

# The European market potential for recycled fashion

Recycled Fashion is a small but an increasingly interesting product segment for exporters from developing countries. Apparel companies are increasingly investigating circular fashion models including the recycling and upcycling of textiles, and European consumers are increasingly conscious about the impact of purchasing fast fashion. Although currently, only 1% of second-hand textiles are recycled into new clothes, the recycling trend is expected to accelerate and manufacturers from developing countries who come up with better technologies, solutions and fashionable apparel made from recycled materials will be at an advantage.

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## 1. Product description

The textile industry has evolved into a €917 billion industry globally, comprising clothing as well as furniture and mattress material, linens, draperies, cleaning materials, leisure equipment, and many other items. Every year, there are over 80 billion garments produced worldwide. An average person buys 60% more items of clothing every year and keeps them for about half as long as 15 years ago, generating a huge amount of waste. In the EU, approx. 16 million tons of textile municipal solid waste was generated in 2015. The amount of textile waste has doubled over the last 20 years. Once in landfills, natural fibers can take hundreds of years to decompose and may release methane and CO<sub>2</sub> into the atmosphere. Synthetic materials are not designed to decompose and may release toxic substances into groundwater and the surrounding soil.

Due to this situation, textile recycling is becoming increasingly important in Europe and will continue to be one of the key issues in the apparel industry. Textile recycling refers to the process by which old clothing and other textiles are recovered for reuse or material recovery. Textiles for recycling are generated from three primary sources: 1) post-consumer, including garments, upholstery and others and 2) Pre-consumer, including scrap created as a by-product from yarn and fabric manufacturing and 3) Post-industrial scrap textiles from other industries. The necessary steps in the textile recycling process involve the donation, collection, sorting and processing of textiles, followed by the subsequent transportation to end users of used garments, rags or other materials.

The process of recycling natural textiles includes the sorting of materials by type and color which reduces the need for re-dyeing the fabric, thus saving energy and avoiding pollution. The textiles are then pulled into fibers or shredded and sometimes mixed with other fibers depending on the end use of the yarn. The yarn is cleaned, mixed through a carding process, re-spun and ready for subsequent use in weaving or knitting. Some fibers, instead of being re-spun, get compressed for use as textile filling. The process of recycling polyester-based textiles involves shredding garments and granulating them into polyester chips. They are subsequently melted and used to create new fibers for use in new polyester fabrics.

While textile recycling is focused on recovering materials from waste for reuse, remanufacturing or reprocessing, upcycling is a form of recycling which turns the waste material or an unwanted item into a better-quality and higher value product.

Overall, in the EU, only about 50% of collected textiles are reused (e.g. exported to other countries) and about 50% are recycled, of which only 1% is made into new clothes. Approximately 35% of donated clothing is made into industrial rags. In the end, only 15% of consumer-used clothing is recycled, whereas more than 75% of pre-

use clothing is recycled by the manufacturers. This represents a loss of more than \$100 billion worth of materials each year, which are compounded by the high costs of textile waste disposal.

Textile recycling and upcycling are potentially beneficial activities from an environmental, social and economic point of view. They decrease landfill space requirements, reduce the use of virgin fibers, reduce the consumption of energy and water, help avoid pollution and lessen the demand for dyes.

There are no HS Codes available for Recycled Fashion on Eurostat and consequently no statistics pertaining to import and export, since this category is not tracked at the moment.

## **2. What makes Europe an interesting market for recycled fashion?**

The amount of clothing an average person buys in the EU has increased by 40% in just a few decades, driven by a fall in prices and the increased speed with which fashion is delivered to consumers. However, the growth in fast fashion also resulted in growing amounts of textile waste. In 2018, the EU adopted a new strategy on plastics and a new circular economy package that will ensure that textiles are collected separately in all Member States by 2025 at the latest. It is expected that the regulation in the EU will become increasingly stringent over the years in order to comply with the aim of limiting the environmental footprint of fashion.

More and more, companies are exploring circular models both to comply with the regulations and to appeal to EU consumers who are increasingly environmentally conscious and sustainability oriented. Circular fashion seeks to reduce waste to a minimum and keep the materials in the consumption and production loop as long as possible. In circular models, materials are collected and reused whenever possible and are turned into new fabrics and garments with help of the different recycling technologies. The environmental impact reduction when using recycled fibers is quite high. In a pilot project with a jeans manufacturer, the energy savings of recycled fiber compared to virgin fiber were 53%, while the water savings amounted to 99% and chemicals savings were 88%.

For clothes to be recycled, they should be designed to have multiple life cycles, with recyclable materials that are tailored to the intended use, timeless styles and design suitable for disassembly. At the moment, textile recycling's potential is still not fully realised due to a lack of proper technology, particularly when it comes to sorting the collected clothing, separating blended fibers, separating fibers from chemicals including color during recycling, and establishing which chemicals were used in the production in the first place. The technological challenges mean full recycling of clothing into new fibers is still far from commercially viable. Technologies for chemical recycling that produce virgin fibres of a high quality are available for polyester and nylon and are slowly becoming available, but are not yet fully economically viable, for cotton and blends.

There are companies that specialise in organising the recycling initiatives of the apparel brands, e.g. [I: CO](#) is a Swiss solution provider with recycling expertise in delivering innovative recycling opportunities. In 2017, it partnered with H&M to support its "Bring It" Fashion Collection Campaign. It collects discarded shoes, belts, bags and clothing from people and has collection points all over Europe. It works with approx. 60 retail partners including The North Face, Levi's, Forever 21, Intimissimi, Reno, Adler, C&A and Esprit. They organise the transport, sorting, and recycling of donated textiles, providing the infrastructure for raw materials to go into a closed loop manufacturing cycle.

Other companies are developing more sustainable fiber mixes and materials such as Lyocell and Tencel, further used in the production of clothes such as denim, underwear, casual wear and towels. Lyocell can be also blended with a variety of other fibers such as silk, cotton, polyester, linen, nylon and wool. It can simulate a variety of textures such as suede, leather and silk. [Lenzing Group](#) produces the innovative Refibra branded lyocell, which is using cotton scraps from the value chain.

There is a general push towards using safer and healthier material inputs that would allow for cycling, as well as to avoid negative impacts during the production, use and after-use phases.

Some companies made recycling and sustainability a part of their brand's DNA, e.g.:

- [For Days](#) is a start-up with a closed-loop fashion system, which is endlessly recycling materials. A 100% organic T-shirt, tank top or sweatshirt from For Days costs \$38 and comes with a lifetime membership. If it ever needs to be replaced, it costs \$8. The returned items are recycled.
- [A.BCH](#) produces 99% compostable clothing, which also has a recycling program that allows the customer to return their used clothes to be re-sold, re-made into a new piece, or have the raw materials recovered via cellulose recycling.
- [Mud Jeans](#) has between 23% and 40% recycled denim in each pair and plans to launch its first 100% recycled cotton pair of jeans in 2020. The company collects old jeans and recycles them for second use.
- [Taylor Stitch](#) menswear makes garments from 95% recycled cotton, along with pre-used merino wool, and industrial hemp. The company collects worn out clothing through their Restitch program, where the pieces are cleaned and repaired or turned into new pieces to be resold.
- [Allbirds](#) makes footwear from 100% recycled materials, including sheep's wool, recycled cardboard and plastic and castor bean oil.
- [Rothy's](#) uses recycled plastic to make shoes for women.
- [Recover](#) brands uses all kinds of recycled materials to make their products, including everything from cotton swept off the factory floor to polyester made from recycled plastic barrels and soda bottles.
- [Cotopaxi](#) uses sustainable llama wool and what would be discarded fabric.
- [Looptworks](#) sells bags and accessories made from recycled materials.

Companies are also increasingly exploring circular sales models such as clothing rental, resale and upcycling. These models lengthen the product life cycle and improve sustainability. Clothing rental is offered by companies like Rent the Runway, MUD Jeans and Tchibo. Survey data from Germany, Poland and Sweden suggests that just over 40% of customers could "imagine using fashion rental". In parallel, &Other Stories, Patagonia, R.E.I and the French luxury department store Galeries Lafayette are all entering the fashion resale market. Clothing resale is forecast to have a tremendous growth potential. H&M also recently launched repair and customisation facilities across its stores in France, Germany and Norway.

### Tips:

Look at the websites of the companies listed above, which made recycling and sustainability a part of their brand's DNA, to understand what type of recycling they are involved in, what business models they are promoting and what type of apparel aesthetic they have.

Start producing clothing that is durable and will have a higher resale value.

Consider producing clothing from recycled materials and fibers, especially the leftover materials from your production sites.

To learn more about the circular economy visit the [Ellen MacArthur Foundation initiative for Making Fashion Circular](#) and read about the different projects and strategies for reducing textile waste and improving recycling and read [the research publications of the Mistra Future Fashion](#).

## 3. Which European countries offer most opportunities for recycled fashion?

Table 1. Textile waste in Europe

Country	Textile Waste in 2004 (tons)	Textile Waste in 2014 (tons)	2004-2014 average textile waste growth (%)	Apparel Imports in 2018
Italy	753.200	439.200	↓ 5.3%	€14.5 b
Germany	222.300	343.800	↑ 4.5%	€33.9 b
United Kingdom	378.200	281.200	↓ 2.9%	€19.6 b
Poland	79.400	261.100	↑ 12.6%	€5.9 b
Belgium	106.800	181.300	↑ 5.4%	€7.9 b
France	489.600	175.000	↓ 9.8%	€21.7 b
Spain	188.800	110.300	↓ 5.2%	€16.6 b
Netherlands	115.900	95.200	↓ 1.9%	€14.8 b
Czech Republic	310.400	90.300	↓ 11.6%	€2.6 b
Portugal	963.600	75.500	↓ 22.5%	€2.2 b
EU28	4.430.000	2.290.000	↓ 6.4%	€168.5

Source: Eurostat

The biggest European markets for fashion and recycled apparel include Germany, the Netherlands, France, the UK, Spain and Italy. There are no estimates with regards to the value of demand for recycled apparel but the share of the EU population that is concerned with issues of sustainability and weighs it in their apparel purchases is approx. 37.5%. In theory, if the recycled fashion strategies gain in force and are appropriately advertised to the public, the EU import market for recycled apparel will be worth at least €63.2 billion.

## United Kingdom

The UK annually consumes 2.5 to 2.7 tons of textiles, of which 51% is estimated to be clothing. 71% of this annual consumption is not collected for reuse or recycling or simply unaccounted for, meaning only 29% is collected for reuse or recycling. Only 13% of the total clothing material input is in some way recycled after use. Most of the recycled material is used in other industries and in lower-value applications, e.g. as insulation material, wiping cloths or mattress fillings. The estimated cost to the UK economy of landfilling clothing and household textiles each year is GBP 82 million.

## Germany

Germany has a high collection rate for reuse and recycling. It reportedly collects 75% of its textiles but most of it is recycled to be used in lower value applications like insulation or filling material. Some main players in the

German textile recycling market include [Soex](#), the parent company of I: CO, [Remitex](#) and [Boer Group](#).

### Tips:

Focus your export efforts on the top six markets: Germany, the Netherlands, France, the United Kingdom, Spain and Italy because they constitute the biggest apparel markets in Europe, with the largest population of environmentally conscious consumers. Other markets that are smaller but very environmentally conscious include the Scandinavian markets.

Contact the leading brands with whom you are already collaborating to ask about the opportunities in recycled fashion and get in touch with the companies that are already known for recycling to understand whether you could become a supplier.

Think about the scrap materials that you generate as part of your production process as well as any unsold inventories and think about how you can reuse them in clothing or home textiles production. Ideally, you would need to provide innovative and eye-catching designs for this new apparel and textiles.

## 4. What trends offer opportunities or pose threats for the European Recycled Fashion market?

### New Recycling Technologies

There are some promising new technologies that are able to separate the most common blend of cotton and polyester, such as Worn Again and Blend Re:wind. There is also a number of companies who are innovating textile recycling, e.g. [Resyntex](#), [Re:newcell](#) and [Evru Technologies](#) produce secondary raw materials from textile waste, [Infinited Fiber](#) turns textile, cardboard and agricultural waste into new cotton, [Worn Again Technologies](#) turns polyester polymers and cellulose from cotton, non-reusable textiles, and PET bottles and packaging into new textile raw materials.

### Mainstream companies increasingly embrace sustainability and recycling strategies

The donation of old garments is supported by many non-profit and corporate programs. Apparel companies, like H&M, Nike, Patagonia or C&A, offer consumers incentives for returning their used clothing and are increasingly using recycled materials in their collections. For example, Adidas, Ralph Lauren and Aquafil have launched collections made of recycled plastic waste and Diesel has teamed up with Coca-Cola to launch The (Re)Collection made of partially recycled materials, including plastic bottles and recycled cotton. Other companies have repurposed second-hand trash, unsaleable stock and waste to produce high quality kitchen textiles, home textiles, bedding, packaging, shoes and clothing (e.g. [The New Denim Project](#), [MUD Jeans](#), [Salvage+Rivet](#), and Rifo). The H&M Weekday brand releases designs based on remade garments from old collections.

### Tips:

Create recycling and upcycling initiatives for post-industrial and post-consumer denim fibers that produce high quality textiles or clothing, similar to what is produced by [The New Denim Project](#), [Mud Jeans](#), [Salvage + Rivet](#) or [Noorism](#), for example.

Research different recycling technologies for possible use in your production by visiting the websites of the leaders in the field like [Resyntex](#), [Re:newcell](#) and [Evru Technologies](#). Visit the [Fashion for Good website](#) to learn about the different innovations and resources available to producers who want to


implement more sustainable fashion approaches.

Inform your buyers about your recycling footprint and make it a part of your company story.


This study has been carried out on behalf of CBI by [M-Brain GmbH](#).

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