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CIRCULAR DESIGN

Innovations on the market that enable circularity in the fashion industry - **a framework for designers**

This framework is based on circular.fashion's work and has been developed on behalf of Science Park Borås as part of the project Conditional Design.

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Conditional Design Project:

The concept of conditional design has previously been investigated by Carlsson et al. (2017) in the Re:textile project that took place in collaboration with Science Park Borås and the Swedish School of Textiles between 2016-2019. The concept was defined based on the need to combine the drivers of the design process (e.g., aesthetics, functional requirements, brand identity, CSS commitments and cost optimization) with circularity requirements. A follow-up project was launched 2019 with financial support from Västra Götalandsregionen and Energimyndigheten trough the RE:source program. The new project was initiated and coordinated by Science Park Borås in collaboration with industry partners and researchers from the Swedish School of Textiles. The aim of the project is to implement circular design principles for different clothing sectors and to evaluate economic- and environmental benefits in circular scenarios for these clothes. This report is a deliverable in the new Conditional Design project, and the purpose is to give an inspiring outlook for new innovations that enable circular textile flows and to provide a framework for designers and businesses to adopt a practical and hands-on approach to circular design.

RE: SOURCE

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The importance of Circular Design

Today's fashion industry is primarily characterized by a linear economy of production, consumption, waste with less than 1% of clothing being recycled into new clothing. Combined with garments being massively under-utilised, the environmental consequences are disastrous - harming the health of people and planet. There is an urgent need for the fashion industry to shift to circular practices. Such a circular fashion economy is a regenerative system in which garments are able to circulate with maximum value retained for as long as possible before re-entering the system through reuse or recycling.

Design plays an important role in the transition towards a more sustainable and circular fashion industry. An industry in which products have less environmental impact, are used for longer, and are able to be reused or recycled at end of life. Achieving circularity relies on thoughtful, clever and responsible design from the very beginning and expands the role and responsibilities of a designer. Design for circularity is on one hand about considering technical factors such as the material composition, chemicals, pattern construction, manufacturing and production processes in order to minimize environmental impact and enable reuse and recycling. But also, on the other hand, design for circularity is about influencing consumer behaviour, and encouraging new ways of consuming fashion that prolonges or optimises the use of a product. As such, it requires to go beyond a 'traditional' role of a designer focusing mainly on aesthetics and function, into considering the larger system a product is part of and its end of life already at the outset.

With the aim to accelerate circularity and spread knowledge on circular design, circular.fashion has developed a framework to be used by designers and product developers as a compass to design circular products. The framework outlines five steps to take into consideration when designing for circularity, and concrete actions a designer can take in each step. It has been developed to fit various market segments and product categories, however the concrete actions should be tailored to each individual company, segment and product type and should therefore only be seen as guidance. Throughout the framework promising circular innovations on the market are pointed out - but stay up to date, there are many more exciting innovations out there! Before diving into the framework, activate your thinking by asking yourself a few thought starters about your product(s):

01 — What is the intended use of the garment? When, how long and by whom will it be used?
02 — How many components does the garment consist of?
03 — What will happen with each of these components when the product is no longer in use?
04 — What parts of the product are more prone to break by wear and tear?
05 — What circular design strategies fit the product type and use phase?

A product's intended use phase should guide your decisions on applicable material, design and retail models. Now, let's get started!

The framework is divided into five Steps to Success:

01 – Choose Circular Materials

02 – Design for Material Cyclability

03 – Design for Longevity

04 – Engage the User

05 – Establish a reverse supply chain for reuse and recycling

01

Choose Circular Materials

As a first step to design for circularity, you need to consider which materials to choose that are considered to be safe inputs and able to be used, reused and recycled in circular systems. There are innovations out on the market both in terms of recycled materials (i.e materials that have been manufactured from a waste stream, e.g recycled polyester made from discarded textiles), recyclable materials (materials that in the future can be recycled to the same or higher quality), as well as biobased and biodegradable materials. When choosing materials suitable for circularity, it is helpful to consider the materials to be recycled in the technical cycle, and/or decomposed and biodegradable in the biological cycle (EMF 2017). The technical cycle concerns manufactured materials which can be either mechanically or chemically recycled into new fibres to expand their lifespan. These can be synthetic fibres of fossil fuels (e.g polyester, nylon and elastane) or of natural origin like cotton or wood pulp (e.g viscose). The biological cycle includes materials that are able to degrade into substances such as water, Co2 or biomass. The biodegradation process can differ according to the properties of the material but generally can be divided into 3 different kinds: home composting, industrial composting and biodegradation in fresh water, marine and soil. circular.fashion tends to value biodegradable products in terms of safe inputs and healthiness to the environment and the people. Usually we do not recommend to have a biodegradable 'end of life' scenario as a first choice. There is a greater potential in recapturing the value of resources in loops through recycling (i.e PLA recycling).

How To - Design Actions

01 — Consider the cycle you are designing for and select materials that are suitable for a specific cycle. It is recommended to choose materials suitable for the technical cycle, so that the material can be recycled at end of life and replace virgin material. The bio-cycle is suitable for products that are worn close to skin, e.g underwear that are intended to biodegrade or decompose at end of life

02 — When possible, choose recycled fibres, and preferably post-consumer recycled fibres coming from textile waste over pre-consumer recycled fibres

03 — Consider certifications of materials, e.g GOTS, OCS, C2C, or GRS for recycled fibres

04 — Comply with chemical substance lists like ZDHC MRSL or equivalent and avoid hazardous chemicals and dyes

05 — Choose materials which processes are healthy, such as natural dyes, non-harmful prints and sustainable finishes, reduce the use of finishes and coatings to ease recyclability

06 — Choose closed loop production processes where chemicals and water is recovered, and electricity comes from renewable energy sources

07 — Choose dyeing processes with reduced or no water consumption and consider recycled pigments

08 — For renewable materials, choose materials that are from non-edible resources or by-product of a food crop

»Our mission is to create garments of endless value, where all materials and parts are reused and recycled in infinite circular systems of fashion.«

Tatiana Dubois
Circular Material Manager
circular.fashion

»Design plays a central role in creating a regenerative system in which products are able to recirculate in the economy with maximum value retained, and where waste is designed out already from the beginning” Jonna Haeggblom, Head of Marketing and Communication.«

Jonna Haeggblom
Circular Design Strategy Lead
circular.fashion

»80 % of a garment’s environmental impact is estimated to be determined during the design phase. Circular design is a true driver for creativity, sustainability and innovation to lower the impact.«

Luna Mazzolini
Circular Design Strategist and Material R&D
circular.fashion

01 Circular material innovations on the market

Regenerated cellulose - Circulose® by Renewcell

Circulose® by Renewcell is a cellulosic fibre, with the aim to close the loop in fashion. Circulose® is a natural material, a branded 'dissolving pulp' made from 100% discarded cotton textiles. It is sold as pulp or fibre, and the customer can make yarns, fabrics or garments. Circulose® is produced by renewcell, an innovative Swedish biomaterials company based in Stockholm. The fibre is equivalent to virgin fibres, and can use 100% textile waste, or be blended with another cellulosic material

Biodegradable polyester - Vinatur® by Inogema

Vinatur® by Inogema is a biodegradable material that can be used for yarns and fabrics. It is a biodegradable polymer whose polymeric chain has been engineered to be shorter in order to degrade faster at composting facilities. It can be blended with biobased fibres such as organic cotton or tencel to achieve yarns, sewing thread and fabrics with outstanding material properties. Because of the blend and performance, the material is a suitable alternative to re-place polyester and be used in blends common in industry, and can be used for workwear and other high performance applications as well as for elastane. Vinatur® is certified by the Cradle to Cradle Institute with a score of Gold, ensuring material health, material reutilization, renewable energy & carbon management, water stewardship and social fairness.

Biodegradable leather alternative - Tômtex

Tômtex is claimed to be a biodegradable and recyclable leather alternative made of 100% bio-based materials and natural color pigments. The material is currently in research and development. Key ingredients are shell seafood waste and coffee ground waste. It is made in Vietnam, where huge quantities of both products are produced yearly. The material shows high performance and durability applicable to clothing, accessories and footwear. The surface can be embossed with all kinds of patterns to emulate exotic leathers and it is possible to create biodegradable palettes out of carving it, opening the door to fully circular hyper trendy products.

Recycled polyester from textiles - cycora™ by Ambercycle

Cycora™ by Ambercycle is a regenerated alternative to conventional polyester. It is made from discarded polyester textiles 'waste', and can be used in any instance where polyester traditionally is used. Ambercycle transforms, in a chemical recycling process, end-of-life clothing into plastic pellets (same as PET plastic pellets) that would have been otherwise derived from oil. The pellets are spun into virgin-like quality fibres. otherwise derived from oil. The pellets are spun into virgin-like quality fibres.

01 SWOT analysis for Circular Materials

Strength

Chemically recycled fibres are possible to be made of 100% re-generated textile waste which can originate from both pre- and post-consumer textile inputs. The recycled fibres are expected to be equivalent in their quality and performance to virgin fibres and can constitute textiles made of consistent percentage of. recycled material, up to even 100% regenerated content. Mechanically recycled fibres open interesting opportunities for blended textiles to be regenerated, however as pure as possible is still preferred by the majority of recyclers.

Weakness

For both chemically and mechanically recycling of fibres, feedstock is needed in well defined and steady flow. This provides particular challenges to sourcing feedstock of post-consumer textiles as infrastructures are still being optimized. Today, there is a lack of full-scale infrastructure for recycling and biodegradation, e.g facilities for industrial composting, and standardization of biodegradation parameters specific to textiles is not regulated. Volume and availability of regenerated materials is scaling up, but is still in development.

Opportunities

Reusing fibres infinitely through regeneration reduces the need to extract virgin raw materials. Finding solutions to enable bio-based fibres to phase out hazardous chemicals by assuming safe, healthy and biodegradable inputs to assure healthy ecosystems. Many innovative polymers, e.g C2C biodegradable polyester, are possible to shape in many different kinds of textiles and components, facilitating design for recycling. Lab grown leather alternatives enables to decouple leather reproduction from traditional agriculture. In general, diversifying feedstock makes a more healthy, robust and resilient ecosystem, hopefully transitioning from having only a few predominant fibers with less pressure on demand.

Threats

Miscommunication in marketing and labelling of materials. Technical cycle is to prioritise over biological cycle due to the fact that the first aims to drastically extend the lifespan of the material itself, whereas the second constitutes a loss of material at the end-of-life. However, biodegradability has special relevance to micro fibre shedding and to ensure safe degradation in the ecosystem by safe inputs.

02

Design for Material Cyclability

In the second step, we need to consider design strategies that enable the materials to circulate. This means that one carefully needs to consider how all components that make up the product can be recycled together or separately. Design for material cyclability aims to eliminate the concept of waste and the need for virgin resources by enabling products to be either recycled in the technical cycle or decomposed and biodegraded in the biological cycle as a whole. **To ensure circularity, it is ideal if all components of one product, including trims, glues and threads belong to the same cycle or are able to be separated if they belong to different cycles.** As such, design for recyclability can be achieved either through mono-cycle design or through design for disassembly approaches.

Mono-Cycle Approach:

The first approach to achieve material cyclability is through designing with a mono-cycle approach. This means that all trims and additionals, such as buttons, thread, size and care labels are selected to fit the main material of the product and its pre-defined recycling cycle. With this approach in mind, the product is designed to fit a specific recycling cycle, to be recycled and/or biodegraded and with emphasis on intended use and end-

of-life. The most suitable materials for this strategy are versatile bio-based fibres such as cotton or viscose, or synthetic versatile fibres such as polyester and biodegradable polymers as these polymers can be turned into various components. Such innovations support design for mono-cycle, as well as innovations in printing and dyeing methods that do not affect a product's ability to be recycled, e.g wood based print for the cellulose cycle.

Design for Disassembly:

Design for disassembly concerns a design approach that means that products need to be designed in a way so that different materials can be recovered separately to be recycled. As the majority of products today consist of multiple materials providing either functional or aesthetic preference, this is a helpful approach. Design for disassembly can be done by for example using detachable closing mechanisms, such as detachable cords, buttons, buckles, loops and strips so that the components of a product at end of life can go into separate recycling streams. Innovations on the market that enable this design approach are for example material innovations in dissolvable yarns. If a product has a dissolvable yarn that can dissolve through heat, components can simply be detached from each other and recycled separately.

How To - Design Actions

01 — Design with a specific recycling cycle in mind, and try to match all components including sewing yarn, labels, interfacing and trims to the fibre of the main material aligned with a mono-material design approach. Ideally, all components should have the same colour and fabric construction as the main material

02 — Choose a fibre that is as pure as possible, so that the main component of a blend makes up at least 70% of the total weight, and preferably 98-100%. A higher share of the main material will increase the recycling options

03 — Minimise the number of components and simplify the design and pattern construction, and only keep what is really essential to the function and aesthetics

04 — Remove hard trims, as those will usually not be recycled but disposed of in a recycling stage. Explore alternatives to hard trims made from textile yarns, e.g embroidered eyelets, rivets or studs. If hard parts are necessary, ideally use detachable trims e.g screwable buttons

05 — Try to reduce screen prints, or if prints are needed explore digital print or water/bio-based options. Usually prints are discarded (simply cut off) before recycling, so the smallest size possible the better, to increase recycling yield and outcome. Explore other strategies instead of using prints such as laser cut engravings, layering of textiles and similar to create an interesting pattern

02 SWOT analysis for Material Cyclability

Strength

A garment and its components are recyclable. Mono-cycle design has great impact if you e.g minimise the number of components, design for material cyclability is fairly easy to achieve and particularly suitable for simple products e.g t-shirts, tote bags, jerseys and similar. With design strategies for disassembly, it opens up the possibility to use various materials in the same garment, and still have it recyclable.

Weakness

If designed for disassembly the product requires customer intervention in detaching components. When designing with a mono-material approach there's a risk of having to compromise with the aesthetic, it might be tricky to substitute some components as well as challenging for complex garments where different materials serve designated purposes, functions or aesthetics.

Opportunities

Can benefit repairability, as components can be taken off and exchanged, ensuring the longevity of the garment. More attractive to recyclers which will bring economic value to the garment when it comes to recycling it.

Threats

When designing a product with a mono-material approach, there is a threat of overusing one fibre that can become dominant on the market, e.g only using cotton, or only using polyester etc.

03

Design for Longevity

The third step concerns designing for longevity. Today's use of clothing is mainly characterised by short term wear and disposability, where garments are replaced more and more often and used for shorter periods of time. Prolonging first use ensures that the product remains in use for longer, a core principle of circular economy that drastically reduces its environmental impact. **To ensure longevity, products need to be functionally and emotionally durable, resisting wear and tear and adapting to a user's changing needs.** The product can feature a timeless design, made of resistant, sustainable materials and the item can be updatable and customisable, such that the user can engage with it and modify it to fit their current needs, which strengthens the emotional connection they have with the garment.

Functional Durability:

The first approach of design for longevity concerns strengthening a product's physical attributes so it is made to last and can resist damage due to wear. A product's functional durability is impacted by its construction, design and the qualities of the material used. To ensure a product lasts as long as possible, select materials and trims that are of high quality, durable and fit for purpose. Testing for quality measures are important to

define whether a product withstands e.g the minimum required washes, a high result for abrasion and pilling, for colour fastness, lightfastness, dimensional stability and seam efficiency among others.

Emotional Durability:

If functional durability refers to whether a garment by its physical attributes, pattern and design can last, emotional durability refers to the desire of a user to keep and wear the product for longer. An important component of this approach is to create pieces that can evolve together with the user, fulfilling their needs for longer. In addition, bringing the user into the design process by co-creation, customisation and participatory design have great potential to enhance the emotional durability. This can be done by using materials that age and evolve gracefully over time revealing a pattern or drawing, enhancing a product with marks of wear and repair or including personal statements. Storytelling and transparency of production might build on a garment's narrative and strengthen the emotional connection. Other factors of influence are the comfort, fit and size and how well it emphasizes the user's personality and by when, where and from whom the piece was acquired.

How To - Design Actions

01 — Use high quality fabrics and trims, and make sure those are fit for purpose

02 — Design with the intent for the product to be repaired in the future. Analyse the use pattern to understand which parts are more liable to tear through wearing the garment. Reinforce those parts through e.g double stitching, double layers or fixing stitches with a thick yarn and bar tacks

03 — Provide care instructions that communicate simple care, wash and laundry practices and repair guidance on easy do-it-your self repairs

04 — Ensure that the product withstands a high number of washes (number dependent on product type), and a high result for abrasion, colour fastness, lightfastness, dimensional stability and seam efficiency

05 — Design with size adjustability and transformability in mind, e.g through adjustable waistbands, generous side seams and hems, reversible pattern or use of drawstrings, additional buttons and elastic for adjustability

06 — Design with aesthetic durability in mind and with the intention that the product will last in style through e.g neutral colour schemes, well-proportioned and timeless cuts

03 SWOT analysis for Longevity

Strength

Garment is designed to last, will resist wear and tear. Increased use phase will reduce the environmental impact.

Weakness

Challenging to foresee/generalise what makes a user want to keep and wear a piece, difficult to make assumptions. Costly, additional buttons etc. might not be used by wearer, unnecessary cost/impact in adding them.

Opportunities

Influence consumer behaviour, have a trickling down effect to other sustainable consumption patterns such as taking care of one's piece etc. Influence the predominantly overproduction and over-consumption of clothing. Bring value back.

Threats

Efficient recycling infrastructure or innovative business models on the market, can suggest that we do not need to keep garments for as long as possible but can wear them only a few times, which ultimately is not considered sustainable. Therefore, it is recommended to match the design strategy and business model to the product type and use phase.

04

Engage the User

As the fourth step, when a product is designed for circularity, we need to ensure that it actually circulates by having the right systems, technology and retail models in place. To rethink current consumption patterns based on continous sales of new products, are necessary. Tapping into more service-based offerings will reduce impact while creating new customer offerings and opening up additional revenue streams. This would foster sustainable short-term use as a garment can circulate among many users, extending its service life through e.g subscription or rental services. Clothing that is used for a specific occasion, growth dependent like kids-clothing or trend-driven so the piece is actually only desired to be used for a short time are good examples of product types fit for collaborative consumption. To extend the use phase, leveraging technology and data can also play a large role to facilitate circular retail and in particular on-demand and made-to order services. A widely adopted data standard that specifies essential data has the potential to enable both a reverse supply chain and recyclability at scale. For the customer, being presented with information on one's product through e.g scanning it, can have a trickle down effect on sustainable consumer behaviours, such as building competencies for repair. If a customer is presented with easily accessible information on how to return clothing, together with transparency of what will happen to it, it has the potential to increase the number of garments returned.

How To - Design Actions

01 — Match the product type, intended use phase and customer segment to the circular retail model

02— Explore design strategies for adaptability and size adjustability to support fit and flexibility if a garment is intended to be used by several users

03 — Provide care instructions that communicate simple care, wash and laundry practices as well as repair guidance to build competencies for easy do-it-yourself repairs

04 — Use technology to facilitate the most optimal circulation of resources, e.g digital identifiers in clothing and to have a talking-point to your customer when scanning the product

05 — Increase transparency of the supply chain to build on the story of the product and customer engagement and make it visible to your customer

»We enable the products of today to become the resources of tomorrow.«

Ina Budde
Co-Founder and CEO
circular.fashion

»We imagine a world without waste, a future where every single product holds endless value by being designed for infinite regenerations. Transitioning towards such a future depends on forums dedicated to knowledge exchanges, system thinking, hard truths and game-changing solutions.«

Jonna Haeggblom
Circular Design Strategy Lead
circular.fashion

»“Circular design is a true driver for creativity, sustainability and innovation.«

Luna Mazzolini
Circular Design Strategist and Material R&D
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04 SWOT analysis for Engage the User

Strength

Tapping into more service-based offerings will reduce environmental impact while creating new customer offerings and opening up additional revenue streams. Digitalisation of data can facilitate circular retail models for reselling, sharing, rental etc, prolonged use by one or multiple users, enable recycling. This can also have a trickle-down effect on sustainable consumer behaviour.

Weakness

Difficult to measure impact of circular retail models, compared to “normal” consumption. Many data sets, a standardised set is needed otherwise it might be confusing.

Opportunities

Circular retails models presents new ways of consuming, and can open up new revenue streams for the fashion brands. Customers expect more and more transparency and digital product passport with a suitable digital identifier is intended to be introduced by EU. Several initiatives are working towards that, e.g circular.fashion in Germany commissioned by UBA.

Threats

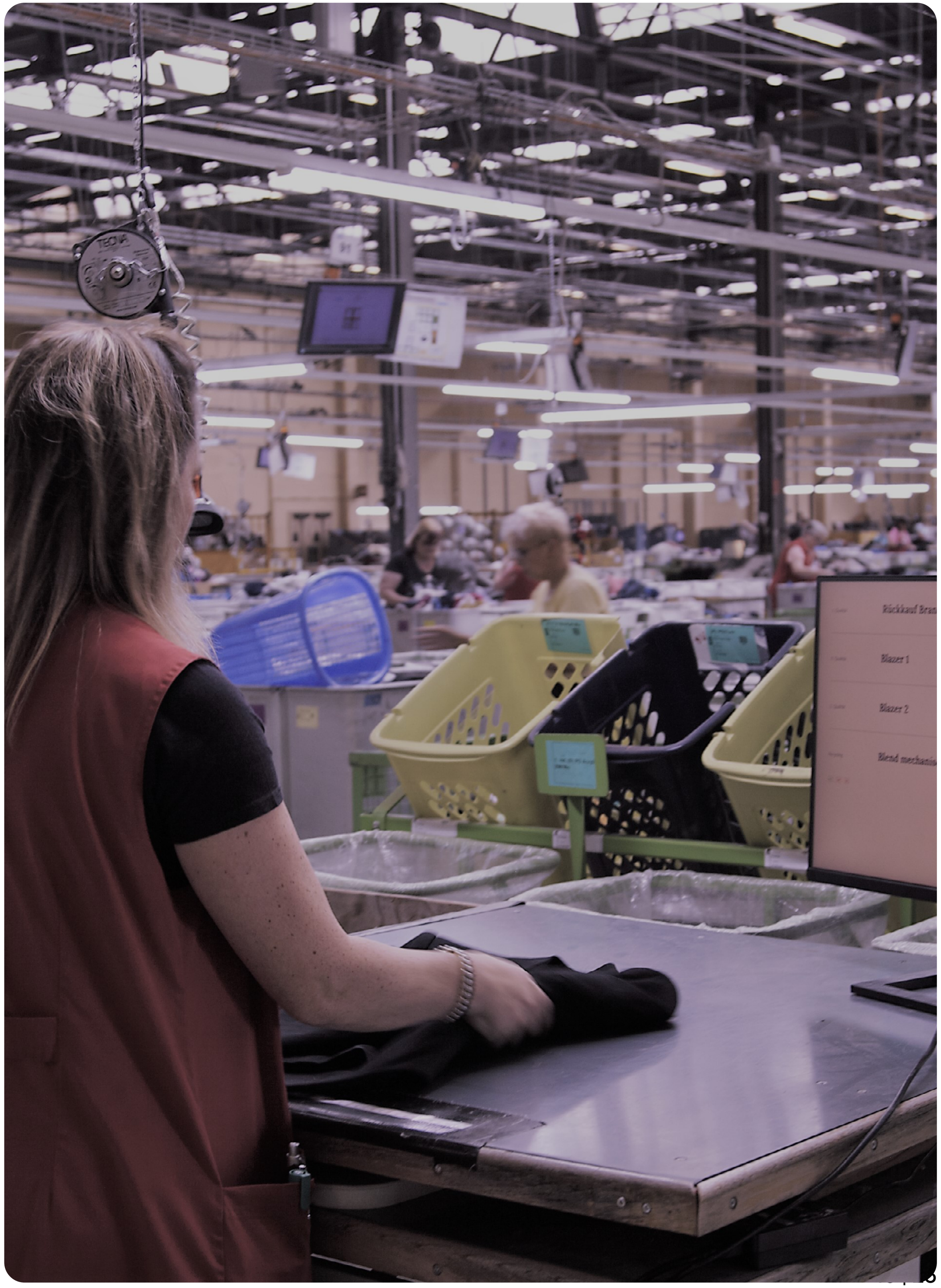
Assure data accuracy, data trust and privacy concerns regarding scannable tags in clothing. Risk of increased logistics/last-mile-aspects as a potential negative environmental effect of service based business models like rental. Keeping stock to ensure service level in rental programs could lead to less utilisation/lowering of production volumes than anticipated when switching from linear model.

05

Establish a reverse supply chain for reuse and recycling

In a circular economy, nothing goes to waste. Once a garment is worn out or unwanted by the user, it should be repaired, updated, donated or recycled in a circular system. Fashion brands can contribute by establishing take back strategies and build partnerships with sorters and recyclers, helping to close the loop in fashion. The reverse supply chain is the process starting after the use phase. It involves collecting used clothing from users, sorting and processing it and directing it to actors that can capture its value, e.g through second-hand resell, donation or recycling. A strong partner network and infrastructure is essential, and data needs to transfer from partners for them to be able to make informed sustainable decisions. Take-back initiatives require consumer involvement as the end user ultimately is the one who needs to bring back the clothing. The success is therefore dependent on how easy, convenient and efficient it is for a customer to return their clothing. Offering incentives, such as a discount code, is efficient.

The majority of collected post- consumer waste is processed by sorting companies deciding if a garment can be resold or recycled, and subsequently to whom to deliver the feedstock. The



process of sorting is primarily manual today, based on a sorter's optical impression and sense of touch and smell. The specific feedstock requirements of innovative fibre-to-fibre recyclers bring current sorting processes to their limit as many requirements are not recognizable in a manual decision process, and sorting innovations such as ID-based sorting, NIR and spectroscopy that enable more efficient sorting for reuse and recycling, have large potential to contribute to circularity.

There are different recycling processes on the market and at lab-scale today. Mechanical recycling is currently the most common technology and chemical recycling is on its way to commercial scale, but still under development for certain fibres. Mechanical recycling is done through shredding textile waste into shorter fibers that then are blended with virgin fibres as they lose strength through the shredding process. The average ratio is around 20-30% recycled content. The dyestuff sticks to the fibre. Therefore, the feedstock, the textile that goes into the process, is divided by colour as the recycling output becomes a blend of the tones. Feedstock requirements for mechanical recycling concerns the material composition, generally the purer, the better. Chemical recycling is done through a process where chemicals break down the composition of the fibre to its original form. This kind of recycling is considered 1:1 as the quality of the outcome is comparable to the original. The fibres can theoretically be processed infinite times and the output requires a much lower input of virgin materials. The feedstock requirements for chemical recycling concerns the material composition and strict requirements for dyeing and printing methods and substances.

How To - Design Actions

01 — Design with end of life in mind already at the outset, and align your material and design choices to the requirements of a recycler through assessing the circularity of your product

02— Ensure that the customer has the opportunity to trade in, return or resell by setting up a take-back scheme to keep responsibility until a product's end of life

03 — Consider partnering up with local initiatives focusing on connecting different actors of the supply chain, and benefit from each other's services

04 — Ensure the highest level of traceability of your product and all its material components

05 Sorting and recycling innovations on the market

In-store and at-home collection services

In order to increase the rate of collection, and ease the process for customers there are innovations on the market making this more convenient. One example is PACKMEE by Texaid, a convenient clothing collection option where the user can choose any suitable box, and Texaid picks it up for free to collect. Another example is the in-store collections by I:CO, where customers at point of sale also can return any unwanted clothing or textiles for reuse and recycling.

Worn Again

Worn Again is a recycling technology that aims to replace the use of virgin resources and enabling circular economy through re-capturing material from waste products. The technology is able to handle one of the most dominating fibre blends on the market, polyester/cotton, and separate the two fibres to product PET pellets (from the polyester) and cellulose pulp (from the cotton) back into usable material. This technology has a huge potential as it is tackling one of the most common used fibre blends.

ID-based sorting

ID-based sorting of post-consumer garments has the potential to optimise the process, reaching a higher-quality level output to serve fibre-to-fibre recyclers and make the operations commercially viable. Another sorting innovation is spectroscopy where textile analysis with AI-supported solution is used to automate the sorting of used clothing for reuse and recycling and optimize its sustainable impact. The goal is to use image recognition to allow more curated second hand fractions and spectroscopy to match garments to their recycling cycle. Another innovation for automated sorting is NIR. In Malmö there was established the world's first large-scale plant for automated sorting using NIR, Siptex, with a sorting capacity of 24 000 tonnes of textile yearly, sorting based on fibre and colour with the aim to create new markets for textile waste.

04 SWOT analysis for Reverse Supply Chain

Strength

Innovations to increase the volume of collected garments, and make it more easy and efficient for the user to do so. Digitalisation of data can enable circular models, prolonged use and recycling.

Weakness

Currently only a small percentage of garments are being recycled. Blended materials, and attached trims and metal hardware compose a challenge. Majority of products today do not have a passport and product ID to ease the data transfer and enable recycling.

Opportunities

Policies and regulations for separate collection, EU 2025. Scale textile recycling, create new markets and job opportunities for textile waste. For textile recycling, have a solution for polycotton blends which represents a large volume of the textile industry. Standardisation of product data and software to be aligned across companies and across industry.

Threats

Over-emphasizing/trusting end-of-life solutions, rather than questioning and transforming our (unsustainable) consumption patterns. Saturated second hand markets.

Let's get circular!

Circularity opens up many creative, innovative and responsible solutions to overcome the challenges the fashion industry is facing and drive sustainable change. Remember, it starts with design! From choosing materials that can circulate, designing for material cyclability, longevity, engaging the user to establishing a reverse supply chain. Every decision counts to ensure that the products of today can become the resources of tomorrow.

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