



**Circular
Textiles**
Ready
to market



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Introduction to Circular Textiles



Photo by Sylvie Tittel on Unsplash

Welcome to the European Clothing Action Plan - ECAP. This EU LIFE funded multi-stakeholder program is driving resource efficiency across the European clothing sector to cut carbon, water & waste, and support a circular economy.

Over the past 3½ years industry leaders have shown that circular fashion and textiles is possible and ready to market. Fashion for men, women and children, workwear and bed linen producers have proven a wide variety of technical possibilities and market opportunities. We are at the start of a new way of thinking and producing, however we have made a promising start, in which we invite the wider community and industry to take part.

To enable a healthy and thriving circular fashion industry, we will share with you our learnings and insights on topics like sustainable design, new business models, consumer engagement and collection & recycling of discarded clothes and textiles.

Next to this we have researched new ways to incorporate circularity in public procurement practices.

We have seen that a key factor to success is collaboration across the value chain, from brand and retailers to garment makers to yarn and fabric suppliers, from collectors to recyclers. Thanks to all involved for their enthusiasm and effort, we can show you some remarkable results in this guide. We hope you will enjoy reading.

Hanneke op den Brouw

Rijkswaterstaat, Dutch Ministry of Infrastructure and Watermanagement, on behalf of the ECAP partners

DanishFashionInstitute



What is Circular Fashion & Textiles?

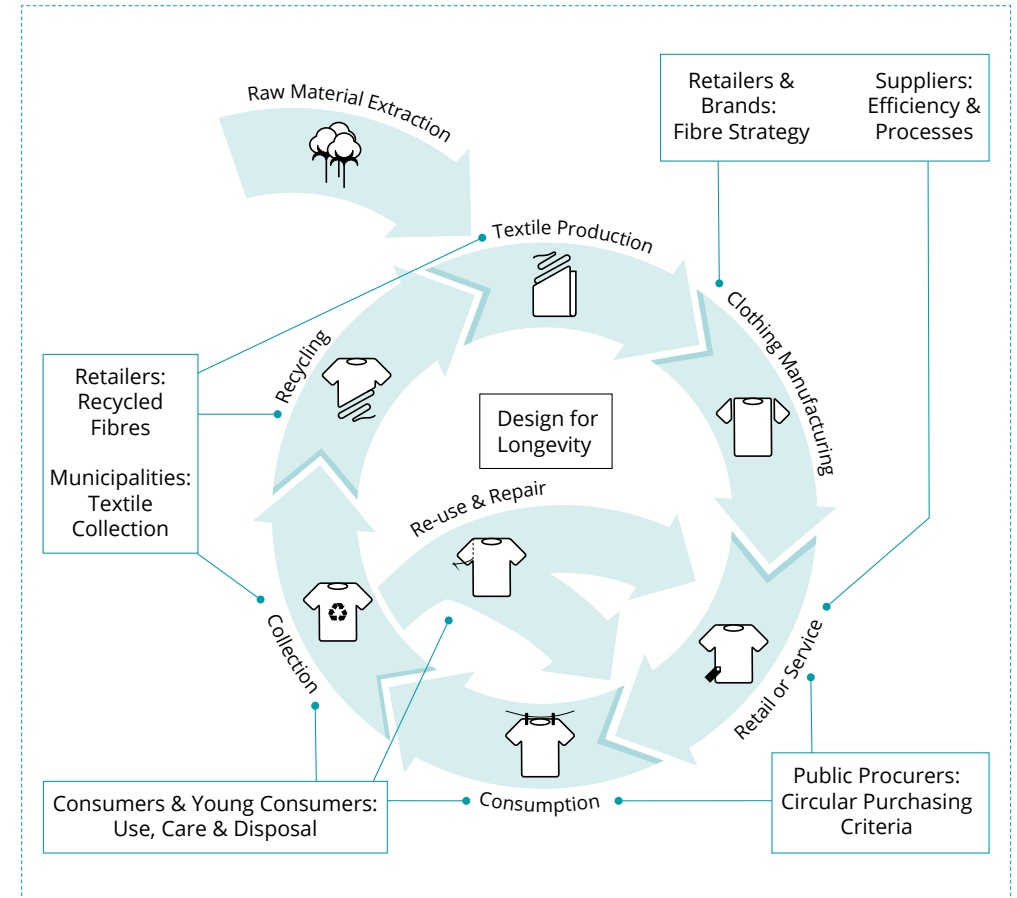
Over the past decades we have come to the realisation that our production and consumption patterns are not sustainable and create a planet full of waste, loss of biodiversity and climate change. The international community agrees that we need to change our ways, which was clearly signalled by the Climate Agreement of Paris in 2015.

The fashion and textiles industry can play a role as leader in achieving international goals towards a healthy and thriving planet. An exciting task lies ahead of us to transform an industry that extends across all continents and employs 60 to 75 million people worldwide.

One of the ways forward is expected to come from the concept of a circular economy, with nature as our teacher. In a circular economy products are not being wasted easily and resources are used again and again, so they retain their value in the product chain. High quality, good maintenance, fashionable vintage, extracting fibres for high quality recycling are a few examples of a thriving circular economy.

Mimicking natural cycles to live in balance with the planet's resources, means that circular economy is a holistic business model.

It takes into account every step of the value cycle. The European Clothing Action Plan has done experiments and supported interventions in different parts of this cycle, which is shown in the picture on the next page.



European Circular Initiatives

In the next paragraphs you find some examples of industry wide initiatives or partnerships searching for new circular business models in the fashion and textiles industry.

Fashion Industry Charter for Climate Change

This UN Charter, launched in December 2018 and signed by 43 industry leaders, presents a vision to achieve net-zero emissions by 2050. It includes a target of 30% reductions in Green House Gas (GHG) emissions by 2030 and sets a decarbonization pathway for the fashion industry. The charter supports the movement towards a circular business model and acknowledges the positive impact this will have towards reducing GHG emissions. A closer dialogue and change of consumer behaviours to reduce environmental impacts and extend useful life of products is part of the statement.

www.unfccc.int/climate-action/sectoral-engagement/global-climate-action-in-fashion/about-the-fashion-industry-charter-for-climate-action

Fashion for Good

Initiated by C&A Foundation and a group of industry leaders, the five Goods of this innovation platform are: good materials, good economy, good energy, good water and good lives. The efforts focus on sparking and scaling technologies and business models that have the greatest potential to transform the industry.

www.fashionforgood.com

A new textiles economy: redesigning fashion's future

Supported by leading industry partners, the Ellen MacArthur Foundation's mission is to accelerate the transition to a circular economy. Building upon the report presented at the Copenhagen Fashion Summit in 2017. The participants of the Make Fashion Circular initiative unite to develop business models that keep clothes in use, work towards materials that are renewable and safe with solutions that turn used clothes into new clothes. They expect the fashion industry to capture US\$ 560 billion currently lost due to the underutilisation of clothes, incineration and landfill.

www.ellenmacarthurfoundation.org/our-work/activities/make-fashion-circular/report

Sustainable Clothing Action Plan (SCAP)

Not for profit organisation WRAP (Waste and Resource Action Programme) was formed in 2000 and has ever since initiated a wide variety of programmes and initiatives. The SCAP 2020 commitment sees leading organisations from across the clothing sector working together to reduce the environmental footprint of clothing covering 7 action areas. Circular topics such as extending useful life of clothes, circular design and influencing key consumer behaviours are part of the commitment.

www.wrap.org.uk/content/scap-2020-commitment-archived#target

Dutch Circular Textiles Valley (DCTV)

In 2017 a group of Dutch industry leaders formulated a roadmap towards circular textiles as a result of a multi-stakeholder process. This initiative was supported by trade association for fashion and textiles 'Modint' and government agency 'Rijkswaterstaat' as part of the Dutch Agreement of sustainable garments and Textiles. The roadmap was taken on board of the transition agenda circular economy of the Dutch Government.

Under the name DCTV, four regional hubs are identified with specific circular innovation focus areas: Amsterdam (circular brands & business models), Enschede (high quality recycling), Arnhem (circular design) and Tilburg (circular workwear). The Roadmap is translated in English and can be downloaded via the link below.

www.afvalcirculair.nl/onderwerpen/helpdesk-afvalbeheer/publicaties/downloads-0/on-the-road-towards/ and www.imvoconvenanten.nl/garments-textile?sc_lang=en



Design for longevity

Design for Longevity is an online platform providing knowledge, tools and inspiration to empower designers, technologists and product developers to design more sustainable, longer lasting clothes through changes to design practices that also support a circular economy.

Created in collaboration with designers and product developers, the platform showcases the importance of their roles in the fashion sector. It highlights what concrete actions they can take to actively change the design process towards integrating best practices and inspiring new innovations.

In fashion, the decisions made during the design phase have a large impact on the finished garments and their environmental impacts. This platform guides industry players on how to make informed decisions in order to extend the lifespan of garments.

Inspiration on design for longevity and circularity

Houdini

Houdini has a strong focus on reducing garment waste and closing the loop. The brand shows that it is possible to create high performance designs that can be returned to the soil and actually be beneficial as fertilisers, rather than polluting the earth with detrimental components and chemicals.

With the aim to showcase and communicate this, the brand set up “The Houdini Menu”: a fine dining menu using vegetables grown from the soil of their decomposed old sportswear. Garments were returned to the soil, and once fertilised this was used to grow the vegetables for the gourmet meal put

in place for Houdini customers by Swedish celebrity Chef Sebastian Thureson.

Read more on Designforlongevity.com
www.designforlongevity.com/videos/sportswear-that-makes-your-garden-grow

Kasubika Chola

Kasubika Chola has a strong interest in recycled garments, second hand clothing, hand-me-downs and vintage garments. The recent graduate from Kingston University School of Art was selected as a talent for the CFDA+ programme. Her sustainable and unisex graduate collection celebrated her mixed cultural heritage, showing off vibrant African fabrics and inspiring pieces made from denim cast offs, coats and jackets from discarded dungarees, and bags from old rice sacks.

Read more on Designforlongevity.com
www.designforlongevity.com/slides/kasubika-chola

5 Tips for designers

1. Make fibre choices simpler

It can be difficult to keep track of which materials are sustainable, and how they are sustainable. Putting in place a preferred fibre list – an overview over which sustainable fibres best suit your brand – enables you to have a base guide for your material choices.

2. Choose the right tools for you

There are many tools available that help assess the environmental impact of garments. Pick one and implement it within your team to ensure alignment throughout the design process.

3. Ask the right questions

Textiles are often bought from multiple suppliers (Tier 1 suppliers), which in turn have multiple suppliers of their own (Tier 2 suppliers), etc.

It is crucial to know the right questions to ask to ensure the durability, quality and sustainability of fabrics.

4. Design for disassembly/ recycling/ biodegradability

Using components that can be easily separated will ease the cyclability of garments, decreasing the amount of mixed fibres in collections will facilitate fibre recycling, and preventing the use of toxic chemicals, dyes and finishes will allow for biodegradability without harming the environment.

5. Be transparent

To facilitate and speed up textile sorting and recycling, brands need to be transparent in terms of material components and compositions.

www.designforlongevity.com



Retailer & brands sustainable fibres strategies

ECAP activity has involved working with European fashion brands and retailers to support the development and implementation of bespoke sustainable fibre strategies with the aim of reducing carbon, water and waste impacts.

About this action

There are several retailers and brands involved, and we have been working with them to analyse their production data to measure their environmental footprint and create a report based on their fibre usage. We have also worked with them to develop strategies to lower their environmental impact and provided implementation support. The reports use the ECAP footprint calculator which requires the collation of data on clothing placed on the market and their fibre mix.

Companies involved range of sizes of retailers and brands with 4 based in Germany, 2 in France, Sweden, Netherlands then Italy, Spain and the UK.

Where are we now?

Retailer and brands are still in the implementation phase of their sustainable strategies. This is planned to continue until the summer, at which point another environmental footprint report will be done to measure the impact of their more sustainable strategies. The insights and results will be gathered.

Insights/ learnings

Several brands have shown an interest in being able to assess their fibre footprints and to track progress as they continue to integrate more sustainable fibres, to support their target setting and progress reporting.

ECAP is keen to understand from brands and retailers what their views are on necessary policy changes and legislation to support their sustainability efforts, particularly in relation to fibre sourcing and waste, as part of the case study collation process.

The future

Several case studies will be published describing the work undertaken by participants and the impact that this had on the environmental footprint of their clothing lines. ECAP will also share the common findings, and practical insight to a wider set of stakeholders in the market to help more brands and retailers switch to more sustainable fibres. Look out for these in late 2019.

New Circular Business MODELS

In November 2017, ASOS began a project in partnership with London Waste and Recycling Board and QSA Partners to assess the commercial viability of circular business models.

The Circular Business Models project facts

- › After considering a wide range of circular business models including rental and leasing, subscription, incentivised return and resale, the project team decided to narrow the focus to a deeper investigation of a resale proposition.
- › ASOS then carried out multiple business modelling exercises to determine what was needed behind the scenes to make a resale proposition work.
- › These exercises covered price points, back-end logistics, and investigating customer interest in variations on this proposition.

The results

- › A survey carried out by ASOS for the project illustrated customers already engage in resale. For example:
 - 57% of ASOS customers already buy pre-owned clothes from a range of sites;
 - 27% of ASOS customers already buy ASOS clothing online
 - 31% already sell ASOS clothing online.
- › The project also helped to foster a cross-functional team of colleagues committed to exploring circular business models in more detail in future.

What's next?

- › Alongside this project, ASOS was able to complete a clothing takeback pilot with its staff to investigate how a customer recycling proposition might work. This research informed how the clothing take-back aspect of a resale proposition would function.
- › ASOS is also undergoing a re-engineering of its sales platform to better surface sustainability through the customer shopping experience. This will support the integration of circular propositions in the future.

About the company

ASOS was founded in 2000 and has become a top fashion destination for 20-somethings around the world. It has more than 87,000 ASOS and branded products on site, with 5,000 new items added each week. It also offers fashion-related content through its websites, mobile apps, the ASOS Magazine and its social media accounts, which have more than 22 million followers. It serves 18.4 million active customers from fulfilment centres in the UK, US and Europe, delivering ASOS packages to almost every country in the world.



Photo by Sylvie Tittel on Unsplash

Consumer Engagement

The European Clothing Action Plan wants to positively affect consumers' buying, use, care and disposal of clothing by increasing awareness and encouraging behaviour change. For this purpose, two of our partners, WRAP (Waste and Resource Action Programme) and LWARB (London Waste and Recycling Board) partnered up to design and organise a range of activities.

Love your Clothes

By combining the experience and materials from WRAP's Love Your Clothes campaign and the results from ECAP's consumer research in European countries (Denmark, Italy, Germany and the Netherlands) we are supporting consumer behaviour change in those countries.

- › *Italy:* We are working with La Fraternalita, a social enterprise organisation in the development and launch of a digital campaign to increase clothing donations.
- › Materials can be found in the resources section of our ECAP website www.ecap.eu.com

EU Clothing Survey

To kickstart activity, ECAP developed campaign packs which include messaging guidelines based on European consumer behaviours and some supporting campaign materials. These include editable artwork including posters, flyers infographics and digital content.

As part of the research in ECAP, a EU Clothing Survey was created to gather information around clothing related behaviours across four nations (Denmark, Germany, Netherlands and Italy).

Some of the key results:

- › Danish households wear their clothing longest (average 5 years) compared to Netherlands (4.1 years), and Germany and Italy (3.8 years);
- › To buy second-hand clothes is most likely in Denmark (5%), against 2% elsewhere;
- › Those in Italy are far more likely to check seams when buying a new or second-hand garment (over 60%) and they are far more likely to check their wardrobes before shopping;
- › In every nation apart from Italy, the 30/40° setting when washing clothes account for around three quarters of all households;
- › Disposing of old clothes is done in different way between nations, like charity shops, charity bags or bring banks;
- › Italians have a strong disposition towards repairing and are keen to learn repair skills, versus far less in Germany.

There are also case studies on various Love Your Clothes campaigns to give inspiration on activities that can be run by organisations to affect consumer change. The case studies have accompanying action plans to help show the steps, cost and partners needed to deliver similar activity including social media campaigns, staff clothing collection drives and city wide clothing campaigns.

Examples of countries using this material:

- › *Netherlands:* working with Milieu Centraal, a national consumer campaign organisation - they incorporated some Love Your Clothes messages and materials to create a clothing section of their website - www.loveyourclothes.nl which launched in July 2018.



Increasing used textile collection

One option to reduce clothing waste to landfill and incineration is to increase collection, reuse and recycling of post-consumer clothing. In six European cities we analysed practices and presented findings that can inspire municipalities and collectors elsewhere. Antwerp is one of the successful stories to be told.

Collaboration instead of competition

Collaboration rather than competition between actors can increase efficiency of collection. In Antwerp, collectors who each fill a different collection niche came together in a cooperative where each of their activities complements one another. The focus on networks in the city of Antwerp's tender documents laid the foundations for this cooperation. Further actors

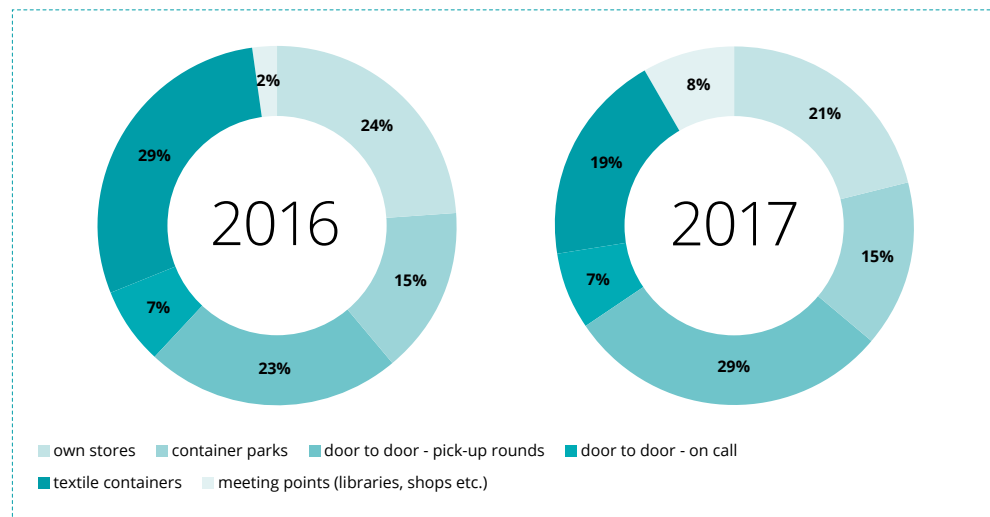
that can be brought into such collaborations are clothing brands, who both can collect used clothing in their own shops and provide communication that can benefit all.

The Antwerp collaboration has branded itself as 'De Collectie' and uses this common brand on all communication. This simplifies and amplifies communication with citizens. The results were measured and interesting as can be seen in the figures below.

Links

More information about the practices of other European cities and lessons learned, can be found at the report www.ecap.eu.com/resources-reports

Distribution of collection by collection method in Antwerp. *Source; De Collectie*



Public procurement

Governments and other public bodies use a lot of textiles, like uniforms, safety clothing, workwear and linen. As such governments have a lot of buying power and the ability to change the supply chain towards circularity. They can for instance buy or lease garments made with recycled fibres and organise the collection of workwear at end of life.

The European Union has developed green public procurement criteria to facilitate sustainable requirements in public tender documents. These are used by public procurers across Europe. As part of the

European Clothing Action Plan, the Dutch agency Rijkswaterstaat helped develop circular procurement criteria for textiles that will be shared with the European Commission, so these can be included in an update of the green public procurement criteria.

These criteria can also help or inspire both workwear companies and fashion brands to make their procurement more circular and sustainable.

If you are interested in the circular procurement criteria please visit www.ecap.eu.com.

Fibre Recovery

As the worldwide demand for sustainable textiles is growing, fibre recovery is an important way of minimising our environmental impact. It helps to reduce the use of virgin materials, saves water and energy and leads to less landfill and incineration.

The Fibre to Fibre pilots were one of the projects of the European Clothing Action Plan. Nine companies, from fashion brands to workwear companies and from children's wear to hotel linen, started an innovative pilot to recover fibres and turn them into new garments.

The overview on the next page summarizes the results of these pilots in terms of recycled content. It shows the percentage of recycled post- and pre-consumer fibres, the material used, which garment was made and finally the producing country.

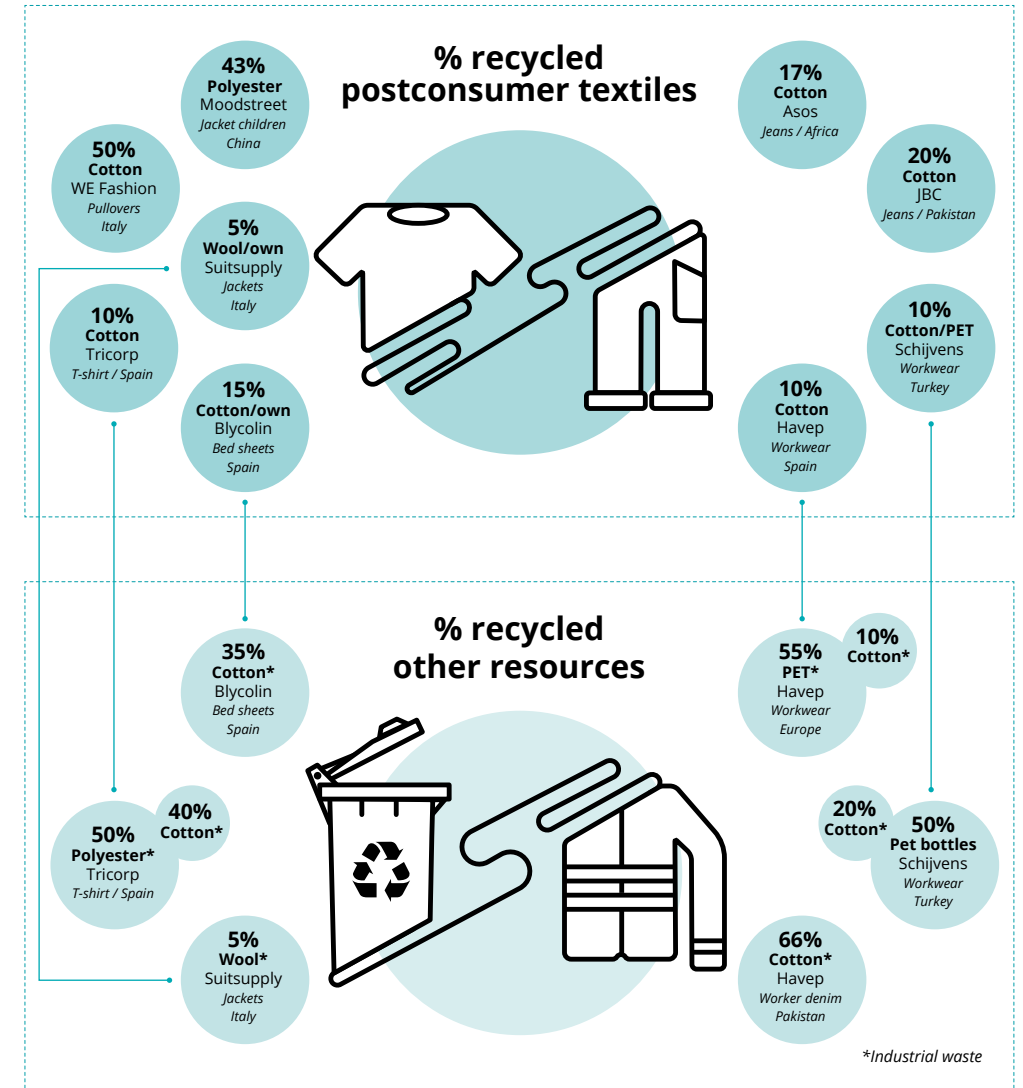
Even though these results concern just 9 pilots in a specific period of time, we feel free to draw two conclusions. First of all denims are frontrunners in the field of fibre recovery. Not only did several pilots produce denims with recycled content, but others also used denims as a source to produce different garments. Secondly, the wide range of percentages and materials used can be seen as a promise for further growth of circular textiles in the near future.

The impact numbers are a snapshot, as some pilot companies scaled up their project and ordered additional fabric. The numbers are calculated by REMO and take into account the substitution of virgin into recycled fibres. Other potential environmental benefits were left out (e.g. no bleaching or dyeing) and the calculation did not consider differences between fibres originating from post-consumer textiles versus industrial textile waste. www.remokey.com

The following chapter gives an overview of all 9 pilots and the results achieved so far.



Exchange between participants at HAVEP in Goirle, the Netherlands



Pilot companies:



Personal notes

water savings:
1m³ equals to 100 full buckets

energy savings:
1,000 kWh equals driving 6,500 km
with an average electric car

Fibre to Fibre Pilots

ASOS

ASOS was founded in 2000 and has become a top fashion destination for 20-somethings around the world. It has more than 87,000 ASOS and branded products on site, with 5,000 new items added each week. It also offers fashion-related content through its websites, mobile apps, the ASOS Magazine and its social media accounts, which have more than 22 million followers. It serves 18.4 million active customers from fulfilment centres in the UK, US and Europe, delivering ASOS packages to almost every country in the world.

The Fibre to Fibre project facts

- › ASOS wanted to increase the use of recycled denim in its menswear and womenswear ASOS Design jeans and develop knowledge and expertise internally.
- › Through the Fibre to Fibre project and with the support of experts from ECAP, ASOS was able to increase the amount of recycled denim in the jeans selected for this pilot to 17% in 2017 and 20% in 2018.
- › The online retailer used a mix of pre-consumer and post-consumer denim.

Environmental impact

- › This pilot achieved positive environmental impact. An indication of this impact in 2017 is:
Water savings: 7,694 m³
Energy savings: 13,978 kWh
CO₂ reduction: 3.5 tonnes
- › In 2017 1.1 tonnes of discarded textiles were saved from landfill.

Lessons learned

- › One key challenge with using a substantial amount of recycled fibre was maintaining a commercially viable product with consistent quality.
- › ASOS needed to draw on the support of industry experts to engage and educate suppliers on how to use recycled cotton effectively throughout production.
- › Collaboration is key to circular fashion, and engagement with suppliers, mills, and other brands can help deliver change. Industry-wide collaboration efforts and guidance in this space would prove useful.
- › Drawing on a vertical supplier with years of yarn-spinning expertise helped make the pilot a success.
- › Regional differences, for example in availability of raw material, expertise, supplier capability, and transparency need to be considered if the use of recycled content is to be scaled through supply chains.

Tips for starters

- › Start with a pilot to gather knowledge about recycled fibres.
- › Look into opportunities to mix pre- and post-consumer fibres to deliver a higher percentage of recycled content and give strength to the fibre/fabric.
- › Allow some flexibility in the planning and critical stages of your project in order to experiment with innovative partners.
- › Closely monitor and plan lead times.



“ASOS’ vision for circular fashion is a future where all customers recycle their clothing, and waste is re-used in the supply chain.”

Tara Luckman Head of Sustainable Sourcing, ASOS

Blycolin

Blycolin started in 1972 as a service company for linen in the hospitality industry. Blycolin is supplying linen for hotels, restaurants and wellness centers in Europe and provides full service in cooperation with a network of 150 laundries by taking care of investment, tailor-made assortment, laundry services, logistics and inventory management. Sustainability is a key value.

The Fibre to Fibre project facts

- › Production of bed sheets made from fibres of recycled cotton
- › The material of the bed linen is 70/30 cotton/polyester blend
- › Composition of the yarn and fabric: 15% post-consumer cotton from own bed sheets, 35% industrial cotton waste, 20% virgin cotton and 30% virgin PET

Environmental impact

- › The recycling of raw materials in this pilot achieved positive environmental impact. An indication of this impact in 2018 is:
Water savings: 3889 m³
Energy savings: 7053 kWh
CO₂ reduction: 1.7 tonnes
- › In 2018 560 kg of discarded cotton (post and pre consumer) were saved from the waste mountain.

Lessons learned

- › In Southern- Europe the knowledge and experience of recycling of textiles (both pre and postconsumer) is of a surprisingly high level.
- › Bulk production of yarn and fabric with recycled content is a prerequisite for investment by the suppliers.
- › The development of new fabric produced with recycled content is really time consuming.
- › There is hardly any knowledge about sustainability of textiles in the hospitality sector.
- › Besides quality the communication about the right way to handle is essential to the longevity of the bedlinen.
- › The reduction of the cost-price of fabric with recycled content does not seem to be feasible in Europe. The opportunities in Asia yet are unknown.
- › The current import regimes for waste could constitute obstacles to the development of circular textiles.

Tips for starters

- › Talk to your suppliers on a regular basis and also discuss product-improvement and recycling.
- › 100% circular textiles could be not possible, but for sure you can get to work on this issue for 100%.
- › Communication about good care of the product is an essential part of circular textiles.



“We started with recycling 10 years ago. It was our dream to make new bedlinen out of old bedlinen !”

Jaqueline Mommer Marketing & Communications Manager Blycolin

Fibre to Fibre Pilot

HAVEP

Havep is a Dutch family owned company active in workwear and protective wear since 1865. Most of the customers are part of industries like construction, (petro) chemicals, transportation and logistics. Havep offers a service based on a strong stock collection and project service for custom made solutions.

The Fibre to Fibre project facts

- › Production of aprons: polyester/cotton fabric with recycled content.
- › Composition of the yarn and fabric is: 10% post-consumer and industrial textile waste cotton and 25% virgin cotton and 65% recycled PET.
- › Production of 3 types of jeans with 66% recycled cotton (cutting waste) to add to the stock collection.
- › Production of yarn of viscose (Saxcell): chemically recycled post consumer HAVEP overalls (100% cotton).

Environmental impact

- › The recycling of raw materials in this pilot achieved positive environmental impact. An indication of this impact in the period 2017-2018 is:
Water savings: 12,564 m³
Energy savings: 25,403 kWh
CO₂ reduction: 2.0 tonnes
- › In 2018 at least 2.3 tonnes of discarded textiles both post en preconsumer were saved from the waste mountain.

Lessons learned

- › Post-consumer recycled content realised by mechanical recycling still has a negative influence on the quality (strength) of the fibres.
- › Chemical recycling of cotton resulting in a viscose seems to have very good results, but it is hard to scale up from pilot scale.
- › Reflect on the 'after life' use of a garment in the design process.
- › It takes time to find the right partners in the supply chain and to get a good collaboration between them.
- › The search for the proper fibre mix in the yarn and the fabric of circular workwear isn't yet completed.
- › The origin of the discarded waste back into the supply chain is difficult to trace.
- › We need to make it easy for our customers to choose the sustainable option: no compromise on price and quality.
- › The government can play an important role by stimulating the procurement of circular products.

Tips for starters

- › Reflect upon Design! Circularity in textiles is more than recycling.
- › Cooperate with suppliers and other parties who share the same vision. That is a key to success.
- › Develop a strategy to work more circular and decide upon your focus.



“This ECAP pilot helped us to make the change we want to achieve”

Vinsent Jansen product manager of Havep

JBC

JBC is a family owned fashion retailer which was established in 1975. The company owns about 145 shops across Belgium, Luxembourg and Germany and some online shops. Within the company the I AM brand stands for the new sustainable fashion line. The company already developed a coat from recycled PET bottles.

The Fibre to Fibre project facts

- › Production of denim for children, women and men, made from fibres of recycled jeans
- › The material consisted of cotton with elastane
- › In the design recycling at end-of life is considered
- › Composition of the yarn and fabric: 20% post-consumer textiles (denims), 78% virgin (bio cotton) and 2% elastane (originated from PET bottles)

Environmental impact

- › The recycling of materials in this pilot achieved positive environmental impact. An indication of the impact in 2018 is:
Water savings: 5,485 m³
Energy savings: 9,955 kWh
Carbon reduction: 2.4 tonnes
- › In 2018 almost 0.8 ton of discarded textiles were saved from the waste mountain.

Lessons learned

- › It was proven that circularity in the supply chain is possible.
- › Important to investigate possible risks in advance.
- › Take care of internal acceptance in the complete organization (management, marketing and sales)
- › Find partners which can be fully trusted
- › A combination of pre- and post-consumer recycled material seems to be the most effective
- › The ecological foot print can be both positive and negative. Negative is for instance transport of post-consumer material. Seeking the right balance is crucial.
- › Prepare well researched communication with your customer. Why are you doing this? What does it deliver? How does it work?

Tips for starters

- › Internal acceptance is key, also with partners in the supply chain
- › Be persistent and translate ideas in feasible and practical solutions
- › Make clear choices, evaluate and adjust if necessary
- › Start with a limited amount of articles



“Our vision and message is: Recycling is OK”

Owner of JBC

Moodstreet

Moodstreet is one of the 15 children brands of the Jolo Fashion Group. This family owned business was established over 40 years ago and transformed from a specialist in children's coats and jackets for private label into a general children's wear specialist, designing and producing children's fashion for all ages, from baby to teenager.

The Fibre to Fibre project facts

- › Development of sample jersey collection for girls (Darlin) and boys (Fellow), denims and jackets. Only jackets of 100% polyester were taken into production.
- › Polyester fabric of jackets: 43% post-consumer and 57% virgin polyester made in China.
- › Production of an educational film to tell the story of sustainability and recycling to children.

Environmental impact

- › The chemical recycling of postconsumer polyester in this pilot achieved positive environmental impact. An indication of the savings compared to virgin polyester is:
Energy savings: 17%
CO₂ reduction: 22%
No water savings due to recycling of polyester
- › In 2018 we have reused 0.65 tonnes of textile waste and contributed to a smaller mountain of waste.

Lessons learned

- › It was a great learning process to understand each step in the process, which was different from the usual buying of ready made garments.
- › Working with many styles in small volumes is a challenge because of minimum order quantities for recycled fabric.
- › Taking time to experiment with sample collections was important to get feedback from our customers, the retailers.
- › Designing specifically for the project did not work. It was better to produce a garment that was already sold in recycled material.
- › Post-consumer recycled polyester is of great quality and can easily replace virgin. Price is a bit higher, but the story much better.
- › Sales force needs to learn how to sell garments with a story.
- › Retailers like the idea, but have difficulty translating sustainability into an appealing story for consumers.
- › Sourcing recycled fabric in the country where the garment is made helps to simplify the process.

Tips for starters

- › Find a material that fits into your existing supply chain, to make a start easy.
- › Make the choice for recycled materials as a brand and then find market discriminators for the product with your customer.
- › As a small brand it is important to work together with others to reach minimum order volumes and to learn from each other.
- › Be aware of extra lead time for the production process.



“Children are the future and as a children’s brand we want to make it a bright one”

Evelien Vlasblom founder of Moodstreet

Schijvens

Schijvens is a Dutch family business that has been involved in the design, production and distribution of workwear for 150 years. Schijvens supplies various types of items, from polo shirts to dresses, from overalls to aprons, from work trousers to suits as well as accessories such as shoes, badges, belts and bags.

The Fibre to Fibre project facts

- › Production of T-shirts, polo shirts, blouses and other clothing made from fibres of recycled textiles
- › The material of the workwear is approx. 50/50 cotton/polyester
- › Composition of the yarn and fabric: 30% post-consumer textiles (mixed PET & cotton), 20% industrial textile waste (cotton) and 50% PET (from bottles)

Environmental impact

- › The recycling of raw materials in this pilot achieved positive environmental impact. An indication of this impact from 2017 to mid-2018 is:
Water savings: 38,617 m³
Energy savings: 94,743 kWh
CO₂ reduction: 19.8 tonnes
- › In the period between 2017 and mid-2018, 11 tonnes of discarded textiles as well as bottles were saved from the waste mountain.

Lessons learned

- › Closing the material loop is commercially viable: sales are expected to soon exceed 100,000 items a year, which is 20% of the total volume.
- › Material from discarded workwear of clients is suitable for recycling. The mix of recycled fibres from industrial waste and post-consumer textiles can reduce the risk of quality loss.
- › Chain cooperation is the key to success. The whole value circle should be involved to bear risks and costs, to communicate and to innovate. Clients also want to join in the development.
- › The design for recycling demands changes in the design like minimal different material and accessories or smaller logos. Not all customers like the simplicity of this circular design.
- › Return logistics are expensive and there are not a lot of logistic companies that are able to handle returns.
- › Legislation is not yet ready for recycling. For example, the sorted clothes have to be mutilated before they can enter Turkey.

Tips for starters

- › Start with the development of a yarn with recycled content which is applicable to manufacture various products
- › Ensure to have a long-term vision and strategy
- › Focus on staff training
- › Suppliers are partners: annual strategic meeting



“We definitely see circularity as our new business model”

Shirley Schijvens managing director of Schijvens

Suitsupply

Suitsupply is a privately held European tailoring company and has a strong international presence. Suitsupply acts as an innovator and disruptor in a very traditional segment: high-end menswear tailoring. Suitsupply has joined the Global Fashion Agenda initiative and is keen on creating a true impact. From this perspective the focus is on implementation in the already existing supply chains and products that are the most substantial.

The Fibre to Fibre project facts

- › Take back of worn out blue and grey suits to feed a circular product line. The pilot is about production of jackets.
- › The main material of the suits is merino wool, the interlining and other inside parts are made of different other materials
- › Composition of the main yarn and fabric: 5% post-consumer wool from discarded suits (Suitsupply), 5% industrial textile waste (wool) and 90% virgin merino wool

Environmental impact

- › The recycling of raw materials in this pilot achieved positive environmental impact. An indication of the savings in 2019 is:
Water savings: 12 m³
Energy savings: 2208 kWh
CO₂ reduction: 1.3 tonnes
- › For a small pilot production in 2019 12 kg of discarded suits were saved from the waste mountain.

www.suitsupply.com

Lessons learned

- › People are attached to their suits and won't throw them away easily. Therefore it's hard to raise the volume of collected suits.
- › Suits are complex made garments and consist of many components from different materials. Therefore the risk of contamination is high and the yield of recycling is much lower than expected.
- › There is a quality requirement of 100% mono material, which is the biggest obstacle for recycling.
- › The quality of recovered wool is high.
- › When you start recycling you are actually starting a new supply chain- you will need crucial understanding and transparency to really understand the environmental and social impact.
- › The supplier is a vertically integrated company which wants to incorporate recycling in its own chain. Right now it's more time consuming to do so, but in the long run it will save more time.
- › Collaboration and knowledge exchange with other brands and retailers could help the development of circularity.

Tips for starters

- › Create strong relationships with the key suppliers in your supply chains- you will need them.
- › A focus on quality, efficient use of materials and time and the internal economic consequences give you a good start to reach sustainability and circularity.
- › If you want to provide quality you also need to provide for the people working in the factories, because a lot of the work is still done manually.



“Recycling for us is about extending life and use, something close to our practices by making high quality products that last”

Quote from Global fashion agenda

Tricorp

Tricorp was founded in 1998 in the Netherlands. The company aims to provide professionals with workwear that ensures they get the most out of their working day. RFS in the logo stands for Representative, Functional, Clothing. This reflects the ambition and the expansion of the collection with a Multi Standards Line, rain clothing and women's clothing.

The Fibre to Fibre project facts

- › Production of T-shirts and polo shirts, made from fibres of discarded textiles. The material is a mix of cotton and polyester
- › Production of trousers from Infinity, a material of 100% polyesters which is designed for recycling.
- › Composition of the yarn and fabric is: 10% post-consumer cotton 40% industrial textile waste cotton and 50% PET

Environmental impact

- › The recycling of raw materials in this pilot achieved positive environmental impact. An indication of the impact in 2018 is:
Water savings: 1562 m³
Energy savings: 467 kWh
CO₂ reduction: 0.2 tonnes
- › In 2018 137 kg of discarded textiles both post en pre-consumer were saved from the waste mountain.

Lessons learned

- › Finding the right mix for yarn with a good price-quality ratio takes time. It is time-consuming rather than complicated due to endless testing.
- › The mix of post-consumer and industrially discarded textile offers the best outcome as far as quality and price are concerned.
- › The distinction between post- and pre-consumer is not clear for everyone – a workable shared definition would help.
- › Besides colour, pilling is the most important challenge. Blending with PET proved to be the solution for our products.
- › Chain organisation and a change in the working method are important elements of the circular economy. A chain director is required; also finding new suppliers.
- › The relationship with competitors has changed, this makes the work more fun. This is an unexpected revenue-maximising effect.

Tips for starters

- › Focus on staff training staff to give shape to the shift from a linear to a circular working method.
- › Recycled content means testing and more testing. Schedule enough time for this.
- › A reliable track and trace system. A good relationship with producers is required to achieve this.



“The core notion is a circular organisation. It is more than delivering a circular product.”

Willem Eimers former project leader at ECAP pilot Tricorp

WE Fashion

We Fashion is a Dutch fashion retailer with stores in various Northern European countries. The chain forms part of Logo Internationaal BV. Target groups are starters and families, men and women aged between 20-35.

The Fibre to Fibre project facts

- › Production of knitted product for men: two styles are developed in various colours.
- › The material is a cotton viscose mix of approx. 50-50 %. In one style 4.5 % of PET is added.
- › Composition of the yarn and fabric: 50% recycled jeans, mixed with Tencel. Recycled cotton from white T-shirts was used as a contrasting colour.

Environmental impact

- › The recycling of materials in this pilot achieved positive environmental impact. An indication of the impact in 2018 is:
Water savings: 584 m³
Energy savings: 10,665 kWh
CO₂ reduction: 1.7 tonnes
- › In 2018 1.4 tonnes of discarded textiles were saved from the waste mountain.

Lessons learned

- › The support of company management is required to ensure that all departments are involved in the pilot
- › Planning and logistics are of great importance for the commercial success of these new products
- › Working with the recycling and C2C business is very challenging for fashion retailers. The agendas of the companies do not match without intense communication and there is little understanding of limits in each other's worlds. Developing a better understanding by communicating better is indispensable.
- › The consequences of technical choices during the development process for the ultimate yarns are difficult to assess for the retailer
- › A retailer can only contribute towards the development of new yarns at an affordable price in case of high volumes.

Tips for starters

- › Selection of a product based on long-term relationships with the supplier and sufficient internal turnover
- › Put design in the lead
- › Let a "fibre to fibre" pilot tie in with the normal process
- › Communication and planning are crucial for success



“We as a company are confident we can start developing yarns with other parties for future collections!”

Marijke Willemsen CSR manager of WE Fashion



Great initiatives can already be found in the market place today. Some of them are small scale local initiatives and some focus on international markets with great potential to change the market at large. All of them show courage and operate with vision. We feel that these initiatives deserve a place in this guide and a big thank you for leading the way. Of course we understand that we cannot cover all great examples here, so this selection is a taste of today and tomorrow. A fashion industry to be proud of.

Reverse Resources

Reverse Resources enables textile companies to reduce waste and efficiently reclaim assets focusing primarily on textile production waste. Our aim is to lessen the dependence on virgin materials whilst improving margins and strengthening partnerships within circular supply chains. To do this, we have developed a tracking, tracing, & trading software platform to measure, verify, and share material flows data in real time. The platform connects different stakeholders to build a circular supply chain and creates a win-win business case between them by creating a common information space and bringing down market barriers. By having certainty around materials flows, supply networks can operate with increasing efficiency and minimal environmental impact. This supports turning waste into higher value resources, and helping to deliver quality products at a good price.

We have launched our SaaS platform in Bangladesh and Sri Lanka, successfully tracing scraps from supplier through trading network to recycler. We are working with several global brands as industry experts in the area of textile waste and the circular economy.

Winners of the H&M Global Change award, Fashion for Good acceleration program, Levi's Collaboratory and second in the Dutch Postcode lottery Green Challenge.

www.reverseresources.net

Star Socks

Comfortable socks save the ocean

Healthy Seas Socks produce lovely soft socks and save the ocean simultaneously. Hundreds of fish and other types of marine life are suffocating or starving to death in abandoned fishing nets. We are here to recover these ghost nets and transform them into ecological nylon. A healthier ocean starts with your brand new socks.

Super soft and comfortable

These socks are as soft as a summer's breeze caressing your feet. They are seamless and produced with regenerated nylon and biological cotton. The toe and heel are reinforced to ensure a longer lifespan and they come with a broad rim. Because of the low price of the Healthy Seas Socks a sustainable lifestyle is now affordable for everyone.

Ecological footprint

That is how we make a difference and how you can reduce your ecological footprint on earth with such little effort. On top of that, a part of the profit is invested in the Healthy Seas initiative. This organisation uses your contribution to recover even more fishing nets, to educate about recycling waste and raises awareness on prevention of ocean pollution.

www.starsock.nl



ACT; Africa Collect Textiles

Many second-hand items collected from, amongst others, The Netherlands are sold to African countries. They are worn and eventually discarded on landfills or burnt in the open air. ACT places collection containers in churches, universities, shopping malls, estates and factories to make sure items and cutting waste can be collected, worn again or processed into new products. Wearable items flow back to the second-hand markets or are donated to orphanages and elderly homes. Ripped items and cutting waste are recycled into blankets, mats, furniture, shoes, bags and new clothes.

Worldwide 60 billion kilos of textiles are lost every year. ACT strongly believes in recycling and countries like Kenya play a crucial role in the foundation of a global recycling economy. In Africa many items enjoy a second life and the continent has an established and growing textile industry that is able to process old clothes and cutting waste into new clothes.

Website: www.africacollecttextiles.com

Facebook: www.facebook.com/AfricaCollectTextiles

Animation: www.youtube.be/ojDF0074YQA

1-minute Pitch: www.youtube.be/kzE7WfPwH4c



UPSET textiles

We are building a circular and socially fair textiles value chain, starting at the heart of the industry: India. We bring a never seen before innovative (not mechanical) recycling technology to India, with the potential to revolutionize the mainstream mode of production.

This technological revolution enables the processing of 100% cotton textile waste into 100% recycled yarns in a controlled, transparent and socially responsible textile value chain. With this we make future proof apparel available to the mainstream markets. The recycled cotton is available at a price similar to the price of virgin cotton.

To leverage our mission, we will solely offer our yarns to partners throughout the supply chain who embrace our UN SDG based values and are willing to go along with our ambitions. However, we cannot do this alone. Are you active in the textile industry in India and align with our values and ambitions. Please get in touch! Together we can do more.

www.upsetttextiles.com



Fashion made in Holland

The Fashion Made in Holland foundation is created to reintroduce the workmanship of making garments in Holland, of high quality, in a sustainable way and with fair wages for designers and garment makers. We call it Slow Fashion.

Because we have a direct connection with designers, makers and customers, we avoid surplus production, need less stock and less investment costs. The prices are higher, but realistic. Because of the high quality and personal connection to the garment, the customer will feel attached to it and will not throw away the garment easily.

- › We stimulate and promote Slow Fashion
- › We stimulate local talent
- › We connect garment makers with fashion designers
- › We offer a transparent production process
- › We commit to good purchasing and sales prices and fair wages

www.fashionmadeinholland.nl

FMiH | fair made in holland





Photo by Sylvie Tittel on Unsplash

The future of circularity in textiles is incredibly important and needs everyone to be involved and play their part. Of course we need to make our business profitable but we also need to consider the impact we are having on the planet and it's the responsibility of us all.

We are making progress being demonstrated by national and international policies and the commitment being showed by organisations and companies. But we are just at the beginning. We need to work together to get to our Sustainable Development Goals.

ECAP is contributing to these goals and has made some great progress, learnings and results but there is much more work to be done in the transition towards a circular textiles economy.

The nine "Fibre to fibre" companies have clearly showed with their recovery pilots that the production and sales of garments with recycled content is possible. In Southern-Europe, Asia and Africa suppliers were found to have expertise and machinery already in place to produce circular yarn and fabric, both from pre and post-consumer textiles. However more investment is needed to scale up percentages of post-consumer textiles recycling.

By discussing the availability and opportunities of circular fabrics in the supply chain, fashion brands and retailers can empower this development.

The experience of the 9 ECAP pilots have highlighted the need for:

Companies to take action. To experiment to see what the opportunities are and how far can you go using recycled fibres in new clothing and textiles without compromising quality. To make use of the benefits circular design. Explore new services and other circular business models. This is about organisations taking the lead and having the courage to work in new ways even without explicit consumer demand.

Designers to create designs that last and are recyclable. To find solutions for issues in textile recycling. We also need senior leaders, sales and marketing to give way for design to play the important role they have in ensuring a circular textile industry.

Improved innovation. This is not only about the need for technological innovation in the process of recycling of textile materials, but also about the sharing of knowledge and information about the process of change: Where do you start? Where do you go? Who do you work with?

Cooperation in the supply chain starting from the acknowledgement that suppliers are the partners you need. Supply chain partners need each other for their expertise, finding new partners and appropriate ways of tracking & tracing the materials to ensure transparency (and traceability). Not only cooperation in the supply chain is needed but also between brands and retailers to share information and strategies.

Marketing power to empower consumers to make more sustainable choices and to embrace the role they need to play to make circular textiles economy.

Colophon

ECAP - creating a circular approach to fashion across Europe.

Cutting the environmental impact of clothing across the supply chain. Generating value for business through collaboration, measuring and sharing best practice.

ECAP is delivered by a unique consortium of specialist organisations and is supported by EU LIFE funding. Find out more at ecap.eu.com



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