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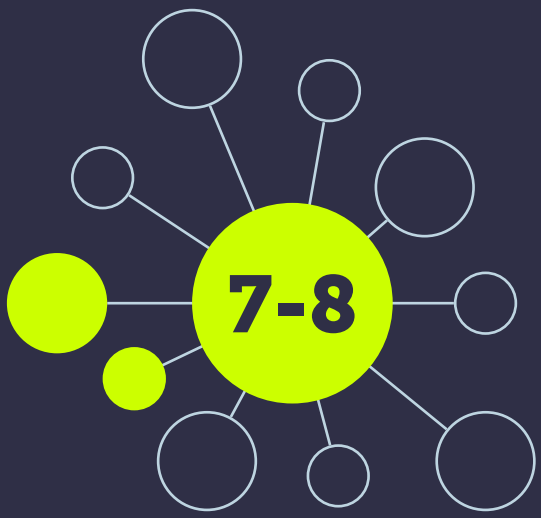
10 circular investment opportunities

for a low-carbon and prosperous recovery

Many voices from governments, businesses, and civil society have been calling for a response to the devastating impacts of the Covid-19 pandemic that does not turn attention away from other global challenges such as climate change, biodiversity loss, and plastic pollution. Yet, solutions from the past will not be up to the problems we face today, as the multifaceted nature of the crisis we are experiencing requires new thinking and the redesign of our current economic model.

In an unprecedented response to the Covid-19 crisis, trillions in economic stimulus are being unveiled all around the world. In the next stage of their recovery plans, governments will have to decide where these funds will be allocated. The circular economy, as an instrument to decouple economic growth from resource use and environmental impact, opens up the way for a resilient recovery and a next wave of economic prosperity. By fostering innovation and competitiveness, reducing resource dependency and environmental impact, and creating new jobs, the circular economy presents a promising way forward.

Building on the past ten years of research carried out on the circular economy, the Ellen MacArthur Foundation highlights in this paper how policymakers can pave the way towards a resilient recovery. As part of this, ten attractive circular investment opportunities that spread across five key sectors of the built environment, mobility, plastic packaging, fashion, and food, have been identified. Each sector is independently explored in a series of Insight papers, along with a piece offering perspectives on policy outlook. These individual papers, as well as the full combined paper, can be found at the Ellen MacArthur Foundation page: Covid-19: The economic recovery.



Fashion

Two circular investment opportunities for a low-carbon and prosperous recovery



The pandemic has upended the fashion industry, creating mass-scale supply chain disruptions while making people re-evaluate their shopping habits. Price-sensitivity and concern over the resource-intensive and wasteful nature of the current linear fashion system are projected to increase among customers following the economic downturn and into the recovery period. To respond, the industry will need to develop new solutions. Business models that move away from making and selling more, towards using more, such as rental and resale enabled by digital technologies, can offer promising opportunities. These models can attract increasingly price- and environmentally conscious customers, while decreasing the pressure on virgin resources and increasing the revenue streams per garment. Combined with developments in clothing collection, sorting, and recycling infrastructure that can enable substantial material value retention, these investments will help shape a fashion industry that is not only more in tune with its customers, but also more resilient and environmentally beneficial.

More than **USD 500 billion** of value is being lost annually due to clothing underutilisation and lack of recycling

The fashion industry and the apparel sector more broadly have been among those consumer good sectors most deeply affected by the pandemic.[1] All in all, a 27–30% reduction on year-on-year revenues for the global fashion industry is predicted for 2020.[2] As with other industries, the sector's heavy reliance on global supply chains has caused difficulties for businesses trying to obtain products from their manufacturers.[3]

With retailers being forced to close their brick and mortar businesses, sales have moved online, encouraging an increase in first-time fashion e-commerce shoppers of 14% in the US and 17% in China.[4] Nonetheless, given people's lack of appetite to spend on discretionary products during these uncertain times, total online sales during the pandemic have also rapidly declined: in Europe by 5–20%, in the US by 30–40%, and in China by 15–25%.[5] The reduced sales led to around USD 2.9 billion worth of exports being cancelled or suspended by April, affecting the livelihood of more than 2 million workers.[6]

Before the pandemic, more than USD 500 billion of value was being lost annually due to clothing underutilisation and lack of recycling.[7] Currently, due to the consequences of 'lockdown' and social distancing measures, many retailers are facing unprecedented challenges in dealing with the deadstock resulting from clothes and accessories they were not able to sell in time for the intended season.[8] This is all happening at a

time when the massively environmentally detrimental and wasteful nature of the industry is becoming increasingly more urgent and scrutinised.

Trends that were already identifiable in the fashion industry before the pandemic, are predicted to gain speed and urgency in the coming months and years. E-commerce is poised to continue its growth, with online sales persistently taking more market share from physical retail locations.[9] Moreover, companies with built-in digital and analytics capabilities across the value chain are believed to have been more resilient during the pandemic, and many more are therefore expected to go through a 'digital transformation', i.e. helping adapt cost structures and make each step of the value chain better, faster, and cheaper.[10] Sustainability concerns among customers are also projected to heighten, with individuals shopping less, exchanging more and increasingly favouring purpose-driven brands.[11] Yet, historically this has failed to translate into large-scale uptake, with such items often unable to compete with traditional economies of scale, demanding a price premium that customers are not always willing to pay.[12] Moreover, the economic downturn will increase the price sensitivity of many customers looking to cut costs on discretionary spending.[13] This will drive fashion businesses to re-evaluate their current business models and consider new opportunities, such as the adoption of seasonless design and lower-priced resale.[14]

For the fashion industry to meet these new challenges effectively while leveraging future trends, investments in circular economy opportunities that promote increased utilisation over increased consumption can offer attractive opportunities. The Ellen MacArthur Foundation sets out a vision for fashion, where clothes are used more and made to be made again, from safe, renewable and recycled inputs. In order to more rapidly realise this vision, investments could be directed towards areas including: rental and resale business models; collection, sorting, and recycling infrastructure; material innovations to improve durability, recyclability, and reduce microplastic leakage; and digital technologies to better track and trace resources.

Though all of these investment areas can help pave the way for a more resilient and environmentally beneficial fashion industry of the future, two particularly interesting circular investment opportunities emerge:

7. Rental and resale business models for clothing
8. Clothing collection, sorting, and recycling infrastructure

These selected opportunities highlight especially attractive areas that can help address both the short- and long-term goals of the public and private sectors. Together they provide solutions to key challenges created by the pandemic; meet governmental priorities for economic recovery; offer circular economy growth potential; and help reduce the risk of future shocks.



7 Rental and resale business models for clothing

to move away from making and selling more, towards using more

Investing in circular business models that keep products in use through rental and resale can be an effective way to enable a faster and more future-proof recovery and growth plan for the fashion industry.

Investments into rental and resale business models can generate numerous economic benefits through increasing clothing usage in alignment with evolving customer demands. By enabling the same item to be obtained and utilised by many customers over its lifetime, clothing rental and resale models can increase the revenue stream per garment when compared to traditional linear models, which rely on volumes sold to generate revenue.[15] The increased utilisation rate, combined with the lower costs that may be achieved as raw material needs are reduced, also allows for a lower price point per garment (sale or rental).[16] As such, resale and rental models can be used as effective tools for tapping into new, more price-sensitive customer segments. This may be particularly valuable moving forward as the post-pandemic economic uncertainty is expected to increase the share of customers in this segment significantly.[17] In fact, over 60% of consumers have reported reducing their spending on apparel during the crisis, with about half expecting that trend to continue post-pandemic.[18] Nonetheless, consumers are likely to cut back on accessories, jewellery, and other discretionary categories before reducing their spending on apparel and footwear. There is also evidence that clothing-as-a-service models, such as rentals, may increase customer loyalty to service providers, thereby generating consistent revenue streams. For example, clothing rental technology platform, CaaStle's data revealed that their fashion business clients using the platform to implement their rental offering before the pandemic, experienced a 125–175% increase in spend year-over-year among active customers.[19]

These business models are supported by a change in customer sentiment around apparel consumption and ownership, with a McKinsey study showing that 20% of customers want to reduce their clothing consumption following the pandemic.[20] Moreover, 71% of customers are expressing a greater interest in circular business models, such as rental, resale, and refurbishment, and want to invest in higher quality apparel after the pandemic.[21] This has already been felt by industry actors, as 54% of apparel and textile brand sustainability leaders have noted an increased customer interest in environmentally conscious practices and products since the onset of the pandemic.[22]

Rental and resale models can also offer environmental advantages, increasingly called for by policymakers and consumers alike. For example, a 5–10% reduction in a garment's carbon, water, and waste footprint has been shown to be attainable by extending its lifetime by a mere three months, assuming garment purchasing is subsequently decreased as well.[23] In fact, compared to buying new, one pre-owned purchase is said to save on average 1kg of waste, 3,040 litres of water, and 22kg of CO_2.[24] Furthermore, a 2019 study found that 65% of second-hand clothing purchases in the US and UK, and 41% in China, successfully prevented the purchase of a new item.[25] These savings could be substantial, given the current environmental damage caused by the fashion industry. In 2015, the GHG emissions from textiles production totalled 1.2 billion tonnes of CO_2 equivalent, i.e. more than the amount produced by all international flights and maritime shipping combined.[26] At the current rate, the textile industry is poised to account for over 26% of the global carbon budget by 2050.[27] Meanwhile, according to thredUp's 2020 Resale Report, in the aftermath of the pandemic, 70% of customers are seeing a greater need for fashion to address climate change than ever before.[28] Policymakers are also increasingly drawing their attention to the environmental impacts of the fashion industry. The French

Compared to buying new, one pre-owned purchase is said to **save** on average 1kg of **waste**, 3,040 litres of **water**, and 22kg of **CO_2**

Circular Economy Law already bans the destruction of unsold or customer returned items, while groups like the UN Alliance for Sustainable Fashion and the OECD Due Diligence Guidance for Responsible Supply Chains in the Garment & Footwear Sector have been formed to address the fashion industry's sustainability issues.[29] This mounting pressure, paired with the accelerating customer demand for environmentally responsible clothing, affects the whole fashion industry and further enhances the attractiveness of new business models—such as rental and resale—as investment opportunities.

Substantial growth is currently happening and projected to continue into the future within clothing rental and resale markets. Before the pandemic, strong growth was projected for both rental and resale business models, with revenue from rental models poised to increase by USD 801 million between 2019 and 2023 with a CAGR of almost 11%, while the apparel resale sector was set to grow from USD 5 billion to USD 23 billion between 2018 and 2023.[30] In 2019, one study found that 87% of clothing retailers were eager to trial resale models, and 61% wanted to test rental models.[31]

These trends are only expected to grow following the crisis, with heightened awareness and concern over the fashion industry's substantially negative environmental footprint and increased customer demand for more responsible garments.[32] In fact, a study released since the onset of the pandemic by the resale platform, thredUp, has projected that the total second-hand market will grow from USD 28 billion in 2019 to USD 80 billion by 2029, reaching nearly twice the size of the fast fashion segment in the same period.[33] Resale models are expected to drive this increase, with their growth projected at 414% in the next five years, while the overall retail market is predicted to shrink by 4% over the same period.[34] Even clothing rental models, despite having taken an initial hit due to people's confinement to their homes and some concerns around perceptions of hygiene, are expected to bounce back relatively quickly following the relaxation of global confinement measures and recommencement of social gatherings.[35] This has already been evidenced in China where clothing rental platform, YCloset, began to see a gradual recovery in their business as lockdown measures were eased.[36] Moreover, some new retailers are seen to be adopting the rental model in the midst of the pandemic as well. For example, Selfridges introduced their new clothing rental model during the summer of 2020.[37]

Meanwhile, the strength and resilience of resale business models have been demonstrated by many companies which, after making innovative adaptations to increase operational hygiene (by e.g. enabling contactless home delivery), have thrived during the crisis. Peer-to-peer resale businesses, Depop and Vestiaire Collective, for example, reported sales increases of 150% in the US mid-April compared to the same time last year, and 54% in early May compared to February, respectively.[38] In fact, it bears noting that a number of business models—B2C, C2C, C2B2C—can be adopted to engage in clothing rental and resale. For larger

The second-hand market is projected to reach nearly **twice** the size of fast fashion by **2029**, with resale models expected to drive the increase (growth projected at **414%** in the next five years)

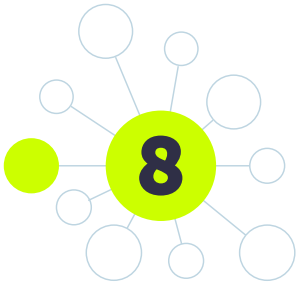


fashion retailers, partnerships with innovative and more agile clothing rental and resale organisations may offer a more attractive, faster, and easier path to adopting these business models compared to building these capabilities in-house, while also creating more jobs in garment repair and refurbishment.[39] These partnerships are already being utilised by various players as exemplified by The Renewal Workshop and Trove, which build and operate resale programmes for clothing brands like Carhartt and Patagonia, offering collection, cleaning, repairing, and even selling of the brands' pre-owned garments.[40]

Increased use of digital technologies will allow a greater uptake of these business models. The rise of fashion e-commerce has accelerated since the onset of the pandemic. One study on German and UK customers conducted in April 2020 found that 43% of respondents had begun purchasing fashion items online for the first time ever since the start of the pandemic, and 28% expected to reduce their purchasing in physical locations in the future.[41] As such, investments into developing e-commerce platforms that facilitate the rental and resale of clothing will be crucial to reach customers, and can also allow smaller brands and creators easier access to markets, thus potentially positively impacting job creation.[42] In fact, many smaller fashion brands, such as Baja East that saw sales rise by 64% in April compared to March by focusing more heavily on direct-to-consumer and digital marketing, have attributed these strategies to their ability to weather the shock of the pandemic.[43] Other digital solutions, such as innovative customer engagement through social media, livestream sessions turning physical stores to virtual shopping stages, and omnichannel inventory capabilities, have also proven themselves to be valuable for businesses during the pandemic by increasing sales and customer engagement.[44] However, to attract and incentivise customers to use these platforms, they will need to be designed and developed with convenient user experience in mind, as customers have become increasingly overwhelmed by the amount of choice[45] and are discerning of platform interfaces and deliveries.[46] For clothing rental and resale businesses to become more resilient and aligned with shifting demand, investments should then also be directed towards increasing the digital capabilities of these companies.

Design will play a key enabling role in the success of clothing rental and resale businesses. To enable the garments' safe and extended circulation, clothing must be designed with durable and non-hazardous materials that can sustain several use cycles.[47] At the same time, design decisions should be made to ensure the emotional durability of the item is also prolonged, i.e. that customers continue to value and want to wear it, or else it will not be circulated to its greatest physical potential.[48] To achieve this, solutions such as 'timeless' designs (i.e. classic, seasonless designs in patterns and silhouettes), or greater garment adaptability can be adopted to avoid premature obsolescence of the items.[49] For example, Petit Pli designs children's clothing that can be expanded to fit as the child grows.[50] To gain the most value out of an investment, investors should then also ensure that the rental and reuse businesses in which they are investing, take these design principles into account as well.





Clothing collection, sorting, and recycling infrastructure

to retain material value for a competitive and clean recovery

With recycled fibres expected to replace virgin sourced materials at an ever increasing pace in the textile sector, investments into clothing collection, sorting, and recycling infrastructure can offer many economic and environmental benefits that can contribute to the creation of a more resilient future fashion industry.[51]

13% of textiles get recycled after clothing use, **12%** are downcycled into lower value uses that are often extremely difficult to recirculate, while only **1%** gets recycled into new clothing

Investing in collection, sorting, and recycling infrastructure can enable significant economic value retention while reducing disposal costs. Of the total fibre input used for clothing today, 87% is landfilled or incinerated—equivalent to burning one rubbish truck full of textiles every second.[52] A meagre 13% of textiles get recycled in some way after clothing use, 12% are downcycled into lower value uses that are often extremely difficult to recirculate, while only 1% gets recycled into new clothing.[53] In addition, wasted garment and fabric leftovers account for a quarter of industry resources.[54] The pandemic has only exacerbated these issues, with decreased sales having led to the cancellation of orders that had already been produced, thereby creating even greater amounts of deadstock.[55] If these inventories are not repurposed or saved for next year, the risk of an increase in the total amount of waste is high as businesses may destroy their products to avoid flooding the market.[56] If instead of incineration or landfill, these materials were captured and recirculated, the lost value of textile waste amounting to more than USD 100 billion annually could be retained, while new jobs in collection, sorting, and recycling facilities could be created.[57] Additionally, increased collection, sorting, and recycling of clothing could also lower costs. On one hand, disposal costs associated with clothing waste management could be avoided by increasing material circulation, while on the other hand the increased amount of recycled textiles available could reduce total material costs for apparel production. These savings could be substantial. In New York City alone, more than USD 20 million a year is spent on landfilling and incineration of textiles—most of which is clothing—and in the UK the estimated cost of landfilling clothing and household textiles each year is approximately GBP 82 million, thus representing a substantial economic opportunity for increased textile recycling.[58]

Increased clothing collection, sorting, and recycling can also create environmental benefits by reducing industry extraction and pollution. Increased clothing recycling can help lower the strain placed on natural resources caused by the cultivation and manufacture of virgin inputs. For example, by reducing the sector's reliance on virgin resources, some of the 93 billion cubic meters of water used annually for textile production could be saved, while the GHG emissions of clothing production could also be lowered.[59] The largely detrimental methane releases, and potential groundwater contamination through leached dyes and chemicals can also be avoided as textiles at the end of their first life get redirected away from landfills.[60] By reducing the environmental burden and lowering emissions, greater clothing recycling can thus also help mitigate against the future risk of climate emergencies. Moreover, with customers becoming more environmentally conscious, and responsible shopping habits predicted to grow at a fast rate, companies involved in collection and recycling programmes may also be better able to acquire and retain customers.[61]

Policy support for increased clothing circulation is growing as evidenced by various fiscal measures and regulations. Businesses can already receive tax benefits from partaking in collection and recycling programmes in some areas. For instance Knickey, an organic cotton underwear startup, receives tax credit for forwarding the undergarments they collect from customers to a non-profit for recycling.[62] Besides offering incentives, tighter regulations around textile waste may also become more commonplace, making increased clothing collection, sorting, and recycling in fact a requirement. For example, based on the revised Waste Framework Directive in the EU, all member states will be required to run collection schemes to separate textile waste by 2025.[63] The expected increase in collection volumes will put pressure on local sorting/reprocessing/recycling in the coming years, thus making timely investments in these areas all the more attractive.

Design has a key role to play in ensuring clothes can be kept in circulation. In a circular economy for fashion, garments are, from the outset, made to be made again. As such, conscious decisions concerning material durability (such that the items and materials can be used more and withstand recycling), garment construction (to potentially ease material and component separation), and item processing (such as dyeing) will have to be made to ensure all of these factors support the ability of a garment to be kept at its highest value, used more, and be recycled at its end of life in alignment with the available infrastructure.[64]

To attain these benefits, critical investments in collection, sorting, and recycling infrastructure are required. Such investments are needed to create an effective, interconnected textile waste revalorisation network that can operate at scale, as the current structures are often characterised by fragmentation and are thus ineffective in collecting, sorting, and recycling products in the volumes required.

Investments are needed for developing formalised, physical clothing collection, sorting, and recycling infrastructure. Currently, there are huge discrepancies between countries around the world, concerning the availability and type of clothing circulation infrastructure. In places like the UK and Germany, many formal choices for clothing disposal are offered, while some other countries, particularly in Asia and Africa, solely rely on informal collection systems.[65] Even where collection rates are high—such as in Germany, where 75% of textiles are collected—much of the collected clothing ends up being exported to countries with no collection infrastructure of their own.[66] The results of this are two-fold. First, though the utilisation of the garments is increased, the end result is that the waste issue only gets off-shored, usually to lower income countries, creating pollution and other issues in the receiving areas.[67] Second, with many receiving countries of used clothing at least momentarily banning these imports in an attempt to curb the spread of the virus, the end markets for the collected clothing in the West were effectively closed-off. With their strong reliance on external end-markets and an underdeveloped recycling infrastructure of their own, many used clothing exporters then struggled with storing their collected garments and attaining some value from them.[68] It is thus of paramount importance to ensure that collection, sorting and recycling infrastructure is developed in all areas where clothing waste is created and ends up—especially where none currently exists—if large-scale transformation is to be achieved.[69]

Technological infrastructure should also be prioritised, especially in order to improve clothing sorting and recycling. Automated optical sorting technologies (such as Fourier Transform Infra-Red spectroscopy (FTIR)) and technical innovations enabling material tracking and product information encoding (such as Radio Frequency Identification (RFID) tags), could substantially increase the speed and accuracy at which items get sorted.[70] This is critical for recyclers to be able to acquire high-quality feedstocks that they can better utilise, and it also greatly optimises the sorting process.[71] Given the reduced operating costs and ability to target higher value markets with the resulting recyclates, investments into these technologies would easily be recouped, while the scale-up of recycling and cost competitiveness of recycled materials against virgin resources would be improved.[72] At the same time, the textile recycling infrastructure and technology itself requires investments. To retain the greatest value possible of the material, innovative technologies and processes enabling clothing-to-clothing recycling should be prioritised over those which downcycle materials. For example, through its chemical recycling process, Aquafil is able to produce recycled nylon at a competitive price compared to virgin nylon.[73]

Based on the **revised Waste Framework Directive** in the EU, all member states will be required to run collection schemes to separate textile waste by **2025**

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