the core of slow fashion is the search for a balance in the fashion system together with economic, social, and ecological systems. Altogether, slow fashion represents a different worldview, in terms of economic logic, values and goals, from the current fast fashion model. The focus of fast fashion companies is on achieving continual economic growth, which they achieve with the help of low-cost materials and labour, short lead times and large volume production. Instead of mass manufacturing and globalised trends, slow fashion promotes artisanal production and diversity of style, and instead of quantity, it emphasises quality. The slow approach to fashion carefully considers the design and production process and its impacts on society and the environment. (Fletcher 2010, pp.260–265.)

> *Common to the zeitgeist, the fashion industry emphasises newness and enables quickly changing trends through efficient capturing of new looks [7], followed by rapid production, low prices and pervasive marketing. Such a system supports consumerism and high turnover of garments. Contrary to this fast fashion mentality, the slow approach to fashion champions long-lasting products.*

This is also seen in Anna Ruohonen's ethos, alongside other ideas of slow fashion embodied in her fashion line. *The seasonal trends are not my driving force. My clothing is neither in nor out of fashion,* Ruohonen states. According to the slow fashion philosophy, different tempos, fast and slow, can be used in a balanced way in the fashion system (Fletcher 2010, p.265). In Anna Ruohonen's case different tempos are utilised in the two collections, the seasonal White Label and the permanent Black Classics. Although the aim of the latter is to offer timeless pieces, in her opinion, the concept of classic has to be seen as broad enough: *A classic does not equal boring. [A garment's] aesthetics can be unique and interesting and at the same time long lasting.*

The Black Classics consists of the designer's own favourite pieces that she has created over the years and that clients appreciate and want to reorder. In this way, the best pieces from the White Label may find an afterlife in the Black Classics collection. In Ruohonen's view, a successful design endures over time, as she states on her website: *In a beautiful final product every tiny detail has found its place. It seems that the piece has always existed.* (annaruohonen.com)

The mindset of slow fashion in Anna Ruohonen's collection is also reflected in terms of quality. The concept of *quality* is not easy to define but it can be examined from many angles, for example with regards to the garments themselves, the process of making them and service. The quality of the garments may be assessed from the perspectives of style, fit, features, material, design and technique (Koskennurmi-Sivonen & Pietarila 2005). In Ruohonen's collection, high quality is evident in fabrics and construction. She uses only European fabrics made from natural fibres such as wool, linen, silk, cashmere and mohair. The quality

[6] http://www.slowfood.com/filemanager/Convivium%20Leader%20Area/Manifesto_ENG.pdf
[7] It is common practice that some fashion companies create similar garments to what other more well-known ready-to-wear fashion companies have presented in their biannual collections (see e.g. Rissanen 2012).

*Design by Anna Ruohonen: Cleopatra Dress, Brooklyn dress (textile design by Johanna Gullichsen), Nutria Dress (Photo: Victor Matussiere)*

of the garments is ensured through the in-house production: it is done by two carefully selected professionals, and the designer can easily monitor the entire production process and make corrections if needed. For Ruohonen, quality is also a personal matter that is related to emotional bonds with garments: *I am so passionate about clothing that I wouldn't want anything to break; it is really annoying if something you like breaks. I have garments that are ten years old, and I still wear them actively.*

Since everything is made according to one's size, the company is able to provide well-fitting clothes to everyone. According to Ruohonen, this is an appreciated quality of the product and service, since the common, standardised sizes do not necessarily provide the right fit and nowadays it is increasingly rare in the West to have clothes tailor-made.

Time plays a role in Anna Ruohonen's concept of fashion, making it also literally slow: since all the garments are samples, there are no actual garments to buy on the spot in the showroom unless one wants to buy a sample piece. Production starts only after placing an order and thus the customer has to be ready to wait for the garment for up to a couple of weeks. Determining whether this system affects people's overall buying habits or not is impossible to say, because the decision-making can happen just as spontaneously. Nevertheless, one has to invest a little more effort in the purchasing decision by first selecting the details of the garment and then be willing to wait for it.

Ruohonen's system of producing on demand does not lead to any surplus of unsold garments, which is beneficial both to the environment and to business. As Ruohonen points out, the system allows a quick reaction to customers' demands, which are ever changing and hard to predict. It saves resources in the making phase, and it creates no wasted garments. Moreover, unused fabric is still valuable and can be reserved for any future garment.

In Ruohonen's case, production is done either in-house or locally, and this is essential to Ruohonen's concept since clothes are made individually per order; this allows any number of pieces to be made per style. Although producing in Paris is not the most cost-effective choice, as the cost of labour is currently one of the highest in Europe (Pelli 2013), Ruohonen insists on keeping the production local. The company's values are not based primarily on growth but on doing great work and offering quality products. Making clothes in-house also ensures fair labour practices in terms of working hours, conditions and wages, which is important to Ruohonen.

Some level of transparency in the production system and more collaboration between designer, producer and customer are also suggested as being part of the slow approach to fashion (Clark 2008, p.435). Similar ideas are behind Anna Ruohonen's label and are embedded even in the architecture of the company's building: besides being a showroom and a store, all the procedures, from design to production, are located in the same house. Big windows facing the street display tailors at their work, similarly to how an open kitchen in a restaurant lets customers see where their food is being made. Since the designer and the production team work just upstairs from the store, the customer has a chance to see them working and even observe the making of his/her own order. The designer herself is also reachable: besides her two annual fashion shows, where she welcomes guests at the door herself, Ruohonen also invites clients to the showroom to meet with her over a glass of sparkling wine a couple of times a year.

The concept itself embodies respect towards the clients: the customer never has to walk out of the store because her size wasn't available, she didn't like the colour of a particular style, or because she came to the shop too late in the season and was left with the last, unwanted pieces. Although the designer creates the styles and decides on the seasonal selection of fabrics, the client gets to design her own combination of style, colour and fit, or even order a winter coat in the middle of the summer.

## SKILLS BEHIND ARTISANAL FASHION

The adjective *artisanal* comes from the word *artisan*, which according to the Merriam-Webster dictionary is (1) *a person who is skilled at making things by hand*. Additionally an *artisan* is (2) *one that produces something (as cheese or wine) in limited quantities often using traditional methods* or (3) *a worker who practices a trade or handicraft: craftsperson*. The synonym for *artisan, craftsman* (or *craftsperson*), has a similar definition: (1) *a person who makes beautiful objects by hand* and (2) *a person who is very skilled at doing something*. The first known use of the word *artisan* dates to 1538. Its Italian origin, artigiano, derives from the Latin word *ars (art)*, which means *skill*. (Merriam-Webster dictionary; Oxford Dictionaries.)

The word *fashion* paired with *artisanal* is used in the same way as in *slow fashion*: often as a synonym for clothing and garments but also to signify the symbolic aspects of fashion, such as the emotional values associated with clothes.

> *Artisanal itself connotes handcrafted objects but when used in conjunction with fashion, it seems to be elevated from a mere handmade or handcrafted garment to something symbolically different*

– as Kawamura (2005, pp.1–4) puts it, fashion provides *the invisible elements included in clothing*.

Looking at the first definition of the word *artisan*, skill is one of its major elements. In fashion design essential skills are related to the design process itself, such as sketching or draping the form of the garment, choosing fabric, and creating its character, as well as the ability to execute the garment successfully with the skills of patternmaking and garment construction. It is possible, and also common today, to work as a fashion designer who only envisions and sketches clothes but does not partake in the making process. In this way, patternmaking and garment construction can be separated from the design process and be considered the craft of fashion. However, a fashion designer may master both skills – those of the creator of form and of the skilful maker – and integrate them in her work. In the case of Anna Ruohonen, she is the one who sketches or drapes the garment forms and draws the initial patterns. Later, a tailor develops the patterns further if necessary. Earlier Ruohonen also used to make samples herself; now, tailors do the task but she is much involved in the process. Notably she is skilled in sample-making and understands the process thoroughly.

Another element of the first definition mentioned above is *making things by hand*. Related to the second definition of the word *artisan*, production is done in limited quantities and some traditional techniques are used. This differs from *industrial* production where products are made particularly using machinery and in factories that employ large personnel (Merriam-Webster dictionary). On the industrial scale, patterns are mostly made with the help of computer-aided design programs and garments are cut using machinery, which allows many garments be cut at once. In contrast, in small-scale fashion production, patterns may be drawn entirely by hand and all garments may be cut by hand either individually or only a few pieces at a time.

It can be noted that by and large in garment making, some machinery is always used both in industrial and small-scale production, such as sewing machines and sergers, and thus making things entirely by hand does not literally apply to garment production. At the same time, some procedures are mostly done by hand, such as assembling the garment together and trimming the extra threads after sewing. Therefore, artisanal production in fashion does not imply that machines are not used at all.

In Anna Ruohonen's fashion house, patterns are made in the traditional way, by hand, and the garment pieces are cut individually and not by machine. The garments are constructed from start to finish by two tailors, which also includes handcrafted details such as assembling knits, sewing buttons and finishing hemlines, especially in garments made of silk.

All garments at the Anna Ruohonen fashion house are made-to-measure from selected styles only based on customers' orders – the method of *semi couture* [8], as Ruohonen calls it. Entirely unique pieces are also made on request. Made-to-measure pieces are far away from standardised ready-to-wear pieces produced on a mass scale, but such a system of production is even more time consuming than just small-scale production, since every garment is crafted individually.

Anna Ruohonen's local and mostly in-house production allows the designer to have control over the whole production process, to inspect quality and easily revise the process if anything needs to be changed. The designer works closely with her team and the in-house production enables frequent communication with the team members. As Ruohonen says, *We communicate all the time; everyday, we discuss the garment finishing, fabric choices, improvements, problems and potential changes. This is literally teamwork.* Although certain people do certain steps of the garment design and production, the designer is very much involved in the whole process. As the designer, she creates the aesthetics of the clothing and makes the final decisions on the garment construction after considering the suggestions from the team members. In this way the designer has a holistic role in the company as the key person in designing and decision-making.

[8] Although garments at Anna Ruohonen's fashion house are made-to-measure and thus individual, and include also some unique pieces, the method can be called semi couture. It should be noted that semi couture differs from haute couture, which defines a certain kind of fashion production strictly controlled by Fédération Française de la Couture du Prêt-à-Porter des Couturiers and Créateurs de Mode and based on criteria first established in 1868 in Paris (Mode à Paris).


*Design by Anna Ruohonen: Best Top, Maitresse Dress, Morning Light Dress (Photo: Victor Matussiere)*

## DISCUSSION

The case of Anna Ruohonen can certainly be viewed through a slow fashion lens: it embodies many elements of the slow approach, such as small-scale and local production, long-lasting products, cultivating classics and utilising different tempos of fast and slow. Ruohonen's work also emphasises quality in terms of materials, garment construction and fit, and customer service. The company produces almost everything in-house, which enables some transparency in the production process. Ethical and environmental considerations are also embedded in Anna Ruohonen's company values.

Ruohonen's design practice also illustrates aspects of artisanal fashion. The concept of artisanal fashion sketched here is not conclusive, but this case study, together with dictionary definitions, indicates some basic features of *artisanal* in the context of fashion as a hypothesis. This analysis suggests that the integration of the skills of design and craftsmanship is one of the main distinctive features of an artisanal fashion designer. Artisanal fashion also refers to a process that involves making garments not by industrial means but either individually or in small quantities, employing traditional and handcraft methods. The production is done in-house or locally, so the designer can have control over the process. The role of the designer is holistic; she is strongly involved throughout the design and production processes but she also works closely with her team.

What makes the defining of *artisanal fashion* challenging is that most of its potential elements cannot be measured precisely, such as the amount of handcrafted details necessary to denote artisanal or the quantities indicating small-batch production, and therefore it can be difficult to create strict guidelines for artisanal production. Many of these elements are qualitative, such as skill or the role of the designer, and cannot be described explicitly. Thus, the framework can only be suggestive.

Artisanal fashion shares many aspects with slow fashion. According to the dictionary definition and this case study, the artisanal approach to fashion has a strong focus on the designer's skill and her/his holistic role in the making processes, whereas slow fashion does not address these questions and is therefore a more general concept. These approaches can also be applied at the same time, as in the Anna Ruohonen case. In fact, traditional craftsmanship, synonymous with artisanal making (cf. Merriam-Webster dictionary), is often mentioned as one of the methods within slow fashion (Fletcher 2010).

Slow fashion has been explored in the context of sustainability as a means to systematically change the mindset of fast fashion that has many environmental and ethical implications. While the efficiency and large-scale production of fast fashion may not in themselves necessarily cause these negative issues, the fast fashion business model provides grounds for accelerated fashion production, use and disposal, which in turn generate more impact on the environment and play a part in unfair working conditions (Fletcher 2010, pp.260–264). Artisanal fashion may not be directly associated with sustainability in fashion, but as it operates in a similar way to slow fashion it carries the same potential.

As Ruohonen says, *All of us working in the fashion sector have to consider if we want to produce more clothing into this world.* In her company's case, more garments are produced but environmental and ethical issues are taken into consideration through the system in which the company operates. On the environmental side, the garments are crafted individually and made according to the customer's request, with the emphasis on high quality. These efforts support not only material durability but also emotional values, such as appreciation and attachment, which may help lengthen the garments' life span (Aakko & Koskennnurmi-Sivonen 2013; Niinimäki 2010, 195–199). Ethical issues are addressed especially through the small-scale and local, mostly in-house, production. Working closely with the

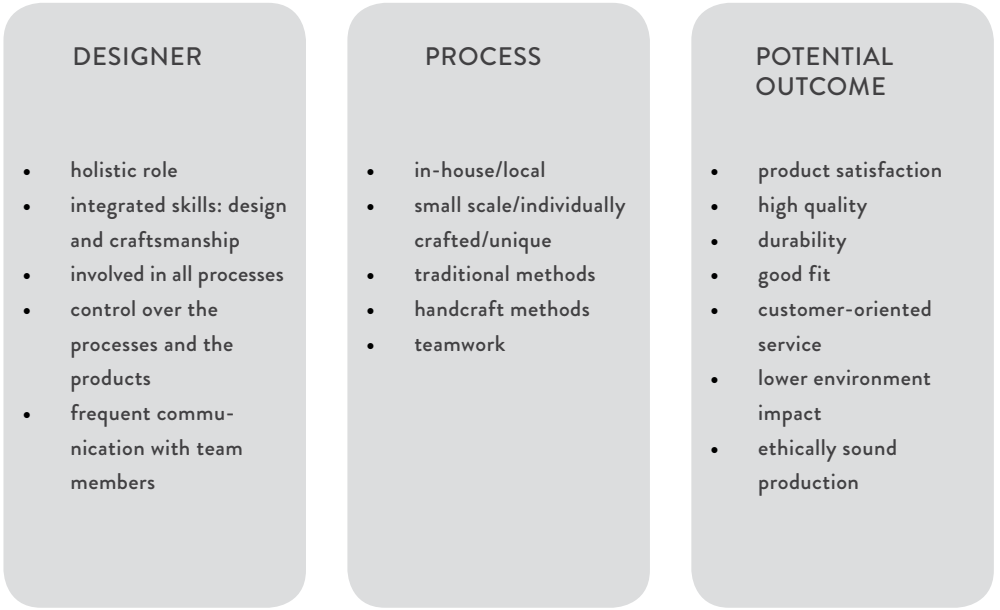


*Figure 1. Artisanal approach to fashion in Anna Ruohonen's company*

team and having control over the process enables monitoring and providing fair working conditions.

Manzini (2009, p.5) suggests that sustainability should be the meta-object of all design research and not a separate, specialised sector. Along the same lines, to enhance sustainability in fashion consumption and production, fashion companies should address environmental and ethical issues as a meta-object at the core level. As shown through the Anna Ruohonen case, and the concepts of slow and artisanal fashion, taking control over the process and the product frees up the possibility to make a difference in what kinds of garments are offered and how they are produced.

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A staff member of Anna Ruohonen's company: 23 Feb 2012; Helsinki, Finland

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**StyleZeitgeist.com:** http://stylezeitgeist.com/

# EXPERIMENTING WITH ZERO-WASTE FASHION DESIGN

Maarit Aakko & Kirsi Niinimäki

# INTRODUCTION

Zero-waste fashion design offers ways to eliminate the textile waste that occurs in garment production. As a design method within a larger philosophy of zero-waste fashion, a fashion system that creates no waste (Rissanen 2013, p. 2), it provides new perspectives for fashion design practice in the context of sustainability.

To spread practical knowledge on zero-waste fashion design, fashion designer and researcher Holly McQuillan ran a workshop on zero-waste pattern cutting (ZWPC) at Aalto University (Helsinki, Finland), in August 2012. This workshop could be described as hands-on experimentation with sustainable fashion. The workshop was funded by and jointly organised with the Baltic Fashion Network and included participants such as teaching faculty, students and designers associated with the partnering organisations. This chapter examines zero-waste fashion through the workshop learning processes and outcomes.

## GROWING MOUNTAINS OF TEXTILE WASTE

The ever-growing production and consumption of fashion has led to an equally increased use of resources, especially fabrics. Textile fibre consumption has grown from 3.7 kg in 1950 to 11.1 kg in 2007 per capita worldwide, and it is estimated that textile fibre use increased 35% between the years 2000 and 2007 alone (FAO and ICAC 2011). This increase is especially connected to current 'fast fashion' practices, which include extremely efficient garment production processes, growth in clothing consumption and very short use time of garments. The tendency is the same in all Western countries: clothing production, consumption and thus textile waste are soaring and fast fashion practices play a part in this rise (Niinimäki 2011).

The amount of textiles used in the clothing industry today is remarkable because of the current practice of designing garments in short, trend-driven cycles by means of mass manufacturing and also because of the size of the industry. Besides the large amount of resources needed in such big scale production, another significant problem is the quantity of pre-consumer textile waste created, particularly fabric off-cuts. According to some studies, traditional garment production using "cut and sew" techniques—cutting the garment pieces from fabric according to patterns and sewing them together into a garment—yields approximately 15% fabric waste; the estimated percentage of waste varies between 10–20% depending on the garment style (Cooklin 1997/2012, p. 16; see also Rissanen 2013, pp. 4–5). In general, wasting fabric in the manufacturing stage means wasting all resources, such as fibres, dyes, chemicals as well as water and energy that are used in producing the raw fabric. Granted, the leftover fabric can be utilised in other products or as scraps, but it can be argued that this is not a sufficient way to manage the fabric. It is also easy to agree with the idea that *it is better to avoid waste than to fill the planet with things made from it* (Rissanen 2005).

Zero-waste fashion design provides an approach to creating garments without generating fabric waste. This method enables the usage of one complete piece of fabric for a predetermined purpose, e.g. for cutting out one or multiple garments. The possibility to eliminate fabric waste from garment production lies within the stages of pattern making and fashion design. More precisely, to realise zero-fabric waste garments, pattern making must be considered as an integral part of the design process. (Rissanen 2013.)

## TOWARDS ZERO-WASTE FASHION

The idea of zero-waste fashion is not new, even though the approach was not named as such until recently. Garments have long been made with the same philosophy of using a complete piece of fabric for one, or more, garments. The design researchers who brought this approach to light again, and began to refine it, include Timo Rissanen and Holly McQuillan. As Rissanen (2013, p. 46) sums up, the himation, chiton and peplon of ancient Greece, the Indian sari and the Japanese kimono are traditional garments that were constructed using the entire fabric. In modern Europe, the Parisian couturier Madeleine Vionnet made use of this idea in some of her creations, such as a dress made out of four squares.

Today, the name "zero waste" suggests a particular focus on not creating waste, whereas previously, the main concern was to fully utilise the expensive fabrics. Against the backdrop of increased clothing production, consumption and associated resource use, both issues are relevant. Within the context of sustainability, zero-waste fashion design can be a tool for eliminating fabric waste, namely off-cuts, and increasing the efficiency of fabric use in garment production.

Zero-waste fashion design refers to methods that particularly aim to eliminate fabric waste from garment production through design. Crucial to this approach is the integration of pattern making and

## EXPERIMENTS WITH ZERO-WASTE PATTERN CUTTING

fashion design processes, in contrast to conventional practice where pattern making typically follows a predetermined design. Garments created through zero-waste fashion design methods contain all of the fabric needed for that garment and thus leave literally zero fabric waste. In its larger sense, the concept of zero-waste fashion refers to a fashion system where waste is eliminated through all stages of garment design, production chain and the use phase (Rissanen 2013).

As noted by McQuillan (2011, pp. 87–96) and Rissanen (2013, pp. 45–57) there are several ways to approach the aim of zero-waste fashion design through pattern making. The zero-waste pattern making process is initially guided by the size of the fabric and the type of garment one is planning to make. It can be further directed using a fixed area, e.g. using garment blocks to ensure a certain garment form. Geometric shapes such as squares and triangles are accessible pattern pieces because they can interlock like a puzzle. A key to understanding the consequences of cutting the fabric is to see that a cut will create not just the one piece you intended, but also another piece along with it. (McQuillan 2011, p. 93)

The ZWPC workshop at Aalto University covered the basic concepts and methods of creating zero-waste garments. The zero-waste pattern cutting techniques introduced at the ZWPC-workshop included:

1) "Planned Chaos", in which garment blocks are used as fixed guidelines;
2) "Geo Cut", which is based on using geometrical shapes such as squares, triangles and circles; and
3) "Cut and Drape", a combination of random, fluid cutting and draping.
(See also McQuillan/ZWPC.)

Based on the experiments during the workshop, the zero-waste pattern cutting methods could be used to create any type of garment. For example, the method of "Planned Chaos", i.e. utilising garment blocks as the initial guideline, was applied to create a coat (Figure 1). Both "Geo Cut" and "Planned Chaos" were used in designing a jumpsuit (Figure 2). The "Cut and Drape" method and geometrical shapes were utilised in making a skirt and a top from the same piece of fabric (Figure 3).

Zero-waste fashion design can also be connected with textile design methods to deepen the creative process. For example, Varvara Zhemchuzhnikova experimented with combining zero-waste fashion design and hand-printed fabrics resulting in unique aesthetics. First, she used the "Geo Cut" method, different geometrical shapes, for designing the garment pattern. After transferring the pattern onto the fabric, and before cutting the pattern pieces out, she hand-printed the fabric. Zhemchuzhnikova used leftover inks to keep the process more sustainable and connected to the zero-waste philosophy. Although she had designed the garment before printing it, the finished look of the garment was not clearly planned (Figures 4–6); instead, she "sketched" the motif by printing it directly onto the fabric. As Zhemchuzhnikova describes, the whole process was an intuitive and creative adventure with the risk of an unknown result. She explains: *I started a project 'Ready to' where I connect the processes of art and slow fashion: I use around one meter of fabric and print it spontaneously by hand. Then I cut and sew it without creating waste. The patterns and print is inspired by an art work.*

*Figure 1 . ZWPC Coat by Mara Binde (Photo: Katja Tähjä)*

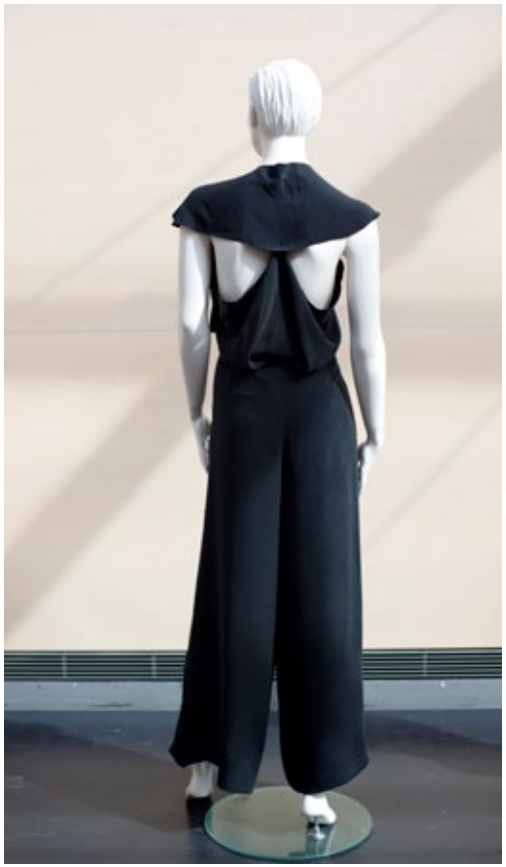


*Figure 2. "Geo Cut" and "Planned Chaos" methods were utilised in design by Petra Leino. (Photo: Katja Tähjä)*

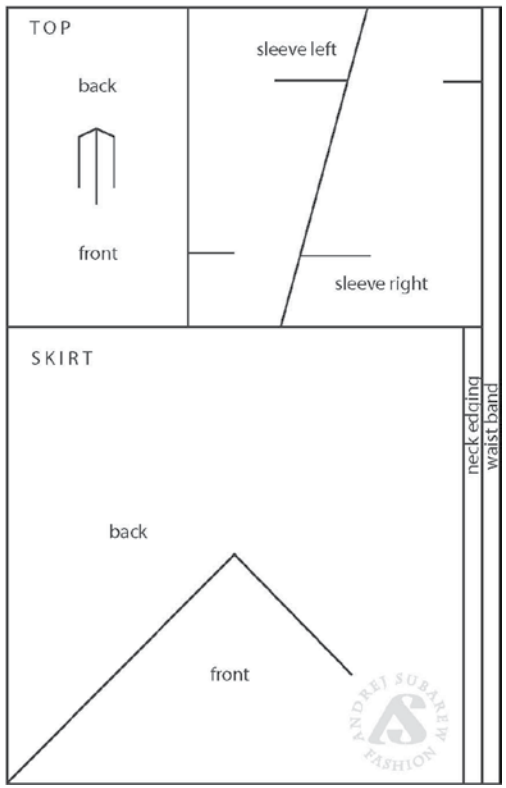



*Figure 3. A shirt and a top were designed from one piece of fabric. Design by Andrej Subarew. (Photo: Katja Tähjä)*

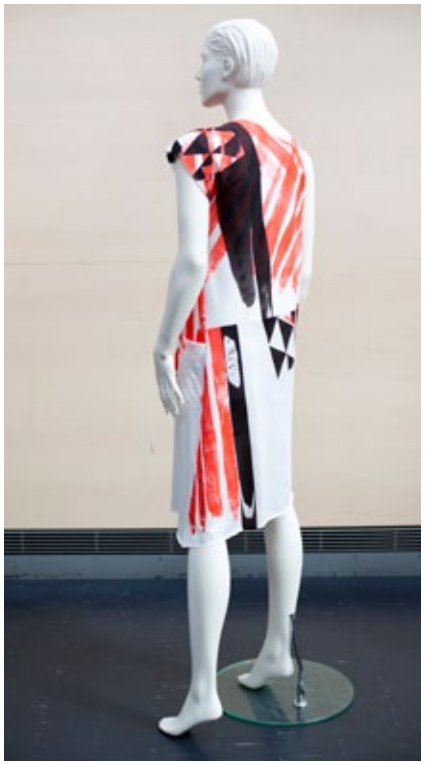


*Figure 4–6. Varvara Zhemchuzhnikova's unique aesthetics with experimental printing and zero-waste fashion. (Photo: Katja Tähjä)*

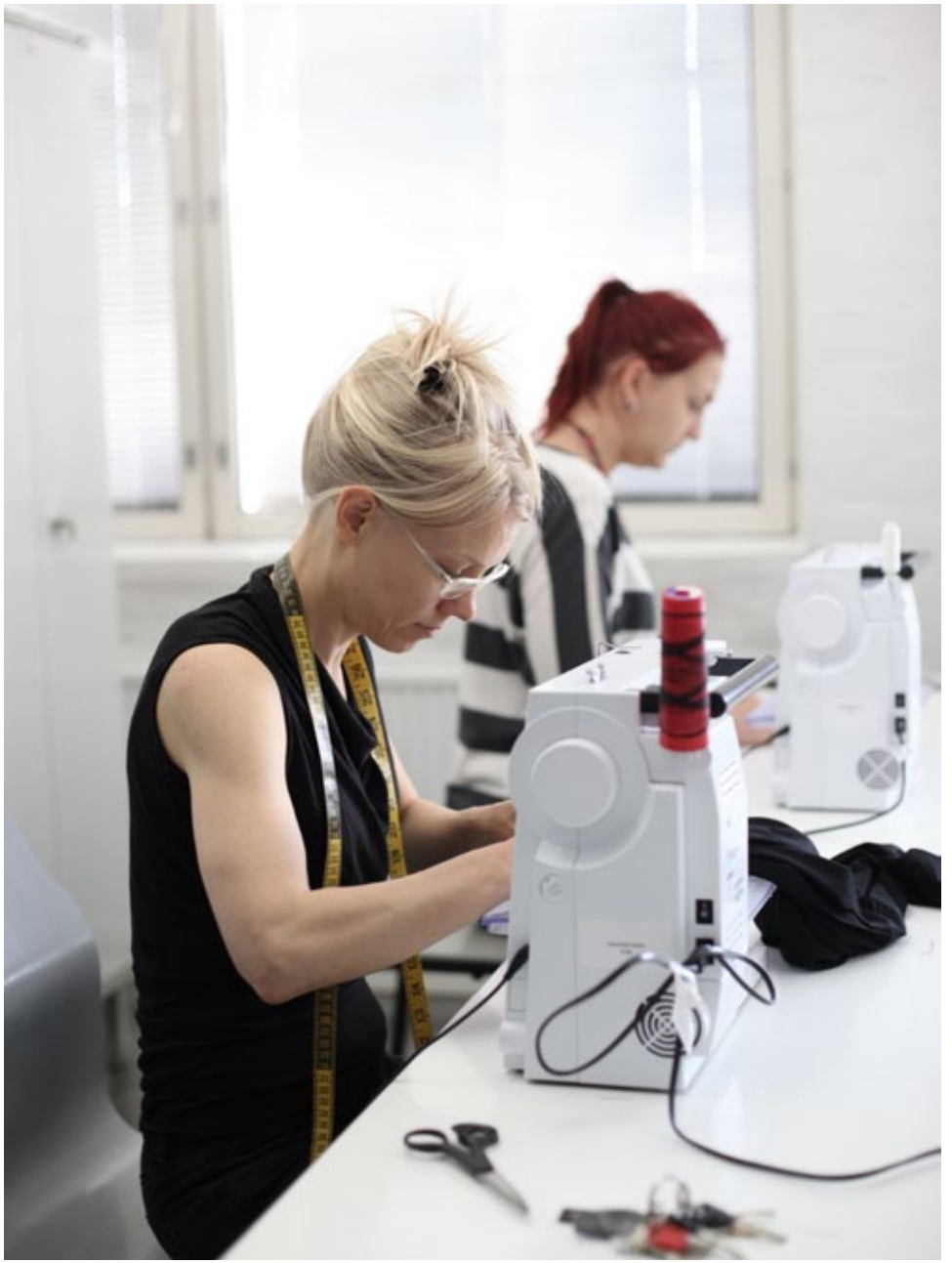
## REFLECTIONS ON THE WORKSHOP OUTCOMES

The methods of zero-waste pattern cutting are somewhat different from traditional pattern making; in fact, conventional knowledge of pattern making is not necessarily needed in this way of designing. For many, this can be liberating. Taking distance from the common rules of pattern making allows experimental and creative design processes. Partly for the same reason, learning zero-waste pattern cutting can be challenging. The common way of designing through sketching and draping, in which pattern making is mainly a subsequent, technical step after creating the form of a garment, is not feasible in zero-waste fashion design. Conversely, it is the simultaneous processes of pattern making and fashion design that enable the complete usage of the fabric: design decisions are made throughout the process of pattern making.

Nevertheless, as some workshop participants suggested, having skills in fashion design and pattern making is advantageous to learning zero-waste pattern cutting, as it enables a more thorough understanding of the techniques and the opportunity to use them in a flexible way. For many, learning zero-waste pattern cutting deepened their existing skills. *With this approach, you have to go into the depth of this craft,* one participant noted.

As the design process is guided by the aim of zero waste— all the fabric must be used in the garment —it might set some limits to the garment's aesthetic. Since every pattern piece borders another piece, each cut must create a shape that is utilisable and fits the function and form of the garment. Precisely designed forms are therefore challenging to realise with this method. Nevertheless, this character of zero-waste pattern cutting could also be embraced as a way of designing. Through the unexpected forms that emerged from the design process, a few workshop participants found multifunctional use for their garments; such adaptability of use may also inspire the wearer's creativity and even increase the life span of the garment. As one participant says, *[The evolving design process] reveals a range of creative design options from which further ideas emerge.*

The method is best suited to small studios, unique fashion design and production, and design experimentations. Nonetheless it is possible to adapt the system also to the larger scale and even industrial scale production, for example by creating a system based on fewer different sizes in production (e.g. S, M, L). Furthermore it is possible to regulate sizes through different size trimming mechanisms in the garment itself. Therefore the wearer could make her own adjustments and modifications in the garment to make it better fit her body and individual measurements or even changes in her body size. This approach would make the garment longer lasting, as the wearer could make small size adjustments herself according to individual preferences or body changes. (Jane Palmu, Personal communication, 5.11.2012.) Experimenting with zero-waste pattern cutting methods can thereby help foster original, creative and more sustainable solutions in all fashion design practices.



*Zero-waste pattern cutting workshop (Photo: Katja Tähjä)*

*Holly McQuillan's inspiration for these experimental outfits has been the letters from Aalto and "Geo Cut" method. (Photo: Katja Tähjä)*

## CONCLUSION

Zero-waste fashion design challenges traditional ways of designing while facilitating innovative ways to design and fresh aesthetics to emerge. Zero-waste fashion design can also lead fashion designers to consider and apply other sustainable practices. As one of the workshop participant pointed out, *This method can be a catalyst to improving material use in the future.*

Zero-waste fashion design serves as a compelling example of how to merge the skills of fashion design and pattern making while also bearing in mind sustainability—and aesthetics. As one designer stated, *Zero-waste fashion creates aesthetics with the help of ethics. Merging both enables one of the most satisfying outcomes in terms of contemporary fashion design* (ZWCP workshop/works). Zero-waste pattern cutting is a practical and experimental method by which to advance sustainable fashion. It can also be combined with other textile design methods, such as printing, or any forms of experimental sustainable fashion. Most of all zero-waste fashion design can change fashion designers' attitudes towards more respectful resource use.

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# CRITICAL AND SOCIAL DESIGN

*One may approach sustainable practice with a focus on materials, by building communities, by changing the way users interact with product and services, or by focusing on use, reuse, recycling. However, it is not necessary limited to these examples. Sustainability can mean so many different things it challenges practitioners to be visionary, adaptable and innovative. (Sherin 2013, 13.)*

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# DESIGN ACTIVISM: CRITICAL AND SOCIAL

Kirsi Niinimäki

This chapter offers a short introduction to design activism, critical design and social design. Design activism can be defined to mean design thinking, imagination and design practice that aims to question current practices or generate change (Fuad-Luke 2009). Alastair Fuad-Luke (2009, p.21) defines critical design as a speculative design proposal that can be a provocation or intervention. It can also be a place for discussion; a design can be a catalyst for thoughts and shared discussion, an opportunity to open new views and understanding or critically raise comments or notions about some problem areas. In design activism and the critical approach, the designer works beyond a product; critical design is often against how design supports the current consumer culture (Koskinen et al. 2011).

A critical designer can show his/her work in the art context but more often it appears in the design context: i.e. even though the design is based on a critical approach it is still a wearable garment. One example of critical design is a garment collection designed by Patrik Prusak, where he based his concept on companies' greenwash practices.

Another approach to design activism is known as social design. User-friendliness and product safety benefit all users but especially underprivileged, vulnerable or minority users, like elderly or disabled consumers, who are not typically the main focus group for garments or fashion. Companies and designers who take the diversity of consumers into account are socially responsible. Furthermore they may benefit from these disregarded users and gain new business opportunities and market potential. (SEC 2009.)

Inclusive design or "design for all" means that all members of the society can enjoy design. Every person's needs and even limitations are included in the design process. In fashion this has mainly meant small collections for special focus groups (like elderly consumers).

The social design approach differs from the mainstream design system, which mainly focuses on design for markets and for average consumers. In social design the goal can be to improve people's lives and well-being and the focus is on fulfilling human needs and facing real problem areas in garments. This could mean designing garments for individuals who have special needs, like wheelchair users. The role of the social designer warrants the capability to deeply listen to other people and their needs and holistically explore the problem areas and opportunities (Fuad-Luke 2009). This means a big change in what designers focus on, which traditionally has mainly been fashion aesthetics and trendy and commercial aspects in fashion.

*Critical design by Patrik Prusak (Photo: Paavo Lehtinen)*

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# GETTING CRITICAL

# "WHY SHOULD I CREATE ANYTHING?"

Anu Corin

We know the fashion industry is full of problems, and being in the middle of an economic crisis paints the future in an even darker shade in many people's eyes. The solution to the recession appears to be to consume more, which seems confusing and simply absurd, having just learned that we are quickly using up resources that actually belong to our children. On top of this my jam-packed closet is constantly reminding me that I already have too much stuff. Landfills are also overflowing and we are shipping waste around the world. At the same time we are dealing with global warming, pollution and poverty. To consume more doesn't feel like a particularly satisfactory solution to me. It is obvious we need to make enormous, drastic changes in every field, not only in fashion, and it feels like changes are made frustratingly slowly.

We are accustomed to seeing designers as the ones creating more stuff or making things more attractive so consumers can keep on consuming. So as a designer, and as a citizen, for that matter, it's easy to feel like we are not contributing enough to spurring these changes or that we are part of the problem instead of part of the solution.

For me, reading and hearing about all these problems we are facing has simply resulted in a terrible feeling of guilt. I can't help but think about who made the clothes I'm wearing and how much that person got paid. What happens to the clothes I've produced when they reach the end of their life cycle? When we already have too much stuff – isn't it more sustainable not to add more to this pile of already obsolete stuff? If sustainability is about making less and using less – why should I create anything? Why is my design worth being produced or worth the resource use that could be directed to something more important?

Making something sustainable is without a doubt the only way to move forward, but with all these questions in mind it is easier to see how fashion is unsustainable rather than how it ever could be sustainable. That sustainable fashion is a paradox in itself makes things even more confusing. How can fashion be sustainable when it is based on consumption and change?

Sustainability became a forced way for me to try to justify my work and ease my feelings of guilt. I tried desperately to make a sustainable product by, for instance, using organic materials for my garments, but I was always disappointed when I realised the thing I had just made or the idea I'd just had isn't really that sustainable. Changing the materials isn't enough, and it doesn't answer the question of why my product should exist in the first place. What is the point in making and putting a lot of effort into something that will just end up tucked away in a closet or in landfill a few years later? My desperate attempts didn't ease my sense of guilt, and I wasn't making the impacts I wanted to. I started to think that I wasn't a good enough designer because I couldn't make a sustainable product. At that point I felt I was at a crossroads: I could either quit and start doing something else or find a way to work in this field with a clear conscience. So I gave fashion one last chance and decided to recheck my compass to set a clear conscience as my new direction. This meant admitting that I don't know everything, starting to ask questions out loud that I until now had only been thinking about, questioning conventions, and documenting a completely honest creative process while being able to give reasons for its every step.

As I had been doubting the power of design, it felt natural to start my new course from the beginning by questioning what is design and why do I study it. The job of designer was created to meet the needs of industrialisation, but today we have completely different needs. Do we need designers today? Typically the designer's job, not to mention the fashion designer's job, is seen as quite superficial. And sure, aesthetics are important. Seeing gives us knowledge through experience and people make decisions based on these experiences. But without undervaluing

the importance of aesthetics, could there be something more to fashion than just looks? Isn't design fundamentally about problem solving and not about making more things? And aren't problem solvers exactly what we need today? That means designers have a lot to work on and if I'm not going to do something – who will? Everyone knows that sitting around and waiting for someone else to do things for me is not going to work. If I want something done, I have to do it myself. And I can't refuse to do something just because I can't do everything. So instead of letting the problems run me over, I began to see them as a source of inspiration.

Getting this inspirational kick allowed me to research sustainability with a new-found enthusiasm and more critically than I had done before. Motivated to find out if fashion can be sustainable, I read about companies that call themselves sustainable and made a list of things they did that supposedly made their product sustainable. But I still felt that even if I could incorporate everything on that list in my product I couldn't honestly call the product sustainable. And all of a sudden it hit me – I found the mistake I had been making for years. I used to think of sustainable fashion as a kind of synonym for a long-lasting, ecological and ethical fashion item, when I should have thought of it as a process, a development and an improvement. All the elements I had thought would make up a sustainable product were actually just examples of things I could do in a never-ending development process. A single product cannot be sustainable; a product in itself cannot create sustainability and I cannot create sustainability alone. The amount of work, or problems to solve, is too important and intimidating to be left only to designers. Sustainability is everyone's responsibility. Realising this lifted a huge burden off my shoulders.

Looking back at my question *why should I create anything* – I now think I have found a satisfying answer. Seeing sustainability as a continuous development process suggests that not creating anything would stop development, and I think that would be the most unsustainable thing there could be. Because change usually starts from the inside, it is important that dissatisfied designers stay inside the industry and realise their power to change things. Quitting is not a solution. Being frustrated isn't necessarily a bad thing – it holds huge power to change and it is a driving force to speed up sustainability.

But still everything does not deserve to be produced. If a product doesn't make the world a better place, it's not worth existing. When we already have too much stuff – a new way to develop could also be to grow in quality instead of quantity. For a designer this might mean adding more value to their work, and there are many different kinds of value, not only material value. I realised that by using small and expected things as inspiration, my work had become small and expected. By not valuing my work it had become meaningless, and if I'm afraid of failing, taking a risk or doing something unexpected – I will never come up with anything original. By speaking about things that are important to me I can create value in my work. And in design or in any other field – I make my work matter by making myself useful.

These thoughts were very much entwined with the development process of the collection Paradox – a conceptual collection consisting of two garments. In a way the collection spoke and I listened, and that is why I call the collection conceptual and the thoughts behind the collection are more important than what you see. The main materials for the pieces are discarded receipts, which are used as symbols of consumption, and since most receipts are made of thermal paper which often contains the endocrine disruptive chemical Bisfenol A, it is also used as a symbol of the chemicals in clothing. Through the choice of material the work tries to take action and ask questions like, how much stuff do we really need? How do we feel about having chemicals so close to our skin? And through calling the work a collection, even though

it consists of only two pieces, it also tries to question collection sizes. Do we have to make huge collections just because we can?

By drawing parallels to the problems in the fashion industry as well as in the wider society, the collection examines the fashion world through a holistic viewpoint and tries to realise how the designer can influence the fashion industry as well as how the industry relates to the world. This makes the collection a silent debate for a more sustainable future. With this in mind, the aim of Paradox is not to find answers but instead to question how we appreciate our clothes, our resources, our own work and the work of others. There aren't any one-size-fits-all solutions to these problems.

Because fashion always refers to the human body it is a great way to research how humans relate to the world. Fashion can therefore be a tool for communication and a way to take action. Being aware of what kinds of messages I'm sending through my design allows me to use it as a tool to make a difference. Ideas and thoughts are transferred into products as seeds, and you never know who these seeds are going to inspire. Through starting to ask questions I realised my power, and today I study design because I want to make the world a better place; today I'm trying to design the future – not a product.

*Critical design by Anu Corin (Photo: Henrica Langh)*

*Critical design by Anu Corin (Photo: Aino Huovio)*

# CHANGING THE WORLD WITH FASHION

Kati Reijonen & Mari Krappala

# INTRODUCTION

The purpose of this piece of writing is to describe the background of the Fashion Empowerment project, a joint venture by the Novia University of Applied Sciences and the Estonian Art Academy, and part of Baltic Fashion EU project. It is also an attempt to make sense of a project that in many ways became a personal learning experience for both the students and the supervisors.

Fashion Empowerment was an attempt to introduce the dimension of social design into fashion. The first question we wanted to address was: if fashion can entrap (as we know it can), can it also *empower*?

As the process went on, it became apparent that answering this question would not be simple. Social design is a complex concept that can be approached from various angles. Ours is a combination of art, design thinking, spirituality and social sciences. However social design may be defined, at its core there is always the individual and her/his right to become heard and appreciated. This is what Fashion Empowerment, too, was all about.

## FASHION EMPOWERMENT: HOW IT ALL STARTED

The idea that led to the Fashion Empowerment project was born in October 2009, in Usedom, at the Baltic Fashion Gala. While watching yet another catwalk show with skinny, solemn models sporting imaginative collections by young talents, we started discussing at the dinner table: me (Kati Reijonen) and my Baltic Fashion colleagues, Tuula Bergqvist (Novia University of Applied Sciences) and Lilli Jahilo (Estonian Arts Academy). We shared the same feeling of slight frustration and, to be honest, boredom. Is this all there is to fashion? Are fashion awards just competitions on how far the concept of a piece of clothing can be stretched and still serve as fashion, instead of, say, a fine arts statement? Is the innovativeness of a garment measured by its craziness? Is the fashion business essentially show business? Do ordinary people have any voice in the industry?

It is a truism that high street fashion attracts most attention in the media and consumer market, while many "real-world" clothing problems remain unsolved. Elderly people and the disabled, for instance, struggle constantly to find clothes that are not only functional and practical, but also beautiful and empowering.

And then there is the issue of us ordinary women never really being up to stereotypical womanhood as outlined by the fashion gatekeepers, such as the glossy and bloated Vogue, where even the advertisements are serious fashion statements, carefully designed to create a fantasy world to which the rest of us have no access.

Fashion is such an obscure and strange construct, alluring and annoying at the same time, that it seems difficult to say anything truly meaningful about it. It is about clothes and outfits – but no, not really. It is about style. It is about *habitus*. It is about making a distinction. It is about belonging to one reference group and not belonging to another. It is about looking cool according to the standards of those who decide what is cool in any given season. As Gick and Gick (2007) point out, the power of the media in this process, operating as an intermediary between the designers and consumers, cannot be underestimated. The novel *The Devil Wears Prada* (Weisberg 2003) provides us with a caricature of how fashion is constructed by Vogue, "the world's most influential fashion magazine" (Weber 12.3.2006).

At the dinner table in Usedom a decision was made to explore the empowering dimensions of fashion and see what could come out of this process. We felt that the time was right to open a new, more sustainable and human-centred perspective on the fashion industry, one that would involve the users in the design process in a meaningful way.

*Could fashion, instead of making the rest of us feel incomplete and imperfect, work the opposite way? Could it empower?*

We decided to start small, a pilot competition open only for the students of Novia and EAA. After all, the whole idea was to wake up our students to the possibilities the real world offered fashion designers. The students are seldom encouraged to address the needs of those who poorly fit the body image of the idealised norm. The paradox is that the majority of garments are designed for the minority of users, while a huge number of consumers stay in the margins. This means that only very few can ever find work as designers in the mainstream fashion market. And yet there is plenty of work in solving real-world clothing problems.

Design is, essentially, about problem solving and luckily in our world there is no lack of problems to be solved.

## BACKGROUND CHECK: SOCIAL DESIGN, SOCIAL ART

The Fashion Empowerment project was based on the concept of *social design*. In this context, design is seen as a methodology of creative problem solving where the attributes of the design process are employed to facilitate social needs. In Papanek's words, it is design for the "real world" (Papanek 1997).

Social design is inclusive, catering for the needs of all humanity and not only for the desires and excessive consumption of the affluent minority, as has been the case with market-oriented design. Many terms refer to social design, such as design-for-all, responsible design or ethical design, to name but a few.

Bringing fashion design into the context of sustainability is like opening Pandora's Box. As there are many phases to fashion from ideation, design, production, distribution, sale, consumption and ultimately disposal, there are many instances where decisions, made by designers, producers, retailers, and consumers, can reflect socially responsible views and sensibilities. Questions such as where the designs originate, what materials are used in the production (green materials, recycled, upcycled, repurposed), how and where fashion is produced and sold, how is it consumed in terms of use, care, disposal etc., reflect a dedication to or indifference to social responsibility and sustainability.

While ecological sustainability has become a permanent topic in fashion discourse, questions of inclusion and *design-for-all* have been less addressed. The rise of social and ethical consciousness among designers in general has led to increased interest in the participatory, user-centred design methods commonly applied in Service Design to involve the user in the process, not as a participant but as a *co-creator.*

Co-creation calls for equal, non-hierarchical collaboration, which can be, and very often is, difficult in a situation where the Expert works with the Layman. Aristotle gave the name *Mētis* to designer knowledge – a combination of intuitive knowledge that comes from working with something as complex as design for a long time and of craftsmanship, the practical *know-how.* "In a sense *Mētis* lies in that large space between the realm of genius, to which no formula can apply, and the realm of codified knowledge, which can be learned by rote," as J.C. Scott writes (1998).

The problem with *Mētis* is that it is inaccessible to others. It cannot be shared on a horizontal level. In spiritual terms one could say that it is Ego-centric.

There are ways to tone *Mētis* down, to achieve more emphatic and meaningful co-design experiences, such as the now so fashionable Mindfulness. The roots of Mindfulness can be found in Eastern philosophies, more importantly in Buddhism, but since the 1970s it has been practiced in the Western world without any religious undercurrents, as a way to train the mind to stay in the Now and to accept life as it unfolds. The ancient practice of meditation is a method to achieve the desired state of awareness through stillness and quieting the restless mind.

While mindfulness is not yet part of everyday design vocabulary, art is mindful by definition. A fulfilling art experience is all about presence and has, at its best, meditative dimensions. Marina Abramovic's MOMA project The Artist is Present, where the artist sits on a chair and looks intensively into the eye of whoever happens to sit on the chair in front of her, is a great example of this. Abramovic's intensive gaze provoked an unpredictable emotional reaction in the audience, anything from hysterical laughter to desperate crying. (Marina Abramovis. The artist is present.)

Interestingly enough, Mindfulness is now breaking even into design discourse. In his posting to the "A better world by design" project website, Ylan Vo quotes Dr M.A. Greenstein's notion of design *not just as problem-solving but a process requiring that we build the capacity to listen, understand, and affirm the possibility of a better world* (Vo 16.9.2011).

In fashion design, subjected to the obscure notion of "fashion" as defined by rapidly chang-

## FASHION AS FREEDOM? TO EMPOWERMENT AND BEYOND.

ing trends, mass production, media hype, celebrity culture and obsession with distorted body images, co-creation, the interaction between the designer and customer, is more complex than in the other areas of design. Clothes can, still today, be custom made and tailored for individual users in atelier settings, and there is something of an upsurge of more interactive mass-market concepts such as Nomo, which provides a service for customising jeans. This kind of designer-consumer interaction, however, is possible for only the very few and affluent. Most users never get the chance to communicate their wishes and desires. It is their lot to adjust to what the others have designed.

The concept "empowerment" is much used today. Like innovation, it has become an empty buzzword. In the context of fashion, the question is whether we should empower users *with* or *from* fashion.

Exploring fashion empowerment is like going down a spiral into the depths of the human experience of self and society. On the surface level there is the obvious – how fashion makes us *feel.* Sexy lingerie can make a person feel very sensual, no matter what she wears on top, something Arabic women certainly know a lot about.

A blazer with shoulder pads or body-sculpting underwear can have an empowering impact on a person's self-image on a very serious level. The popular BBC makeover reality show What Not To Wear, hosted by Trinny Woodall and Susannah Constantine, addressed this in an eloquent manner. The show was not so much about sporting fashion statements than feeling good about oneself by body-flattering clothing choices. It was empowerment with fashion. Similar initiatives are on the rise in the media today.

As the spiral goes down, one gets into the political dimensions of fashion. Burqha-wearing women are considered symbols of oppression in the West, but what about the H&M underwear advertisements, often the size of a football field, that expose more skin than many feel comfortable with? It was the burning of the *bra* that became the symbol of women's liberation in the hippie movement of the 1960s. In her review on the Fashion as Empowerment exhibition at the Metropolitan Museum, Lisa Krichner writes:

*C'mon. Fashion is pretty nearly universally a symbol of entrapment. The high heels, the bras, etc. Sure, we can revel in being pretty and sexy and still be liberated, but by and large this is not how it works. Not that I blame the messenger; fashion is a construct, it's not the mini skirt's fault that butt cheeks graze public seating.* (Krichner 6.6.2010)

The exhibition at the MET intended to reveal *how the American woman initiated style revolutions that mirrored her social, political and sexual emancipation* (American Women. Fashioning a national identity).

Empowering *from* fashion implies that, rather than becoming victims of fashion eccentricities, women should take control into their own hands. The negative impact of fashion extremes on women's health and well-being was addressed already in Victorian England with the rise of the *Rational dress society*. Fashion empowerment is, therefore, not only about adjusting to or making the most of what is, but also and particularly about changing the way we perceive ourselves.

In Finland, the photographer Miina Savolainen has coined the term *empowering photography*. Savolainen's method is to involve the subjects of photographs in the creative process and in this way give a voice to the oppressed and silent. In her project "The Loveliest Girl in The World", orphanage girls were given the

## CLOSING UP FASHION EMPOWERMENT

possibility to design their own portraits the way they wanted to present themselves, celebrating the beauty and grace of girls who had endured hardship in their lives (Savolainen 2008).

The Fashion Empowerment project got inspired by this.

> *We wanted to give a voice to those never featured in fashion magazines – the too short and the too tall and the too big and the too small and those who just don't fit in.*

We also wanted to remind designers of the fact that even the unfitting lot wants not only functional and comfortable clothes, they also want to look good and feel good about themselves. It might come as a surprise to many a "healthy" person (it did to me!) that someone with a "disability" might not want to hide the thing that makes her different in the eyes of others – but to celebrate it instead. The Japanese *Wabi Sabi* philosophy is about finding perfection in imperfection – it is the very crack in the pot that makes it perfect. A "disabled" user does not fit in the fashion scene the way an anorectic top model does – but both of them suffer from the distorted idea of perfection the fashion world is obsessed about.

Fashion empowerment is, as can be seen, a many splendoured thing, the complexity of which can only be scratched on the surface in an essay such as this. To give more depth to the matter one could for instance look at Nobel Laureate Amartya Sen's concept of freedom, as the individual's real possibility to pursue the kind of life she wants to live (Sen 1999). The key concept in Sen's thinking is *capability*. The question is: could design provide the individual with means to transform *functionings* (e.g. availability of suitable clothes) into concrete capabilities (e.g. better self-esteem), leading to increased autonomy and freedom (Fukuda-Parr 2003)?

These questions need more time to be properly addressed. For the purpose of this chapter it is sufficient to just ask: did the Empowerment Project achieve its goals?

We believe it did. The result was a few collections of clothes designed for people with not only desires but practical needs, but the main thing was the process during which both the students and the coaches learned to look at the world from a different perspective, from the perspective of empathy and *compassion.*

The film made of the project by the talented Estonian team made both us and the public cry. To listen to a young man, defined for others by his cerebral palsy, excitedly talking about the outfit specially designed for him by one of the students, was not only a moving experience, it was spiritual. The project had managed to connect two people, the designer and the user, on a very personal and intimate level. The *metis* certainly was not there. Instead, we saw a genuine encounter between two human beings, made all the more significant by the fact that the designer was but a student, a novice, not yet a professional.

Maybe it was because of this that the project succeeded in the one thing that is meaningful: to make the user *happy.*

## PERFORMANCE ART MEETS FASHION DESIGN

Novia's next innovative step considered the subject from the artistic point of view: it posed the question of how we understand social design and how we can get people to wake up to envisioning a more sustainable life in fashion. The performance was based on all the knowledge we gathered during the Baltic Fashion project on social, sustainable and responsible design and consumption. The main objective was to make a change in the minds of researchers, designers and consumers.

One can ponder the use and consumption of clothes by reframing their meaning. In her performance *Redefining the Meaning* Leena Kela explored sustainable design processes and our everyday consuming practices with the help of conceptual self-irony: what is the meaning of each piece of clothing for its user, how do they define the user, how can these definitions be changed or be played with, and what kinds of new meanings can be produced? In the performance, new ways to perceive the people behind the clothes were provoked. The artist put on one garment at the same time expressing the story behind that garment and the many levels of the garment's meaning to herself. The process continued and garment by garment the story evolved until finally the artist was wearing 15 blouses at the same time. The project also wondered how it was possible that everyday use of clothes brings such pleasure even though the clothes used as a starting point are not fashionable.

The performance ended with Leena singing *These boots are made for walking*…. She walks away in a pair of red boots – hopefully leaving ideas in our minds on how we can lead more sustainable lives.

## CONCLUSION

This essay explored the background of the Fashion Empowerment project. It opened our views on social design in fashion and explained how art can help us to approach differently the many meanings of fashion and clothing. Through this project and design experimentations we gained new knowledge on how fashion can empower. We will not stop believing that change is possible, also in the fashion field. Additionally we will not stop working to achieve that change.

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# PRODUCT
# SERVICE
# SYSTEM

*Business leaders have an opportunity to create new business models that internalize social and environmental capital and which focus on innovation – all of which can better position their companies for a low-carbon economy based on smarter consumption and changed perceptions of what value really means (Hutter et al. 2010).*

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# PRODUCT-SERVICE SYSTEMS DESIGN THINKING FOR SUSTAINABLE FASHION

Cosette M. Armstrong

# INTRODUCTION

Sustainable consumption invariably commands a dramatic reduction in material consumption, a reality the fashion industry must soon face. Environmental issues associated with producing clothing and other fashion goods around the globe are substantial and can no longer be ignored. Additionally, personal ownership of clothing and other fashion goods have become inherently linked to the satisfaction of many psychosocial needs. Consumption of fashion goods is now recreational rather than needs based. However, the more consumers attempt to meet their internal needs externally with things, the more dissatisfied the consumer becomes, leaving society with a variety of social woes. Thus, the industry currently faces a myriad of environmental and social ills that command innovative design thinking for the revolution ahead.

Importantly, revenue generation in the fashion industry is closely associated with material resource use and consumption. Further, in an era of fast fashion, clothing producers are under immense pressure to produce items at lower and lower prices, which requires ever-increasing sales volume to generate a profit. At the same time, market saturation and evolving competitive structures are also commanding greater creativity and innovation, especially for mature industries like clothing. How, then, might this $3 trillion global industry address its environmental and social challenges by reducing material production and consumption without setting off an economic catastrophe?

Product-service systems (PSS) may offer a solution. These schemes include services like renting, upgrading, redesigning, swapping or lending to reduce reliance on natural resources while concurrently increasing product quality and longevity. Clothing PSS may provide the industry a mechanism to increase factors such as product quality and longevity while also providing alternative consumption models that decrease superfluous consumption. This chapter will discuss the potential for PSS implementation in the clothing industry, including a discussion about various models, design thinking for inspiration, and consumer adoption.

## PRODUCT-SERVICE SYSTEMS

Three types of PSS have been proposed: product-oriented, use-oriented, and results-oriented. *Product-oriented services* sell a product with product-related services that add value to the sale, such as maintenance or redesign, customisation, take-back or consultancy. *Use-oriented services* offer product renting, lending or swapping services and are characterised by a lack of personal ownership. Therefore, the company retains ownership as well as the responsibility for the product's upkeep. *Results-oriented services* provide a result rather than a product or the use of a product, including activity management, outsourcing or pay per service unit. These services provide an activity or some type of output conducted by the company, like a fashionable evening out. The avenue to deliver the result is left entirely up to the company.

The contribution of these PSS models to sustainability lies primarily in the detachment of the value proposition from material consumption. In some cases, personal ownership is replaced with utilisation options, more closely focusing on the consumer's end desire rather than materialism. Product design implications for such models may include greater durability, flexibility, modularity and ease of use to achieve increased use intensity across a multitude of users rather than one owner. In other PSS schemes, care and maintenance services, consultancy or redesign features provide support for product life extension when an item is owned. Importantly, PSS models are service based, affording the clothing retailer many opportunities to interact with consumers. This offers the retailer a key conduit to become more responsive to customers' needs as well as an opportunity to build brand loyalty.

A report written by the Waste and Resources Action Programme in the UK, *Working Together for a World Without Waste* (2011), identified some key opportunities for the clothing industry to become more sustainable: 1) reducing environmental impact in production and laundering, 2) extending product life, 3) reducing landfill disposal, and 4) increasing market demand for used goods. The report also argued that the most abundant opportunities for alternative revenue streams, outside the sale of first-off goods, are the sale of pre-owned clothing, services that offer consumers ways to gain greater use of items already owned, accessible and affordable alterations and repair, and collection of used clothing for recycling and reuse. PSS concepts may be used to spark innovative thinking about ways to combine services with the sale of clothing products, developing revenue-generating offerings that target life extension, disposal avoidance and greater marketability for used goods.

*Though services have long supported the use and maintenance of clothing products, these services have not necessarily been utilised as a method to achieve dematerialisation, longevity or to resolve environmental issues for that matter.*

Services like dry cleaning, repair, alterations and tailoring are industry standards. In recent years, personal styling and wardrobe consultation have gained popularity, though are not always financially affordable. Services such as take-back are increasing, though sometimes utilised in exchange for discounts and not always implemented to close the material loop. The potential for retailers to utilise these services already familiar to the consumer in a new and different way is significant and could offer the customer a compelling value proposition. For a product-oriented field like the clothing industry, product- and use-oriented PSS models are likely the most realistic to implement in the near future while result-oriented services may require far more industry evolution and changes in how consumers consume.

## PSS DESIGN THINKING

There are many sources of inspiration that may drive PSS design thinking for the clothing industry (see Figure 1). For instance, one can simply examine the variety of issues that lead to premature disposal of clothing products to find many potential alternatives. Previous studies have shown that the most common reasons for premature disposal of clothing are fit, fashion change, boredom, and damaged/worn out goods, all of which could be addressed through innovative PSS models designed to reduce material throughput by eliminating the need for disposal while raising the customer's satisfaction with the product. Fit issues could be addressed via alterations or tailoring services sold at point-of-sale. Fashion change and boredom could be addressed through strategies such as redesign or restyling services. Product sharing, swapping or renting schemes may also be utilised to stimulate interest in used goods, satisfying the need for something new without the natural resource expenditure of a first-off garment. Damaged or worn out items could be a part of take-back schemes used to source new materials for new fibres, fabrics or trims. Maintenance agreements could also be sold at point of purchase to avoid premature disposal when a garment malfunctions or becomes damaged.

### PROBLEM-ORIENTED THINKING

- Identification of problems leading to premature disposal (fit, fashion change, boredom, damage/wear)
- Design PSS services to eclipse disposal (e.g. alterations, tailoring, redesign, restyling, swapping, take-back, maintenance agreements)

### SERVICE-ORIENTED THINKING

- Identification of goods that experience long-term ownership, infrequent use
- Design PSS services to maintain quality and satisfaction (e.g. maintenance, redesign)

### UTILISATION-ORIENTED THINKING

- Identification of products used infrequently; status not derived from personal ownership
- Design PSS schemes that provide utilisation of products without ownership (e.g. renting, swapping, sharing)

### NEEDS-ORIENTED THINKING

- Identification of human need to do and interact (see Max Neef Matrix)
- Design PSS services to engage consumers in doing (e.g. co-design, participatory design or make-it-yourself) and social interaction (e.g. customisation, consultancy or swapping/sharing )

*Figure 1. Sources of PSS Design Inspiration*

Other sources of inspiration may evolve from service- or utilisation-oriented PSS design thinking. Previous research has shown that clothing categories such as dress clothing, coats and leather goods, and accessories often experience long owning times but infrequent use. Usually produced at a high level of quality using durable materials, these products may be kept for many years even if not worn. On the one hand, a PSS scheme could assist the customer in caring for these items, preserving the product's craftsmanship and better maintaining the customer's product satisfaction over the life of the garment. On the other hand, products that are well designed are in the best position for redesign, as the materials involved can endure a second or even third life. The potential for redesign PSS schemes in this case is great, allowing the customer to re-engage with the garment once more in a new and different way. Likewise, identifying clothing products in which personal ownership is not critical for status and infrequent use are common. PSS schemes may be developed to meet a temporary material need with far less resource consumption. Again, renting, swapping, and sharing services can increase the overall utilisation of garments over time and reduce the need for constant replacement. Notably, the quality of the garment involved in this PSS model must be high to endure increased product utilisation across many users.

*Finally, needs-oriented design thinking may also be used to conceptualise innovative PSS schemes that may address some of the social woes currently perpetuated by the fast fashion system.*

Social interaction and community engagement in society has generally decreased, leaving many with unmet human needs. The Max Neef Matrix of fundamental human needs provides a framework for the variety of needs that exist (e.g. to be, have, do and interact) and ways in which these are chiefly satisfied, few of which involve material goods. Specifically, PSS schemes may be utilised in this context to, for example, assist consumers in meeting their natural desires to do and interact. Models such as co-design, participatory design or make-it-yourself relieve pressure on the consumption of objects and transition the consumption experience to one of empowerment and even skill development. Similarly, schemes that provide social interaction such as customisation, consultancy or swapping/sharing shift the consumer's focus from the thing to be consumed to the social experience that surrounds the object.

Whatever the conceptual approach taken, successful PSS innovation will hinge on the tight marriage between the product and service, combining these in such a way that the consumer is given a compelling reason to buy into a new consumption model, the retailer or product developer reaps revenue, and the overall reliance on material resources is reduced. This win-win scenario will not be achieved without a significant shift in how we think about the clothing business.

## PSS CONSUMER ADOPTION

Though the potential PSS innovation may be limitless from the designer's or retailer's perspective, this discussion would be remiss without considering the consumer. Previous studies have provided some preliminary affirmation of consumer interest in a variety of PSS concepts, the greatest interest shown in take-back, consultancy repair, redesign and clothing swaps while a moderate interest has been shown related to renting and make-it-yourself schemes. Interestingly, PSS models like renting, swapping, make-it-yourself and selling a fashion result have been perceived as being most suited for younger age groups while PSS scenarios related to products sold with redesign or repair services, customisation or participatory design and advice/consultancy have been perceived to be most suited for older age groups.

More importantly, research has provided some key insights as to the PSS features that may most encourage adoption while also identifying some potential roadblocks for PSS implementation from the consumer's viewpoint. Chiefly, clothing PSS must address hesitations on the part of consumers regarding trust in the PSS provider, perceived price-for-value challenges and ease of use issues. Consumers desire information about how the service will be practically delivered, its guarantees and how exceptional cases will be handled. Though consumers may readily identify many financial benefits of reducing their overall clothing purchases via PSS models, scepticism and resistance exist about recurring costs (subscriptions or club fees). Other consumers have reservations about their ability to easily participate in and use the PSS if, for example, they lack confidence in their ability to choose customisation services that best meet their personal style or if there is a high skill level required in participatory or make-it-yourself options.

Thus, the terms involved in a viable clothing PSS scheme must satisfy hesitations about the provider's reputation, especially related to issues such as hygiene and product abuse involved in renting schemes as well as scepticism about the continuation of the business when a long-term maintenance agreement or other guarantee is involved. Information may also be needed to clarify the materials used, how materials have been treated, who has used them and under what conditions. The development of clothing-related PSS may be most ideal for a company with a well-established brand image. For example, Marks and Spencer has begun to offer services such as take-back. A smaller boutique may have a more difficult time earning the consumer's trust. Acceptance of experiential schemes like co- or participatory design or make-it-yourself options hinge on the company's ability to educate and provide support and reassurance to the customer in the design process. Finally, mechanisms must be developed to help the consumer compare the costs of a PSS to traditional acquisition methods: for instance, the cost of a new garment versus the costs and benefits of a re-invented item, in both monetary and emotional terms.

## CONCLUSION

Clothing is an invariably challenging product type to use in a PSS scheme. Changing or eliminating the ownership of clothing may be problematic, as ownership provides many psychosocial by-products for the consumer. Industry expertise and infrastructure required to redesign, reuse and recycle clothing goods currently lacks sophistication in an era of fast fashion. However, clothing bundled with services might provide an opportunity for the industry to offer product quality, durability and extended use time, increasing overall satisfaction. PSS design thinking offers limitless dematerialisation possibilities and opportunities to close material loops, to decrease our reliance on natural resources, and to reduce waste while also exploring alternative consumption models that better meet fundamental human needs.

Admittedly, PSS have not yet proven their worth in the sustainable design milieu, largely constrained by the industry's and the consumer's resistance to service-based business models. Designers, product developers and retailers hold considerable power to lead a much-needed cultural shift in this direction, changing the nature of production and consumption of clothing goods by creating compelling value propositions that entice consumers into a new, more sustainable lifestyle. The need to improve the ability for PSS design thinking among future industry cannot be underestimated.

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# PLANNED CONTINUITY: MULTI-LIFE GARMENTS THROUGH MODULAR STRUCTURES & SUPPLEMENTAL SERVICES

Essi Karell

# INTRODUCTION

In recent decades garment life cycles have been seen to be shortening dramatically in tandem with an increase in fashion consumption. Meanwhile the current fashion system (manufacturers, companies, designers, stores, magazines, blogs etc.) has stayed unimaginative and relatively passive with regard to promoting alternatives on how to consume fashion. While the need for novelty was once based on real demand, well considered in advance, nowadays the majority of Western consumers can afford to purchase merely on impulse. Products can be acquired "for fun", due to boredom and sometimes even for a single use. Driven by more and more materialistic values, consumption has become a habit and entertainment best characterised by immediate gratification. However, for people with the most materialistic values the positive emotions evoked by a product tend to fade quickly after acquisition (Richins 2013). Thus, long-term pleasure appears to be impossible to achieve, as once the satisfaction with the purchased item has faded, new fulfilment must be found elsewhere. What could satisfy the apparent need for something new without acquiring more material?

This chapter presents a conceptual design case that combines a modular design strategy and theory on product-service systems (PSS) in order to dematerialise fashion consumption. The aim is to extend the garment life cycle and identify new ways to experience fashion more responsibly compared to prevailing consumption practices. First, some principles of modular design and PSS are introduced, after which a hypothetical clothing service is presented to boost environmental responsibility as well as customer and business benefits.

## OPPOSING THE PREVAILING FASHION PATTERN

The hypothetical clothing service described in this chapter was developed in autumn 2013 as part of my MA thesis project in Fashion and Clothing Design at Aalto University. The project covers a conceptual service development process as well as a concrete design example of a limited clothing collection that was to illustrate how the service could work in practice.

The main objective behind the clothing service was to offer a sustainable alternative to the current pattern of fashion consumption and meanwhile extend the traditional garment life cycle (Figure 1).

As illustrated below the garment's life starts from the raw material extraction, making a long journey in an industrial system before actually reaching the final consumer. The final consumer is a passive receiver who becomes active only after the point of purchase when using and taking care of the garment. Final disposal is put on the consumer's shoulders, while companies remain responsible only for the design and production of products.

To challenge the current pattern, one of the tasks within the presented concept is also to blur such a sharp division between the production stage and the consumer stage. The concepts of product-service systems and modular design were selected as theoretical starting points for development of the new clothing service, as both design strategies have been argued to have positive impact on garment life cycles and potential to challenge the existing practices of the fashion system (Niinimäki & Hassi 2011; Fletcher & Grose 2012; Koo 2012; Armstrong et al. 2014). Among these strategies, customisation was also considered as a tool supporting more sustainable consumption. The consumer was planned to become a co-creator in the design stage through customisation. This was expected to create deeper product satisfaction with the product, as suggested in earlier studies (e.g. Mugge et


*Figure 1. Traditional garment life cycle*

## MODULARITY

al. 2005). The prospective emotional bond between user and product was then considered to enhance the consumer's empathy towards the garment and to invest in it even later in the future. In tandem with the modular garment structure and supplemental service (based on PSS) consumers were expected to repeatedly feel satisfaction with the old item, which should hence help to extend the garment life cycle.

Most references to modular design are typically linked to engineering design and computer technology, but they can be identified also in many other everyday activities: modular furniture or kitchen decor probably being the most familiar concepts among consumers. According to Kamrani and Salhieh (2002) modular design refers to a design technique that can be used to develop complex products by using similar components. The components (modules) must have features that enable them to be coupled: A single module may only perform discrete functions, but when combined with other modules they can together provide a variety of functions (Kamrani & Salhieh 2002).

From the sustainable design perspective, a modular design strategy can be considered a transformable design strategy (Koo 201), which emphasises the capacity for radical change. Transformable design can be understood based on the definition of 'transformation', which according to Schmid (2008) describes the ability to take one thing (materials, views, experiences, processes) and turn it into another. Transformation generally indicates a change of shape, form or structure without the loss of substance (Schmid 2008). Hence, a transformable design strategy, including modular design, is considered here as a tool that allows upgrading and renewing of the existing garment due to its variable characteristics. It helps to maintain the satisfying garment attributes in the consumer's eyes while maximising its capacity in use. Modular design can deliver clear environmental benefits and the potential to dematerialise consumption, benefits that will be discussed further along with the clothing service.

In fashion modular design typically refers to multi-functional garments that can be altered by the wearer and thus bring variety into people's wardrobes. As Koo (2012) argues, garments that can change, adapt or evolve may encourage a relationship between wearer and garment that is much deeper than can be achieved through typical fashion solutions. Such a relationship is expected to influence the consumer to wear garments much longer and more frequently due to the ability to serve multiple needs and eventually reduce fashion purchasing (Koo 2012). Meanwhile it carries the potential to reshape the existing markets and challenge the current rules of the fashion industry, as it gives the user an ongoing, active role in designing the product (Niinimäki & Hassi 2011). Even though consumers may lack knowledge about or indicate little concern for sustainability, transformable and modular garments may encourage them to engage in sustainable behaviour even without their awareness (Koo 2012). Consequently, this

## PRODUCT-SERVICE SYSTEMS (PSS)

may also guide consumers to see their own responsibility in the garment life cycle more explicitly.

On the fashion market modular clothing is not new, but is not widely exploited so far even if many designers clearly show interest in modularity in various projects. Compared to non-transformable clothing, modular garments require more complex and more in-depth exploration of patterns and prototypes, which may partly explain the situation on the market. The business perspective provides another possible reason for their exiguity: Even if material reductions offer obvious benefits for companies, multiple garment functions have their downsides. When one garment begins to replace two or even more profitable items, it naturally reduces purchasing, revenue and interest among stakeholders. Consequently, modular design not only offers alternative ways to consume, but also demands new business models built on services, cycles and underlying human needs (Fletcher & Grose 2012).

Product-Service Systems (PSS) offer great potential for this demand for new business models. PSS replace traditional ways of product utilisation through a combination of tangible products and intangible services, which together can fulfil the consumer's needs without excessive material use (Mont 2002; Manzini & Vezzoli 2002; Tukker 2004). Apart from environmental benefits PSS has been argued to profit businesses, an advantage that may be more difficult to link to modular clothing. PSS can be an excellent vehicle to enhance companies' competitiveness (Tukker 2004) and to offer higher value for both companies and customers than purely product-based solutions (Tischner et al. 2009).

As the name Product-Service System proposes, it has a strong connection to service design, whose very intangibility is recognised to have great potential to dematerialise consumption without compromising on consumer convenience. Similar to service design, function and utility are the essential elements of PSS. What is to be emphasised from the customer perspective is useful, usable and desirable service interfaces. As for the service supplier, they must be effective, efficient and distinctive (Mager 2008). Therefore, PSS is not only a mix of products and services, but actually a system of various operations that connect them together in appropriate and meaningful ways. Instead of using products and services, it is more important to acknowledge what these products and/or services enable consumers to achieve (Manzini & Vezzoli 2002). If twentieth century designers saw their tasks as the conception, development and production of simple objects, the 'object' of today's designer is turning into a 'process': *something that occurs over time, an activity that aims to receive results* (Manzini 2011, p.3). What is thus being designed in service design is a so-called '*action platform*' that enables favourable activity while making certain kinds of behaviour more difficult (Manzini 2011).

To promote sustainable behaviour Product-Service Systems provide three approaches, typically classified as three main categories: product-oriented, use-oriented and results-oriented PSS. In product-oriented services the business model is still concentrated on sales of products. The added value is provided through additional services, such as product-related services and advice or consultancy services, which both aim to guarantee product life extension and functionality (Manzini & Vezzoli 2002; Tukker 2004). These services can include product maintenance, repair or upgrading in a certain time frame or a take-back service at the end of the product's life. Benefits of a product-oriented PSS can thus be gained by simultaneously minimising costs and

extending the product life cycle, as well as by integrating end-of-life strategies in product design (e.g. use of materials that can be recycled, reused or replaced) (Manzini & Vezzoli 2002).

Use-oriented services include product lease, product renting/sharing and product pooling. In all these subcategories the product is not sold, even if still playing the central role (Tukker 2004). The company offers only the access to products, tools, opportunities or capabilities that enable consumers to achieve the result they want (Manzini & Vezzoli 2002). The use of the product is often based on a regular fee that may allow a consumer individual or shared access to the product – either sequentially or simultaneously (Tukker 2004). The most common use-oriented services include laundry services and car sharing. Interest in services that rent luxury handbags and other accessories, for example, has also been increasing. In use-oriented services the use of a given product as well as the needs of consumers can be maximised with fewer products. It must be noted that collective product use may of course lead to faster replacement, but this can also be taken as an advantage: as products get worn out much quicker, they can be replaced faster with more eco-efficient equivalents (Manzini & Vezzoli 2002).

In result-oriented services the consumer and PSS provider agree on a certain result instead of the purchase or use of products (Manzini & Vezzoli 2002). Part of the activity is outsourced to a third party. The customer pays only for the output and the provider is free to choose how to deliver it (Tukker 2004). Common examples of result-oriented services are office cleaning, catering and copy services, where the provider takes full responsibility for all the necessary equipment and machines as well as their maintenance, repair etc. (Tukker 2004), but the result can also be seen as rather abstract. Similar to other PSS types, result-oriented services may dematerialise consumption while optimising use. They free consumers from problems and investments linked to acquisitions and maintenance of various products or equipment (Manzini & Vezzoli 2002), which the PSS provider can presumably better afford and has better knowledge of.

## CONSUMER INTEREST IN CLOTHING-RELATED SERVICES

In the last decade PSS has been widely researched as a result of the growing emphasis on the service industry. Accordingly, it has been applied in many industries but so far there are only few examples of organised fashion service systems (von Busch 2009). However, a recent study (Armstrong et al. 2014) indicates clear interest in clothing-related PSS among fashion-oriented consumers, which promotes the potential of PSS also in the context of fashion. Especially in terms of product longevity participants in this study perceived much value in services that could increase the overall quality and durability, or at least upgradeability, of their clothing purchases and hence decrease the need for early disposal (Armstrong et al. 2014).

The clothing service concept presented in this chapter aims to promote that mindset through the combination of product-related PSS and modular design. In tandem these strategies offer an action platform, where the consumer is encouraged to engage with the product throughout its life cycle in order to create more emotional value and prevent the need for new acquisitions. The product-oriented PSS type was selected as a starting point for the clothing service, even though this type of PSS is still focused on sales of products. Therefore, it is presumably the easiest PSS type to approach by a wider audience that is

## PRESENTING THE CLOTHING SERVICE CONCEPT

still accustomed to the prevailing fashion pattern (Figure 1, see page 114). This is supported also by the results of the above-mentioned study (Armstrong et al. 2014) where take-back, fashion swaps, repair/maintenance, redesign, and advice or consultancy (all of which are product-related services apart from fashion swaps) were seen as the most interesting services among the fashion-oriented study participants.

At the core of the clothing service (Figure 2) is a modular garment, which is sold both in a traditional boutique and online. In conjunction with the product purchase customers are offered a supplemental service that enables the item to be upgraded or transformed completely upon extra fee. The garment consists of a certain amount of modules (pattern pieces), which can be unstitched and reassembled in four different ways resulting in four diverse looks. What is designed, in other words, is a garment life cycle that provides multiple lives planned in advance. When the satisfaction with the newly bought garment has faded the consumer can always bring or send the product back to the service provider who produces the desired variation of the garment.

The garment is made only on demand. When visiting the boutique, the customer can try on different versions of it in several sizes. The final item, however, is made according to customers needs in just a few days, after which it can be picked up at the boutique or delivered straight to the customer. At the point of purchase, the customer is informed about all the possibilities enabled by the modular structure. No matter which variation the customer selects, the previous look can also be reassembled later on.

In addition to the various looks, one can choose the fabric, colour and details (e.g. additional pockets and lining) from an exclusive selection that is made beforehand in order to help the customer's decision-making. Materials and colours can also be combined to create more unique results. Mixing materials is made possible even later on, whenever the customer wishes to transform the garment. Hence, smaller variations can be easily made instead of a total remake.

High quality materials are the main precondition for service utility. To enable the process of repeated reassembly, the chosen materials must be superior in their quality and durability (also supported by Armstrong et al. 2014). In addition they must embody surfaces that are adaptable or at least help to cover the signs of remaking. Therefore, woollen crêpe is suggested for the modular garments offered through the clothing service; once the product is unstitched all the traces of sewing can be removed from the crêpe surface by steaming. In addition the woollen garment does not require washing but instead can be aired and only occasionally dry-cleaned, which further reduces the garment's environmental impact.

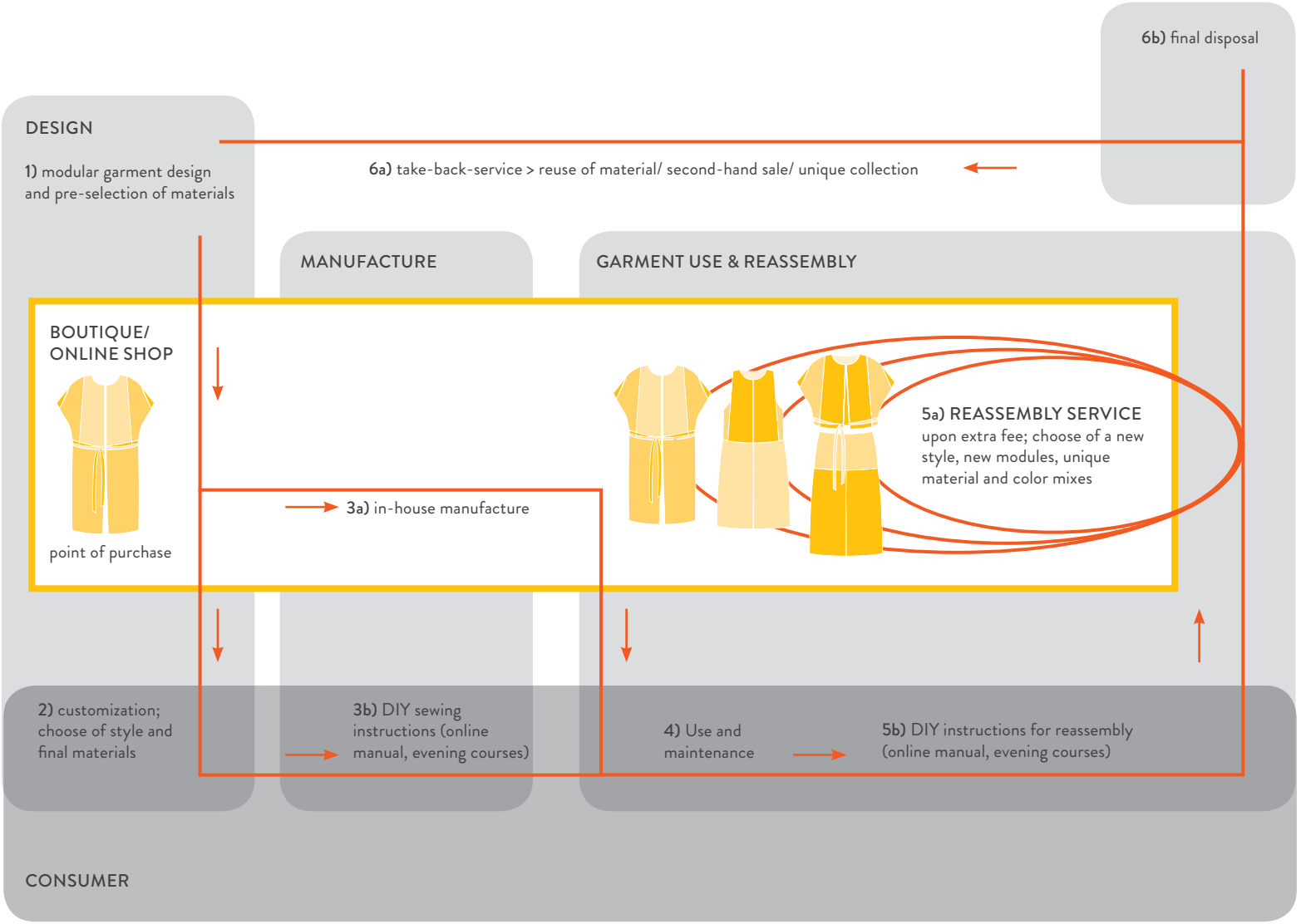



*Figure 2. Concept map of the clothing service*

## ALTERNATIVE SCENARIOS

In the current design example the service provider is responsible for selling and producing the product. In addition two more alternative scenarios were generated to make the service more affordable and approachable for a wider audience while further emphasising the customer's role: In the second scenario the customer may purchase a manual or access an online manual, which includes detailed instructions on how people can reassemble the garments themselves instead of bringing them to the boutique for remake.

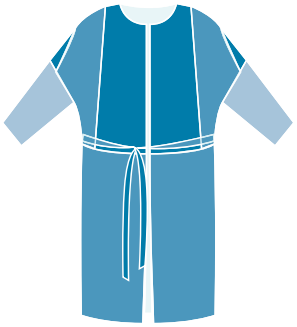
In the third scenario the service provider sells only the modules and the manual that are needed to create a complete garment. The service provider cuts and neatens the modules beforehand, after which the customer is responsible for making the garment. This can be done either at home or at the boutique, where the service provider arranges evening courses in which customers can participate and finish the garments with the help of the staff. This Do-It-Yourself approach not only reduces a customer's economic investments in the modular garment but also will teach new skills.

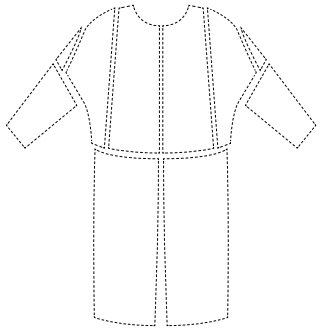
The individual consumer has a leading role in decision-making, turning the consumer from a passive receiver into an active maker which serves to deepen the feeling of achievement and in turn increases product satisfaction (Niinimäki & Hassi 2011). Naturally these scenarios also help to profit the business, as the most time-consuming stage of the garment life cycle (manufacturing) is cut out. What finally boost the sales in the current scenarios are the manuals and courses organised by the service provider.

The stage of final disposal is approached also through various scenarios. When tired of the product or reassembly, the customer is encouraged to return the garment back to the service provider who has three possibilities: one option could be to unstitch the old garment and resell the existing modules to other customers, who are willing to upgrade their product with new material mixes (e.g. a combination of leather and wool). Alternatively if the returned garment is in good condition it could be sold as is. In addition the reassembly of the second-hand garment would be more affordable to the customer than the reassembly of a brand-new item. Thirdly, the service provider can also create unique ready-made pieces from the returned modules and build entire collections around certain colours or materials updated with additional details.

## MODERN GARMENT LIFE CYCLE

The possible impacts on the garment life cycle are also visible in the concept map (Figure 2). Contrary to the traditional cycle the design stage spreads into two levels: while the designer decides on the modular garment structure, the customer is responsible for finalising the look. Similar to bespoke tailoring manufacturing takes place only after the point of purchase. The use phase extends considerably, if the garment returns back to the service provider instead of being left in the wardrobe. The prevailing linear flow turns into a multi-cycled process, where the consumer becomes an active participant in the garment life cycle.





*In addition to four basic looks the modular garment structure enables multiple variations to be made later on.*

## CUSTOMER BENEFITS

The consumer's mindset is tuned to striving for continuous seasonal change and personal update. Thus, the current example suggests a garment that is able to offer multiple functions, which naturally reduces the need for an entirely new purchase. This is likely to benefit consumers also financially. An adaptable product structure enables consumers to upgrade the product to meet their changing functional and aesthetic needs. Easing upgrading with more functional or modern units allows consumers to incorporate the benefits of a new technology in their current product and/or to renew it aesthetically. (Mugge et al. 2005.)

Even though the original garment structure and all its variations are designed in advance, the garment lives in a continuous design process, where the customer becomes the co-creator of the product next to the designer. Customisation in the design process may help to strengthen the person-product relationships and hence postpone early product replacement (Mugge et al. 2005). Additionally it enables more unique design. Moreover, customers may experience personal success by creating something on their own. Finally the mix of PSS and modularity may also encourage the customer's further desire to invest in the earlier purchased garment instead of a brand-new item and this way gain continuous product satisfaction.

To enable a satisfying experience for the consumer, both the product and the service need to function as expected. Meanwhile the clear benefits regarding why the combination of PSS and modularity is worth investing in must be communicated to consumers intelligibly: this should at least include the cost of a new garment versus the costs and benefits of a re-invented item, in both monetary and emotional terms (Armstrong et al. 2014).

## BUSINESS BENEFITS

Most typically modular garments are designed so that the wearer him-/herself can transform them. This, however, may negatively affect a company's revenue if one garment begins to replace two or more similar garments, and it may reduce the interest of the company to sell modular products. Therefore, in the design example the business takes the responsibility for the garment reassembly, which guarantees the company's revenue among product sales. In addition to business profits it can provide customers higher quality products and thus increase the satisfaction.

The value added by services can be key to companies' success, as next to aesthetic or recognisable design or brand names they differentiate companies and their products from one another. A service provider's active interaction with customers may build stronger company-customer relationships. This can also improve its strategic positioning on the market (Manzini & Vezzoli 2002; Tischner et al. 2009) as well as a responsible and transparent brand image that communicates the company's social and environmental benefits (Tischner et al. 2009).

As garments are made only on demand, the company does not take any risk concerning unsold garments, which is the case with traditional retail. The only stock required is the limited material selection. Reduction of materials is one of the

*Four different looks were sewn during the concept development process in order to illustrate how the concept could work in practice. (Photo: Kerttu Malinen)*

# CONCLUSION

most notable advantages. Due to the modular structure, extra material is not required even at the stage of reassembly. By enforcing modularity it is possible to change pieces of the product without redoing the whole (Baldwin & Clark 2000). The modular structure may also prevent abrasion, one of the issues related to early clothing disposal: as certain parts of a garment tend to wear out easier than other parts, changeable modules offer a simple technique to extend the garment's life if the function and place of each module varies. Hence, the use time of all modular components may be prolonged equally, which helps to maintain the overall quality of the item and reduce reclamations.

At the moment it is impossible to tell whether the presented hypothetical clothing service would actually function in practice, as the modular garment that was designed proposes quite a complex structure. This would eventually result in relatively high pricing due to the time that is required to reassemble one ready-made garment. Hence, the amount of modules used for the example can be the biggest obstacle for the utilisation from the service provider's perspective. From experience at the stage of prototyping, it must be noted that this type of service would probably function best with garments made of fewer modules or with accessories. From the consumer's perspective on the other hand the concern is if the product-service mix is tempting enough. What have to be met first are naturally the consumers' aesthetic needs, before the service utility let alone its meaningfulness can be evaluated.

To get back to the earlier mentioned "action platform" (Manzini 2011), this kind of concept certainly aims to propose more favourable activity while making certain kinds of behaviour (in this case early product disposal) at the least more unattractive. The service approach can offer a solid basis for various actors of the fashion system to start reimagining the practices within their own field and invent new ways to experience fashion through various platforms. As people are more and more aware of the social and environmental concerns within the industry, the tendency and willingness to make better decisions in shopping and use practices must increase and this requires more innovative ideas from all parties. A simple way to begin could be to redesign the offerings related to fashion purchasing, for instance in the form of product-related services that could easily lengthen the life cycle of old trusted garments. As von Busch (2009) points out, if we want to see changes in the consumption patterns of fashion or the attitudes among consumers we will have to design systems that include them and take their role in the life cycle of clothing seriously. Even though product-related services are already utilised to some extent they should evolve and become the norm rather than stay as a marginal niche.

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# INNOVATION FOR GREEN BUSINESS

*While it is true that transitioning to more sustainable growth will require large changes, it is individuals whose combine impact has the power to change the world in its entirety (Sherin 2013, 16).*

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# NEW VALUES – NEW BUSINESS OPPORTUNITIES

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# INTRODUCTION

The global fashion business is fiercely competitive, and simultaneously Western consumers' environmental interest is increasing; in this environment green business thinking and sustainable marketing offer new business opportunities for the fashion industry. As it is challenging to ensure profit with the existing fashion system and current price levels, it is worthwhile to challenge the current unsustainable business models in fashion and rethink value creation from a wider perspective: value proposals from the consumers' side as well as from the environmental perspective and through creating long-term relationships between business and its stakeholders. In this context it is possible to create sustainable value proposals and stimulate new business thinking and business models that contribute to a decrease in materialistic consumption.

New radical business thinking is needed to create change. The economic and industrial systems of the fashion industry are currently based on extremely fast cycles of production, fast-changing trends and planned obsolescence of the products. As garments' prices fall producers must maintain profitability by increasing the amount of sold units, which has led to a huge amount of fashion products on the market and extremely saturated markets. We must find new radical ways to create a win-win situation for both consumers and manufacturers – for all stakeholders – and for sustainable development. We need more knowledge about consumers and the consumption side to create a sustainable transformation process inside the fashion industry and business that leads to sustainable consumption practices. We also need to develop foresight and new systemic thinking on how to move towards sustainable societies, in order to see sustainable practices as an opportunity to design and not to think that sustainability is an obstacle to doing business. Very often the green business approach is feared to mean degrowth, but it can also be seen as a new challenge and opportunity to do things creatively and differently.

This chapter open views on green business thinking, sustainable marketing, radical innovation and new kinds of collaboration with customers. The chapter ends by presenting examples from the field that show how to fulfil customers' fashion needs in a sustainable way.

## SUSTAINABLE BUSINESS AND MARKETING

Sustainable values lay the ground for credible and responsible sustainable business and marketing. Sustainable business and marketing includes not only a sustainable value base, but also ethical consideration. This aspect seems to be problematic for some manufacturers and companies; they don't want to make moral claims about what is right and what is wrong. However for strategic sustainability thinking it is important to consider not only what efforts and investments to make but if would it be worthwhile to withdraw from some markets because of ethical reasons or too big social or ecological risks (Belz & Peattie 2009). In this regard a deep assessment should be made according to the company's own value base. Including sustainability in the company's strategic planning might open new growth possibilities but it can also be done to prevent risks in legal, resource, environmental, reputational or socio-political levels (Lowitt 2011).

As the fashion industry is international and global, principles of corporate social responsibility (CSR) should be followed. Moreover it is good to remember that consumers' trust can only be achieved through open communication and information and only through real commitment to sustainability at all levels of the company's practices, avoiding too limited a sustainable approach and a "greenwashing" attitude. In addition, because of the global character of the fashion business, the attribute "Made in" is today less relevant than the attribute "Made by", which needs a lot of information gathering about the different stages in manufacturing and communicating these aspects to not only consumers but also all stakeholders.

Stakeholders in sustainable marketing thinking are not only consumers and investors but can also include employees, business partners, suppliers, competitors, government (through regulations), NGOs, pressure groups and communities. Working with these stakeholders needs consideration of not only exchanges but also long-term relationships and future possibilities through radical sustainable innovations (Belz & Peattie 2009).

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If we want to change the fashion system towards a new kind of balance we need new kinds of radical design and business thinking. We have to change the current economic paradigm and we have to do business differently than we do today.
Business and industry have to redefine their tasks more radically in order to usher in significant eco-innovations and most importantly all-new business strategies (Ottoman 2011, 90).
As Kemp (2008) reports, a fundamental change is needed to reach systemic change, but transition faces resistance and it takes time to emerge.

When we talk about eco-innovations we mean products, services or processes that offer value both for business and customer, but also to the environment through significant decrease in environmental impact. Sustainable innovation is a larger systemic approach where sustainability thinking is integrated in all levels of the business (products, technologies, services, new business thinking, organisation model, and relationship with stakeholders).

The levels of innovation are described as follows (based on Brezet & van Hemel 1997):

- Incremental (small improvements for existing products)
- Redesign (major redesign for existing products)

- Product alternatives (new product or service concepts)
- System innovation and design for a sustainable society.

The first level of innovation refers to small, incremental product improvements. The second means redesigning existing products and production processes (e.g. in an eco-efficient way) and the third innovation type aims to find alternative methods of delivering the same function. However these innovation types are not enough and we need to move towards more radical and systematic innovative thinking while challenging the whole industry and its current practices of doing business.

Tischner and Charter (2001) identify four approaches to sustainable design: repair, refine, redesign and rethink. The fourth approach is the one we should aim for. A rethink requires a radical change in our mindset, and it can offer breakthroughs for new lifestyles, ways of living and doing things, as well as approaches to fulfil consumer needs in a more sustainable manner (Tischner & Charter 2001). This approach needs strategic innovations that lead to new business models. As Tukker et al. (2008) argue these new practices often stay in niches for a long period until a window of opportunity opens and their breakthrough is possible.

For this radical and strategic innovations approach we need a much more creative way of conducting the business of fashion. Strategic innovation questions who the customer is, what products or services should be offered, and how to offer those products and services (Markides 1997). It is not merely about rethinking the fundamentals on the supply side, but also about redesigning the business on the demand side, e.g. in the form of the user experience and rethinking value creation moving from product design to systems thinking (e.g. designing product-service systems).

Several companies acknowledge that market competition is driven by products' meanings: why people need a product rather than what they need in a product. As Verganti (2009) argues people use things for profound emotional, psychological, and socio-cultural reasons as well as utilitarian ones, and this understanding is most important in creating successful sustainable innovations for business. This deep understanding of consumers also lays the ground for transforming business models and creating for example sustainable product-service systems to fulfil the actual needs behind product use in a less materialistic way.

Innovations for sustainable business in the textile and fashion sector can be driven by technological improvements or technological innovations (like digital technology), economic changes (new green business thinking and a systems approach) or legislation. With regard to legislation new regulations for extended producer responsibility (EPR), for example, can change the logic in the fashion system, and preventing and/or recycling waste might be one future business model if EPR begins to cover the textile and fashion business. Innovation can also be driven by more abstract value issues, e.g. safeguarding the corporate or brand value from a bad reputation.

Succeeding in innovation in the sustainability context always needs a new kind of business logic. Driving sustainable innovation, whether to a more radical or incremental path, needs experimental and creative thinking and this experimentation can get support from clients and lead users before presenting these ideas to all customers. Furthermore it is important to create networks of sustainable-oriented companies. These networks can support a company's own values-based practices and offer help in reaching their goals.

Ottoman (2011, p.91) proposes five strategies for eco-innovation

- innovate at the system level
- develop new materials
- develop new technologies
- develop new business models
- restore the environment

## FUTURE-ORIENTED THINKING AND COLLABORATION WITH CUSTOMERS

New kinds of relationships with the client or the customer create new kinds of value in the business. Through a deeper relationship with the customer a company can create long-term dialogue with the end-user and through this dialogue create new business opportunities, new understanding of the customer's true needs and desires, and robust understanding of the customer's readiness to change consumption habits. Simultaneously the company can communicate its values and practices to customers and thereby create trust and customer loyalty towards the brand.

Through this approach the company's focus moves from single transaction and short-term economic thinking to long-term sustainable strategic planning and future-oriented thinking. Customer satisfaction and customer value will be at the core of the company's practices. Traditional marketing focuses on profit and revenues. Sustainable marketing also concentrates on psychographic aspects like consumer satisfaction and consumers' interest to stay loyal to the brand. (Belz & Peattie 2009).

New green business approaches are possible, but they require radical business thinking, focus on the consumer side and the garment's use phase, and, most of all, consumer satisfaction issues. By taking consumer-based eco-efficiency into account, it is possible to open up green opportunities for the fashion business that aim for sustainable consumption patterns. Hence consumer-based eco-efficiency thinking in business can transform the fashion system towards redirective practices that aim for deeper consumer satisfaction and therefore sustainable consumption patterns. Consumer-based eco-efficiency focuses not only on the environmental impact of the use phase but also on product quality and consumer satisfaction issues. Through the satisfaction approach, value can be created for the consumer, the company and even the environment. Satisfied customers use products longer and this is an opportunity to decrease the amount of purchased clothing and slow down consumption. This is a value opportunity from the environmental viewpoint. Satisfied consumers are loyal customers and they repeat their purchase behaviour and continue buying brands that can provide them with product satisfaction on many levels, and this is a value opportunity for sustainable business. (Niinimäki 2014.)

## MADE-TO-MEASURE BY NOMO JEANS

The following case presents an example of how to rethink business. NOMO Jeans (Nomojeans Corporation Oy) offers made-to-measure jeans based on 3D body scanning technology. Each customer is measured with a 3D body-scanning machine. The customer can select fabrics, details and decoration from the offered selection and this process results in individualised jeans. Accurate measurements from 3D body scanner, automated individual pattern creation, and standardized customization options enable agile manufacturing of unique fitting jeans in the ways of mass production.This combination offers deep customer satisfaction through perfect fit and an individual look.

The most important attribute in clothes that creates dissatisfaction among customers is bad fit (Niinimäki 2014). According to NOMO Jeans a typical customer has tried approximately twelve pairs of jeans before finding suitable ones. NOMO Jeans has identified their main customer groups and their main purchase drivers in the jeans sector as follows:

- women aged 30–60, who are fit-seekers
- men aged 30–40, who seek individuality
- men aged 40–60, who want to invest in convenience.

The company's basic idea is to produce high-quality products that are guaranteed to fit. Through this strategy the company is offering a satisfaction guarantee for the customer; the customer has thirty days to return the jeans to the company if s/he is not happy with them and especially with the fit. Once a customer's measurements have been taken, s/he can also order new jeans online, which is a convenience factor for the customer. The company aims to create a solid customer relationship based on product satisfaction. (NOMO Jeans)

*Made-to-measure jeans by NOMO Jeans (Courtesy of Nomojeans Corporation Oy)*

## RADICAL THINKING THROUGH COLLABORATIVE CONSUMPTION

Some examples of a new kind of radical thinking are emerging which are focusing on ownerless use of garments. These radical models aim to dematerialise consumption through ownerless use. Today they are niche offerings and more like social experimentations, but they show that there is an opportunity to offer fashion satisfaction in a radically new way, through collaborative consumption and renting and leasing services.

The jeans renting company Mud Jeans from the Netherlands offers a leasing contract for jeans. The jeans are made of organic and recycled cotton and produced according to social responsibility standards. The leasing is simple. The deposit fee is 20€ and additionally the consumer pays 5€/a month for a year. After a one-year leasing period the consumer has three options: return the jeans back to the company, choose a new pair or pay for the use of the original pair for four more months and after that use them for an unlimited period. During this unlimited use period the consumer can get the deposit back by returning the jeans to the company. The company owns the jeans all this time and it also offers a repair service to extend the use time of the jeans. (Mudjeans)

Fashion libraries are another interesting example of collaborative and less materialistic consumption. Fashion library experimentations already exist in several countries. In Finland the Fashion Library (Nopsa vaatelainaamo) lends out clothes, shoes and apparel to its members. The fashion collections are from Finland's most inspirational and famous young designers and this design-driven strategy increases the consumers' interest, especially young female fashion lovers. The Fashion Library is also establishing strong alliances with big and well-known brands like Marimekko and Nanso. The membership is valid for six months and is reasonably priced. Members get to borrow products for two weeks at a time and can also purchase the pieces they have borrowed after the leasing time. The collection grows and changes each week, which keeps up the interest of members. (Nopsa vaatelainaamo.)

Borrowing garments is a good way to consume fashion in a more ecological way. Consumers can decrease their impulse purchasing by trying out different styles without actually purchasing and owning the garments. Additionally, the use frequency of the Fashion Library garments is high, which increases the eco-efficiency of the service.

The Fashion Library is a new and social means to engage in collaborative fashion consumption. Several fashion blogs publish news about the Fashion Library and its new items, maintaining the interest of customers at a high level. Also, its limited-edition approach to business keeps up the customers' interest. The six-month membership creates a solid relationship with the customers.

## CONCLUSIONS

A new sustainable and radical mindset is still waiting to emerge at large, as we continue to design and manufacture fashion mainly in traditional ways and based on conventional business models and marketing approaches. As Fletcher (2008, p.121) describes the current situation, … *it uses yesterday's thinking to cope with the conditions of tomorrow.*

To encourage more creative thinking in the fashion business, we need radical innovations, new value and systems thinking, and a brave future orientation. Good practices on how to do sustainable business differently are needed, which show that new kinds of collaboration open opportunities to succeed in the tightly competitive global fashion arena.

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# SUSTAINABILITY DRIVEN INNOVATION AND FASHION DESIGN

Anika Kozlowski

# INTRODUCTION

Fashion today has evolved into one of the world's largest and most dynamic industries. Apparel retailers have turned into fashion lifestyle brands. Fashion has become cheap and available to all. Consumption has risen and fashion is "in fashion" more than ever, thus promoting an aesthetically-driven throwaway mentality. Fashion is now fast and disposable, a phenomenon characterised by cheap, low-quality, on-trend fashion apparel products that promotes the notion of perceived obsolescence (Gwilt & Rissanen 2011; Siegle 2011; Fletcher & Groese 2012). Fast fashion is described as a quick response system or just-in-time manufacturing that allows for short production and distribution lead times enabling a close match of supply with uncertain demand. This supports the retailing of low-cost, highly fashionable apparel products that mimic high fashion luxury runway collections (Cachon & Swinney 2011; Fletcher & Groese 2012; Joy et al. 2012).

This economic accessibility, while extremely profitable, neglects quality of materials used and construction, subsequently increasing the disposability of fast fashion products (Gwilt & Rissanen 2011; Siegle 2011). Global brands have wielded their economic power and economies of scale to prioritise low price points, create mass availability, and drive volume purchasing while forcing small producers who cannot compete out of business (Fletcher & Groese 2012). Consumerism therefore is now based on rapid product acquisition and obsolescence, a continually increasing throughput of resources (Fletcher 2010; Fletcher & Groese 2012).

Fast fashion is exclusively a 21st century experience. What was once a simple two-season fashion system is now a continuous, overwhelming stream of must have it fashion pieces. Costs to society at large from the mass production and consumption of fashion apparel are experienced through increased pollution, waste, resource depletion, and climate change (Esslinger 2011; Fletcher & Groese 2012). Offshore manufacturing has increased the exploitation of labour forces while causing significant pollution problems to air, land and water due to weak environmental regulation (Abernathy et al. 1999; Christmann & Taylor 2001; Welters 2008; Steinberger, Friot, Jolliet, & Erkman 2009; Fletcher 2008).

There is a clear need for a dramatic transformation as to how the current fashion industry functions from production to consumption. The key to progress is innovation, and there is a clear need for innovation within fashion in the pursuit of sustainability. This paper highlights the importance of design practice as the conduit for sustainability-driven innovation within the fashion industry.

## CURRENT BUSINESS AND DESIGN PRACTICES

The current structure and organisation of the fashion industry is a direct result of the current business model of fast fashion. This model relies on the availability of an abundant, cheap labour force to deliver new, on-trend, low-cost fashion products. Therefore production has shifted to less developed nations. As a result, supply chains have sped up and quick response design-to-line times have been reduced. The model has proved itself to be extremely profitable and has thereby become the dominant approach for fashion brands within the industry. This has served to create an exceptionally complicated supply chain that spans the globe. The result is a high-pressure industry for suppliers, producers and designers, as quick turnaround times are the core driving force.

Business now dictates the design process, leaving little room for innovation or consumer engagement. Design is no longer the traditional craft it once was. Designers today commonly work within a mandate where they are responsible for creating a saleable product, generally within a set price point, to meet market expectations and the constraints of manufacturing (Gwilt & Rissanen 2011). Designing for continuous replenishment of best sellers and new fashions leaves little time to consider the needs, behaviours or lifestyles of consumers.

The impact of fast fashion on the consumer is only recently being addressed within the academic discourse. There is general agreement that what has occurred is the loss and understanding of value, quality, fit and garment performance for the majority of fashion consumers as aesthetics have become the sole priority. With the shift to offshore production, the role of consumers and designers alike has been removed from the apparel production process. When one does not understand or see the process of producing fashion apparel, one cannot appreciate the true value and cost of the product. With the low costs, it is easier and cheaper to buy a new garment than to repair. In any case apparent obsolescence and the perceived need for a new fashion piece often come first. This only serves to further disengage consumers from the true cost and value of fashion apparel. Personal satisfaction and emotional durability have faded and fashion products today only partially satisfy the complex needs of consumers as individuals (Esslinger 2011).

## THE EFFECT ON SUSTAINABILITY

The fashion industry today is unsustainable as financial sustainability is the priority and there is very little consideration of the environmental or social dimensions of sustainability. A sustainable fashion industry would ideally have all three dimensions considered equally within business and design practices; there is a clear need to balance these principles of sustainability. One of the most challenging aspects in developing this balance is the size, complexity, organisation and structure of the industry. The industry is financially heavily reliant on its complex supply chain from natural resources to social involvement. It is, however, in the industry's best interest to respond in an innovative and systemic manner.

There has been increased awareness among key stakeholders of the negative environmental and social impacts of the fashion apparel industry (Porter & Kramer 2006). This has led to a gradual response by the industry to improve on the corporate social responsibility (CSR) activities that integrate the principles of sustainability within fashion apparel brands (Wong & Taylor 2000; Chen & Burns 2006; Dickson & Eckman 2006; Birtwistle & Moore 2007; Dickson et al. 2009; Goworek 2011). However, these responses to date have been limited and they lack a systemic approach. The focus has tended to look solely to improvements in the sustainability of supply

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chains. These improvements typically include addressing reductions to water, energy and chemical use within manufacturing processes. Material sustainability, such as the use of organic cotton instead of conventional cotton, has been another key consideration. When examining the entire fashion industry, sustainability seems to be at best a peripheral concern and rarely has it been integrated into the design practice of fashion retailers (Gwilt & Rissanen 2011).

*Fashion is largely about design. Therefore, it is appropriate to focus on design as the catalyst for change in developing a sustainable fashion industry.*

The design practice profoundly influences how a product will be made, what resources and materials will be used, and how the product will be acquired, used and discarded – that is, the entire supply chain is affected. The design phase provides designers with opportunities to embed the principles of sustainability in a product (Dickson et al. 2009; Armstrong & LeHew 2011) and thus provides an important opportunity to reduce negative environmental and social impacts. Decisions made at this stage determine more than 70% of the product development and manufacturing costs and significantly impact end-of-life management (Waage 2007). However, sustainable approaches to design and product development are still relatively new (Walker 2006). The Centre for Sustainable Fashion (2008) found that while designers are becoming more aware of and rethinking their role in creating sustainable fashion, they are finding it difficult to work within a sustainable framework.

This could be due to the fact that research shows characteristics such as colour, style, price and fit are the strongest predictors for apparel acquisition as opposed to social or environmental considerations (Dickson & Littrell 1996; Kim & Damhorst 1998; Kim & Damhorst 1999; Shaw & Tomolillo 2004; Joergens 2006). Predefined product types whose reliance for differentiation and value rests solely on either technological or stylistic indicators limits the user's emotional experience. The moment a newer model is released ensures loss of meaning and perceived product obsolescence (Chapman 2005). Design has the opportunity to raise awareness and change perceptions of value as it plays a significant role in regulating both material and symbolic resources (Wood 2003).

A challenge for designers will be to approach design systemically so that the relationships between producers and consumers are better understood. It is not only important for designers to consider consumer behaviours and patterns, but also to explore options in engaging the consumer to develop greater meaning and value to both the product and process. Papanek (1971) advocated that the most important aspect about design was how it related to people. By repositioning and engaging consumers within a collaborative action role, they can participate in an open-ended design process and an open-source design system. Consumers evolve to become active participants within the process, becoming

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a co-designer or co-producer and thus changing the power relationship between consumers and fashion creators (Fletcher & Grose 2012; Meroni 2012). This allows for the nurturing of new relationships and trust and for the consumer to have more control over the institutions and technologies that impact their lives (Fletcher & Grose 2012).

There is no "right way" to design, especially within a creative field such as fashion. There is a common set of elements or stages a designer will employ; however, these are flexible and idiosyncratic to the individual designer (Stone 2012). Design has the potential to encourage more sustainable consumer behaviour and the development of new sustainable business models. Innovation within design has the potential to better serve the needs of the consumer and enhance the consumer experience with the brand and product. However, to design for sustainability-driven innovation a broader set of considerations needs to be introduced. While the specifics would be unique and relevant to individual fashion brands, they would include the principles of sustainability: environmental, social and financial.

Sustainability of the fashion industry requires innovation in all its facets. To date, innovation has focused on manufacturing technologies and has applied mostly to material or process innovation within the supply chain (Thorpe 2010; Goworek 2011). While supply chain sustainability plays an integral role in achieving sustainability, there is a growing consensus within the fashion industry that sustainability is only possible through a radical transformation of the industry as a whole (Kemp 2008; Fletcher & Groese 2012). Systemic change of the industry towards a more sustainable future requires a holistic approach (Fletcher & Groese 2012) encompassing all facets and stakeholders. Companies bear a great deal of responsibility for existing production-consumption patterns and can contribute to the change of these patterns through innovations in products and services (Hoffmann 2012).

Current sustainability strategies employed by business are deficient in three ways: there is a lack of focus on the consumer, they do not acknowledge the threats of global over-consumption, and they do not take a holistic approach (Sheth, Sethia & Srinivas 2011). By shifting the focus to the design process, products can be designed to influence consumer behaviour, induce sustainable consumption, and reduce impact from use; consumer behaviour can thereby have a significant influence on the environmental and social impact of clothing (Fletcher 2008; WBCSD 2008). By focusing on consumer behaviour, the development of innovative sustainability-driven business models can be fostered in support of sustainable production and consumption. An innovation management approach is an important tool in this development, which can better secure sustainable competitive advantage (Teece 2010). Design practice is the ideal approach to translate the principles of sustainability in shaping the development of innovative sustainability-driven business models and inducing sustainable consumption.

It has been found that many companies are beginning to integrate the principles of sustainability into their business strategies (Gobble 2012). Research shows the integration and development of sustainability within business produces incredible organisational and technological innovations that yield top-line and bottom-line returns (Nidumolu, Prahalad & Rangaswami 2009). Innovations are deliberate interventions designed to initiate and establish future developments concerning technology, economics and social practices.

*It has been found that smart, top performing companies are using sustainability as a frontier driver for innovation*

(Nidumolu, Prahalad & Rangaswami 2009) and as a source for opportunity and long-term competitive advantage (Verganti 2009; Gobble 2012). Therefore, the business model can be the strategic leadership asset to drive and integrate sustainability and innovation within an organisation (Chesbrough 2010; Schaltegger; Lüdeke-Freund & Hansen 2011).

## BEST PRACTICES WITHIN THE SUSTAINABLE APPAREL COALITION

In order to develop a better sense of current best practices, an investigation was conducted: a systematic review of the CSR reports of 14 apparel brands belonging to the Sustainable Apparel Coalition (SAC), an industry-wide initiative, found evidence of innovative practices and consumer engagement (Kozlowski 2012). The initiatives were similar in nature and were generally limited in function and scale. The most common initiatives mentioned were the implementation of take-back services for recycling. However, the recycling programmes involved downcycling, conversion to lesser quality products, and not recycling into new apparel or footwear products. None of the brands reported a systemic approach for sustainability through design practice. Design approaches for sustainability targeted the use of more sustainable materials or reducing impacts within the supply chain, such as the elimination of toxic substances or low-impact dyes. These initiatives were also generally limited to a small percentage of the products and not to the entire range of products produced by the apparel brands. This further underlined the need for a systemic approach, as initiatives were haphazard and only targeted certain aspects of the fashion industry. The gap in these initiatives was fundamentally that they were not connected: i.e. areas such as product sustainability, business innovation and consumer engagement were addressed as separate entities. The challenge for fashion brands and the fashion industry is to begin to address sustainability in these areas as a whole and to recognise the relationship among them. Table 1 displays examples of best practice CSR initiatives reported by the 14 SAC apparel brands.

For example, Table 1 illustrates that Nike collects shoes to be made into tarmac for outdoor sports, Patagonia has partnered with eBay for the resell of used products, and H&M donates used products to local charities. However, details on the initiatives listed in Table 1 were generally limited. In order to more fully explore the potential and opportunities for innovation in design practice, a more detailed study of one company, Nike, was conducted. Some key examples from Nike are reviewed in the next section.

Table 1: Summary of reported indicators within consumer engagement and business innovation.

| APPAREL BRANDS | DESCRIPTION | CONSUMER ENGAGEMENT | BUSINESS INNOVATION |
|---|---|---|---|
| H&M | Fast Fashion | Encourage environmentally friendly washing/drying behaviours<br>Encourage donation/re-use/re-sell of products<br>Have a clothing take-back programme | Design product/ project collaboration |
| GAP Inc. | Lifestyle | Have a clothing take-back programme | Collaboration for end-of-life product recycling/re-use |
| Nike | Sportswear | Encourage donation/re-use/re-sell of products<br>Have a footwear take-back programme | Implementing Closed Loop/c2c strategies<br>Collaboration for end-of-life product recycling/re-use |
| adidas | Sportswear | Have a footwear take-back programme | Collaboration for end-of-life product recycling/re-use |
| Puma | Sportswear | Have a clothing take-back programme | Implementing Closed Loop/c2c strategies<br>Collaboration for end-of-life product recycling/re-use |
| Patagonia | Outdoors | Encourage environmentally friendly washing/drying behaviours<br>Encourage donation/re-use/re-sell of products<br>Have a clothing take-back programme | Collaboration for end-of-life product recycling/re-use |
| MEC | Co-operative Outdoor | Encourage environmentally friendly washing/drying behaviours<br>Have a clothing take-back programme | Implementing Closed Loop/c2c strategies |
| M&S | Department | Encourage donation/re-use/re-sell of products<br>Have a clothing take-back programme | Collaboration for end-of-life product recycling/re-use |
| Hanesbrand | Casual | Encourage environmentally friendly washing/drying behaviours<br>Encourage donation/re-use/re-sell of products | |
| Levi's | Lifestyle | Have a clothing take-back programme | Collaboration for end-of-life product recycling/re-use<br>Implementing Closed Loop/c2c strategies |
| Esprit | Lifestyle | | |
| Timberland | Outdoors | Have a footwear take-back programme | Implementing Closed Loop/c2c strategies |
| Columbia | Sportswear | | Sharing best practices within the industry |
| Loomstate | Casual | Have a special collection for sustainable products | Design product/project collaboration |

## NIKE AND INNOVATION

Nike has been cited as one of the most innovative brands within the fashion industry today (Carr 2013). A key innovation has been the development of the Nike+ platform created for runners in collaboration with Apple. Through it, Nike has harnessed the power of social media by creating a platform for their consumers; even the users of other brands may become involved.

Nike+ is an app for iPhones developed to track runners' training progress. Runners can track distance, pace and routes. Additional personalised information, such as calories burned, can also be provided. Runners may also "tag" the particular pair of shoes that was used for the run so that the distance run with those shoes is logged and the runner is made aware when the average 500 km milestone for the retirement of the shoes is reached. The app also allows runners to connect with other runners. They can compete for the most runs or distance over a set period and the app has a leaderboard that tracks the number of runs or distance covered by the runners' friends who also utilise Nike+.

This has provided Nike with a huge pool of open-source data that are voluntarily provided by the consumer. Nike now has demographic information on those using the app, which shoes are tagged for various types of runs (such as trail versus city running), and the lengths and speed of those runs. Recently, Nike added the ability for the app to create photos that tag additional information and which can be uploaded directly to Instagram (a photo sharing platform) through the app. Nike also has access to the music that is played by the runner during those runs.

Nike+ with Instagram has been a major tool used in connecting runners globally. The recent development of urban running crews or the street runner has become a global phenomenon through the use of these media platforms. Since Nike+ is used to compete and Instagram to communicate, an interesting loyalty to Nike has emerged. A common theme among the runners within these urban running crews is a loyalty to Nike products. Runs are completed and photos of the run are uploaded to Instagram with hashtags such as #nikerunning #nevernotnike #nevernotrunning. Photos of recent acquisition of new Nike gear, such as tights or runners, are also continuously uploaded to Instagram.

Nike+ has grown organically and the potential of social media tools for sustainability is undeniable. A platform such as Nike+ has the potential for collaborative action, consumer engagement, development of new services and experiences, and greater data collection to support sustainability-driven innovation with a systemic approach. Nike+ has changed how runners run and has altered behaviours. However, it has not yet been used in the pursuit of sustainability. Nike+ is effective as it is driven by recognition, the belief that shared goals work better, is motivating, tracks progress, and creates an experience and a sense of community through engagement. The next challenge for designers is to capitalise on social trends, such as what has occurred with Nike+, to encourage sustainable consumption and consumer behaviour for sustainability through the development of sustainable products and business models. For example, Nike+ could be used to develop sustainable products that work within a closed-loop production-consumption system. The open data collected through Nike+ and the engagement of the platform itself provides designers with the information and opportunities for innovation to drive sustainable product design and consumption.

## SYSTEMIC APPROACH TO INNOVATION AND SUSTAINABILITY

*If a systemic approach to design for sustainability and innovation is to be taken, there needs to be a focus on aspects such as consumer engagement and social trends.*

A focus on product sustainability is framing innovation as a materials problem. The inclusion of a broader set of considerations, such as consumer engagement, relevant social trends, business models and new services, into the design process allows for innovation and sustainability to be framed in a more systemic manner. Nike has demonstrated innovation within product and services independently; however, the next step would be to begin linking and developing a relationship between these areas from the design stage to develop innovative solutions to sustainability.

Relevant social trends today include the use of social media on platforms such as Instagram, Facebook, blogs or Twitter. Examining these platforms and the activities on them can help identify trends such as the rise of do-it-yourself (DIY) culture. For example, there is an increased sharing of information over these platforms as to how one can customise fashion apparel and create "it" fashion pieces. These platforms have created virtual communities that allow for global connection and communication among fashion consumers.

The rationale behind focusing on social trends and consumer engagement is that they have the potential to develop sustainable products that are more highly valued and better serve the needs of the consumer. For example, Nike has developed Nike id where consumers can customise any Nike shoe through colour and the addition of text such as one's name (Nike 2013). This idea and example of mass customisation provides the consumer with a higher valued product due to an emphasis on a collaborative design process that satisfies and capitalises on the DIY trend. By understanding the lifestyle of the consumer and engaging them into product development and design processes, a company could enhance the value of their product and, ultimately, their brand. Nike has capitalised on the social media trend, through Nike+, to enhance brand value by strengthening their relationship with consumers over this platform.

Social trends are a significant aspect in the development of innovation as they provide information as to what is relevant among certain social groups. Identification and analysis of social trends can provide insight and understanding into the lifestyle of the consumer. Nike+ also provides consumers with a new experience that is service-based as opposed to product-orientated. A new experience has the potential to enhance emotional durability for the consumer through this type of engagement. There is also the potential to link these services and media platforms to product sustainability, thereby taking a more systemic approach. These aspects, when approached systemically, have the potential to develop innovative solutions for sustainability.

While Nike has developed innovative products and services, it has yet to apply innovation in a systemic manner for sustainability. This could be facilitated through exploring how the relationship between areas such as products, services and design could enhance sustainable innovation. Spangenberg et al. (2010) argue that the development of sustainable production and consumption requires a transformation by redesigning products, services, infrastructure and industrial practices. Innovation is essential for effective transformation (Friedman 2011). Therefore, brands should look not only to develop innovative solutions to sustainability, but they should do so in a systemic manner targeted towards industry-wide transformation for a sustainable fashion industry.

# CONCLUSION

Growing consideration of the supply chain in manufacture is an impediment towards achieving greater sustainability. Increasingly, the market has followed a trajectory along the so-called "race to the bottom" in order to maintain relevance in an intensely competitive market. Cost reductions and rapid production directives coupled with unbridled success in the market has reduced the priority of sustainability issues. Certainly, the recent labour disasters in south Asia have contributed to further marginalise design issues in favour of better labour standards. Furthermore, many sustainability programmes largely focus on metrics of eco-efficiency and, unconsolidated, form a largely piecemeal framework.

To realise industry-wide transformation, sustainability initiatives need to move beyond this current haphazard approach. The industry should use innovation to challenge antiquated notions of the fashion experience and interaction. Designers have the opportunity to push the limits of traditional fashion design practice through a broadened set of design criteria. To design for sustainability is to move beyond designing a sustainable product and supply chain eco-efficiency. Designing for consumer engagement can produce a better understanding of consumers' consumption behaviours, allowing for improved integration of sustainability principles. A systemic method in favour of innovation through design is perhaps the most relevant and important tool to develop sustainability by establishing the trajectory needed for industry-wide transformation.

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# INNOVATIVE FASHION CONCEPTS AND THE COMMUNICATION OF SUSTAINABILITY

Lisbeth Svengren Holm

# INTRODUCTION

It is generally recognised that changes are needed on a systemic level – to make the whole fashion system more sustainable and achieve a cradle-to-cradle approach (McDonough & Braungart 2002). It is also recognised that this will require new business models throughout the supply chain as well as changed consumer behaviour (Allwood et al. 2006; Fletcher 2008; Tham 2009). Furthermore, the complexity of a global value chain, the variety of businesses and business models in the system, means that of all the environmental, social, economic and cultural aspects in how we define sustainability (Black 2008; Carbonaro & Votava 2009), there is no single 'best' or most sustainable (in its broadest sense) approach or solution.

We are stuck in the system of market driven, more or less fast, fashion with its supply of new collections several times per year and even weekly, as in the case of some fast fashion retailers such as Zara and H&M. This system of mass production resulting in cheap products seducing the consumers with great bargains forms the very core of the industrial and consumer society (Ruppel 2009). A slow-down of the system is unlikely to happen. And changing the system into a more sustainable one – if it ever will happen – will not be a fast process. Still, there are forces and many initiatives that – if we are optimistic – are leading the fashion industry towards greater sustainability even if the changes are small and on the margins looking at the industry as a whole. Some are more optimistic and mean that sustainability, as a concept, is becoming a core of the fashion industry (Scott 2008). When seeing the interest among Swedish fashion companies who participate in various seminars about sustainability it is obvious that many fashion design companies are indeed looking for new ways to do business, design and produce the clothes. Innovative sustainable ideas that can change the system are needed because innovations will attract followers, which will further move the industry towards sustainable solutions.

*There are indeed many innovative ideas for new fashion concepts and business models that could lead to a more sustainable fashion industry, even if these solutions are just small steps on a thousand-mile march.*

Innovations are traditionally thought of as new technologies, design and materials. New fibres and digital printing that needs less water are examples of new technologies that contribute to more sustainable solutions (Loker 2008). But there are also new business concepts, which are actually not new but have been lost in the industrialisation of fashion: for instance tailor-made clothes (which is now related to slow fashion), repair of garments, rent of clothing and re-use, i.e. channels offering secondhand or vintage apparel. These concepts are back, even if in new versions adapted to current technologies, design concepts and trends. For these concepts to be of interest for the last part in the fashion system – the consumers – they need first of all to become aware of them, but also more knowledgeable about why they should embrace them, what benefits them as consumers? Consumers' attitudes to sustainability usually rank it quite low: consumers do not want to pay a higher price just because the garment is more sustainable or ethical (Svengren Holm & Holm 2010), and they feel sustainability is the companies' responsibility. Fashion companies are indeed taking a greater responsibility to become more sustainable even if it is done under pressure, for instance from the media but also from several political and non-political organisations. One example of a company initiative is the establishment of, for instance, the Sustainable Apparel Coalition (SAC) , whose aim is to create a tool for designers, the so-called Higg index tool. With the help of this index designers can learn about the environmental and social impact of for instance material choices. This is built on the Nike index for materials, and Nike is also one of the companies behind the Higg index. More

## FASHION SERVICE CONCEPTS

than 80 of the world's leading companies are members of the SAC, for instance Patagonia, H&M, Zara, Puma, Adidas, and Burberry, just to mention a few. This could be one basis in the future to also inform and enable consumers to make better choices. But we are not there yet.

The Higg index and sustainable material will not solve all problems. We need to influence consumers' behaviour both when shopping and in the use phase, i.e. washing the garments. We need to reduce the production of new materials. Can all this be done without losing the joy of fashion and without losing business? Few, but still some, companies try to be proactive and develop service concepts that support sales and efficient use of existing materials. As these focus on supporting the fashion products these concepts are referred to as product-service systems (PSS) (Niinimäki 2012). Redesign is becoming more common (McDonough 2013), also in fashion (Brown 2013; von Busch 2008; Ericsson 2013), but is not in focus in this chapter. In this chapter we will describe and discuss some service concepts that Swedish fashion design companies have embraced in order to act more sustainably as part of their business model and how this is communicated to customers.

Selling products in several cycles has normally been the role of non-profit organisations such as the Red Cross or Oxfam. Reuse, or secondhand, sometimes phrased as vintage if we mean high quality branded items, is quite a large and growing business (e.g. Allwood et al. 2006; Fletcher 2008; Scott 2008). This is confirmed by non-profit organisations like the Red Cross and in Sweden 'Myrorna' (the secondhand store of the Salvation Army). Approximately half of the turnover of these non-profit organisations in 2011, 890 million SEK, was reported to be clothes (ASFB 2013). The private secondhand trade on the online Swedish secondhand site "Blocket" increased by 23 per cent in the third quarter of 2012 compared to the same period in 2011 (ASFB 2013). Whereas secondhand is dominated by non-profit organisations, there is an interest in secondhand/vintage by established designers and fashion design companies (e.g. Scott 2008). The Swedish fashion brands Filippa K and Boomerang both have a secondhand selection in their stores. We will look more into the case of Filippa K.

Another way to reduce production and consumption is to provide a service for repair of damaged products and thereby prolong their life (Fletcher & Grose 2012). Repairing existing garments must be the oldest concept for renewing clothes. What used to be a necessity for most people was abandoned in the wave of mass production of garments where the price fell to such a level that nobody considered it worthwhile to repair old clothes, at least not in the affluent Western parts of the world. Older people are however still more likely to mend clothes (Ekström et al. 2012). Exceptions are only those clothes that we truly like so much that we indeed invest time and money to mend them (Niinimäki 2012). For most garments this is no longer considered worthwhile. As a consequence there are also very few tailors left where you can hand in the garments that need to be mended. Some laundry services run by people with tailoring skills have repairs and mending of garments as an additional service. Nudie Jeans, a Swedish fashion company with a focus on denim products, offers this service for its customers and their concept is described below.

A third concept is to rent the clothes and in that way satisfy the consumers' need for variety without frequent buying of new clothes. The idea of a library for clothes was realised by a group of women in southern Stockholm who created 'Lånegarderoben' (Renting Wardrobe) in 2010. This concept is now established in several cities around Sweden. It is based on a membership fee and the member can borrow clothes for a shorter

period. Several brands sponsor these organisations with clothes. Although this is a growing business it is still in the start-up phase and we are more interested in commercial brands that have incorporated this idea into their business. One company that has done so is Uniforms for the Dedicated, which will be described below.

A fourth concept is to provide the consumers with a recycling or take-back system that can take all clothes regardless of quality or condition. There has been an extensive discussion about what consumers do with garments that they do no longer want. It is very common to simply leave it in the wardrobe – as long as there is space for it. But at some point the wardrobe begins to bulge and there is no more space for new garments. Many people then give some away to friends or to secondhand channels if it is still considered nice and wearable. But as soon as it is considered not nice it is thrown away (Koukouvinos 2012).

Creating closed loops for textiles has been discussed for a long time and there are several activities done to encourage consumers to bring in textiles, regardless of their condition, to be sorted and further returned to the system again – for secondhand sale as is, for use in another way, for instance cut into rags, used as filling in furniture, cars, etc., or sent to incineration and thereby turned into energy. This is referred to as the waste hierarchy (EU Waste Hierarchy) where reuse and preparing for reuse is at the top level, followed by recycle, recovery and in the end disposal, for instance incineration or landfill, also discussed for textile waste (Gustafsson & Hjelmgren 2013). A company that has developed an extensive and easy service system for returning textiles is H&M; their concept will be described below.

## SERVICE CONCEPTS IN SELECTED SWEDISH FASHION DESIGN COMPANIES

### FILIPPA K

Filippa K is a fashion company founded in 1993 and today one of the largest Swedish fashion design companies. Filippa K has a CSR policy and states the alignment between the policy and its general business idea. According to its history Filippa K took some strategic decisions to act with the aim to become more sustainable in 2008 (Filippa K, Sustainability Report 2012). This year the company became a member of the Fair Wear Foundation and opened a secondhand store for its own branded garments.

The Sustainability Report for 2012 reports many activities regarding how the negative impact on the environment is being reduced as well as the social conditions in production. However the secondhand store is not mentioned on Filippa K's website in the list of stores, nor do the regular Filippa K stores in Stockholm have any information about it. When a shop assistant was asked, she knew of it but stated: "It is not part of us, it does not belong to Filippa K." There is also nothing on the company's website about the possibility to hand in used garments.

One needs to read the report on the company's responsibilities to finally find information about the secondhand store as one of the company's many initiatives. If one is lucky enough to find this information or know there is a secondhand store, an Internet search reveals its website [1]. There could be several reasons for this opaqueness. It could be a different kind of store, not included in the regular store concept, and possibly Filippa K indeed does not own the store. The secondhand store emerged in collaboration with Judit's Second Hand, a well-known secondhand store in Stockholm who also owns the Filippa K Second Hand store. The store is located almost beside Judit's Second Hand store in Södermalm, in Stockholm. The website for the Filippa K secondhand store is informative, but minimalistic, giving only the most basic needed information: a short description of the store, general information about what assortments to expect, what is asked for, opening hours, where to find and how to contact the store (Filippa K, secondhand).

A visit to the store reveals that it is nothing like the regular Filippa K's store design; on the contrary, it has a typical secondhand store interior: old items as décor and rather small, but still well organised and pleasant. The garments sold however are not only secondhand; the selection also includes new garments from Filippa K, for instance their sample collections from this year's launch. According to the shop assistant demand is much greater than supply. On the website there is a tab "searched for" where it is stated that there is demand especially for larger sizes. Filippa K is well known for its slim design and the shop assistant states that it is common that those who hand in their used Filippa K garments have outgrown them; hence the most common garments in the store are in small sizes. This is of course also the case for the sample collections that were launched for the catwalk. Compared to the other activities that Filippa K conducts in design and production for sustainability purposes the store has a marginal effect. But it has been mentioned as an example of an innovative concept for enabling more sustainable fashion consumption and is something visible for the consumers, those who find it and are interested.

### UNIFORMS FOR THE DEDICATED

Behind Uniforms for the Dedicated is a group of creative people who shared interests in snowboarding, mountain climbing, surfing and travelling. The business started with a T-shirt they designed to wear themselves in the first place – to communicate their identity as a social community, but they also sold the T-shirts in friends'

[1] http://www.filippaksecondhand.se

stores. They started as a group of designers, artists, filmmakers and musicians with a common interest in sustainability – and in working in the creative sector. They all felt dedicated to the idea. In 2007 they decided to try and make a business of what they were doing, not only with clothes, but also with designed furniture, music and films. Uniforms for the Dedicated was born. Their success is men's clothes. After only a couple of years the clothes are sold by more than 150 retailers worldwide, including online stores such as Asos and Zalando. The brand has received awards for its creativity. In 2008 Swedish Fashion Council awarded it Rookie of the Year and in 2009 it was awarded "Newcomer of the Year" by the magazine Café (Café Magazine).

In September 2012 Uniforms for the Dedicated opened their first store in Stockholm, in Södermalm This stays in line with their philosophy of acting sustainably; the materials used for the store are materials they have up-cycled themselves. The store is for their range of garments but also pieces from their furniture collection (Uniforms for the Dedicated).

The ambition is to create a sustainable brand and to find different ways to achieve this. Partly this is done by choice of material and high quality also in the details of the garments. But another concept that has been launched is renting.

In the autumn of 2013 Uniforms for the Dedicated selected some parts of its collection for short-term lease in their store in Stockholm. The idea is that renting should provide an alternative to just buying – and thereby contribute to more considerate and careful shopping overall. On the company's website the philosophy is described under different headlines, such as Design Philosophy and Change-Earth, and the renting concept is labeled "The Collection Library" and found on the first web page. Here the interested person can read about the idea, why it exists and the practical details of how to rent the garments. So far the number of customers who have rented any apparel is not large but according to the store manager the people who enter the store are curious and people have started to talk about it in social media. It takes time for customers to get used to such a new concept in a regular fashion store. According to the one of the owners, Mike Lind, it is encouraging and the company will continue with the concept and expand it.

## NUDIE JEANS

Nudie is a Swedish jeans and casual wear label founded in 2001 by Maria Erixon Levin, a Swedish designer and entrepreneur, and her ex-husband Joakim Levin (Nudie Jeans). Besides a stated passion for denim and jeans the owners show a strong commitment to sustainability from all perspectives. Sustainability is the core of its brand. The company has seen positive growth and ten years later it is a medium sized company employing around 50 persons. The owner stresses the philosophy to grow organically without any external investors and therefore has chosen to rely on reinvesting the profits (SVD). According to the two owners this is because they want to have total control themselves and no one else should tell them what to do.

The company is specialised in unwashed jeans and has received several awards for its ecological and ethical work. There is no doubt that Nudie Jeans is committed to act in a sustainable way. The price level of the products is a consequence of that good quality and ethical behaviour throughout the supply chain. Nudie Jeans is recognised for its communication of what it does and is ranked as an "A" company on the "Rank a Brand" list, a website ranking the company from a sustainability perspective [2]. Nudie Jeans' philosophy is that jeans are something very personal, "not just a piece of clothing" – more like "a second skin" for the wearer according to the

website. Nudie has thus described their jeans as the "naked truth about denim". As the wearer is supposed to have an intimate relationship with and passion for his/her jeans they are intended to be worn for a very long time. But this also means that the jeans become worn out and parts need to be repaired. As a consequence of this philosophy Nudie Jeans therefore offers a repair service for free in several of its stores around the world. If the wearers do not have access to a Nudie Jeans store a sewing kit especially for jeans repair can be ordered – also free of charge.

Nudie Jeans' store in Stockholm is located in Södermalm, an area well known as a hipster community where the jeans density is high. A visit to the store was made to see how the repair concept is realised. The store is rather spacious and there are two sewing machines in the sales room. On the table with the sewing machines are some jeans obviously in the process of being repaired. On the wall behind the cashier hangs around twenty repaired jeans waiting to be picked up by their owners. It is clearly visible that the jeans have been mended although it is nicely done. Worn seams have been patched and holes have been mended with zigzag stitches – further contributing to the personalisation of the jeans and the relationship with the wearer. On the shelf opposite, in four piles, at least 40 jeans lie waiting to be repaired. Between five and sevens jeans are handed in each day for repair according to the shop assistant.

Nudie Jeans has also expanded its line of denim products with a new category: denim rags. The rags are made from worn-out Nudie Jeans denims that were beyond repair. The rags are referred to as slow craft as they are woven by hand on manual shuttle looms. Pictures on the Nudie Jeans website shows how this is done to further communicate the value of these rags. (Nudie Jeans)

## H&M

H&M is one of the largest fashion retailers worldwide and now the largest company on the Swedish stock market. Being labelled as a fast fashion company H&M has been criticised for its unsustainable business models. Since the end of the 1990s H&M has taken several measures to act in a more sustainable way throughout the whole supply chain. In 2012 H&M started to provide a service for their customers to dispose of used and worn-out garments in their stores. One problem for an efficient take-back system is to be able to handle the infrastructure and transportation of the collected material, which H&M can solve by using its own transportation system. After collaboration started with the Swiss company I: Collect for sorting the collected garments and the first test in a number a stores, H&M quickly moved to include all stores in the system in 2013. But the system is only provided for the H&M branded stores; H&M's two other brands COS and &Other Stories are not part of the system. The shop assistants in these stores know of the system when asked but state that, "Yes, we belong to the same corporation but we are a different brand." & Other Stories does take back empty packaging from the cosmetics department but no textiles.

All H&M stores have a bin for the disposal of all kinds of garments regardless of brand, material, quality or status. This has been reported in the media, and it is of course visible in the store – even if one needs to be alert to see it. A bin with a poster above is placed next to the cashier. At the entrance to the fitting rooms a poster reminds consumers, "Don't let fashion go to waste" and provides information about the collection of old garments, signed off by H&M Conscious, the brand for H&M's sustainable collections and activities.

[2] http://www.rankabrand.org/index.php/ranker/Niels (accessed 16.01.2014). Rank a Brand is a website that, with the help of consumers and volunteers, assesses how companies communicate what they do to become more sustainable. All product categories are considered, also fashion companies. The argument for this ranking is the need for information, according to Niels Oskum, a Dutch engineer and CSR expert: "Most products in our shops are made in low wage countries. When buying stuff, brands are guiding signposts. I like to know what those brands mean in terms of carbon emissions, environment and labour conditions."

## SUSTAINABILITY COMMUNICATION STRATEGIES

On H&M's website it is easy to find "Garment Collecting" under the heading CSR and responsibilities. The webpage gives information about the idea and how it works. The consumer can bring in any garment, regardless of brand. For every kilogram collected H&M donates 0.02 EUR to a local charity organisation chosen by H&M. So far (in January 2014) 3.8 tons have been collected, resulting in 75,116 EUR for charity worldwide. According to H&M very little needs to be incinerated; most of the textiles can either go to secondhand channels or converted into filling materials. But some of it is also recycled into new fibres and used, blended with new fibres, to make new jeans. In that way the demand for new fibres is actually reduced.

Historically we used to repair clothes and shoes but when prices went down and we could afford it, we bought new things instead. And the prices for clothes have continued to decrease. We do not know whether the generations that have become used to shopping and buying new and cheap fashion frequently will endorse repair, renting or buying secondhand to a larger extent. But there is an awakening among people in general about environmental problems (Hethorn & Ulasewicz 2009). The interest in these issues among students, for instance at the Swedish School of Textiles, University of Borås, is much larger compared to only three or four years ago. This is evident also in their choice of subjects for theses. It might be that PSS (Product-Service Systems) (Niinimäki 2012; 2014) and the RE-concepts (REpair, REuse, REturn, REnt) could be the basis for developing new services that people are also willing to pay for. The young generation is knowledgeable about climate problems, and the re-concepts could also support their desire for fashion on an individual level, i.e. they can see more benefits than just the contribution to a sustainable fashion industry. Fashion is emotional and individualistic; fashion is about creating a personality and an identity so the design of the clothes is of great importance (Niinimäki 2012). The services have to support this role of fashion as well as be within the comfort zone and easy to embrace.

From a sustainability perspective it is important what H&M does just by the volumes of textiles it puts on the market. Companies who like H&M have developed take-back systems, regardless of brand, offer a valuable service from a sustainability perspective and will certainly reduce negative impact, but this does not necessarily reduce consumption. H&M is also not taking the opportunity to include their other brands, which have a different identity and higher quality compared to the H&M brand.

The fact that Filippa K engages in sustainability and opens a secondhand store is a positive activity, as it contributes to the reuse of existing garments and gives consumers an opportunity to clean out their wardrobe before buying new garments. A bulging closet is a problem for many fashion-interested people, but this is an activity on the margin of the company's business and not supported by its regular brand or business activities.

Uniforms for the Dedicated is dedicated to creating a new lifestyle and embracing sustainability. The renting service is in line with this strategy. Nudie Jeans also has sustainability as a core part of its brand and has developed repair and recycle as a service contributing to a more sustainable industry. Nudie Jeans is however the only company that highlights this on the top of

the first page of their website. It is easy to understand why the company receives an "A" ranking on the www.rankabrand.org website.

Frequent shoppers and those who are actively interested in sustainability and new lifestyles will learn about the services, but it requires a special interest to find information about them on the company websites. A brief survey of another ten established Swedish fashion brands' web pages reveals that there is no company who communicates their sustainability policy or activities directly on the first page of their website.

There are however some young Swedish fashion entrepreneurs who like Uniforms for the Dedicated, for instance Castor Pollux, who is committed to quality and sustainability and indeed communicates it through the brand story. Some companies, such as Acne, Odd Molly and Gina Tricot, follow the same strategy as Filippa K and H&M and have a special link to their CSR activities under the tab 'About the company'. These are often very informative, so the companies will certainly claim they are active when it comes to sustainability and they are transparent about this.

In the stores, however, where decisions on purchase are made, most companies do not communicate sustainability, so we are expected to look at the company's websites to find information about what the company is doing – or be knowledgeable about the brand stories. To be fair, many companies now have training and education of their staff, including shop personnel, about sustainability. Nevertheless, with no special campaign and no immediate first-page information they will not capture the attention of those consumers who only have a tepid interest in sustainability and never ask questions.

Some companies are highlighted in the media for their design and crafting quality, referred to as slow fashion and in that sense as sustainable companies (e.g. Ecosalon.com) [3]. Those companies – and consumers – who invest in the quality of their products are indeed contributing to sustainability, but the question is to which extent it changes consumer behaviour and the fashion system.

## CONCLUSION

There are different strategies for how companies communicate their sustainability to consumers. Some companies have sustainability as the core of operations, like Filippa K and H&M, but not as core of the brand, as for instance Nudie Jeans and Uniforms for the Dedicated. Instead they are very careful not to mix the core brand with anything other than fashion – and quality and trends. The Nudie Jeans website gives no doubt about the passion for jeans – and for sustainability. Sustainability endorses the brand and as a consequence innovative services to support this strategy are provided to the consumers. Compared to most fashion companies the extensive information about Nudie Jeans' policy and activities for sustainability is however rather an exception. For those companies who do act in a sustainable way, the strategies for sustainability, services and communications are summarised in Table 1.

[3] http://www.ecosalon.com

*Table 1. Strategies for companies working with sustainability*

| SERVICE CONCEPTS / COMMUNICATIONS STRATEGIES | COMMUNICATIONS DIRECTLY (FIRST PAGE ON WEBSITE) | COMMUNICATIONS INDIRECTLY (LINK ON TAB 'ABOUT') | NO COMMUNICATIONS ON WEBSITE |
|---|---|---|---|
| SERVICES ADDED | No communications on website (1) | Integral part of design and operations (3) | |
| NO SERVICES ADDED | Integrated in the brand story (2) | Integral part of design and operations (4) | Integral part of design (5) |

(1) Sustainability is endorsed by the brand and the services further strengthen the association with sustainability as part of the company's strategies, including brand strategies. This is communicated directly on their website – on the first page.
(2) Sustainability is integrated in the brand but no services are added. The sustainability approach and activities are communicated as part of the story of the brand and hence a direct communications strategy.
(3) Sustainability is integrated in design and operations. Services have been developed and added to the business to strengthen the operations. This is communicated through reports under the tab "About the company" – as indirect communications.
(4) Sustainability is part of design and operations but no service has been added to the business. The activities are communicated through reports under the tab "About the company" – i.e. indirect communications.
(5) Sustainability is integrated in the design and craft of the products, which are of high quality. Quality aspects are communicated, but there is no reference to sustainability per se and therefore no communication about sustainability as such. For some fashion design it could be referred to as "slow fashion".

This overview of services and communications strategies does not reveal anything about consumers' response, which needs to be researched further. There is also no evidence that companies who do not communicate are not actually doing anything. Some of these companies might have strict policies, CSR managers and sustainably-oriented actions in many aspects. So why do they not communicate it on their websites to their consumers? And what prevents more direct communications that could clarify for consumers what really is going on in terms of sustainability? This could be a question for another study.

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# COLLABO-
# RATION

*What are your ethical believes? Who you want to work for? What are your skills? And, what are the social and environmental impacts of what you produce? (Sherin 2013, 162.)*

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# OPEN COLLABORATION

Kirsi Niinimäki

# INTRODUCTION

New forms of collaboration between different partners are needed to create new knowledge, understanding and guidelines on how to make positive change in the fashion system. New collaborative initiatives are emerging and it is exciting to see that lately the fashion industry has also been eager to take part in these initiatives. This new mindset creates a new kind of openness in the industry, which can be beneficial also for the consumer and by and large for society. And of course these forerunner companies can build trust by sharing knowledge gained from their actions with consumers. New collaborative knowledge can be about materials, manufacturing and the consumption of fashion, and several guidelines have been openly published. Here some examples are briefly presented.

## CLEAN CLOTHES CAMPAIGN

The Clean Clothes campaign started in 1989 and now it functions in fifteen European countries. It is run by various organisations and trade unions and the head office is located in Amsterdam. Clean Clothes focuses on improving working conditions in the global fashion industry. It also collates distributes a lot of information on sustainable and responsible consumption. Clean Clothes campaigns have been critical and have shed light on many problematic issues in the global fashion industry. They have also asked many big global fashion brands critical questions about their manufacturing practices in different countries. In Finland the Clean Clothes campaign collaborates closely with the organisation Finnwatch, which disseminates a lot of knowledge about garments sold to Finnish consumers. (Clean Clothes, Finnwatch.)

## NICE

NICE (Nordic Initiative Clean and Ethical) is a joint commitment from the Nordic fashion industry, which aims to be at the forefront regarding social and environmental issues. The Nordic Fashion Association began the NICE project in 2009, which is directed at manufacturers for clean and ethical fashion, but it also provides new information for consumers on how to lower the environmental impact of garments by avoiding over-washing, tumble-drying and ironing. The Association also suggests good maintenance and repair of garments to prolong the use time of clothing. (NICE.)

## SAC AND HIGG INDEX

The Sustainable Apparel Coalition (SAC) started in 2009 when Patagonia was helping Walmart to create an assessment tool for its supply chain. In the same year Walmart and Patagonia invited twelve CEOs from the apparel industry to start the SAC. Today all leading apparel and footwear companies are included in the SAC, e.g. Adidas, Levi Strauss & Co, Marks and Spencer, and Nordstrom. The Coalition seeks to lead the industry toward a shared vision of sustainability. Through open collaboration the aim is to construct a common approach for measuring and evaluating apparel and footwear products' sustainability through technological innovations and create priorities for action.

The Coalition's vision is an apparel and footwear industry that produces no unnecessary environmental harm and has a positive impact on the people and communities associated with its activities. The coalition is self-initiated and today it represents nearly one-third of the global market share for apparel and footwear. Furthermore it collaborates with different research institutions and universities to produce new knowledge for the fashion field.

The SAC has launched an open source web tool called Material Sustainability Index (MSI), an interactive platform that allows anyone to submit new data into the system (SAC and

MSI). MSI is included in the Higg Index, which compiles environmental and social criteria for footwear and apparel industries, based on current and future European regulation. The Higg Index accords 50% of the evaluation score to the material and 50% to the actual manufacturing facilities. This is done to make sure that the sustainability consideration goes beyond material selection alone. The Higg Index is still under development, and the future plan is to include product category rules for performance metrics in the system. (SAC and HIGG index.)

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**SAC and MSI.** http://www.apparelcoalition.org/msi

# THE MAKING OF A SOCIAL OBJECT: COLLABORATION BETWEEN NIKE AND CENTRE FOR SUSTAINABLE FASHION

Dilys Williams

# INTRODUCTION

The Centre for Sustainable Fashion (CSF) is a group of researchers, designers and communicators, brought together through shared ambitions around the possibility of fashion: a means to connect us to each other and with nature, and a means to make real our adaptability to time and place. It seeks ways for osmosis between human, ecological and technological elements to create a mixture that makes for better balance and a life well lived, as applied through fashion's personal and collective practices.

The centre's work is situated in the cross-referencing of research projects (often working with others outside of fashion), the development of innovative commercial practices (with large and small businesses), and the teaching and learning of design-for-sustainability (with undergraduate, postgraduate and PhD students). We seek ways and places to connect and be adaptable as individuals, evolving a unique sense of who we are in the world, as communities, whether location or interest based, and in our governance and political identities and actions. For this reason, we find ourselves sometimes in the House of Lords, at other times in remote villages, and always looking for space to be reflexive in our work.

Sustainability can be distinguished by its multidimensional, nonconformist, not readily acceptable range of change processes and practices. It can lead us to consider fundamental qualities and characteristics of life and challenge our current habits and practices in their respect. It can question us as individuals, communities and organisations and can seek in us the qualities of imagination, interaction and sensitivity, along with practical skills of creation and communication. Sustainability is about who we are and what we do and make. This framing means a radical shift in how we experience life, quite different from many of the more easily palatable forms of sustainability within current practices, where efficiencies in existing systems form the visible changes that take place.

Designers are well placed to explore these questions and habits, especially when placed in the cross-frame of research, education and current practice. What might be deemed risk in one area can become experimentation opportunity in another. Just such a stretching was tested when Nike's Sustainable Business Innovation team approached us with a question, charged with possibility, whilst challenged by current infrastructures of global business.

## HOW CAN WE DECOUPLE SUCCESS FROM THE DEGRADATION OF NATURE?

This question has enabled a bringing together of carefully collected data, seven years of meticulous work by a dedicated team at Nike with the conditions for open and cooperative innovation, and a methodology developed through a number of iterations at the Centre for Sustainable Fashion. The data counts materials according to their chemical, energy, water, land and waste dimensions; the methodology framework encourages empathic connection between people as an ideation process in fashion design. The conduit, the creation of an iOS app, was developed through cooperative processes and practices of artefact creation using the data as a means to push boundaries of design through sustainability thinking. The outcomes include a first iteration of this app, ready for others to contribute to its evolution, a social object that enables an informed discourse for designers across a broad contemporary landscape.

Over the past few decades, this landscape has changed quite dramatically, challenging some of the most established facets of our human lives, our societies, and our economies. Our perceptions of time and space, material goods and their ownership, governance and control, teaching and learning, and even our perceptions of ourselves in the world have changed. But the facets of humanity that have not changed are those at the core of our existence, our interconnectedness with each other and with nature. Our inherent wish is to cherish and be cherished and to be accepted for who we are and to learn who we might be. This is the constant and change that motivates us to continue to evolve, discover and learn. Our minds and our bodies, however, have not evolved at the speed at which our technology has opened up opportunity. Might we be in a flux state, enabled by new possibility yet not refining the ways in which the inflow of technology can create equilibrium in our creative and sustainable outputs? This basic premise of systems thinking and how we have unbalanced our flows is immediately visible in the fact that the average city dweller now uses 60 times more energy each day than practically the same body used as a hunter gatherer (Thackara 2013). We are changing our climate in so many respects, but our ecosystems cannot evolve to build in resilience to this new era, this current human-related geological state of the anthropocene [1] and all that it means to our ecological balance.

Design needs to be careful though. It has opened up a floodgate for the *making and discarding* of an increasing amount of 'stuff'. It has been a part of the creation of the anthropocene. As Al Gore recently noted in addressing a major world business, we are "designing in the dark" (Gore 2013).

*Design can help us to navigate the world around us and better engage with its contents and its changes, through the relationships as well as the artefacts that it can create.*

What might appear to be carefree design excited by the bringing together of various elements, often through technology and creating excitement in its outcomes, is actually careless, not through conscious negligence but through a linear design method that does not factor in the value of its component parts and is not resourceful in their application. This project undertaken by the Centre for Sustainable Fashion with Nike sought to explore ways in which informed decisions in design could expand design's possibility to be both creative and sustainable – the ingredients for innovation for the 21st century and beyond.

[1] Anthropocene can be defined as the period during which human activity has been the dominant influence on climate and the environment (Anthropocene Journal, 2013)

## IMPLICATIONS OF DESIGN DECISIONS

The coming together of arguably the world's leading sportswear brand, Nike, an organisation that is led by innovation and employs over 600 designers, and the sole research centre focusing on sustainability as applied to fashion, CSF, provided us with an opportunity to offer an alternative to the dominant large-scale industry narrative of sustainability in fashion.

The narrative within large-scale fashion businesses tends to lean heavily on technical problem solving, the problem identified as 'risk' caused by over-reliance on resources that may become less stable in supply, waste and pollution produced in the creation and discard of their products, and the lives and health of their most vital resource, people, mainly women. This is hardly surprising; businesses are judged by their ability to reduce the risks. Society is also judged by this ability – the UK certainly exerts an inordinate amount of energy in measures to reduce risk. In the workplace, whether hospitals, schools or theatres, guidelines make clear what you can and cannot do, according to their risk assessment. This has developed from real and dreadful situations of danger. But despite these guidelines and rules, the reality is they are not touching the sides in the slip-sliding towards greater climate impacts, greater injustice and greater danger. The IPCC report just published demonstrates that despite our efforts, climate change is an increasing problem and its impacts an increasing reality (IPPC 2013). Aside from our ineffectiveness in reducing danger, might this approach also be stifling opportunity? The rigid, not easily adaptable frameworks of governance, business and education, whilst seeking to protect and stabilise, do little to create the conditions needed for creativity and ingenuity to grow and seed change.

> *Through access to incredible data, knowledge and expertise, and by engaging design in making sense of it, this project sought to open up new conversations about the materials that we choose, the products that we make, and the ways in which our work as designers can be responsive and make a positive contribution to the world around us – surely the premise of all good design.*

(See also Dieter Rams' ten principles of good design). The ambition of the project was to engage with data not as a fixed notion of 'right and wrong', or a notion of it as the leader in design decisions, but as a means to engage in a process that could be viable and doable in a clearly realisable form, whilst engaging in a longer term process of interaction between constituents that might change how they work, what they do, and what they count. This iterative, informed process of design offers an expansive view, exploring questions over seeking answers, and might innovate for sustainability in expected and unexpected ways.

*It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change. Charles Darwin (1809–1882)*

## COOPERATION BETWEEN DATA AND DESIGN

The interdependence of data and design informs our daily lives, whether it is through the design of objects that make data accessible to us, such as through the phones that most of us use on a daily basis, or the clothes that fit our shapes and movements. Data informs design, whilst without design, data is often inaccessible or lacks relevance to us.

The conditions for the study of this interdependence in the context of the project were set up by compiling a team of design, management and communication students to participate in an immersive design incubator. This was guided by principles of sustainability and Education for Sustainable Development frameworks (Sterling 2001; Svanström, Lozano-Garcia & Rowe 2008; UN Economic Commission for Europe 2011) and research undertaken by the author to date (Shared Talent), along with a team from Nike responsible for the collation and communication of the Nike Materials Sustainability Index (NMSI), a compendium of data that measures key environmental impacts of over 6,000 materials covering Chemistry, Energy and Greenhouse Gas Intensity, Water and Land Use Intensity, and Physical Waste.

The model for the project made reference to hybrid Problem Based Learning techniques (Bessant et al. 2013; Jones et al. 2010; Wiek et al. 2011) adapted to suit the parameters of this live project. It involved 30 undergraduate students from the London College of Fashion, four designers from industry, and a range of Nike designers, technologists and leaders in sustainability innovation, working with a lead researcher and innovation managers at the Centre for Sustainable Fashion.

## OBJECTIVES AND PARAMETERS FOR COOPERATION

Defining objectives that can contribute to innovation in industry, enhance student experience and create conditions to develop and apply research necessitates a careful balance and understanding of the risk levels involved for each constituent part. Clear parameters were agreed at the outset to embrace:

- Shared values in thought leadership in industry and education
- Development of a 'social object' through prototyping of products
- Cross-fertilisation of emerging designer creativity and ethics with industry wisdom and expertise
- Demonstration of the value of cooperation as pre-competitive business strategy and design method
- A means to catalyse the design community towards a collective approach to measuring and reducing environmental impacts through a holistic process
- A sustainability-led and knowledge-based approach to design
- Qualitative understanding in response to the quantitative data generated through the NMSI.

The benchmarks for success were agreed along the same premise of informing industry practice, teaching and learning methods, and research validity. These were based on Education for Sustainable Development benchmarks outlined in the UNESCO Five Essential Pedagogical Approaches (UNESCO 2009) and specific measures for this project:

**Futures thinking**
Embed a more informed and sustainable approach to design practice and education, informing policy-making relating to environmental guidelines

**Critical and Creative thinking**
Highlight quality, aesthetically relevant, technical and crafted products that illuminate sustainability thinking as a driver for innovation

**Participation and Participatory learning**
Cooperate towards a discourse of design-for-sustainability for application in open-source teaching and learning materials

**Systemic thinking**
Inform discourse towards creation of an 'app' through recording participants' explorative, analytical and synthetic thinking

**Partnerships**
Create a social object in the form of an iOS app open to the design community.

Through research gathered from participants and the wider Nike network, it was possible to draw up a list of key sustainability considerations for fashion students and businesses. These are by no means an exhaustive list but offer insights gathered through interviews, online feedback and informal discussion. These include considerations of:

- Disruption of 'habitable life' due to climate change implications (for example severe weather extremes and climate refugees)
- Cost and availability of resources (including oil, land, water, crops)
- Critical resource implications (such as the Right to Clean Water)
- Global policy decision-making relating to fashion production and consumption
- Global policy decision-making relating to climate change and economic and social development
- Relationships and power imbalances in fashion (for instance labour practices and the democratisation of accessibility to fashion)
- Culture and norms in sustainability and implications for lifestyle and consumption.

The methods and practices of the project included dynamic interaction between student teams, working closely with design mentors and Nike team guides, facilitated through the cooperative framework of the project. This included 'check-in' sessions to foster collaboration, through defined qualities and characteristics of sustainability mentoring for collaborative skills development, a filtering of ideas through discussion with industry experts to define design parameters, and techniques for engagement with a prototype iOS app. The feedback of the teams back to Nike offered an information flow that influenced the development of a second prototype app alongside the development of 3D fashion prototypes, and the ultimate presentation of process and outcomes through face-to-face presentation to an industry panel. More details of the narrative of the project can also be found at www.sustainablefashion.com.

# CONCLUSIONS AND NEXT STEPS

The project evidenced some of the relationships of design, including what designers might do collectively through dialogue with each other and relationships between qualitative and quantitative design decisions. The outcomes, including an open source iOS app MAKING, freely available for download, offer possibilities for a narrative that can bridge the solutions-based approach of many commercial businesses with a more constructivist approach of design thinking and doing towards better decision-making.

In the case of this project, we were able to measure impacts of decisions made in terms of resource use, energy, waste and emissions, alongside the gathering of narratives of challenges and possibilities of a design framework based on sustainability values. The aesthetic outcomes were felt by the participants to have been in many cases enhanced by the process, whilst the short timeframe of the project was seen as the greatest barrier to innovation and creativity. This in itself can be seen as a major barrier in business, driven by speed to market, where time taken is an expense on the balance sheet.

We are however, as stated at the outset, at a time when short and longer-term considerations are a necessity for us all. If tools such as this app and processes such as this explorative cooperative process can innovate for business and for sustainability, then we might take this non-generalisable research as a means for others to engage with the app and inform its development and further application as part of a dynamic and iterative process where sustainability draws parts together, rather than separating them. From a research perspective, this project has enabled my work, as director of CSF, to inform future design-for-sustainability practices in industry and education.

The conclusions that I have been able to draw from the project include the naming of some of the characteristics that might inform future work. These include observation of sustainability in action as:

- An active process, where each player participates bringing a visible contribution, replacing hierarchy with trusted, interconnecting networks of collaboration and competition
- A synthetic process, where the parts in themselves lack meaning until all held together
- A self-organising process, when placed within a socially cohesive community and a larger understood infrastructure
- Creating value for those involved and for others
- Understanding materials, production processes, viability, desirability, and implications of decisions made
- Made possible when space is made for unexpected outcomes to be developed
- A building of trust through experience over reliance on certifications and auditing.

As humans, we are critical thinkers; we can question personal, business, ecological, social and cultural imperatives in our work, and we can use reflexivity to further our "understanding of ourselves and our self-location, our relationships with other humans and with the natural world" (Morrell & O'Connor 2002, p. 17).

This ability can be overwhelming at times, and we need the tools of design and accessibility to data in a digestible and flexible format in order to navigate the complexity of our world. The human body is evidence of the complexity of nature, yet we navigate its complexity as a matter of course. Our cities are an example of the human ability to construct and navigate complexity, as well as to balance flexible and fixed elements. At a time when so much is changing, and for designers who are constructing for an uncertain world, imagination, ingenuity, improvisation and empathy must cooperate with technological opportunity, through tools for accessibility and appropriate use.

The MAKING app offers an unprecedented opportunity to access data directly relating to ecological imperatives in materials that we can use in our work. I encourage you to use it and inform it, through feedback online to Nike and the Sustainable Apparel Coalition, with whom it is linked. It can be developed and enhanced through engaging in a parallel fostering of collaboration and cooperative working practices. This might then offer us possibilities not only to reduce our un-sustainability, but also to create restorative practices in human connection within ourselves, with others, and with nature. As you might expect, our collaborators at Nike have visualised this call to action in engaging ways, in their words, reminding us that great things can happen when 'Makers of the World Unite' (Nike 2012).

*Image from Nike x Centre for Sustainable Fashion project (Photo: Kerry Dean)*

*Image from Nike x Centre for Sustainable Fashion project (Photo: Kerry Dean)*

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**Nike x Centre for Sustainable Fashion x London College of Fashion "Mobilize Makers"** http://www.sustainable-fashion.com/projects/nike/ and http://www.sustainable-fashion.com/resources/publications/ 8 Nike project publications

# OPEN PARTICIPATORY DESIGNING FOR AN ALTERNATIVE FASHION ECONOMY

Anja-Lisa Hirscher & Alastair Fuad-Luke

# INTRODUCTION

The fashion industry is deeply embedded within the construct of the global economy. As such it is vulnerable to disruptions, such as economic recession, and is also struggling to respond to sustainability imperatives (Rissanen & Gwilt 2011; Fletcher & Grose 2012). Given these contingent realities it seems appropriate to ask if there are other possible economic visions for fashion and clothing and what role design(-ing) might play in developing this alternative economy/ies. With this chapter the authors aim to explore new models applying open and participatory fashion design practices that challenge the predominant roles and relationships between and among Designer, Producer and Consumer (DPC). This approach asks for a radical change, new thinking and the willingness to experiment in order to look at creating an 'alternative fashion economy' where exchanges can be monetary and non-monetary (time, knowledge, skills, social conviviality, etc.), and where the consumer is active not passive.

Notions of 'alternative economies' and participation in clothing and fashion design help set the wider context of these investigations. Experimentation in this field focused on applying business tools such as the 'value proposition', inspired by the 'Business Model Canvas' (Osterwalder & Pigneur 2010), and combining these with design research-through-practice and design educational projects. The authors encouraged professionals and Masters design students to create new value propositions based upon participation and openness among the Designer, Producer and Consumer (DPC). These 'open design' value propositions were analysed by looking at the DPC relationships and new third party actors, in order to generate a diagrammatic model of the system of exchanges. New means of designing with and for the consumer are also presented through a case study called Make{able}, which illustrates the implementation of participatory design methods and halfway products.

Are designers and consumers ready for these changes, to encourage a shift in mindset in the fashion industry? Activation of consumers to become participants in fashion and clothes making will shift them from passive consumers towards active makers, but it also sets up new opportunities for designers, producers and new actors. Participatory design, open design, customisation, the emerging maker culture, do-it-yourself (DIY) and do-it-together (DIT) are all approaches that can potentially replace the need to consume with what Jonathan Chapman calls "more creative personal and social experiences" (Chapman 2013). Involving consumers in designing and making (producing) involves reflection on how we consume, a form of 'self-reflexive consumption' (Heiskanen & Pantzar 1997). This involvement provides nourishing 'rituals of delay' to slow our metabolism of consumption and can be seen as an expression of slow activism (Fuad-Luke 2010, p.136). More importantly, perhaps, is that the disturbance of current DPC relationships can contribute to new visions of enterprise and alternative modes of exchange.

## PARTICIPATORY CLOTHING DESIGN TO CHALLENGE OVERPRODUCTION AND OVERCONSUMPTION

In the current economic system, the fashion industry plays an important role – driven by ever faster changing production and consumption cycles. This system is complex, with many individuals involved in raw material harvesting, spinning, dyeing, weaving, cutting, sewing and global transportation, and there is potential for exploitation of humans and nature. It is obvious that this system, which looks difficult to sustain in the longer run, has to change. Currently easy disposal of cheap and low quality goods is encouraged, resulting in a desire to consume more. Burns (2010) describes this issue as planned and aesthetic obsolescence. It refers to product design aiming for short-term satisfaction, which leads to the disposal of perfectly functioning goods due to a loss of emotional attachment. This results in a growing amount of clothing and textile waste and inefficient resource use. Fletcher and Grose (2012) state that the recycling of textile waste and more eco-efficient production alone do not solve the problem of an unsustainable industry, because the problem of overconsumption is not addressed at its core – it does not question the amount of apparel consumed. For true change, design has to focus on *sustainable lifestyles instead of 'sustainable' products* (Rissanen 2011, p.127).

Enabling consumers to change their behaviour towards more sustainable lifestyles without reducing their current levels of personal well-being and happiness is a challenge for designers to explore. New ways of designing, producing and consuming goods, including the creation of new relationships among the involved stakeholders, can enable more active consumers (Fuad-Luke 2010, pp. 145–148). For instance, participation in the design process can aim for long-term satisfaction with products through a deeper understanding of and value-feeling for the objects created. With fashion activism, a form of *political activism and the participatory approach to empower the consumer with the tools, information and knowledge to become an active and independent individual* (Hirscher 2013, p.26), designers are able to offer alternative methods and practices, while encouraging more sustainable consumption patterns. To change lifestyles towards more sustainable behaviour, we need to address the core of consumption, the desire to consume more. Consumers need to be enabled by designers to move from passive recipient to active participant to gain the ability and understanding of how things are produced and consumed.

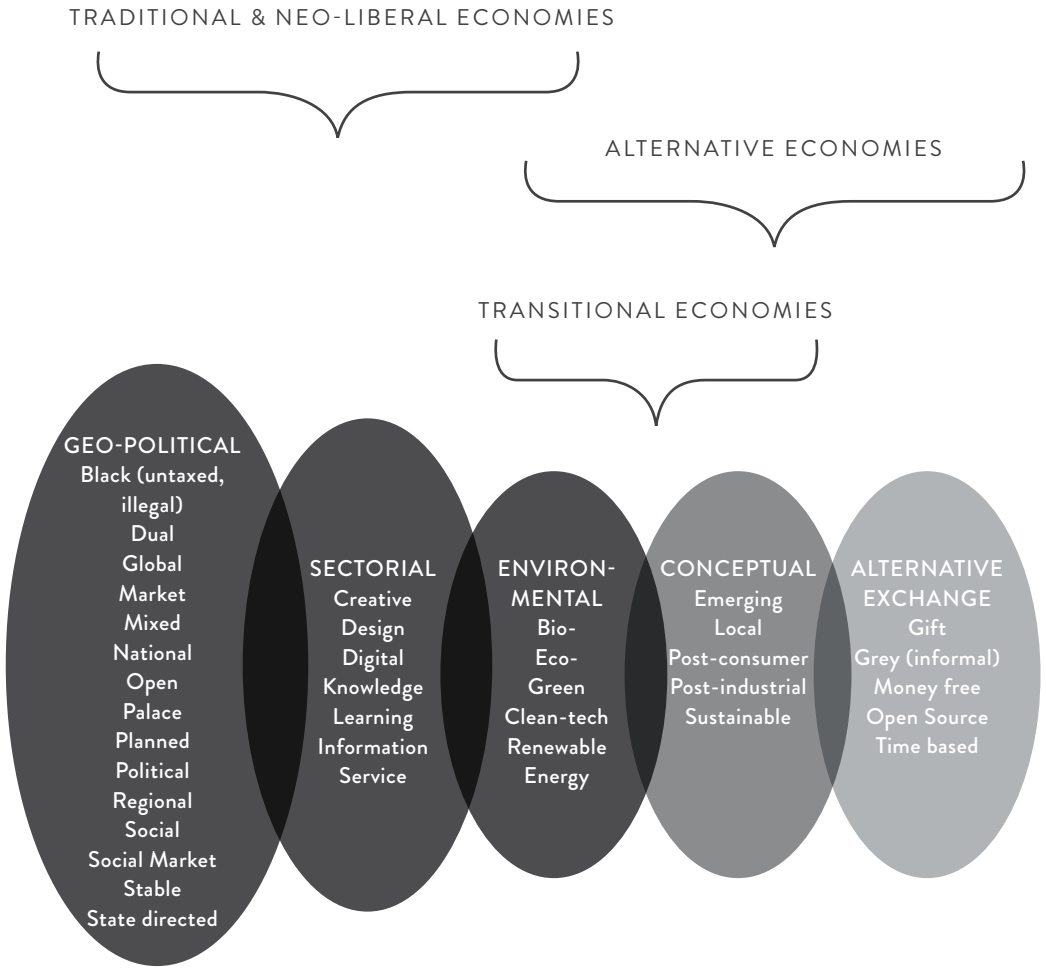
Fletcher and Grose (2012) discuss the opportunity created when participatory design fosters the collaborative making process and thus enables a relocation of the roles designer versus consumer. Knowledge exchange thereby takes place and a deeper understanding of the products as well as the user need can be better assured. Stories of making can be captured signalling an emotional bonding with the product, and the pieces can be worn as a sign of personal achievement (Fletcher & Grose, 2012).

Participatory design (Björgvinsson, Ehn & Hillgren 2012) and open design (Van Abel et al. 2010) have been explored in fashion and clothing design, especially in the field of research (Fletcher & Grose 2012). However, most of these projects have not yet resulted in a self-sustaining market solution. Moreover, most of the current sustainable fashion design approaches do not question the current system radically enough. They seem reluctant to foster a real change in the current relationships within the existing system of actors and tend to still see the consumer as a passive recipient.

## THE RISE OF 'ALTERNATIVE ECONOMIES'

Four decades ago the adjectives 'small' and 'beautiful' were co-opted by the economist E.F. Schumacher in the 1970s to refer to 'economics as if people mattered' (Schumacher 1975). Schumacher's core argument was that mass production and economic growth in itself does not facilitate an equitable distribution of economic and other beneficial exchanges; what is required is a nobler vision of economics inspired by cooperation, education and a desire to elevate people. By the mid-1980s there was a buoyant discourse about a 'new economics', the Living Economy, challenging the shift in macroeconomics towards the global economy (Ekins 1986). Alternative economic summits to the G8, such as The Other Economic Summit (TOES) conferences, gave birth to new organisations such as the UK-based New Economics Foundation (NEF) (New Economics Foundation 2013). Yet this buoyant alternative discourse faded as the 1990s heralded the expansion of the global economy, aided and promoted by the rapid spread of Information and Communications Technologies (ICT), access to the internet, and access to cheap international travel. Visions of an eco-, green and/or bio-economy gained some traction in the imagination of the public, governments and business (Brown 2001) but they were, largely, linked to eco-technology growth strategies and new jobs in these emerging markets. It was the global economic crisis in 2008 that really revived the 'alternative economies' debate, including the emergence of the 'no growth' economy (Jackson 2009) and décroissance or de-growth economy (Latouche 2011). Other approaches explored alternative modes of exchange through the sharing economy (Gold 2004), which has morphed through the ubiquity of the presence of the internet into 'collaborative consumption' (Botsman & Rogers 2011), a collaborative economy.

Today, the alternative economies debate is vibrant and the adjectives to describe the economy have an echo of Schumacher's concepts of putting people firmly in the centre of the exchanges rather than the default of purely monetary exchanges (Figure 1). Trading moves beyond money to consider the exchange of time, gifts, skills and knowledge. Some of these exchanges can be considered as design, designs and designing. In these notions of shared or alternative exchanges it is not just professional designers who are doing the designing but professional amateurs, amateur and citizen designers and/or other professionals. These alternative visions of economy thus seem to be opening up design(-ing).




Type of Exchange:
MONETARY, MIXED, NON-MONETARY

*Figure 1. Traditional and Neoliberal, Transitional and Alternative Economies*

## OPEN DESIGN OFFERS NEW VALUE EXCHANGES AND CREATES NEW RELATIONSHIPS

Open design is informed by the history of the open source movement, the sharing of digital code, either for software or hardware, with its origins in the late 1960s and early 1970s. Today, the open source movement embraces open digital code, open data, open knowledge, open government/ governance and much more (Open Knowledge Foundation 2013). Marleen Stikker of the Waag Foundation, in the Netherlands, notes that, "Open design is seen as part of a growing possibilitarian movement… it gives us all the instruments to become the one-man factory" (Stikker 2010). Open design finds a multiplicity of definitions, depending upon the exact disciplinary or polydisciplinary lens the writer is applying (Van Abel et al. 2010), but there is a consensus that open design implies others are able to copy, modify and use the 'design'. Some open designers do not apply restrictions to the application of their work other than insisting that it remains in the public domain and cannot be commercially exploited. Their view echoes the 'Copyleft' attitudes from the 1970s. Others might open the work to varying degrees according to the Creative Commons or similar licences with which they release their work. When open design is considered as an option, then, alongside traditional copyright and other Intellectual Property (IP)/ Rights (IPR) practices, it actually expands how designers permit their work to enter society.

The authors have created the 'Open-o-meter' to encourage designers to think strategically about IP options and pricing options, including 'free of charge' (Figure 2). Designers should also think about which elements of the design have the potential to be free and which elements are chargeable, whether the design is a recipe/instruction and/or is 'downloadable' or whether it is a product or service. It is in the 'free of charge' elements in which non-monetary exchanges can take place.

To explore further business model opportunities, implementing open design thinking, the authors worked in August 2013 with the new intake of Masters students to the Department of Design, Aalto ARTS (School of Arts, Design and Architecture, Aalto University, Helsinki, Finland). The students were asked to generate new 'value propositions', as specified in the Business Model Canvas (Osterwalder & Pigneur 2010). A 'value proposition' looks at a product, service or experience that meets a need, creates satisfaction and generates value for the consumer (Figure 3). To create this proposition it is necessary to consider the type of customers being targeted, the benefits for the customers, what daily key activities and resources are required, and what key partners are necessary to work with to deliver the proposition. Finally, consideration must be given to the cost structure and profits.

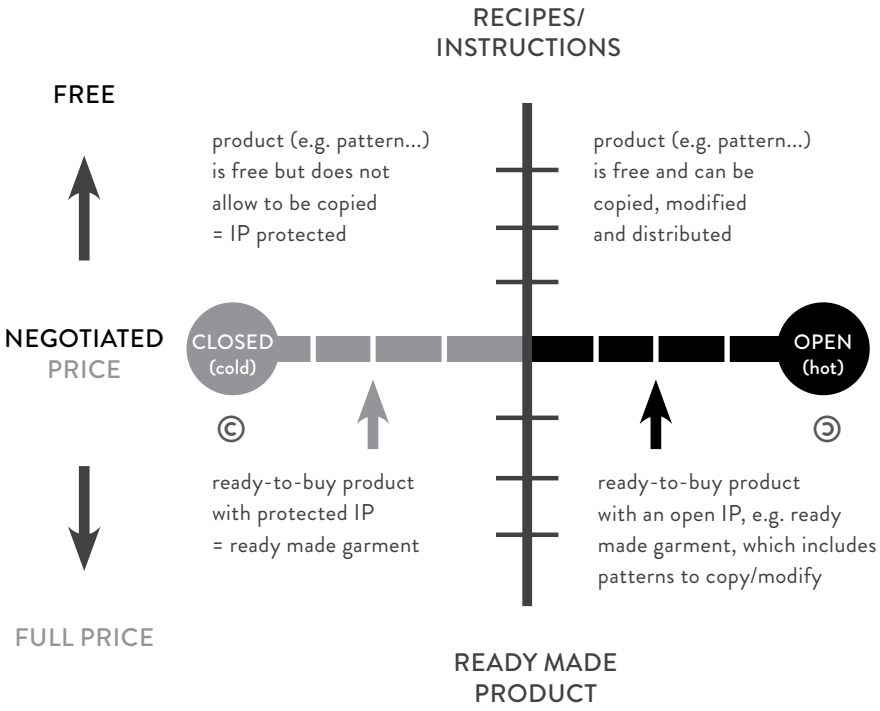



*Figure 2. The Open-o-meter and pricing options*

Four weeks before the eight-day intensive module began, the students received a booklet giving step-by-step guidance to help them build their open design value propositions (Pekkola, Hirscher & Fuad-Luke 2013). During the module, entitled Joint Masters Introduction, students from different design disciplines worked in multi-disciplinary teams to create open design projects, culminating in the Market of Open Experiments launched on 30 August 2013 in Karhupuisto square in the Helsinki neighbourhood of Kallio (Market of Open Experiments 2013). While working in these teams they developed their own individual value propositions. Of the 122 students, 111 submitted a value proposition. Twenty-nine of these value propositions were assessed by the authors as having created propositions that were genuinely 'open'. Of these, ten propositions created a shared resource/platform/network, six focused on services, five on artefacts, and six on downloadable patterns. An example value proposition, Wooden World, a platform for sharing designs using wood, is given in Figure 4. These propositions were analysed to examine exchanges that took place among Designers, Producers and Consumers (DPC) and any new actors such as third party agents or organisations.

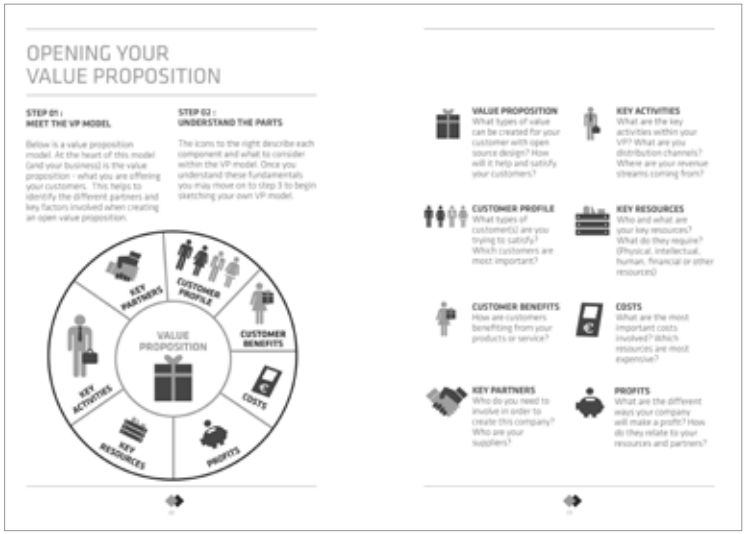



*Figure 3. A modified value proposition diagram (after Osterwalder & Pigneur, 2010) used by the students, Aalto ARTS*

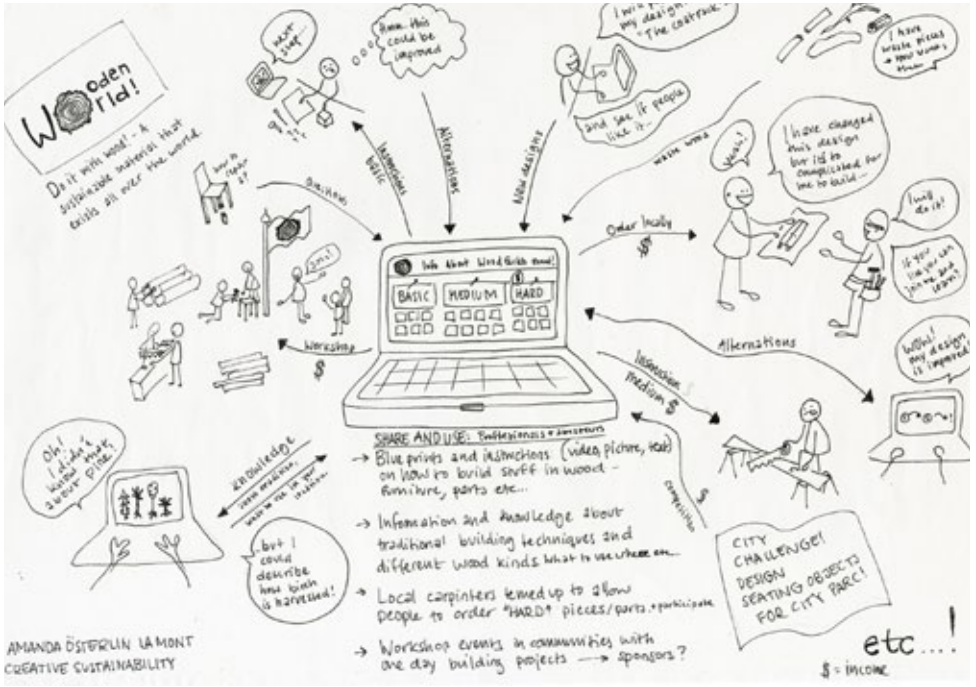



*Figure 4. Value Proposition: Wooden World – Amanda Österlin La Mont, Creative Sustainability Master student, Aalto ARTS*

## MODELLING NEW RELATIONSHIPS AMONG DESIGNER, PRODUCER AND CONSUMER (DPC)

In consumer markets of traditional and neoliberal economies the main exchange is financial, cash or credit through a third party or retailer, i.e. it is a monetary exchange (Figure 5). In the 'market' created by the students' open design value propositions there are monetary exchanges but also a diverse range of other exchanges 'free of charge', i.e. non-monetary exchanges (Figure 6). These non-monetary exchanges included donation of production waste from producers; ideas, skills and knowledge from the designers; ideas, skills and knowledge from the consumers; and the provision of facilitation, tools, knowledge exchange and networking by third party organisations. Furthermore, the value propositions included exchanges from consumer to consumer that involved ideas, knowledge and skills – this can be seen as Do-It-Yourself (DIY) and Do-It-Together (DIT) production and consumption.

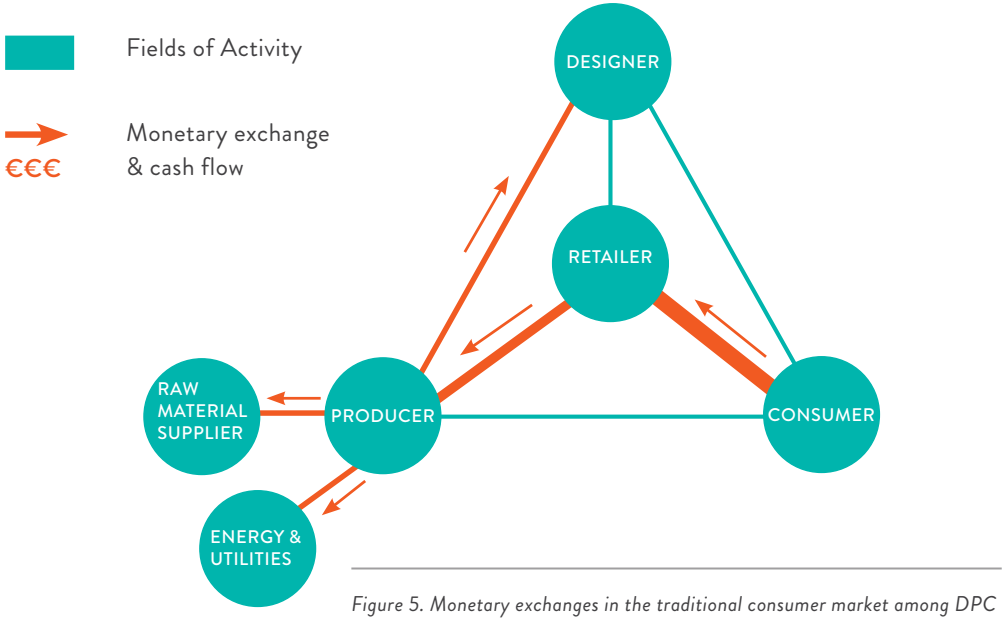



*Figure 5. Monetary exchanges in the traditional consumer market among DPC*

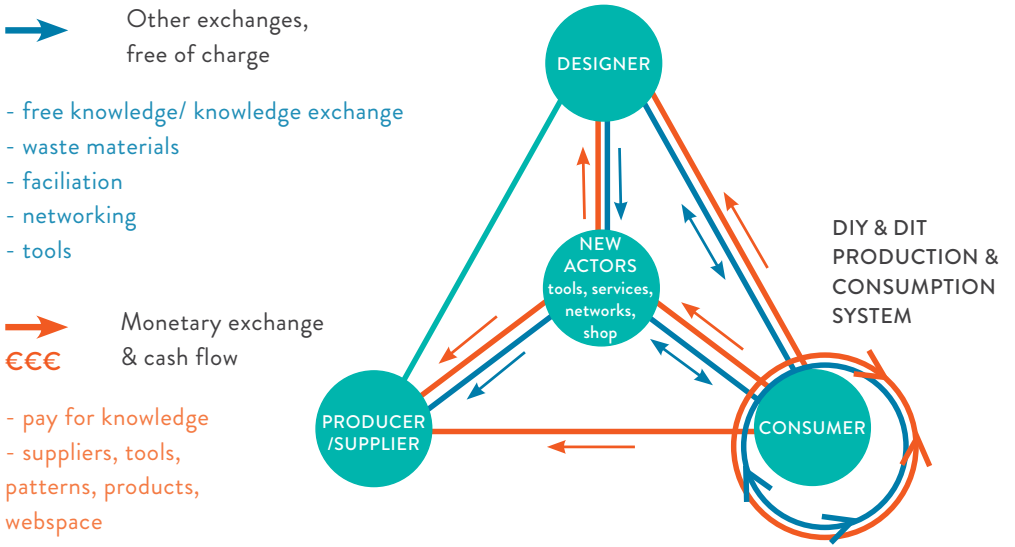



*Figure 6. Monetary and non-monetary exchanges in the 'open design' consumer market among DPC and third parties*

New monetary exchanges also occurred within the DPC model and the DIY/DIT system. Finally, other exchanges (monetary and non-monetary) were also noted with 'satellite' organisations that were present in the students' value propositions. Analysing all the value propositions led to a diagrammatic representation of an extended DPC model within which a system of new exchanges can occur, including a consumer to consumer (C2C) design and production cycle based on DIY (Do-It-Yourself) and DIT (Do-It-Together) (Figure 7).

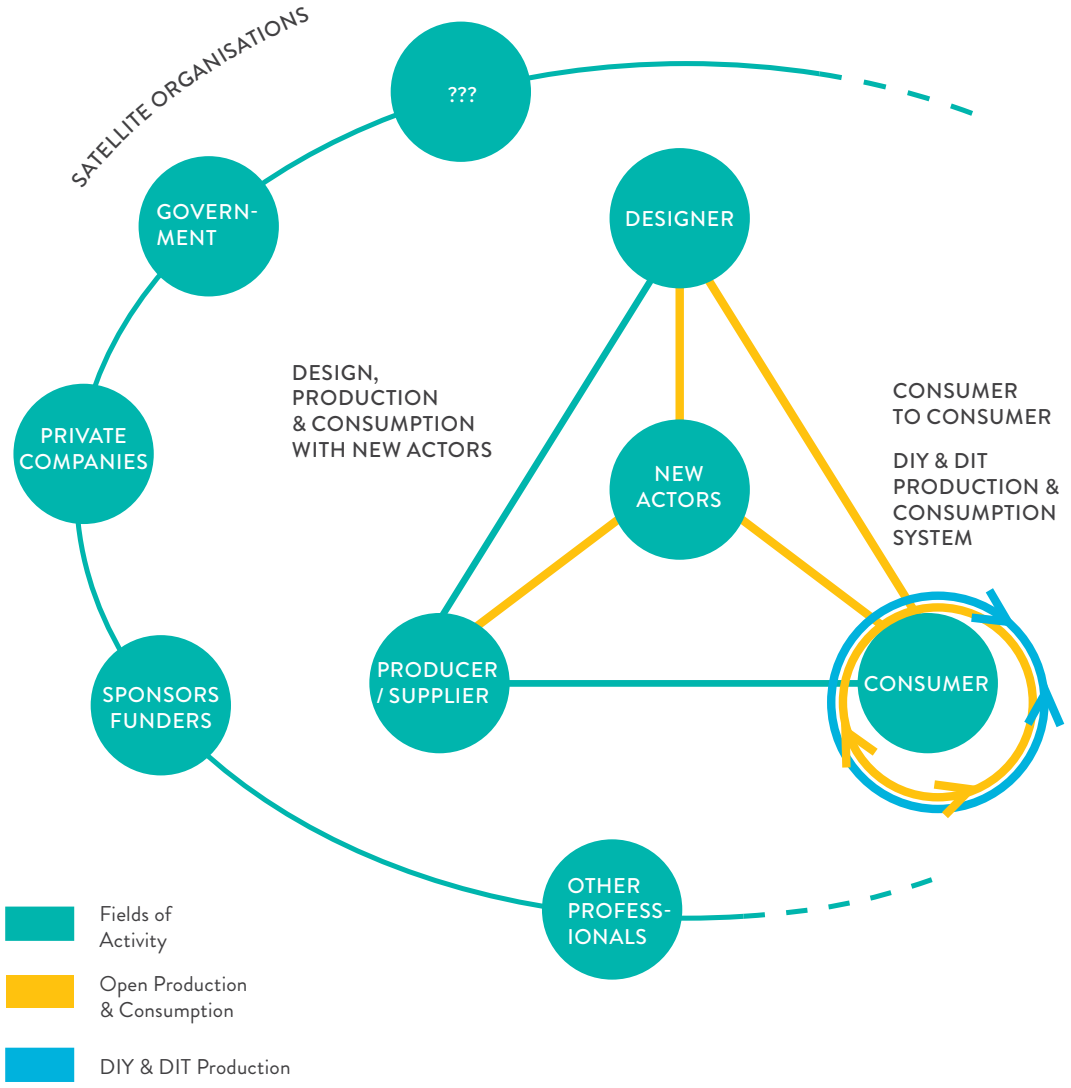



*Figure 7. Diagrammatic model for exploring alternative DPC relationships and system of exchanges based upon 'open design' value propositions*

## VALUED PERSON-PRODUCT ATTACHMENT TO TACKLE OVERCONSUMPTION

Sharing, personalisation, customisation, co-designing with customers, halfway or achievement products and the personalisation of products during the use-phase are all viable strategies for extending the product-user relationship and, hence, the life span of the product (Mugge et al. 2005). Person-product attachment represents the emotional bonding experienced between a product and its owner (Schifferstein & Zwartkruis-Pelgrim 2008). Design can aim to strengthen this attachment and thus potentially slow down and reduce the disposal of products (Chapman 2009). For this reason, a more valued person-product attachment can result in positive behaviour change due to changed habits and attitude (Cooper 2005). It can also reduce the fast throughput of resources, due to sustained affection ensuring longevity in product life.

Design for person-product attachment is challenging, as it concerns personal and emotional values, habits and the attitude of every individual. The consumer's behaviour is influenced by the quickly changing meaning of products and the consumption models in the current society (Niinimäki 2011). Therefore a deep understanding of the consumer's use, satisfaction and disposal behaviour is essential. Designers have to start designing with the user instead of for them, to gain a better sense of what they are looking for. The more the user can engage with a product the tighter the bonding can grow through joint experiences captured in that product (Mugge et al. 2005). Especially personalised and handmade products can gain special value, as they represent a strong human-human relationship (Schifferstein & Zwartkruis-Pelgrim 2008). Chapman states that active user participation in the design and production process can engender a deeper personal meaning of the object for the user (Chapman 2009, pp. 137–162). Participatory design processes, including halfway products, play an important role here, as they offer the consumer active involvement in the design and making phase. These methods offer collaborative decision-making power and foster new relationships between and among designer, producer and consumer.

## A SPECIAL CASE IN PARTICIPATORY DESIGN: HALFWAY PRODUCTS

No one is only a consumer; every act of consumption requires a certain degree of participation (Vezzoli & Manzini 2008, p.30). Recognising this relationship, Vezzoli and Manzini discuss opportunities to empower consumers and communities with design tools that initiate more collaboration and involvement (Vezzoli & Manzini 2008, p.26). These 'enabling solutions' invite the consumer to participate in the design process whilst respecting their motivation, willingness and capability (ibid.).

This approach relates to the ideology of participatory design. Participatory design has its roots in the early 1970s in Scandinavia – where workers were enabled to become part of a joint decision-making process on the design of their workspaces (Björgvinsson, Ehn & Hillgren 2012). It aims to empower people to influence products, services and environments they use and work with (Mattelmäki & Sleeswijk Visser 2011). There is a close link to the dimension of civic political activity, as it aims, similar to some co-designing methodologies, to reduce top-down hierarchies and therefore tackles the current fashion system (von Busch 2008). Both design methods aim for new perspectives in the current economic system through *greater democracy, improved empowerment and less domination* (Fletcher & Grose 2012, p. 144).

The number of research projects and real-life examples related to open- and participatory fashion design is growing. Rosie Martin (2012), for example, with 'diy-couture', offers an easy-to-make collection that does not require patterns at all and is therefore easy to apply and modify, even for sewing beginners. 'Openwear collaborative clothing' provides free patterns with instructions online (Openwear 2010). The project was initially based on a research fund but is now run as an open exchange platform for designers and makers. Fashion Hackers from Germany invites their followers on Facebook to contribute ideas, sketches and votes on creations for the next season; these will then be interpreted and made into patterns to be downloaded for a small price and made by the users (Schmuckermeier 2013). DIY or 'pre-cut' assembly kits, as provided for example by CUT Magazine (CUT 2013), PaulMalina (PaulMalina 2013) or the Makerist (Makerist 2013), are according to Mugge et al. (2005) an opportunity to create emotional product bonding through product personalisation. The authors claim that the toolkits offer a *satisfactory balance between the products' self-expressive value and the complexity of the personalisation process* (Mugge et al. 2005, p. 474). Hacking and redesigning existing garments while providing instructions, as in Otto von Busch's "recyclopedia", a collection of downloadable sewing 'cookbooks', represent more radical approaches allowing open participation for consumers (von Busch 2008). Participatory design applied in sewing events/workshops or makerspaces – like Nadelwald (Nadelwald 2013) in Berlin – are currently among the most common applications of participatory design in fashion. They offer opportunities without which a single user may be restricted: sewing machines, patterns, material and advice can all be found in one space and used for a certain fee. In 2009 Kate Fletcher initiated the 'Local Wisdom' project, which centres round 'exploring the craft of use' (Local Wisdom 2013). It celebrates and encourages users' skills by encouraging learning from each other (Fletcher & Grose 2012).

A special case in participatory design is the halfway approach. *A half-way product is designed as unfinished by intention* (Hirscher 2013 a); it thereby leaves the end-user an open space to customise and finalise the piece (Fuad-Luke 2009, p. 95). The main aspect is the non-functionality of the item without the user's input to finish it (Hirscher 2013 a). Halfway products enable the opportunity to *shape and influence the nature of the narrative experience by the very nature of interaction that occurs between two parties*...(Chapman 2005, p.128). Thereby the user becomes an active part in designing and making the product and can thus form its story. Her/his position changes from a passive recipient

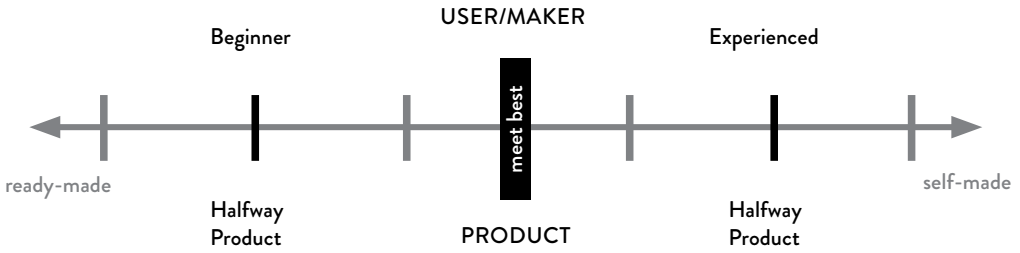



*Figure 8. Design opportunities for halfway products (Hirscher 2013 b)*

## A CASE STUDY: MAKE{ABLE} – PARTICIPATORY SEWING WORKSHOPS WITH HALFWAY PRODUCTS

towards an active participant (Hirscher & Niinimäki 2013). With halfway products, designers can make it easy for the user to get involved (Hirscher 2013 a), as results can be achieved with less time and basic skills. 'Halfway' can be anywhere in-between the materials, e.g. textiles, and the ready product (Figure 8). The challenge is to overcome restricting factors for the consumer such as time, skills and facilities and meet the people where they are likely to get involved. A successful halfway product is one that enables the maker/user to gain satisfaction with a design choice by finishing it according to personal preferences but does not discourage the user with overly difficult processes. In the best case, knowledge can be generated while producing. These challenges can be addressed by the designer by repositioning her/his role to become a facilitator, communicator or 'new actor', offering services and alternative forms of exchange: time, knowledge and skills.

Make{able} is an open collaboration among different designers, aiming to enable and empower the user to participate in designing their own clothes. Participatory sewing workshops with halfway products build the basis of the project case study. The designers enable the consumer to join with and influence the design process. The workshops aim for a joyful atmosphere and a collaborative making experience. These designing and making experiences are captured as memories in the garment, thereby creating emotional attachment. Through the making process the consumer can gain a greater understanding of garment construction and new skills. Make{able} workshops offer consumers as well as designers an open platform to experiment and learn from each other.

In monthly workshops, facilitated in different locations around the greater Helsinki area, users and designers are invited to learn and design together to create unique and more meaningful garments. The project's timeline is 1.5 years and ongoing, with twelve workshops facilitated until now and more than 140 participants and fashion designers contributing. Figure 8 illustrates Make{able}'s current location and relationships as a non-profit organisation, as well as possible future relationships, based on feedback gathered from designers and participants. It is currently based on voluntary work of the designers and material donations of post-production waste, plus grant funding from the EU (Youth in Action).

This project explores tools for activism. It concurrently explores the acceptance and interest of consumers and designers in this new and more radical alternative to 'ready-to-wear' fashion. The researchers' own observations as well as those of other designers during the workshops provided the basis for later reflection upon the general feelings, emotions, situation, appreciation and presence of the facilitators and participants.

### CONSUMER PERSPECTIVE

Participants filled out prepared questionnaires or were in conversation with the facilitators. Designing and making clothes is not a step everyone will easily take by themselves. Participatory design and the concept of halfway designs represent a design opportunity to ease this critical entry step. As one of the participants confirmed, *Now I dare to start; sewing patterns look so difficult.* Participants agreed that the aspect of a garment half-ready was appreciated, as it made it easier to accomplish results within a shorter time. However it still offered the chance to design the piece following their own vision. According to one participant, *It was easier than I thought; good instructions made it really fun!* (Figure 9)

*Figure 9. Make{able} workshop with Halfway Shorts, July 2013 (Photo: Daniel Morales)*

The majority of participants agreed that they gained a feeling of happiness and satisfaction during the making process or afterwards, seeing the results achieved. They were proud to be able to create something wearable by themselves. Many of the participants have joined the workshops repeatedly, as they appreciate the creative working environment, the learning process and the joyful atmosphere of collective making. (Figure 10)

The majority of the participants agreed that their attitude has changed and they want to learn more about clothes making and production. However it cannot be assured whether their overall consumption of garments has reduced or if the made garments maintain a stronger value than bought fashion or clothing. This needs to be evaluated over a longer period of time. A true change of behaviour that involves learning new habits and new sustainability-oriented preferences would need more time as well as further data collection.

## DESIGNER PERSPECTIVE

It is a truly challenging task to design products that gain emotional value for another person. The greatest challenge for the designer is to involve the user in the earliest stages and offer them as much freedom in designing as possible.



*Figure 10. Results of Make{able} workshop – Tunic and Shorts (Photo: Anja-Lisa Hirscher)*

For a more versatile perspective, the authors gathered feedback from facilitating designers in the Make{able} case study. The designers observed that there was high interest in designing and making among the consumers/participants. They obviously appreciate the opportunity to learn and make things in an inspiring environment. One designer stated, *I was surprised that beginners were so enthusiastic and brave, sitting for the first time in front of the sewing machine.*

Regarding the question whether the designers felt that their role and/or understanding of being a designer had changed while working together with the consumer, all designers agreed. The task of designing shifts from designing for the consumer towards designing with the consumer by becoming an adviser/ facilitator and by conceptualising the outcome together. Designers also agreed that it is a very satisfying experience to be helping, teaching and advising while seeing people enjoy and work together. The work of the designer goes beyond the design and prototyping process of traditional fashion designing. Design work in a participatory setting requires a variety of skills: good design skills to offer halfway products that even sewing beginners are able to make, make{able}, but good listening skills are also required as well as social and facilitation skills. The 'design-part' shifts from only designing the product towards three main stages, before, during and after a participatory workshop. This point is well articulated in the following quote by Tjasa Avsec, one of Make{able}'s regular fashion designers:

**Before** *the workshop you have to design simple products which can be sewn by total beginners in a few hours, but are still effective, appealing and interesting. That is the design part, which importantly affects the result of the workshop as it gives the framework and enables the success.*

**During** *the workshop, your role changes from being a designer to being an adviser. You suggest the best possible way on making the customer's idea*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## ANALYSIS & FUTURE SCENARIOS

*come true, based on your designer's and maker's experiences. I think it is important to listen to the consumer and encourage feeling of success. That is: they themselves designed and produced the product, you have only guided them on their way.*

**After** *the workshop it seems like it doesn't matter who spends hours on brainstorming and designing the concept of the product and the basic shape; it is the customers' experience which matters. It is a contradicting observation, as on the other hand, the customers maybe value the designer's work more by understanding the process.*

At the same time the designers felt they could learn from the users and gain a deeper understanding of how they perceive clothes/products (Figure 11). Together very unique and diverse results were created, which the designers could not have imagined before. Designer: *If every individual would design and make her/his clothes, we would live in a very interesting society.* One of the designers pointed out that it is "a learning together". In some way the designer becomes a student and a teacher/adviser at the same time, as new ways of designing and making are explored.

Interest in the Make{able}workshops is growing. Everyone agreed that they enjoyed the workshop setting and appreciate regular workshops or similar sewing opportunities. The number of participants is constantly increasing, which reflects the consumer's appreciation of alternatives to mainstream 'ready-to-wear' fashion. However, it seems that the industry, designers and producers are less enthusiastic. How can the producer be involved in these participatory approaches? Could they for instance offer halfway products in smaller scale production? Or is it the task of the designers to slip into the role of the 'new actor' to create the relationship between consumer and producer through projects like Make{able}? Can designers then ask for a participation fee and offer a new shopping experience instead of a ready product? (See Figure 2.)

So far, this case study is mainly driven by the voluntary work of the designers. To encourage more sustaining funding alternatives, the designers gave some suggestions for improvements, which are illustrated in orange in the diagrammatic model of the exchange system (Figure 12). The system map shows opportunities for alternative exchange forms like patterns for a small fee, sales of halfway products in cooperation with a producer, a small participation fee for the workshops, or support by local municipalities in exchange for providing knowledge and skill empowerment to their citizens.

Make{able} does definitively illustrate that there is a growing interest among consumers for such alternatives; however there needs to be the possibility to scale up, to reach a broader audience and motivate consumers as well as designers and producers to start thinking differently. To shift from a niche market towards more common practice, producers need to be involved to offer alternative, local and smaller-scale production systems. To reach a broader audience a greater variety of concepts has to explored and applied. Participatory workshops are only reaching a certain audience – who is ready to invest time and creativity in making their own things. Making offers experience and a feeling of satisfaction through achievement, a different kind of satisfaction than that resulting from a quick purchase.

*Figure 11. Make{able} Workshop: Designers and users conceptualising together (Photo: Daniel Morales)*

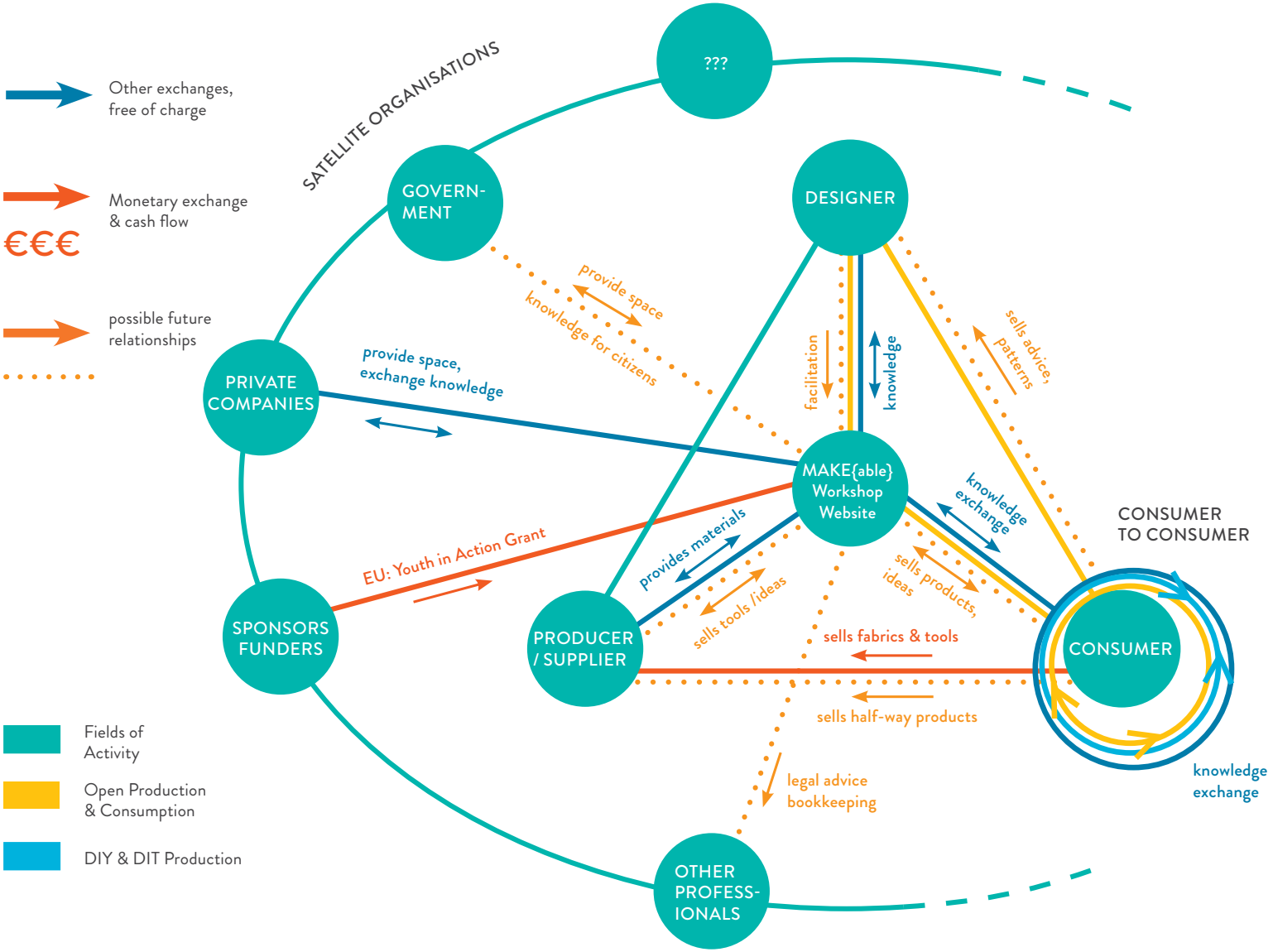


*Figure 12. Current and possible future relationships and exchanges for Make{able}, participatory sewing workshops with halfway products*

## AN ALTERNATIVE FASHION ECONOMY?

At a seminar and workshop held by the authors on 4 December 2013 at the Aalto Media Factory, Aalto ARTS, the participants were tasked with exploring new exchanges among DPC, third parties and satellite organisations using the model developed in Figure 6. The participants included experts from the fashion and textiles industry, doctoral and post-doctoral design researchers (fashion, textiles, co-design, and Design-for-Sustainability), fashion design and Creative Sustainability Masters students, and graphic designers. They readily identified new exchanges (Figure 13) and also the challenges and opportunities presented by these alternative exchanges (Figure 14).

It was compelling to discover that the centre of attention and activities focused strongly on the 'new actors' who took on the key role of facilitator and enabler among designers, consumers and producers. These new actors provided websites as services, networks or blogs or workshops in physical spaces. Collectively, the new actors represent potential hubs in alternative business models.

Of the 'satellite' organisations, beyond the DPC and new actor relations, 'Education', not necessarily presented as a University, has a potential strong impact on all stakeholders. 'Media & Web' also represents a strong influence in this system map and may be identified as one of the key players in describing and promoting new DPC relationships. These new relationships offer revived or new forms of non-monetary exchange – sharing knowledge, skills and time – and are underpinned with new exchange values. During the discussion with the workshop participants, the term 'new craftsmanship' arose, as a means of reanimating the value of skilled making, knowledge and time invested into making goods and giving prominence to meaningful qualitative features, not just goods at market prices.

The challenges for designers, producers and consumers differ. Designers are, it appears, so well embedded in the ways of the fashion industry that it is difficult to step into a different mode of designing. Producers are similarly bound by their habits, their manufacturing equipment and spaces and lack of contact with consumers. Consumers do not understand how current fashion goods are produced or what alternatives could be offered. However, there are significant opportunities for all of these key actors too. For example designers have a chance to exercise their creativity and create new income streams directly with consumers; producers can become service providers to consumers; and consumers can increase their awareness and knowledge by getting involved in designing and making something unique for themselves. Yet the real challenge and opportunity might be for new third party actors to act as intermediaries or interagents between the existing actors, to help facilitate new ideas of exchange through designing and making differently.

These findings challenge the designer's mindset, but there is potential for change as s/he gains new influence due to new structures and relationships in the system. For example designers can bring to life new business models driven by open- or participatory design and centre themselves as the 'New Actor' in alternative modes of production and consumption. The DPC system map can also be used as a tool to explore and develop new relationships and based on these create new business models. The more meaningful relationships a business can create, based on monetary and non-monetary exchange, the more economic-social-environmental sustainability it can secure. However, this opportunity demands a change of mindset among all related stakeholders who dare to step outside the 'norm' and imagine differently. There is the chance to create new values and better lives through what we might call new maker-ship, creator-ship or designer-ship.

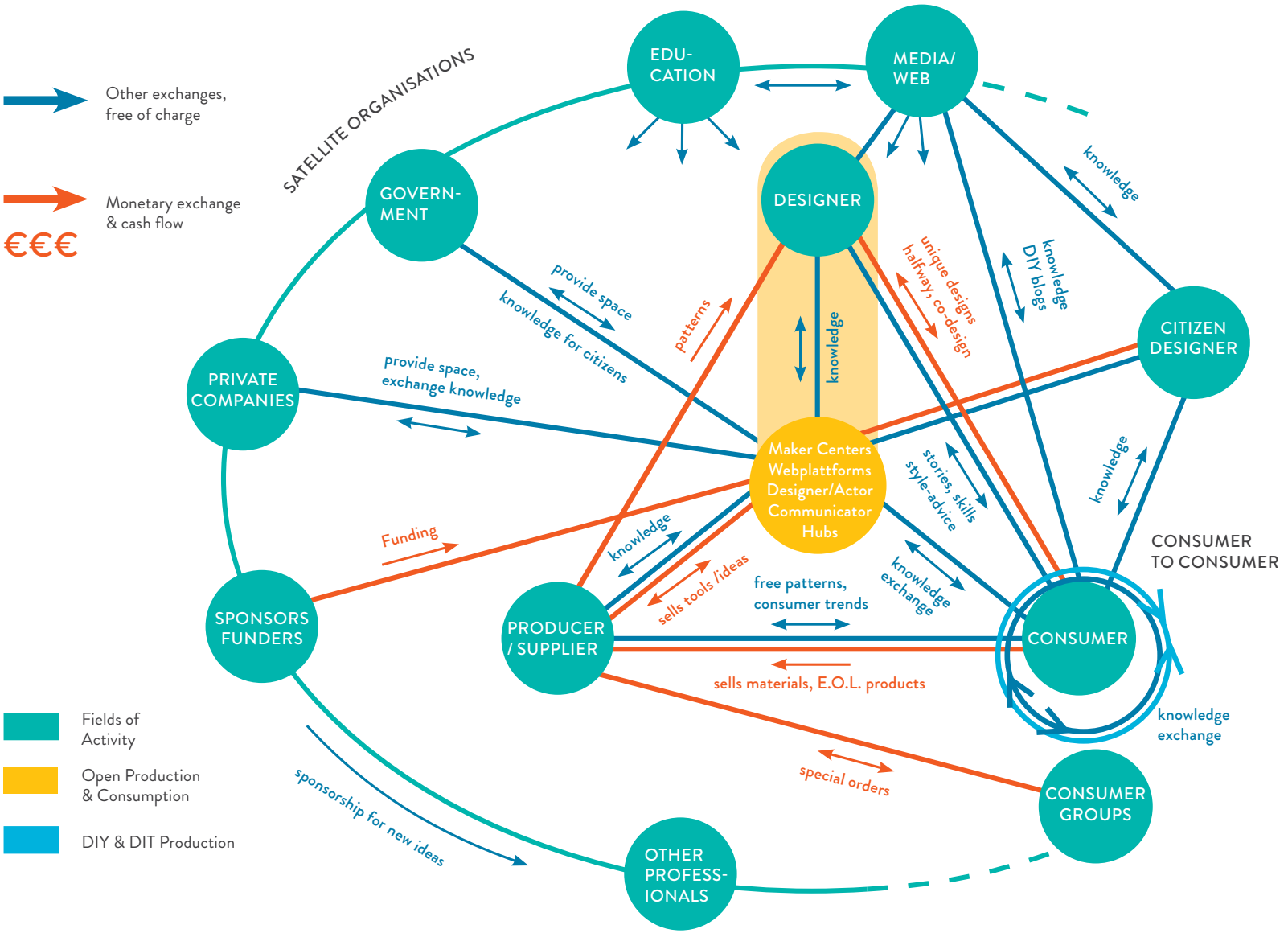


*Figure 13. Potential monetary and non-monetary exchanges in the 'alternative fashion economy'*

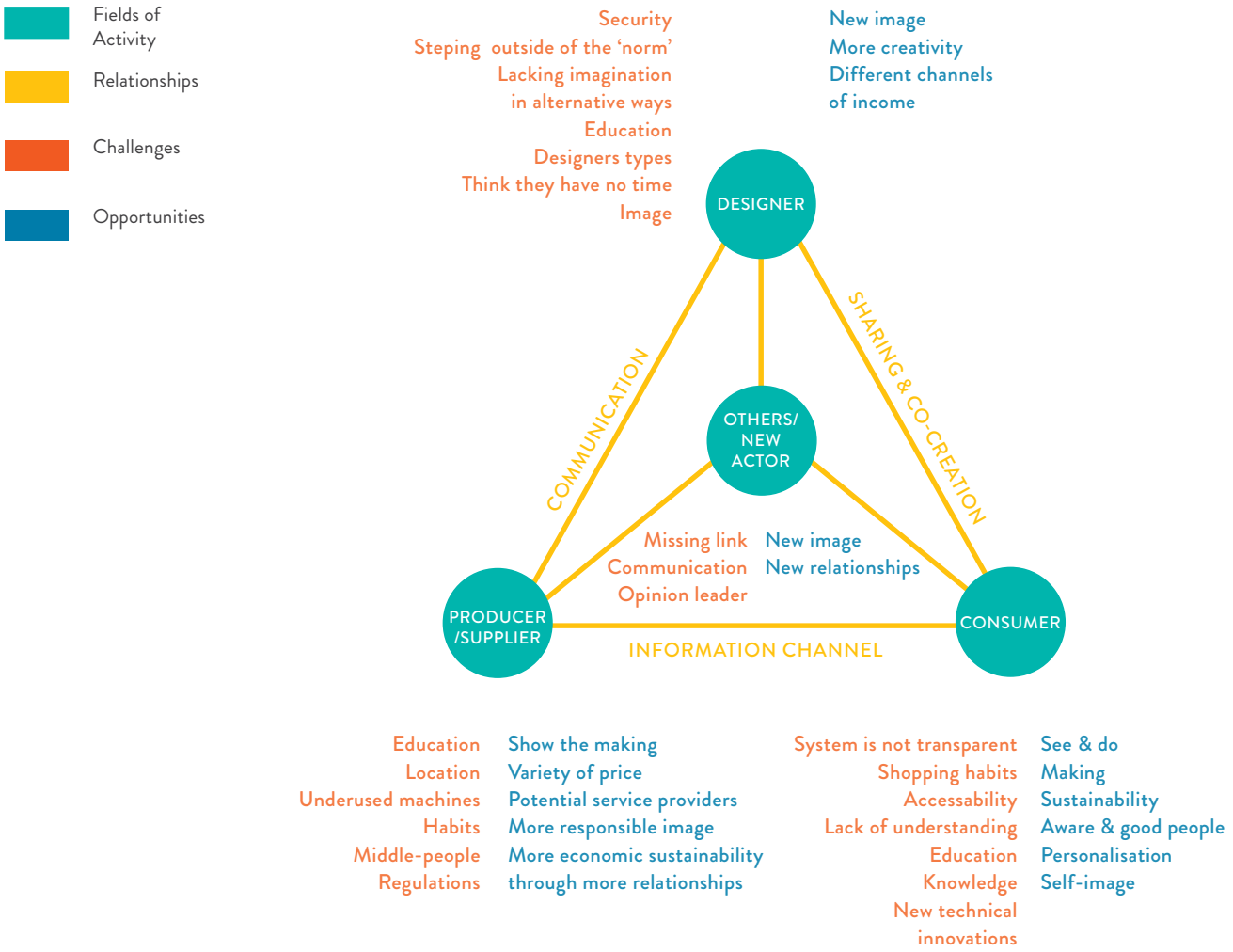


*Figure 14. Challenges and opportunities to the actors in the DPC model towards the 'alternative fashion economy'*

## DISCUSSION

This article illustrated possible early-stage developments towards an alternative fashion exchange system with findings from design research-through-practice and design educational projects. The authors explored the notion of creating new modes of exchange within an 'alternative economy' through: the conceptualisation of new open, participatory design 'value propositions'; halfway products through Make{able} workshops; and through illustrating the DPC and diagrammatic model of system exchanges. These all revealed possible new relationships among designers, producers, and consumers and show the potential for other new actors to influence the system. With this modelling the authors aimed to inspire new and alternative business ideas for the involved stakeholders to step out of the norm and dare to create and offer different forms of exchange. However, the question remains: Are designers really hungry for new alternative business models, or are they too well trained for the fashion industry, as it exists? If the answer is 'yes', how can we motivate them, because the fashion system as we know it is generically unsustainable. Does the alternative fashion economy need to be framed differently by changing the focus away from the role of the designers and producers towards the consumers who could become the 'new actor' as citizen designers who demand new behaviour from the other actors? We can also question the role of some of the satellite organisations. Is the education provided by higher education institutions (HEIs) valid for the future challenges designers will have to face? The government could play another important role, for example, through the implementation of new regulations for production that encourage new DPC-relationships aimed at making local production more attractive.

Even if new DPC and new actor relationships develop new modes of exchange, how can these new niche market alternatives be scaled up sufficiently to have a bigger reach and to challenge the existing fashion market? A much wider audience needs to be motivated and involved, and this means that these alternatives need to be much more attractive than business as usual. How can we create a change in the mindset of people to desire these new multi-value exchanges over just monetary exchanges for a product or service? This may require a shift in socio-cultural attitudes towards work-life-leisure balance and how we value our time. New forms of exchange can offer consumers participation in design and production as an experience rather than selling a ready-made product.

Is the fundamental issue here about production and consumption as a social learning activity, not an economic activity? The focal activities of many of the open participatory value propositions and Make{able} are centred on the experience of designing and making together; the results are important, but equally so is the process of doing and learning together. This 'togetherness' is something sociologist Richard Sennett sees as an activity with much longer historical precedence than competing with each other (Sennet 2012). These experiences 'together' have potential to change attitudes and behaviour but require that the DPC relationships find new, exciting hybrid ways of combining their knowledge. Botsman and Rogers' (2011) notion of collaborative consumption embraces collaborative design, but perhaps it is collaborative production that is the weak link. Bringing design, production and consumption actors together and new DPC opportunities will generate fresh exchanges and potential new economic activities.

# CONCLUSION

Over the last forty years 'alternative economies' have been proposed to counter predominant economic thinking. Most of these alternatives have arisen from a macroeconomic perspective from the fields of economics, sustainable development and the social sciences. The studies here, from design research-through-practice, and from a microeconomic perspective, offer a potentially fresh way of engaging in the construct[ion] of an alternative economy, which, in this chosen context, is an alternative fashion economy. This economy is focused on the monetary and non-monetary exchanges of open and proprietary knowledge among designers, producers and consumers – and emergent new actors. It is driven by design thinking applied to ways of designing and making combined with ways of creating value propositions which link directly to the development of new business or enterprise model.

From the work to date, it is clear that exploring new relationships and exchanges between and among the system actors requires a mindset shift. Consumers seem willing and primed to become citizen designer-makers. In general, the fashion designers seem more reluctant to shift, although those who did take part in Make{able} workshops seem very positive about the benefits of close contact with consumers. Producers, as yet, seem only tangentially involved, for example, through the supply of post-production waste. Perhaps the most important change agents are, potentially, the new actors (like Make{able}, Openwear and so on) who offer a vehicle (network, platform, space, other resources) to bring together the DPC in interesting new ways. Could this kind of design(-ing) activity be a way forward for a more humanistic, convivial, localised economy? Is there potential to join up with other socio-economically driven initiatives such as time-banks, repair cafes, peer-to-peer production, second-hand clothing stores and alternative currencies, or with the socio-technological communities of the maker movement (Fab Labs, makerspaces and more)? The next step is about testing more value propositions and scaling them up from niche activities to a critical mass that can genuinely challenge the hegemony of the fashion industry. If the fashion designers don't engage, will the citizen designers, or new actors, pick up the challenge? Emergent actors in an alternative fashion economy seem poised for further experimentation.

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# AT THE END: ENVISIONING THE FUTURE

Kirsi Niinimäki

Designers should learn how to envision the future rather than aim to merely meet the needs of the present. We have to understand that sustainable development and building change is a long-term commitment, not a short-term "add-on": it has to be based on strategic thinking and commitment at all levels to transform the current design processes, manufacturing systems and even economic thinking and fashion consumption. When the real transformation happens, it will offer long-term benefit for the company, but in the short term, it is not easy to make profit.

We need visionary foresight methods and models to create attractive future visions in which all stakeholders can believe and commit themselves. We should use for example backcasting to create future visions, a desirable scenario of how things should be. The backcasting method can be used as a strategic tool where the desirable future vision is created in the problem area (preferable together with all stakeholders) and then the path and actions, how to reach this vision, are planned. Changes that are needed in the current situation in order to reach the target are carefully examined and planned. Backcasting can thus be described as positive future visioning, whose action plan to reach the desirable future situation connects present decision-making and our actions to a sustainable future. In conjunction it is important to understand that sustainability is a process, a path, a journey, where we develop our thinking and skills on the way.

It is also important to make all actions visible to your co-workers, stakeholders, consumers and the media, inside and outside your company. Kruger et al. (2012) propose working with sustainability every week, to reserve time with your team to work on issues around sustainability, preferable on the sustainable transformation process, to make this process visible to everyone and to set goals through a "Sustainable Navigation Map". They point out that companies should focus on several aspects like design, procurement, supply chain, sales and marketing, consumer activities and new value creation and simultaneously bravely think of new processes, systems and services. This kind of goal-oriented approach makes it possible to create a desirable future together, step by step, by experimenting and learning together.

It is important to see ahead, open your mind and envision creatively and bravely the future of sustainable fashion. We can all get started and make change happen; we can start with statements to commit to or we jump in by making big changes, to start long-term transformation processes. The important issue is not to be passive but to see opportunities to do things differently – and most importantly create networks. Collaboration with like-minded people from different fields opens opportunities for new kinds of business and design thinking.

Sherin (2013, p.181) gives the following guidelines on how to get started in the transformation process for a better and more sustainable future:

- make what you know and what you have learned available to others whenever possible
- educate stakeholders, consumers and end users so they value sustainable processes and products
- help to create and steer a market for sustainable goods and services
- work with like-minded vendors and companies whenever possible.

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Aalto-ADA 9/2013

This publication aims to provide a source of inspiration for students, designers and companies, and all stakeholders whose interest lies in the area of sustainable fashion. The book presents approaches to fashion that embrace future-oriented value. Several chapters illustrate how effective fashion can be as transformative design or change agent experimentation. A sustainable approach can also reframe current business thinking and reveal opportunities for innovative business strategies.

Sustainable Fashion proposes how we can make positive change in current practices and how to effect new mindsets, creating transformation in fashion.

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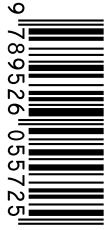

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