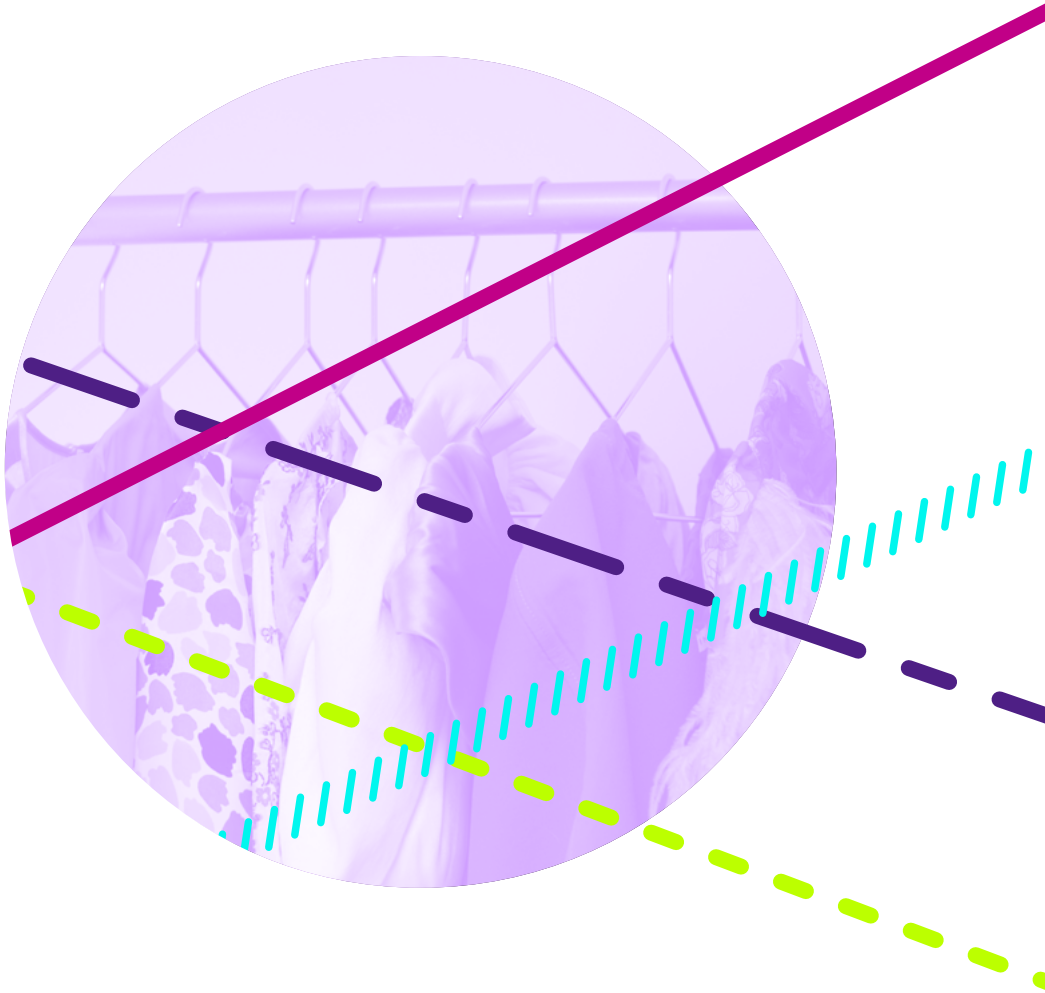
ELLEN MACARTHUR FOUNDATION

CIRCULAR BUSINESS MODELS

Redefining growth for a thriving fashion industry



This study was produced by the Ellen MacArthur Foundation with analytical support from Boston Consulting Group. The other organisations that have contributed to this work are listed on page 57. The Ellen MacArthur Foundation is deeply grateful for the time and expertise that all these parties have dedicated to this project.

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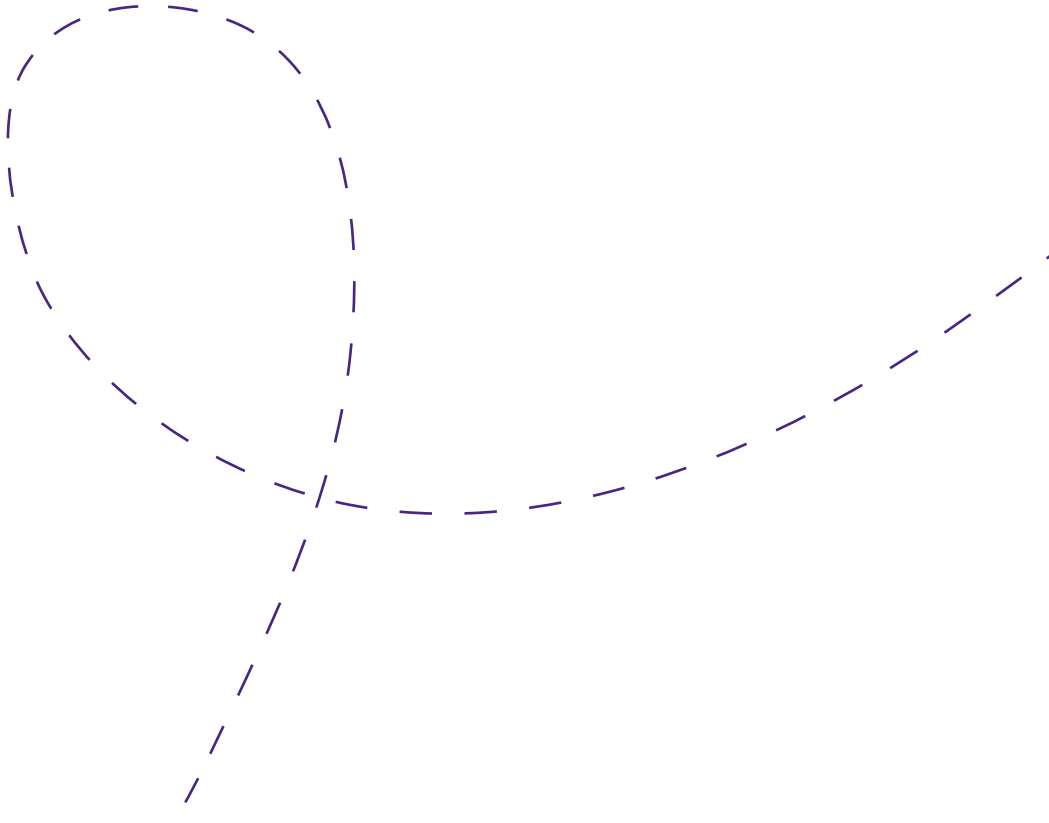

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About this study

Circular business models represent a significant opportunity for new and better growth in the fashion industry. This study examines how businesses can seize the full economic and environmental opportunity, and highlights those already taking steps to do so.

In 2017, the Ellen MacArthur Foundation launched the landmark report *A new textiles economy: redesigning fashion's future*. It identified the linear 'take-make-waste' model - with one rubbish truck load of textiles being landfilled or incinerated every second - as the root cause of many of the environmental challenges in the fashion industry. The report presented the circular economy as both a solution to these challenges and a significant economic opportunity.

The circular economy is a systems solution framework that tackles global challenges including climate change, biodiversity loss, waste, and pollution. It has three principles, all driven by design: eliminate waste and pollution, circulate products and materials, and regenerate nature. It is a bigger idea that goes beyond treating the symptoms of the current economy to tackle the root causes of global challenges, while providing opportunities for better growth that benefit businesses, people, and the environment.

Over the last three years, working collaboratively with more than one hundred organisations from across the fashion value chain, the Ellen MacArthur Foundation has set out a vision for a circular economy for fashion and established projects including The Jeans Redesign to work towards making it a reality. The circular economy is now firmly on the agenda for businesses, governments, academia, and wider society and is increasingly recognised as the way to ensure the fashion industry thrives in future.

This increased awareness and first steps towards a circular economy for fashion, whilst encouraging, are only the beginning. The linear operating model still dominates how fashion is designed, produced, and enjoyed. Material innovation and recycling are important elements of the solution, but they alone cannot create a thriving fashion industry. In a circular economy for fashion, clothes are used more, made to be made again, and made from safe and recycled or renewable inputs. To make this vision a reality, circular business models, one of the crucial elements of a circular economy for fashion, must become mainstream in the industry.

This study confirms the significant economic and environmental potential of circular business models. It provides an overview of the potential of models that have grown significantly (resale, rental, repair and remaking) as well as, crucially, outlining the key actions that businesses, supported by policymakers, can take to capture their full potential. While this study does not address them directly, the social implications of a circular economy transition are vital to consider; academia and organisations including BSR and Circular Apparel Innovation Factory (CAIF) have already begun to do so.

Executive summary

Circular business models represent a significant opportunity for new and better growth in the fashion industry because they decouple revenue streams from production and resource use. Currently, booming models like resale and rental, while they hold great potential, do not always achieve this decoupling and the environmental benefits that come with it. For circular business models to reach their full potential, businesses, supported by policymakers, need to redesign performance indicators, products, and supply networks to fit them – and scale a wider range of these models.

Now is the time to explore a new way of doing business in fashion. In recent decades, the fashion industry has experienced ever growing levels of production, coupled with shrinking profit margins and increasing negative environmental impacts. Clothing production doubled between 2000 and 2015 while, during the same period, utilisation[i] decreased by 36%.[1] This trend led to the global fashion industry producing around 2.1 billion tonnes of greenhouse gas (GHG) emissions in 2018 – 4% of the global total.[2] On top of this, due to ever lower prices and lost revenues – from overstock, stockouts, and returns – profit margins of the world's leading apparel retailers decreased by an average of 40% from 2016 to 2019.[3] This was exacerbated in 2020 by the impacts of the Covid-19 pandemic, which saw the industry suffer a 90% decline in profits.[4]

Circular business models represent a significant opportunity for new and better growth because they decouple revenues from production and resource use, maximising environmental benefits. As a key part of the transition to a circular economy, circular business models present an opportunity for the fashion industry to – by design – decouple its revenue streams from production, i.e. to make more revenue from fewer new products. This means less need for raw material production and therefore lower GHG emissions, pollution, and pressure on biodiversity.

Four business models (resale, rental, repair, and remaking), which all have the potential to decouple revenue streams from production and resource use, currently represent a USD 73 billion market. Since 2019, and despite the Covid-19 pandemic, seven[ii] rental and resale platforms have reached valuations above USD 1 billion. These business models are expected to continue growing as customers increasingly adopt new ways of accessing fashion, motivated by factors such as affordability, convenience, and environmental awareness.

Resale, rental, repair, and remaking have the potential to grow from 3.5% of the global fashion market today to 23% by 2030, representing a USD 700 billion opportunity with the potential to provide a third of the emission reductions necessary to put the fashion industry on a 1.5-degree pathway.[iii] This would amount to a reduction of around 340 million tonnes of CO_2 equivalent (CO_2e) annually by 2030, more than the annual GHG emissions of Thailand or France.[5] As well as reducing GHG emissions, business models that increasingly decouple revenue generation from the use of virgin resources have also been shown to reduce pressure on biodiversity by cutting the amount of land needed for raw material production and the pollution associated with virgin fibre processing.[6]

Currently, booming sectors like rental and resale, while they have great potential, do not always realise the environmental benefits of decoupling revenue streams from production and resource use. There are a number of barriers to achieving this decoupling and successfully developing circular business models. One is performance indicators and associated customer incentives. A business measuring its success by sales volumes might incentivise product take-back for resale, remaking, or recycling by offering vouchers for new products which, while promoting circular business models, also grows the core linear business model.

i Utilisation is defined as the average number of times a garment is worn before it ceases to be used
ii Depop, Rent the Runway, The Real Real, Vinted, Poshmark, Vestiaire Collective, and thredUP
iii To meet the 1.5-degree pathway set out by the Intergovernmental Panel on Climate Change (IPCC) and ratified by signatories to the 2015 Paris agreement, the fashion industry needs to reduce emissions by around 50% – or 1.1 billion tonnes – by 2030. Source: McKinsey & Company and Global Fashion Agenda, Fashion on Climate (2020). If rental, resale, repair, and remaking reach a 23% market share by 2030, in aggregate, this could lead to an overall CO_2e emission reduction for the fashion industry of up to 16%, providing up to a third of the abatement needed to be on a 1.5-degree pathway. See Appendix page 69

Another is product design. Offering clothes, via a rental model, that are not designed to withstand many wears and cleaning cycles will increase the chances of that model being economically and environmentally unviable. A third is supply chains. These are currently optimised for predictable, one-way production and distribution, but circular business models require effective local and global supply networks that facilitate services such as cleaning, repair, and remaking.

The social impacts of a transition to circular business models – and the resulting shift to a more distributed global and local supply network in the fashion industry – is not quantified in this study. However, it is vital that businesses consider these social impacts and do their utmost to ensure they are positive for people in the fashion industry and the societies in which it operates. Making positive social outcomes a priority now, while a circular economy for fashion is emerging, could help address concerns in the industry about insufficient job security and quality, which can lead to increases in poverty, inequality, and exclusion in communities of affected workers.[7]

To maximise the positive outcomes of circular business models, businesses, supported by policymakers, can take four key actions:

- **Rethink performance indicators, customer incentives, and customer experiences**: Shifting to a business model based on increasing the use of products, rather than producing and selling more products, requires the business to rethink how it measures success, and to encourage its customers to opt for its circular offering through carefully designed incentives and enhanced customer experiences.
- **Design products that can be used more and for longer**: To maximise the economic and environmental potential of circular business models, products need to be designed and made to be physically durable, emotionally durable, and able to be remade and recycled at the end of their use.
- **Co-create supply networks able to circulate products locally as well as globally**: To successfully keep products in circulation, fashion supply chains, currently designed for a predictable one-way flow of products, need to be transformed into supply networks capable of circulating products locally and globally, through collaboration and the use of digital technologies.
- **Scale a wider range of circular business models**: Scaling a variety of circular business models that generate revenue without producing new products can increase the overall economic and environmental opportunity in the long term.

This is an ambitious agenda that offers businesses and policymakers the opportunity to ensure the fashion industry shifts towards a better growth model.

1. Circular business models represent a significant opportunity for new and better growth in the fashion industry

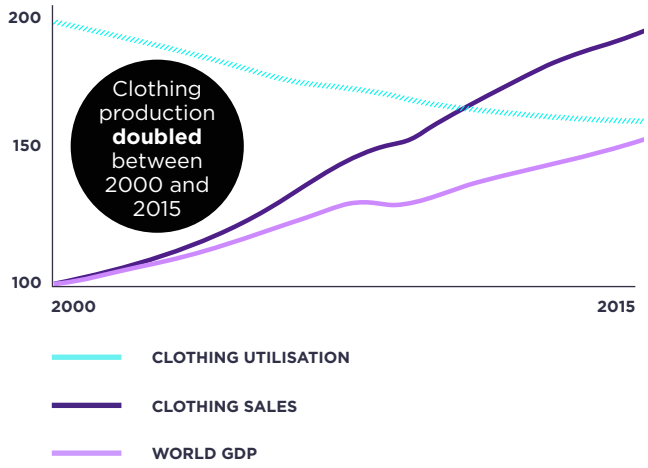
In recent decades, the fashion industry has experienced ever-growing levels of production, coupled with shrinking profit margins and increasing negative environmental impacts

Between 2000 and 2015, clothing production doubled[8] while utilisation – the average number of times a garment is worn before it ceases to be used – decreased by 36%.[9] This wasteful, linear model has resulted in significant negative environmental impacts. In 2018, the global fashion industry produced around 2.1 billion tonnes of greenhouse gas (GHG) emissions, equalling 4% of the global total.[10] Around 70% of the fashion industry's emissions come from upstream activities, such as materials production, preparation, and processing, highlighting the critical importance of finding new ways to decouple revenues and growth from production and resource use.[11] To date, the ever-increasing volume of production has often negated efforts to reduce impacts at product level, resulting in businesses having a higher total footprint despite improvements on a per-product level.[12]

While the negative environmental impacts have increased, the industry's profit margins have declined. From 2016 to 2019, profit margins of the world's leading apparel retailers fell by an average of 40%.[13] This was exacerbated in 2020 by the impacts of the Covid-19 pandemic, which highlighted the fragility of fashion's supply chains and saw the industry suffer a staggering 90% profit decline compared to 2019.[14]

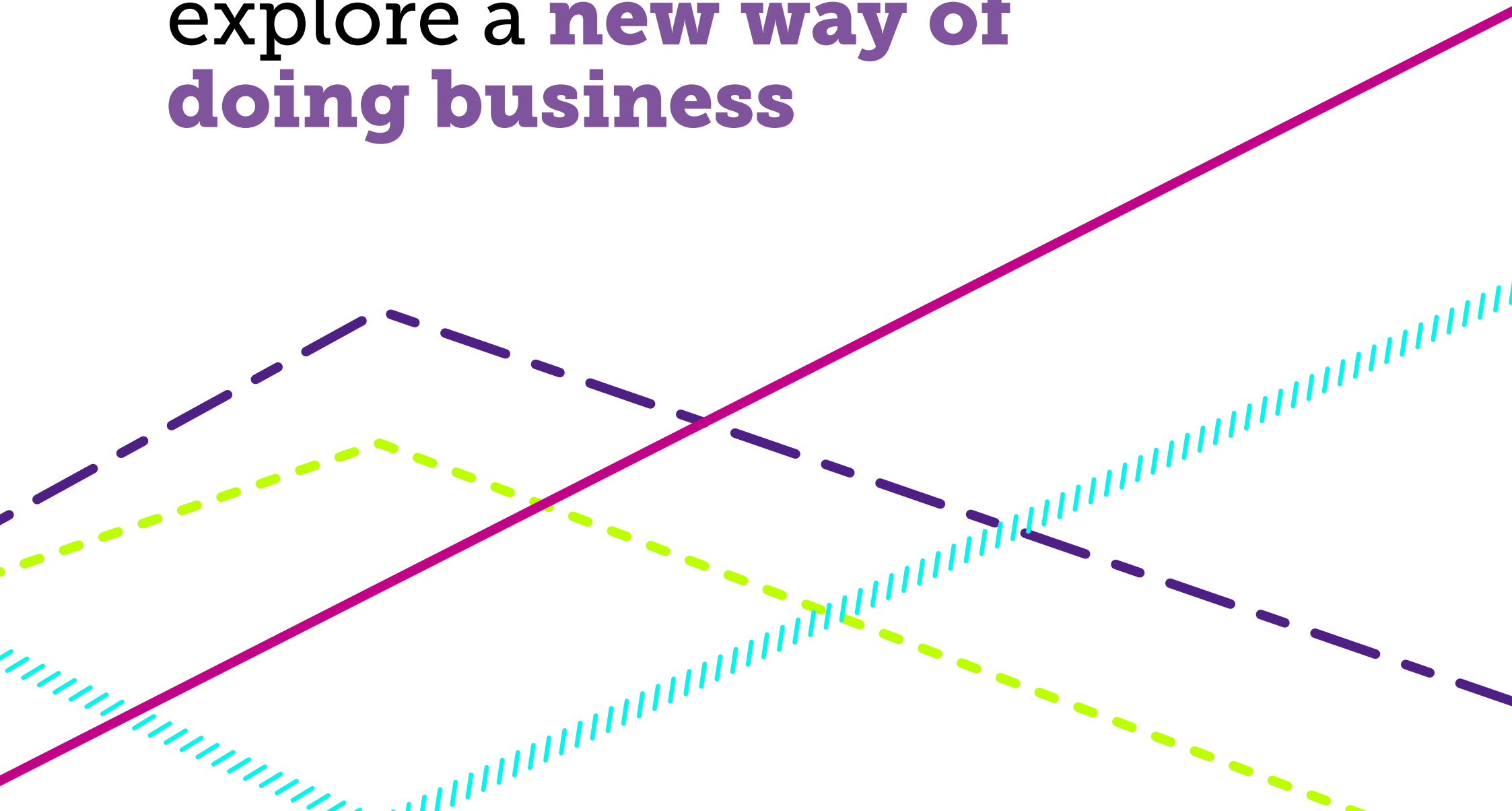
These economic and environmental trends are expected to persist if fashion continues business-as-usual. Global apparel production is projected to rise by 63% by 2030, from 62 million tonnes today to 102 million tonnes — equivalent to more than 500 billion additional T-shirts.[15] If this happens, the industry's GHG emissions will rise to around 2.7 billion tonnes a year by 2030.[16]

FIGURE 1: GROWTH OF CLOTHING SALES AND DECLINE IN CLOTHING UTILISATION, 2000 TO 2015



Ellen MacArthur Foundation, *A new textiles economy: redesigning fashion's future* (2017)

The time has come to explore a **new way of doing business**



Circular business models decouple revenue streams from production and resource use

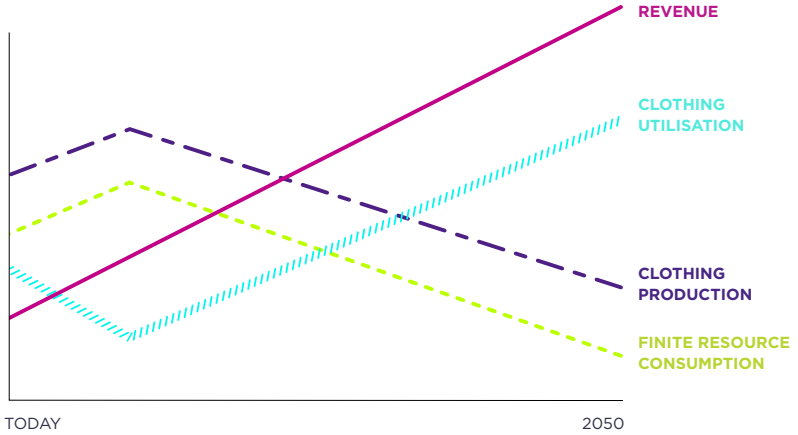
Circular business models, by design, keep products and materials circulating in the economy at their highest value – increasing their use while effectively decoupling revenue streams from production and resource use.

This allows the industry as a whole to make more revenue while significantly reducing the number of products made. In doing so the GHG emissions, pollution, and pressures on biodiversity associated with virgin fibre production, processing, and product manufacturing are reduced.

Figure 2 conceptually shows how circular business models can contribute to a circular economy where business revenue is decoupled from production and the use of virgin resources.

FIGURE 2: IN A CIRCULAR ECONOMY, REVENUES ARE DECOUPLED FROM PRODUCTION AND FINITE RESOURCE CONSUMPTION

Illustrative



These business models use the 'inner loops' of the circular economy

A circular economy is based on three principles, all driven by design: eliminate waste and pollution, circulate products and materials, and regenerate nature. These principles are represented in the system diagram on page 12, which shows how different materials can flow in two cycles (biological and technical).

The highlighted 'inner loops', such as maintenance and reuse, retain the greatest proportion of the energy, labour, and time invested in a product and therefore represent high-value pathways that should be prioritised. Circular business models make these inner loops a reality.

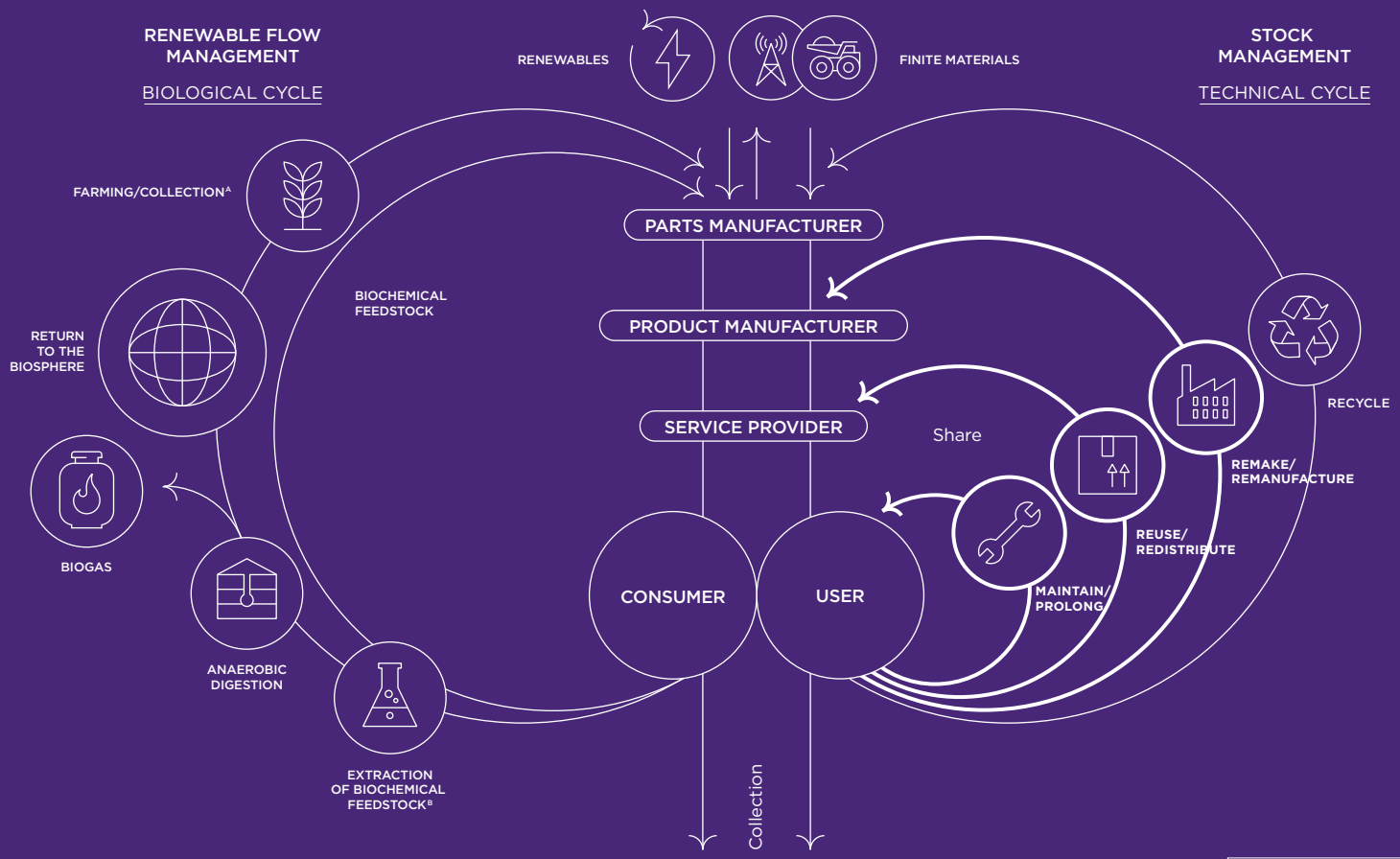
Take a 100% cotton dress. In linear business models, once harvested from the field, the cotton is processed and spun into yarn, woven into fabric, cut, and sewn – it travels down the 'body' of the butterfly to become a dress, before ending up in the hands of a user. After use, the cotton dress then drops off the diagram, ending up in landfill or incineration.

Through circular business models, however, the cotton dress is worn time and time again by one or many people. It is repaired when it becomes damaged so that it can keep being worn. Then, when it can no longer be fixed, it is remade into a new item. Circular business models enable this product journey and maintain the energy, labour, and time invested in the dress's production.

In addition to circular business models, recycling and composting are crucial elements of a circular economy for fashion. Once the dress can no longer be used, to keep it out of landfill and avoid it being incinerated it needs to be recycled into new cotton fibre. When the cotton can no longer be recycled to a standard at which it can be spun into new yarn, it can then be composted.[iv]

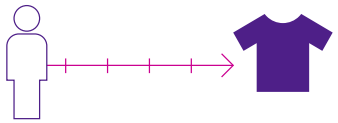
iv Recycling (mechanical and chemical) and composting materials are crucial processes to create a circular economy for fashion. However, for the purposes of this study, these processes are not considered circular business models. That said, businesses implementing circular business models will need to consider recyclability and compostability at the product design stage, as this will ultimately be necessary, and should leverage public–private collaboration to ensure textile-to-textile recycling and composting happens in practice and at scale. Materials should first be mechanically recycled, maintaining the value of the manufactured fibre, chemically recycled when this is no longer possible (e.g. to produce man-made cellulosic fibres), and finally composted when recycling is no longer possible. Composting can happen only if the material has not been treated with hazardous dyes or chemicals during its production or many cycles of remaking and recycling. The materials used to make any new products need to be from renewable feedstock, and where relevant grown regeneratively to safeguard and build the health of the soil and surrounding ecosystems.

FIGURE 3: CIRCULAR ECONOMY SYSTEM DIAGRAM



It is also possible to dematerialise all or part of a business model. For example, by creating digital fashion.

Circular business models fall into three categories:



MORE USE PER USER

Enabling a user to wear a product more and for longer. This could include designing products to be physically and emotionally durable, providing services to support long-term use, and empowering users to use their products more and for longer (e.g. tips for DIY customisations).

MORE USERS PER PRODUCT

Designing and providing platforms and/or services that facilitate the movement of products from user-to-user so the products can be used more. Products can pass from one user to another after any period of time and on a 'one-off' or periodical basis.

BEYOND PHYSICAL PRODUCTS

Designing and developing non-physical, digital products and/or services that replace, enhance, and complement users' fashion needs and aspirations.

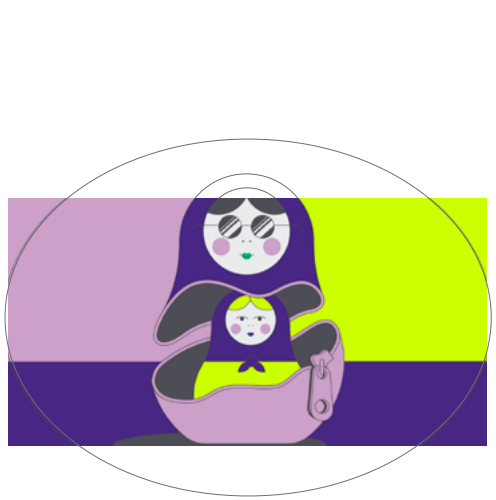
Circular business models can provide better product margins and competitiveness[v] by enabling businesses to offer new services, such as restoration, customisation, and tailoring – providing multiple revenue streams from one product. At the same time, costs can be reduced due to savings from better resource productivity and risk reduction.[vi]

Circular business models can be designed to cover one or all of the categories. Bringing together multiple circular business models under one overarching strategy can increase their effectiveness in decoupling revenue streams from production and resource use, and enhance potential revenue and cost benefits.

v Read more about the business benefits of circular business models on pages 53-54

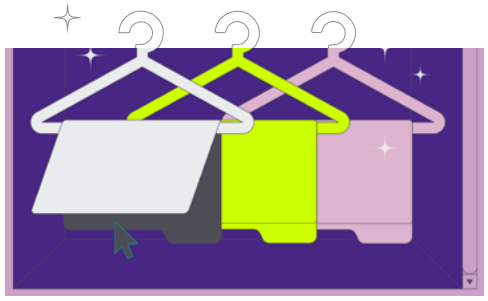
vi See Appendix page 59 for more information on the internal and external risks of the linear model

Today, there are four main business models that circulate products and materials in the economy, and have the potential to decouple revenue streams from production and resource use:



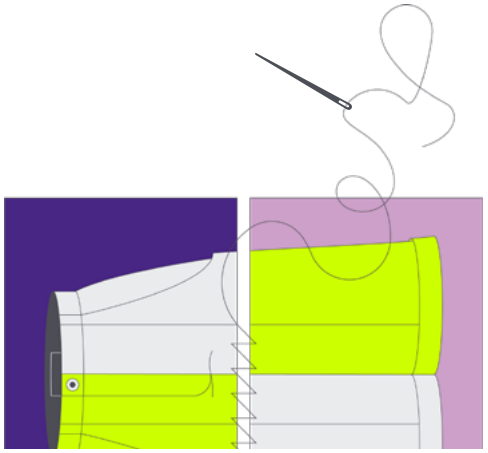
RESALE

This includes peer-to-peer sale of second-hand items (online and offline), third-party marketplaces (online and offline), and own-brand re-commerce and take-back (online and offline)



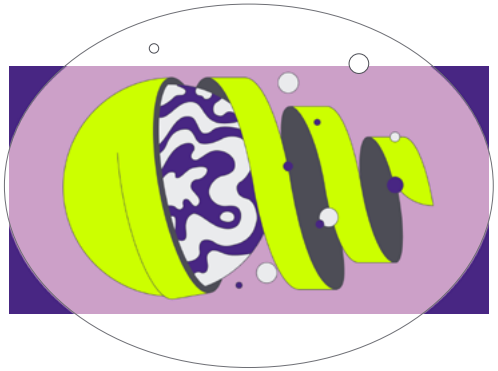
RENTAL

This includes one-off peer-to-peer rentals by private owners, as well as large-scale rental and subscription models by multi-brand platforms or individual brands



REPAIR

This is the operation by which a faulty or broken product or component is returned back to a usable state



REMAKING

This is the operation by which a product is created from existing products or components.
This operation can include disassembling, re-dyeing, and repurposing

In recent years, resale, rental, repair, and remaking have boomed – representing a USD 73 billion market by 2019

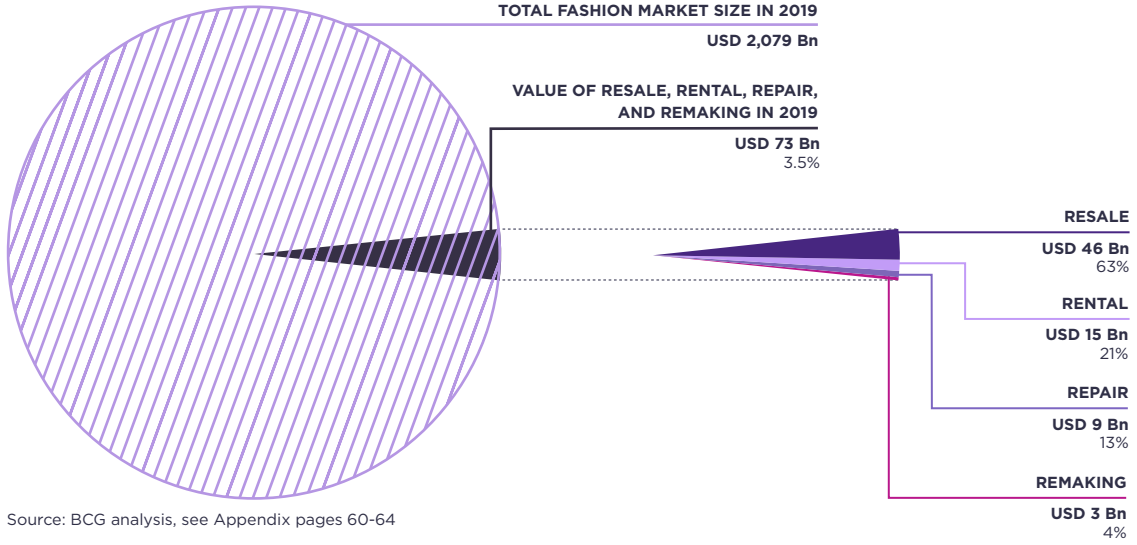
In recent years, resale, rental, repair, and remaking have boomed,[17] representing a USD 73 billion market as of 2019.[vii] This value has been largely driven by the mass market segment, accounting for around 80% of revenues, while the luxury market segment has made up the remaining 20%. **Resale** has the largest proportion by revenue, making up around 63% of these business models; while **rental** has occupied the second largest segment, accounting for around 20%. The remaining market value has been captured by **repair** and **remaking**, with a 17% share together. Other models such as digital clothing are expected to grow significantly over the coming years due to their environmental and economic benefits, alongside other factors such as body and gender inclusivity.[18]

While the Covid-19 pandemic has impacted revenues of traditional business models – due to supply chain disruptions, lockdowns, and other factors[19] – rental and resale have been able to rebound quickly, have demonstrated resilience, and have even experienced significant growth.[20] Since 2019, for example, seven rental and resale platforms have reached valuations above USD 1 billion.[viii]

The turnover of London-based peer-to-peer social shopping app Depop doubled between April and June 2020.[21] Like Depop, Vestiaire Collective has also witnessed positive growth in its orders, which has allowed for a quick rebound from the initial impact of Covid-19; in early May 2020, orders were up 54% in comparison to the pre-pandemic February average.[22]

Meanwhile, peer-to-peer fashion rental app By Rotation's user numbers have grown by 425% in the year from March 2020.[23] Established industry players are also investing in these models. This includes Ralph Lauren, which has introduced rental platform, 'The Lauren Look', and H&M Group, which is exploring a number of resale and rental concepts for its brands (e.g. COS Resell, ARKET's subscription rental programme for kids, and H&M rental services for its 'Conscious Collection').

FIGURE 4: ECONOMIC VALUE OF RESALE, RENTAL, REPAIR, AND REMAKING IN 2019[ix]



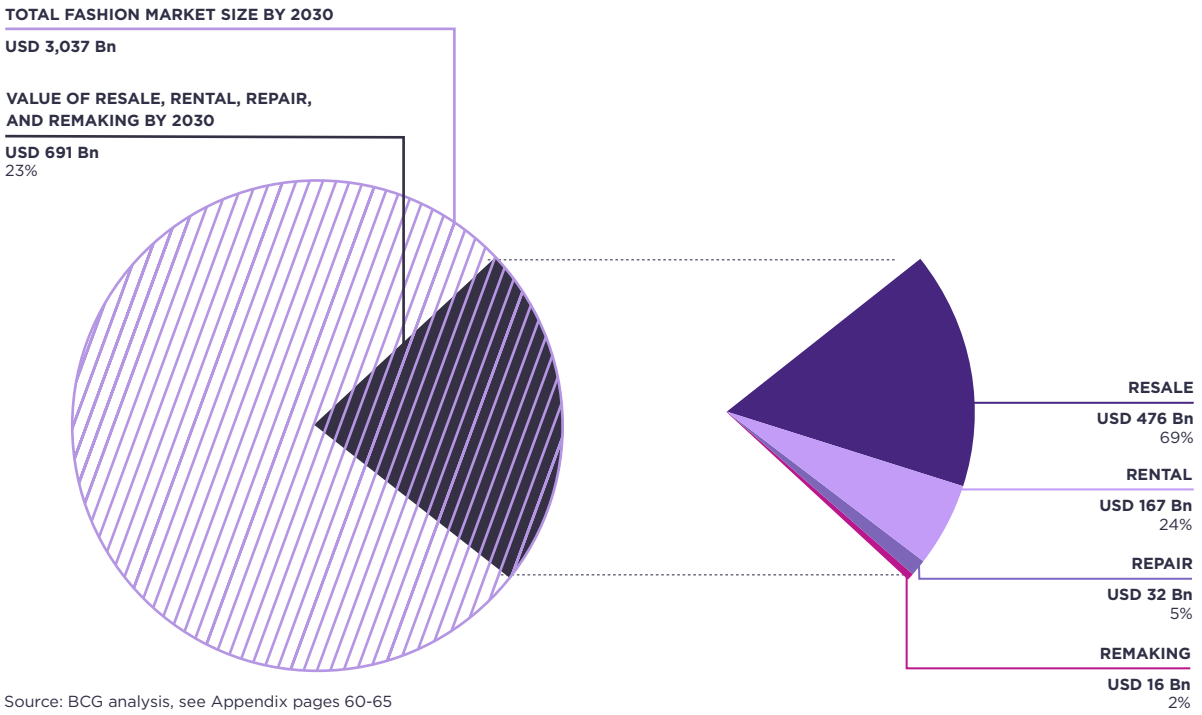
Source: BCG analysis, see Appendix pages 60-64

vii In 2019, the global fashion market size was valued at USD 2.1 trillion. See Appendix pages 60-64
viii Depop, Rent the Runway, The Real Real, Vinted, Poshmark, Vestiaire Collective, and thredUP
ix Numbers do not sum up due to rounding

These business models have the potential to grow to 23% of the global fashion market by 2030 – representing a USD 700 billion opportunity

Resale, rental, repair, and remaking have the potential to grow from 3.5% to 23% of the global fashion market by 2030 – representing a USD 700 billion opportunity.[x]

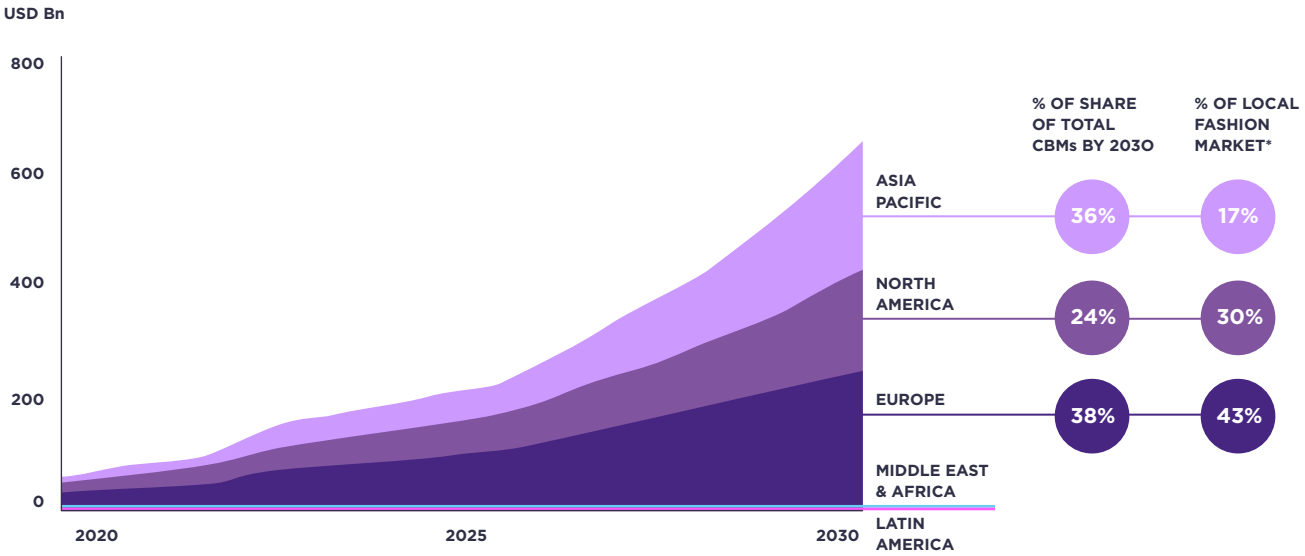
FIGURE 5: ECONOMIC VALUE OF RESALE, RENTAL, REPAIR, AND REMAKING BY 2030



Source: BCG analysis, see Appendix pages 60-65

x Assuming 100% displacement rate, thus ~23% of linear production is replaced by circular business models. For more details on the methodology, see Appendix pages 60-65

FIGURE 6: GEOGRAPHICAL BREAKDOWN OF RESALE, RENTAL, REPAIR, AND REMAKING 2019 - 2030



Source: BCG analysis, see Appendix page 66

The development of these models is expected to be largely driven by North America and Europe, which have the potential to reach USD 430 billion by 2030 as customers increasingly adopt new ways of accessing fashion, motivated by factors such as affordability, empowerment, convenience, and environmental awareness. In the Asia Pacific region, growth of resale, rental, repair, and remaking is also expected to accelerate – potentially reaching USD 250 billion by 2030. However, in the Middle East and Africa growth is expected to be slower, as it is in Latin America.

The market value of these models in those regions is projected to be worth USD 4 billion and USD 5 billion respectively by 2030.[24]

* Relation to revenue of the total fashion market for each region, this is not equalling the market share. In order to calculate the market share, the displacement[xi] needs to be taken into account.

xi Displacement: reduction of volume of new products sold due to an increase in revenue of circular business models.

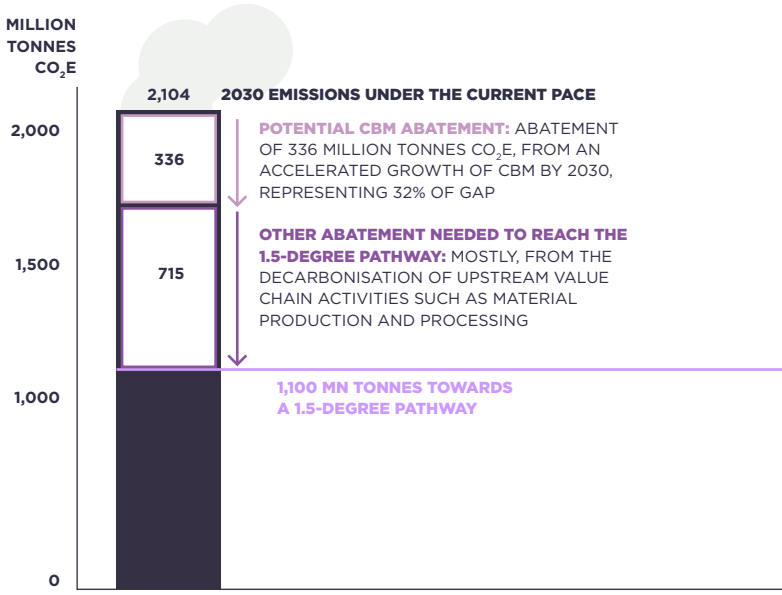
The growth of resale, rental, repair, and remaking could significantly reduce the fashion industry's GHG emissions – providing a third of its contribution to a 1.5 degree pathway

The fashion industry needs to reduce CO_2e emissions by around 50% – or 1.1 billion tonnes – by 2030 to contribute to limiting global heating to 1.5-degrees.[xii] If resale, rental, repair, and remaking reach a 23% market share by 2030, in aggregate, this could lead to an overall CO_2e emissions reduction for the fashion industry of up to 16%[xiii] – providing up to a third of the abatement needed to be on a 1.5-degree pathway.[xiv]

Achieving a higher number of uses with fewer products, displaces the need for new production and therefore also offers one of the greatest opportunities to reduce the negative impacts on biodiversity associated with virgin fibre production, processing, and disposal.[25] Resale, rental, repair, and remaking can, on average, increase utilisation of products from 25 uses per item to 45 uses per item by 2030.[xv]

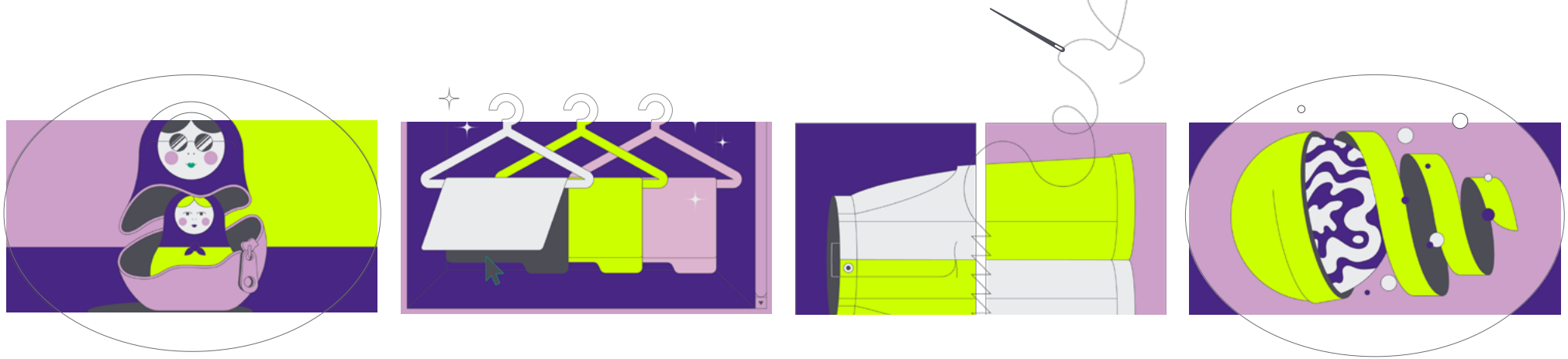
This is particularly important given that the textile industry currently relies mostly on non-renewable resources and, by 2030, globally we are expected to be discarding more than 134 million tonnes of textiles a year.[26] At the same time, land-use change for commodity production is the leading driver of terrestrial biodiversity loss, with nearly 75% of the Earth's surface having already been altered by human activity.[27]

FIGURE 7: CIRCULAR BUSINESS MODELS' CONTRIBUTION POTENTIAL TO A 1.5-DEGREE PATHWAY



xii McKinsey & Company and Global Fashion Agenda, Climate on fashion (2020). The research shows that the global fashion industry produced around 2.1 billion tonnes of GHG emissions in 2018, equalling 4% of the global total. To align with the 1.5-degree pathway over the next 10 years, the fashion industry has to intensify its efforts to accelerate abatement and reduce annual emissions to 1.1 billion tonnes – around half of today's figure.
xiii The calculation is based on a: ~23% reduction of emissions related to upstream activities (i.e. manufacturing); ~10% increase in emissions due to transport, reverse logistics, and retail phases, assuming low-emission local transport is used; ~25% increase at use phase due to additional processing (especially washing and drying) required before reuse, assuming use of low-emission technologies; and a ~23% reduction in emissions at the end-of-use phase due to elimination of waste. See Appendix page 6
xiv Graph footnote: Assuming that abatement efforts continue to expand at the current rate, the industry will maintain GHG emissions at 2.1 billion tonnes in 2030. Source: McKinsey & Company and Global Fashion Agenda, Fashion on Climate (2020)
xv See Appendix page 67

How might resale, rental, repair, and remaking models capture this significant **opportunity to reduce GHG emissions?**



The four illustrative examples showcase the reductions in GHG emissions that could be achieved.

The following scenarios compare a business model that usually sells a non-seasonal cotton dress in Europe through the linear model. In this model, the average non-seasonal cotton dress is worn 20 times[xvi] by a user before it is discarded. Resale, rental, repair, and remaking[xvii] models can increase the number of times the non-seasonal dress is worn, while providing businesses with ways to generate revenue without producing more dresses.

xvi Note: this is a generalised and conservative example of a dress in the European market. Other product categories (e.g. jeans) tend to be worn more. For more details on the utilisation calculation see Appendix page 71
xvii In these illustrative examples, remaking new items out of used ones has a similar potential to resale (~47%)

Resale

If after 20 wears, the *non-seasonal* dress is made available via a **resale marketplace,**[xviii] worn 20 more times, resold again and worn a final 20 times it can achieve the same number of uses as three dresses – saving around 50% of CO_2e emissions compared to the linear model.

COMPARING RESALE TO THE LINEAR MODEL

Production (70% of total emissions):
~67% decrease in CO_2e emissions. Assumes the production decrease translates directly into decrease in emissions from production.

Transport, Logistics, Retail (5% of total emissions):
assumed to be unchanged. Assumes a decrease in initial logistics and transport due to lower volumes of virgin products, but additional reverse logistics and local transport.

Use phase (20% of total emissions):
~13% increase in CO_2e emissions (additional processing before resale). Assumes washing after every second use by customers, additional processing required before every resale.

End-of-life (EoL) (5% of total emissions):
~67% decrease in CO_2e emissions. Assumes lower production translates directly to lower EoL emissions.

FIGURE 8: RESALE CAN GENERATE A REDUCTION OF CO_2e EMISSIONS OF UP TO 47% COMPARED WITH THE LINEAR MODEL

Illustrative example for resale via marketplace containing mostly 'mass market' products, does not refer to peer-to-peer resale. To achieve 60 uses, the dress needs to be physical and emotionally durable.

Overall, ~47% CO_2e emissions are saved in the resale model compared to the linear one*

xviii In this example, the resale marketplace contains mostly mass-market products

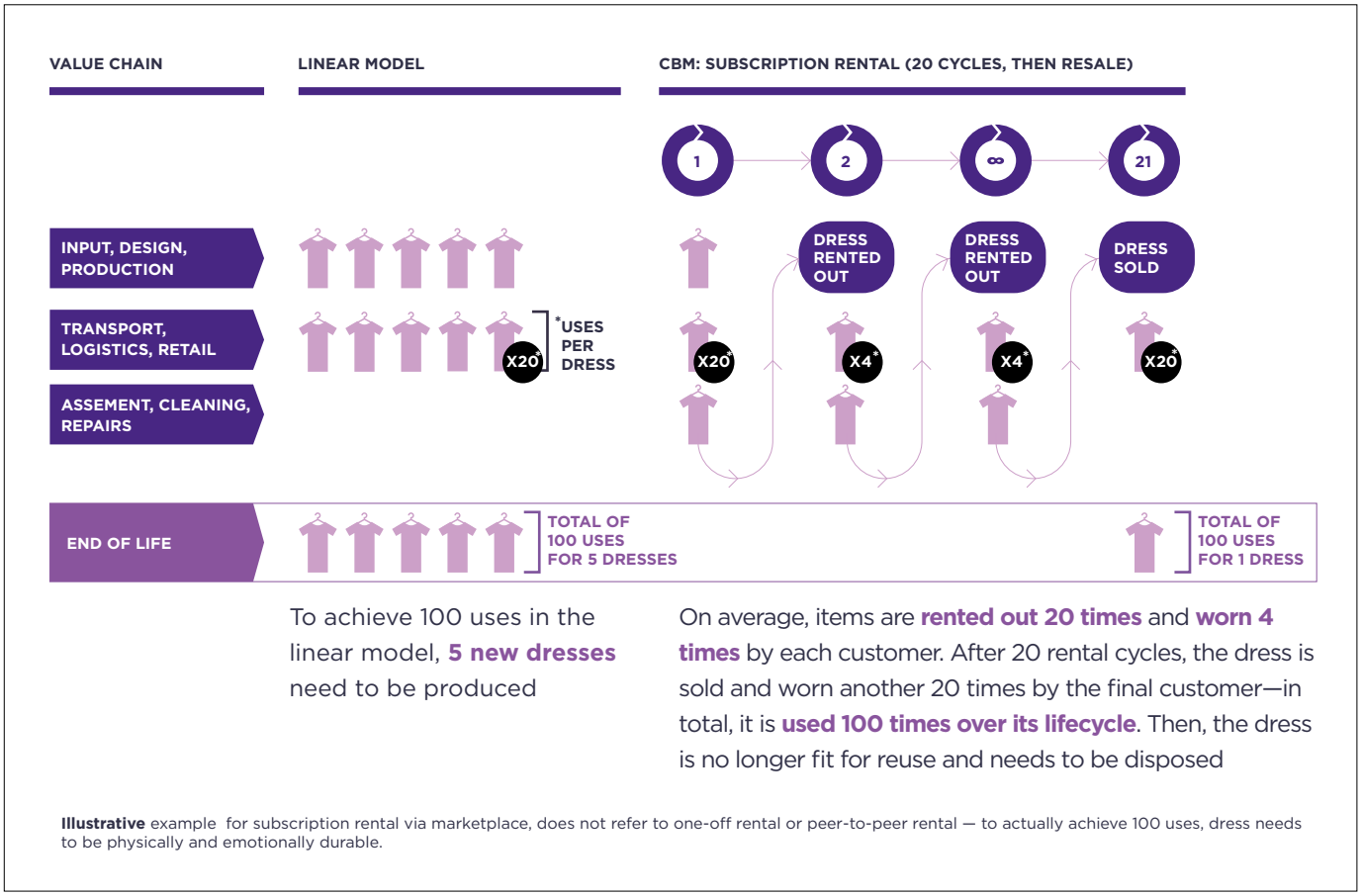
*Differences in production set-up, energy sources, transport options, and end-of-life options between linear and circular models that would also affect emissions are not considered; avg. utilisation based on Europe

Sources: Wrap (2012); Global Fashion Agenda (GFA) (2020); BCG analysis and expert interviews (2020).

Rental

In a scenario where a rental model achieves 100 uses, the same number of uses as five non-seasonal dresses, CO_2e emissions can be reduced by around 40%. This scenario takes into account potential additional CO_2e emissions from processes that are specific to the rental model (such as cleaning, drying, transport, and logistics). It achieves a significant reduction in emissions from production and end-of-life processing compared to the linear model by not having to create as many products to achieve the same number of total uses.

FIGURE 9: B2C RENTAL CAN GENERATE A REDUCTION IN CO_2E EMISSIONS OF UP TO 41% COMPARED WITH THE LINEAR MODEL



Illustrative example for subscription rental via marketplace, does not refer to one-off rental or peer-to-peer rental — to actually achieve 100 uses, dress needs to be physically and emotionally durable.

Sources: Wrap (2012); GFA (2020); BCG analysis and expert interviews (2020).

COMPARING RENTAL TO THE LINEAR MODEL

Production (70% of total emissions):
~80% decrease in CO_2e emissions. Assumes a production decrease that translates directly into a decrease in emissions from production.

Transport, Logistics, Retail (5% of total emissions):
~60% increase in CO_2e emissions. Fourfold increase in logistics activities, but 80% decrease in initial transport.

Use phase (20% of total emissions):
~80% increase in CO_2e emissions (industrial cleaning and drying after every rental). Assumes customers wash dress after every second use; industrial cleaning after every rental, and some further processing (e.g., repair).

End-of-life (EoL) (5% of total emissions):
~80% decrease in CO_2e emissions. Assumes lower production translates directly to lower EoL emissions.

Overall, ~41% CO_2e emissions are saved in the rental model compared to the linear one*

Even more so, increasing the number of uses of an *occasion* dress, which typically is worn only twice before being discarded (compared to an average of 20 uses of a non-seasonal dress), via a **peer-to-peer (P2P) rental**[xix] platform can achieve the same number of uses of 26 individual dresses – saving around 60% of CO_2e emissions compared to the linear model.

*Differences in production set-up, energy sources, transport options and end of life options between linear and circular models that would also affect emissions are not considered; avg. utilisation based on Euro

xix Refer to Appendix page 70 for the illustration of potential GHG reductions from peer-to-peer rental model.

Repair

If the same *non-seasonal* dress suffers a fault after 20 wears, such as a ripped seam and is fixed and kept in use by a **repair service**, and then worn another 15 times, the repair would have increased the number of times the dress is used by 75%. A **repair service,** then, can achieve the same number of uses as 1.75 dresses – saving around 30% of CO_2e emissions compared to the linear model.[xx]

COMPARING REPAIR TO THE LINEAR MODEL

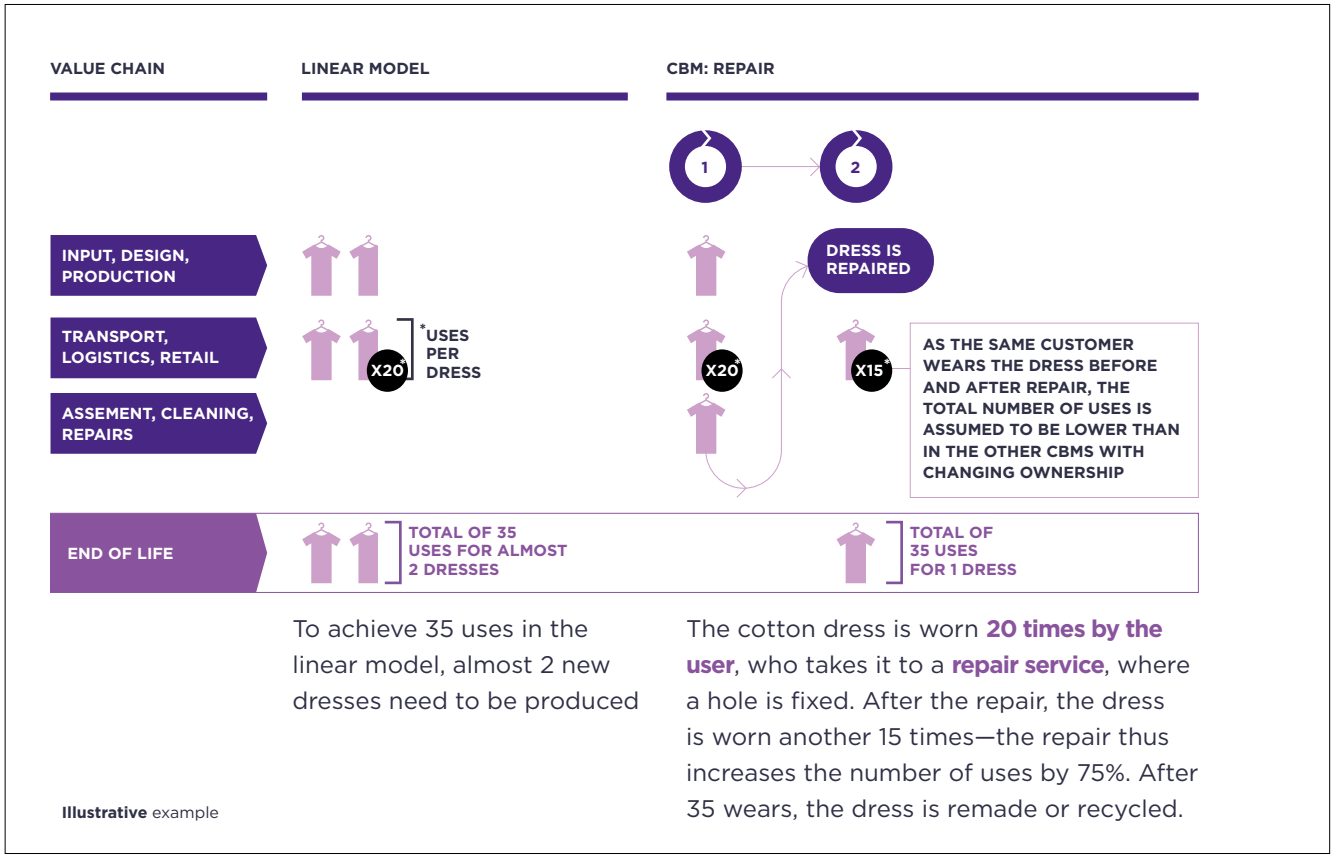
Production (70% of total emissions):
~43% decrease in CO_2e emissions. Assumes a production decrease that translates directly into a decrease in emissions from production.

Transport, Logistics, Retail (5% of total emissions):
Assumed to be unchanged. Decrease in initial logistics and transport, but additional repair logistics and local transport — change ambiguous, but likely small.

Use phase (20% of total emissions):
~6% increase in CO_2e emissions arising from additional processing required for repair.

End-of-life (EoL) (5% of total emissions):
~43% decrease in CO2e emissions. Assuming lower production translates directly to lower EoL emissions.

FIGURE 10: REPAIR CAN GENERATE A REDUCTION OF CO_2E EMISSIONS OF UP TO 31% COMPARED WITH THE LINEAR MODEL

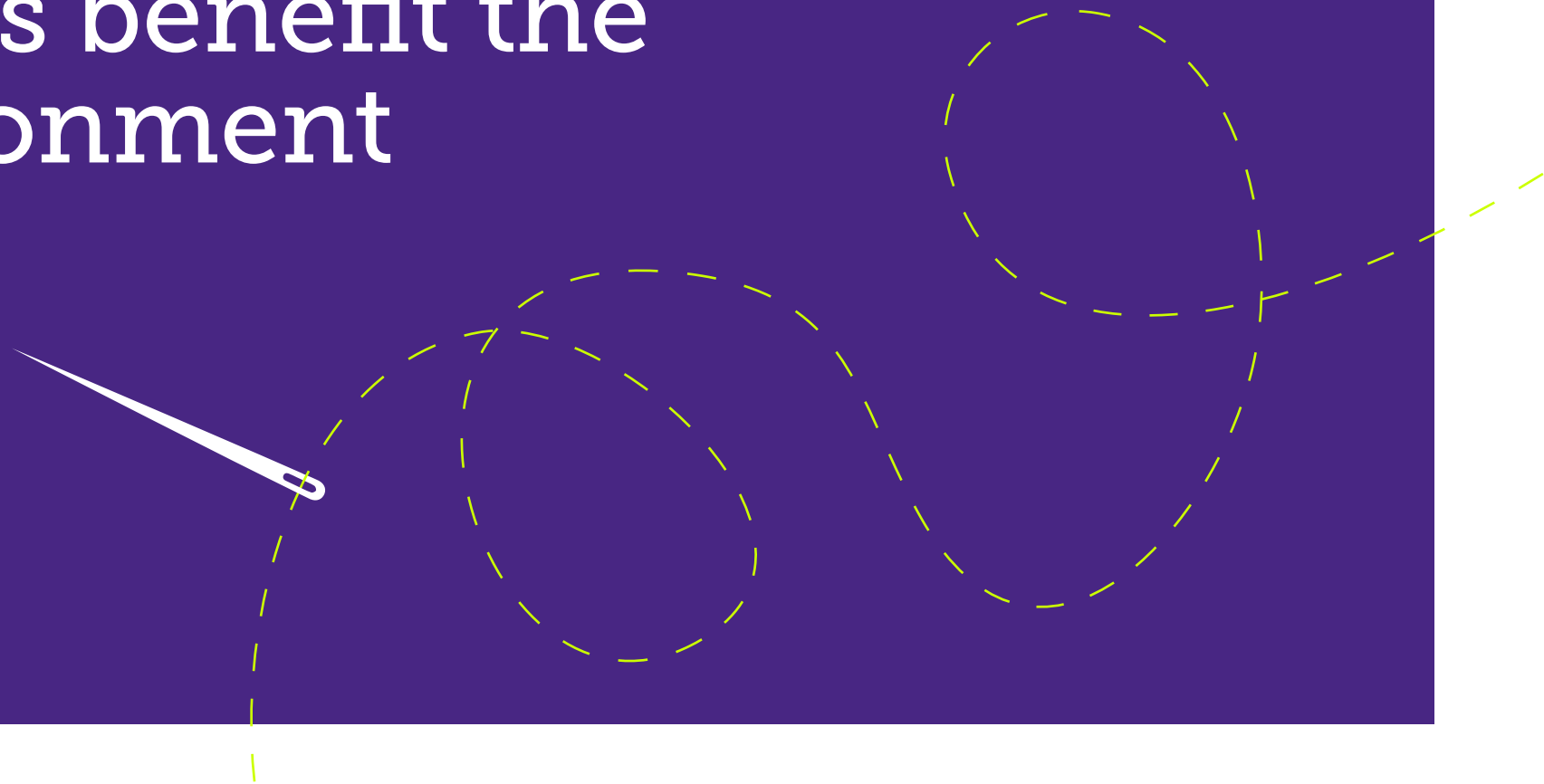


Overall, ~31% CO_2e emissions are saved in the repair model compared to the linear one*

xx Assuming the repair to the dress is needed due to damage causing a hole. The number of additional wears can vary depending on the failure mode (e.g. zippers, buttons, snaps, holes, broken seams)

*Differences in production set-up, energy sources, transport options and end of life options between linear and circular models that would also affect emissions are not considered; avg. utilisation based on Europe
Sources: Wrap (2012); GFA (2020); BCG analysis and expert interviews (2020).

2. Currently, models like resale and rental do not always benefit the environment



There are a number of barriers to business models like resale, rental, repair, and remaking capturing their full economic and environmental opportunity

While they have great potential, booming sectors like rental and resale do not automatically decouple revenue streams from production and resource use or realise the environmental benefits that come with doing so. This is due to a number of barriers presented by the current linear system with three in particular preventing businesses that use resale, rental, repair, and remaking models from achieving their full economic and environmental opportunity:

KEY AREA	EXAMPLE	WHY THIS MATTERS
Performance indicators and customer incentives	A business evaluates its performance by sales volumes. It implements a 'take-back' programme that rewards customers with discount vouchers for new clothes made out of virgin materials, in return for giving back used clothes.	The fashion industry is predominantly linear, and performance indicators are optimised for this linear model – that is, to increase sales of products of virgin materials. Such a set-up discourages the uptake of circular business models and limits their ability to displace the production of new products. Accordingly, customers are incentivised to buy more and buy new. To date, there are many examples of circular business models as 'add-ons' to linear models, rather than as a core part of a business's strategic ambition. Unless a business's performance indicators and customer incentives are designed in such a way that they intentionally seek to transition the business and its customers from linear to circular business models, these models will have limited economic and environmental benefits. Businesses can redefine these elements of their business to ensure their business models are circular and benefit the environment.
Product design	An occasion dress looks faded or out of shape after it is cleaned twice. It is therefore delisted after two rental cycles and becomes waste.	Most products are not currently designed to be kept in use through different circular business models. An occasion dress, for example, that is not designed and made to withstand many wears will not endure numerous rental cycles and industrial cleaning. New dresses will therefore need to be produced to sustain the rental model, and this production can result in negative environmental impacts as well as impacting the rental model's profitability. Considering the product design from the outset (i.e. material choices and garment construction) can enable products to be used more and for longer, and ensure they are aligned with the circular business model (e.g. they can be repaired, remade, and recycled).
Supply chain and infrastructure	A brand seeking to develop a resale model has successfully sourced used clothes but cannot find an economically and environmentally viable way to sort, clean, repair, and deliver the products due to limited local services.	Currently, supply chain technology, warehousing, sorting, cleaning, packaging, and delivery in the fashion industry are all optimised for predictable, one-way production concentrated in specific countries. This can act as a barrier to keeping products in circulation. Once products have reached their destination for first use they often need to be shipped or freighted elsewhere to be kept in circulation for further uses. To maximise the profitability of circular business models, effective and cost-efficient reverse logistics infrastructure and skills are needed locally, and these are lacking in many geographies.[28] However, businesses can co-create new supply networks to develop these areas of the industry.

In addition to these barriers to resale, rental, repair, and remaking models achieving positive environmental outcomes, businesses in the fashion industry miss out on further economic and environmental opportunities by not combining or exploring other, or even new, models that could decouple revenue streams from production and resource use.

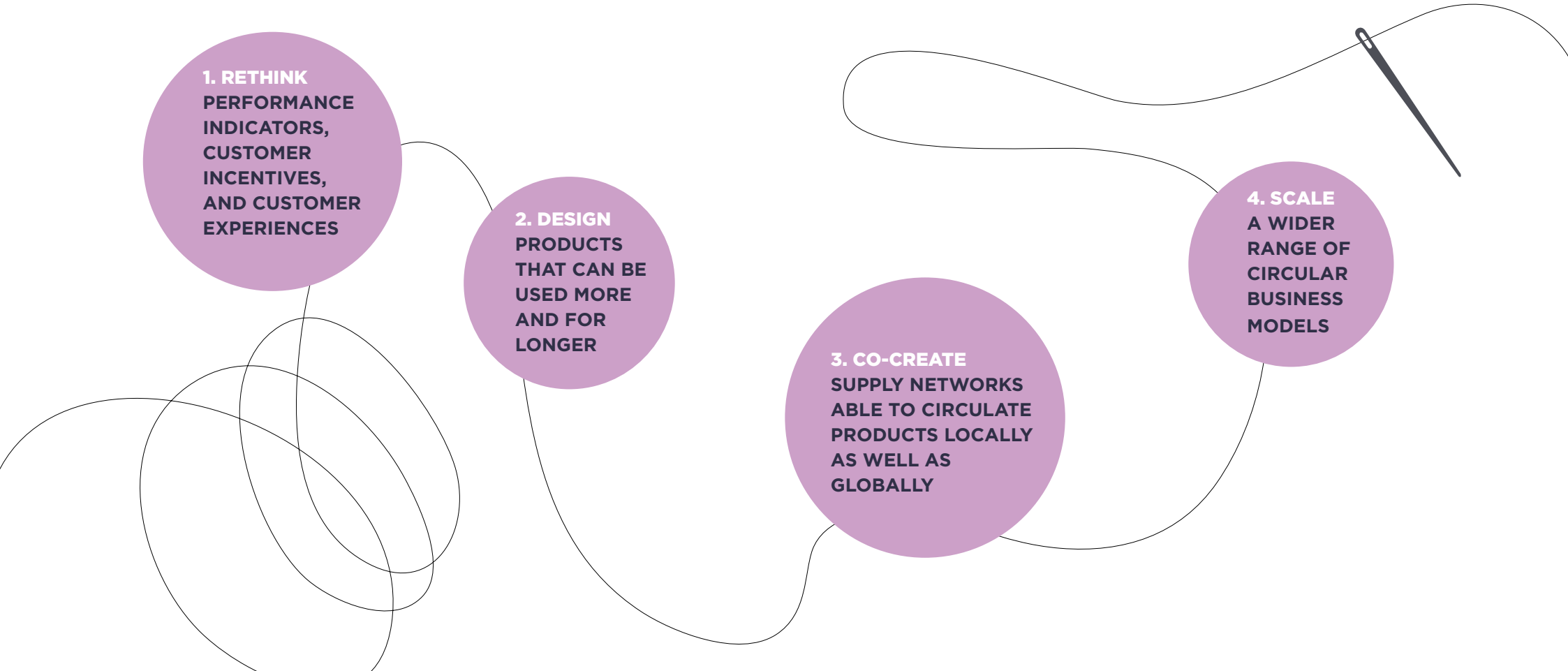
For example, digital fashion could offer creative ways to access fashion without having to make any physical products in the first place. By exploring a wide range of circular business models, businesses can generate new revenue streams while playing a role in making circular business models the new norm.

The Ellen MacArthur Foundation has set out five universal circular economy policy goals around which governments and businesses can align to achieve their common objectives. Applicable across sectors and local contexts, these policy goals can – in conjunction – help governments build healthier economic recoveries and lower the cost of transition for business.

Policymakers have a key role to play in creating the enabling conditions. However, today, there is no comprehensive circular economy policy framework for fashion in place anywhere in the world. Relevant policies are scattered across different areas of legislation, such as product liability or due diligence legislation, labelling requirements, rules on legal warranties and consumer protection, end-of-life criteria, waste shipment and chemicals regulations, as well as policies on public infrastructure investments. As laid out in the Universal Circular Economy Policy Goals,[29] policymakers have a key role to play to achieve this by combining both market pull and market push instruments, such as public procurement to create demand or labelling and mandatory minimum information requirements.

3. To maximise the positive outcomes of circular business models, four key actions are needed

Businesses, supported by policymakers, can maximise the economic and environmental outcomes of circular business models by taking action on four key areas:

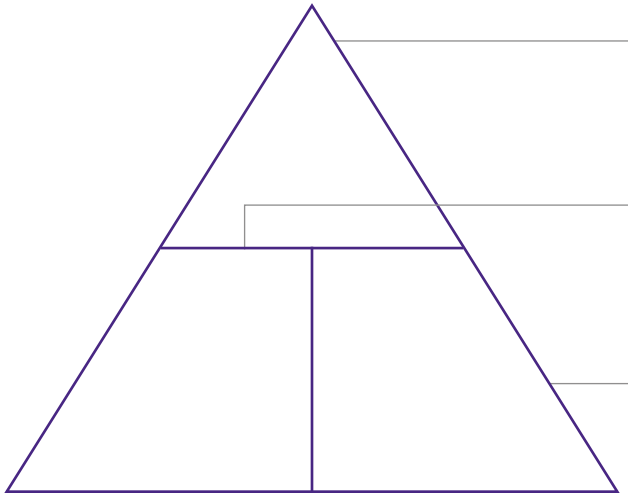


1. Rethink performance indicators, customer incentives, and customer experiences

Transitioning towards circular business models necessitates shifting operating models away from revenue generation based on producing and selling more new products towards revenue generation that is decoupled from production and resource use. Since performance metrics are attuned to the linear model, businesses will first have to address and redevelop how they measure success. Once an organisation addresses and aligns its business strategy and performance indicators with the outcomes of a circular economy, delivering on this will be supported by shifting customer incentives and elevating customer experiences to make new ways of accessing fashion the norm across cultures and income groups.

For example, the success of a rental model established alongside a traditional retail sales model of a business cannot be measured using the same indicators as the traditional model. If a business usually measures its success by sales volumes (e.g. inventory turnover), it will be challenging to observe increased profit margins and related benefits, such as increased brand loyalty and improved inventory management, that can be achieved through circular business models. Using traditional performance indicators, which are optimised to increase sales, can risk incentivising customer behaviours that further fuel the linear model.

If a business offers a voucher for money off product purchases in return for sending a product back for repair or remaking, for example, this can work to grow the linear business model. Equally, if a business implements a repair model but the customer has to go to great lengths to find and use it, then it won't be effective in increasing the use per product – the customer experience needs to be elevated. If indicators and incentives are left unchanged, even when circular business models are put in place they might not reduce production and resource use, or achieve the related positive environmental outcomes.



OPTIMISE PERFORMANCE INDICATORS FOR AN OUTCOMES-BASED APPROACH

Adopting new measures of success by optimising performance indicators for the outcomes of circular business models – making these a core strategic priority, central to all business activities.

RETHINK INCENTIVES AND REWARDS

Intentionally rewarding customers who opt to engage in circular business models instead of linear ones. This means, explicitly encouraging customers to engage in models that increase use, this comes with the added opportunity to benefitting from greater access to customer data and preferences, and building brand loyalty.

ELEVATE CUSTOMER EXPERIENCES

Elevating the circular business model experience – making it more desirable through a better user experience than buying new (e.g. through convenient delivery, personalised service) so that it explicitly serves and encourages customers to transition from linear to circular business models.

Optimise performance indicators for an outcomes-based approach

WHAT IS IT?

Adopting new measures of success by optimising performance indicators for the outcomes of circular business models – making these a core strategic priority, central to all business activities.

WHY IS IT CRITICAL TO THE SUCCESS OF CIRCULAR BUSINESS MODELS?

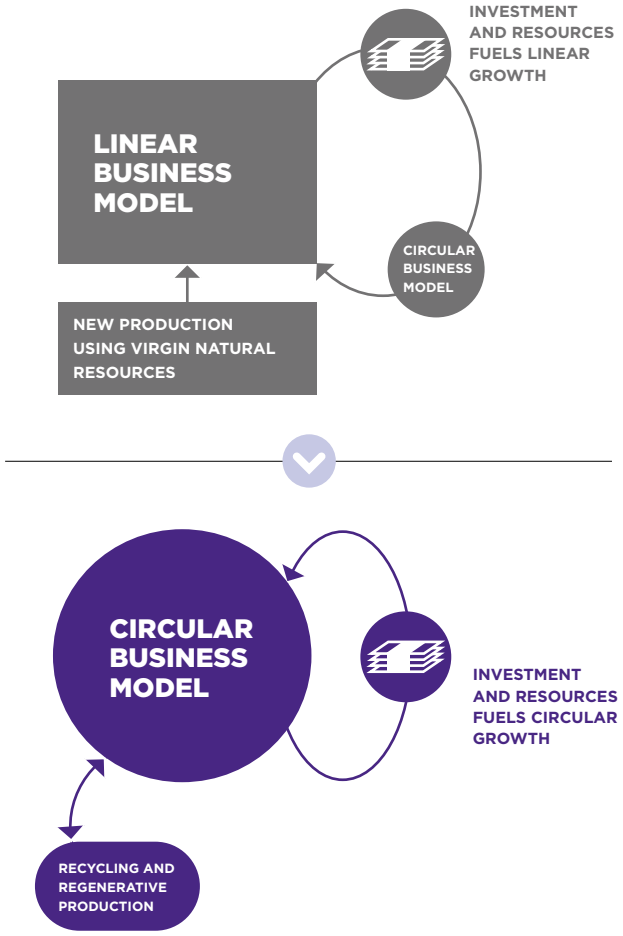
Businesses that fail to put circular business models at the core of their strategy, and tailor performance indicators to achieving this, run the risk of not only undervaluing the contribution these models can make to profit margins, and other financial metrics such as costs of materials and production, but also undertaking business activities that perpetuate the linear model. Circular business models that remain as 'add-ons' to the traditional linear model will not realise their full potential to reduce the negative environmental impacts of the fashion industry. Performance indicators therefore need to be optimised to decouple revenue streams and profit drivers from new production and resource use. By doing this, businesses also illustrate a commitment to and compliance with their environmental goals and upcoming policies,[30] customer sentiment,[31] and requirements from financial institutions.[32]

HOW CAN BUSINESSES PUT IT INTO PRACTICE?

Businesses leading the transition to circular business models will need to target a significant proportion of revenues from these models, and their overall revenue increase should no longer be proportional to the total production volume. Buy-in by business leaders and key decision-makers is crucial, as coordinated efforts are needed to create new measures of success. For example, businesses can:

- Set metrics around decoupling from finite resource use. For example, establish targets to stop using virgin resources by 2030 (e.g. by making products from 100% used or recycled materials)
- Report transparently on metrics to convey the progress and benefits of circular business models to external stakeholders, such as investors
- Measure the ratio between revenue and production (revenue:production)
- Track and report revenue, operating expenditure, and capital expenditure, and by doing so significantly contribute to a circular economy – building on the EU sustainable finance taxonomy to be adopted in 2022

FIGURE 11: PLACING CIRCULAR BUSINESS MODELS AT THE CENTRE OF BUSINESS ALL ACTIVITIES



Rethink incentives and rewards

WHAT IS IT?

Intentionally rewarding customers who opt to engage in circular business models instead of linear ones. This means, explicitly encouraging customers to engage in models that increase use, which comes with the added opportunity to benefit from greater access to customer data and preferences, and to build brand loyalty.

WHY IS IT CRITICAL TO THE SUCCESS OF CIRCULAR BUSINESS MODELS?

Customer engagement in circular business models should displace production of new products made out of finite virgin resources over time. Businesses can actively influence this displacement by rewarding customers' engagement in circular business models, while discouraging their engagement with the traditional linear retail model. For example, designing loyalty programmes that reward customers for accessing fashion through circular business models, or only offering certain products through circular business models.

HOW ARE BUSINESSES PUTTING IT INTO PRACTICE?

- **GANNI** is exclusively designing items for its rental platform, 'Ganni Repeat', through its latest collaborations. Examples of this include, GANNI x Nanna Bernholm – made by reworking existing fabrics from previous Ganni collections – and the second GANNI x Levi's collection, launched in 2021, consisting of a 14-piece ready-to-wear collection of garments made of cottonised hemp. Therefore, if customers want to access such innovative designs, they are directly incentivised to try rental, instead of buying.

Photo: GANNI

- The online marketplace for peer-to-peer resale, **Vinted** enables users to swap used products as well as to purchase them. This encourages more use of products without the need for users to have access to disposable income. Vinted also incentivises users to buy second-hand by setting time-bound shipping deadlines for sellers and enabling 'bundle discounts' on multiple purchases from the same seller.

- **Rent the Runway (RTR)** incentivises its customers to rent instead of purchasing and, if a customer is looking to buy (for many uses, for example), to opt for used clothes. Currently, about 89% of RTR subscribers report buying fewer clothes than they did before joining the platform,[33] and 60% report spending USD 100–500 less per month on clothes and at least USD 25 less on dry cleaning per month thanks to their rental subscription.[34] When an item can no longer be rented as it is lightly worn, used items can be purchased through RTR's Revive initiative on its website and also through its third-party partners, including **thredUP**. RTR members can also receive a thredUP 'Clean Out Kit' so they can consign their own closets and get a thredUP shopping credit in return.

Elevate customer experiences

WHAT IS IT?

Elevating the circular business model experience – making it more desirable through a better user experience in comparison to buying new (e.g. through convenient delivery, personalised service) – so that it serves customers needs and encourages their transition from linear to circular business models.

WHY IS IT CRITICAL TO THE SUCCESS OF CIRCULAR BUSINESS MODELS?

To accelerate the growth of circular business models, they need to become part of mainstream business and culture. Accessing fashion through circular business models should be as easy and common as using traditional linear ones. For this to happen, businesses need to invest resources to position the product or service in accordance with the ideals, aspirations, and aesthetics of their audience, while seeking to uncover misconceptions and scepticisms of circular business models. Developing convenient user experiences, establishing lifestyle community platforms, and designing marketing campaigns that portray rental or second-hand as 'cool' are potential ways to achieve this.

HOW ARE BUSINESSES PUTTING IT INTO PRACTICE?

- **Farfetch** encourages users to try different ways of accessing fashion through their platform. Their platform provides convenient ways for users to filter and find 'vintage' pieces, donate to resell through a third-party platform (FARFETCH Donate x Thrift+), prolong the use of their shoes and handbags ('Farfetch Fix'), and also resell them ('Farfetch Second Life'). At the same time, Farfetch provides tools (THE FASHION FOOTPRINT TOOL) to allow their customers to evaluate the impact of their shopping choices.

- **thredUP** is an online consignment thrift store in the US, which offers users services to make resale a convenient option. Sellers get a 'clean-out' kit and their items are sorted, listed, and delivered for them. Such a user experience has increased the number of repeat users on the platform with thredUP reporting that 80% of orders come from repeat buyers.[35]

  As it has expanded and invested in its reverse logistics capabilities, thredUP has started to provide their resale proposition to different brands (resale-as-a-service).

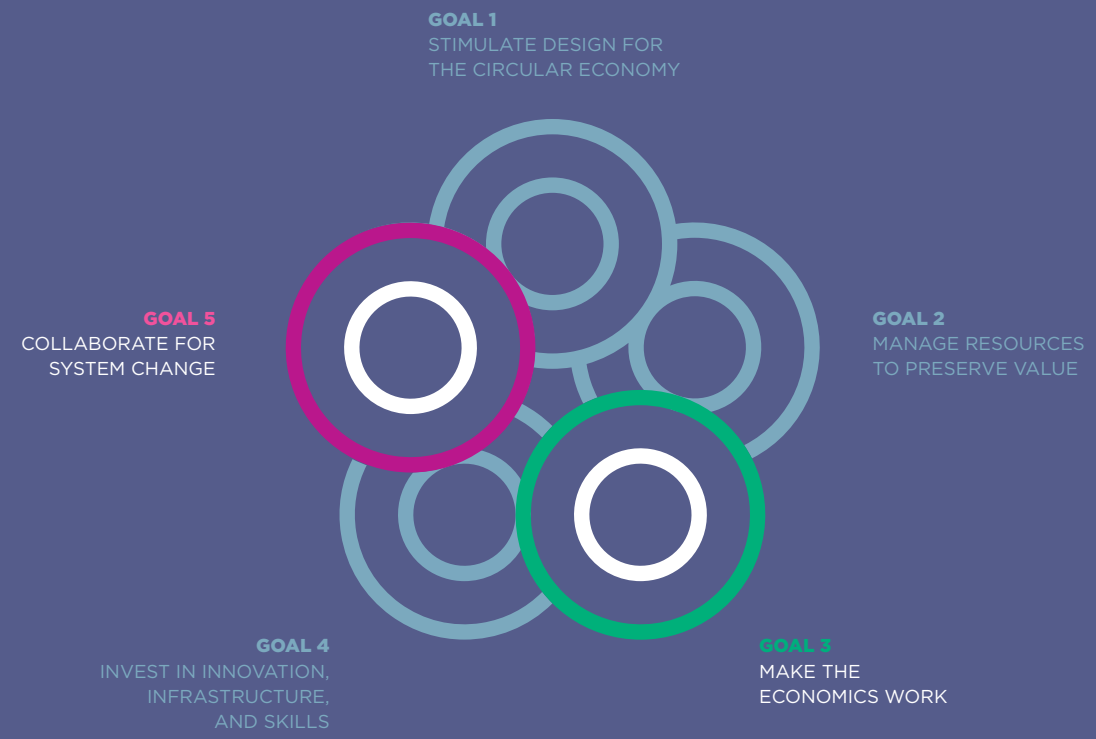
- **Ralph Lauren** introduced a rental subscription service, 'Lauren Look'. The subscription service starts at USD 125 a month and includes delivery, cleaning, and suggestions from expert stylists. Thus, allowing customers to enjoy fashion that is new to them while suiting their style.

- **Vestiaire Collective**, a resale platform that encourages local peer-to-peer sales, has aimed to create a user experience on par with prominent e-commerce brands while controlling and authenticating all items once sold. In so doing, it encourages users to buy durable products and take good care of their items to maximise their resale value. 85% of Vestiaire's customers report that they are buying fewer, but better quality, secondhand items.

- Resale platform **Depop** highlights carefully curated product assortments by their users and points users to specific profiles based on their style to encourage more peer-to-peer transactions. Depop aims to curate a unique inventory of products and keep users engaged while creating a community on its platform.

What policymakers can do to incentivise the adoption of circular business models by both businesses and customers

FIGURE 12: ACTIONS TO INCENTIVISE ADOPTION OF CIRCULAR BUSINESS MODELS FALL UNDER GOALS 3 AND 5 OF THE UNIVERSAL CIRCULAR ECONOMY POLICY GOALS



Source: Ellen MacArthur Foundation, Universal circular economy policy goals, Enabling the transition to scale

Policymakers can play a vital role in stimulating circular business models by creating the right market conditions. One such example is by shifting taxes from labour to the use of finite virgin resources. Such tax reforms could include reducing value added taxes (VAT) on resale, rental, repair, and remaking activities that keep products in use (Universal Circular Economy Policy Goal 3). Other fiscal incentives can increase the use of secondary materials, encourage regenerative production of materials where they are needed, or provide transition funding for start-ups. Importantly, policymakers can collaborate with the fashion industry to define meaningful criteria that help to stimulate and measure the environmental outcomes of circular business models in such a way that it further boosts innovation (Universal Circular Economy Policy Goal 5).

WHY THIS SUPPORTS THE SUCCESS OF CIRCULAR BUSINESS MODELS

Circular business models allow for repeated revenue generation per product, while decreasing dependency on virgin material inputs. Today, there is no agreed framework of metrics and benchmarks to measure this decoupling impact in practice and at scale. There is a significant opportunity for policymakers to define meaningful criteria that help to stimulate and measure the environmental outcomes of circular business models in partnership with the fashion industry.

An outcomes-based approach leaves businesses relative freedom to tailor new circular business models to their and their customers' needs, and continuously improve their practices. For instance, policymakers can play an important role in defining clear rules on the ownership of secondhand textiles, and on how to substantiate green claims linked to environmental benefits of circular business models. In return, both businesses and their customers would benefit from increased transparency.

QUESTIONS POLICYMAKERS CAN ASK TO INVESTIGATE FURTHER

- What type of criteria and metrics would be most meaningful to measure the environmental outcomes of circular business models? How can these be defined as a legal basis for the differentiation of (value added) taxes?
- What can be done so that new businesses offering rental or subscription services avoid upfront sales tax?
- How can ownership or accounting rules be clearer for returned and re-circulated products to avoid legal uncertainties and create better incentives?
- Which requirements for textile labelling need to be defined or revised to improve legal clarity on how to label products that have been remade from used ones?
- What is needed to avoid consumer confusion, given the proliferation of environmental claims and labels in the fashion industry?
- What can mandatory criteria for public procurement of textiles products and services look like to stimulate the uptake of circular business models?

POLICIES AND INITIATIVES THAT CAN BE BUILT ON

- European Commission initiatives on strengthening the role of consumers in the green transition[36] and on substantiating claims on the environmental performance of products & businesses[37]
- Swedish government tax break programme for repair of clothing[38]
- EU Product Environmental Footprint Category Rules (PEFCR) under development for Wearing Apparel and Footwear and proposals from the organisations supporting the 'Make the label count' campaign[39]

2. Design products to be used more and for longer

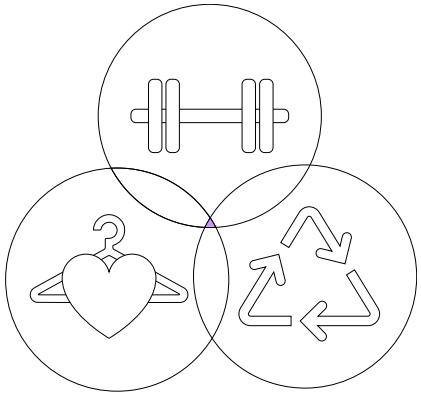
To maximise the economic and environmental potential of circular business models, businesses need to design products that are physically durable, emotionally durable, and that can be remade and recycled at the end of their use.

For example, a high-turnover rental model will not be effective unless the rented items have been designed to withstand frequent cleaning. They also have to maintain their appeal to customers, keeping them in demand – physical durability alone is not enough.

Products also need to be designed so that, once maximum product use has been reached, they can be remade, in the first instance, and ultimately recycled – keeping their materials in circulation. If recycling becomes economically and technically viable, allowing all products to be effectively recycled in practice, the environmental outcomes of circular business models could be even more significant. That is, they could contribute to more than 16% reduction of CO_2e per year.

All three design considerations are crucial to the development of products for circular business models. However, there will likely be some trade-offs to these design considerations due to factors such as current technologies and material solutions. This could mean, for example, that a product can be made to be remade and recycled but that for this to be achieved in practice, some compromises need to be made on the durability of the product. Emotional durability may also be more or less of a consideration depending on the circular business model an item is being offered through and the type of product in question. Therefore, it is essential that design decisions are prioritised and specifically tailored to maximise the economic and environmental outcomes of each individual business model.

More on the role and potential of design in creating a circular economy for fashion and how to put it into practice, can be found in ***Circular Design for Fashion***

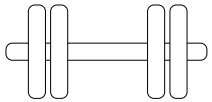


PHYSICAL DURABILITY
Combining material choices and garment construction, including component reinforcement, in order to create highly durable products that can resist damage and wear over long periods of time

EMOTIONAL DURABILITY
Applying strategies that increase and maintain a product's relevance and desirability to a user, or multiple users, over time

REMAKE AND RECYCLABILITY
Designing products so that they can be disassembled and their components and materials be remade or recycled into new products

Maximise physical durability



WHAT IS IT?
Combining material choices and garment construction, including component reinforcement, in order to create highly durable products that can resist damage and wear over long periods of time.

WHY IS IT CRITICAL TO THE SUCCESS OF CIRCULAR BUSINESS MODELS?
To maximise the profitability of circular business models across product categories and market segments while realising the environmental benefits, the physical durability of each product needs to be aligned with its intended period of use. Products with low physical durability have a shorter lifespan, limiting their potential for long-term circulation in circular business models.

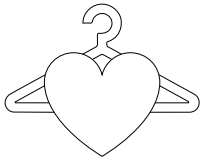
HOW ARE BUSINESSES MAXIMISING PHYSICAL DURABILITY?

- **W. L. Gore and Associates** is implementing strategies to address the longevity of outerwear garments at the design stage. The business assesses the real-life performance of its products and collect feedback. The business is then using this to inform the design of products so they can withstand more use. The business has also set up product-specific lab test schemes to mimic real-use ageing and increase the durability of components that fail first.

- **Lacoste** is applying durability standards throughout textile product categories. For this, it has introduced a product durability protocol as part of its 'Durable Elegance' strategy – seeking to maximise the lifespan of its products. The protocol measures the stability of the quality performances of the product. It also takes into account customers' habits and concerns, covering both individual components and finished product testing.

- **ERDOS** focuses on developing high-quality cashmere products. Its 2019 SHAN collection included "self-cleaning" cashmere which is water and oil resistant and easy to maintain. It uses a weaving technique that doesn't need stitching – saving materials and energy while making the product more durable. Given the high physical durability of its products, ERDOS is able to offer repair and maintenance services (i.e. its 'post-sales care service').

Enhance emotional durability



WHAT IS IT?

Applying strategies that increase and maintain a product's relevance and desirability to a user, or multiple users, over time. It depends on a user valuing the product because of factors that can include its timelessness, rarity, history, and meaning, among other aspects.

WHY IS IT CRITICAL TO THE SUCCESS OF CIRCULAR BUSINESS MODELS?

Like physical durability, emotional durability – which relates to how long people want to use a product – is needed in many cases to maximise the profitability of circular business models across product categories and market segments, while realising the environmental benefits. Products with low emotional durability have a shorter lifespan, limiting their potential for circulation through circular business models. An opportunity to extend the emotional durability of an item could be sharing stories about how the product was made to help create attachment. Likewise, offering personalisation services to make products unique for a user can increase the desirability for users to wear that product for years to come.

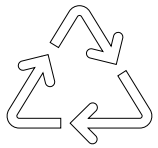
HOW ARE BUSINESSES PUTTING IT INTO PRACTICE?

- **Beyond Retro**, part of the holding company Bank & Vogue, leverages its retail stores to enhance people's connection with used clothes. To do so, it focuses on developing and emphasising uniqueness in its products (e.g. remade products from selected used items) and retail experiences. Specifically, it has built a dedicated team of visual merchandisers that are in charge of developing theatrical displays and curating unique products.

- **klee klee** is a Shanghai-based brand that focuses on creating designs that are 'classic and minimalistic'. A detailed story accompanies each piece so customers can learn where the materials come from, how the garment has been made, and how to take care of it. This helps to create a stronger attachment between the customer and the clothes so that they are worn for longer and more often.

- **ARKET** seeks to make products that last longer by creating functional, timeless garments, and selects materials that improve in their look and feel with increased use and provide specific care guides for those materials. For example, denim physically ages, often developing a tangible character from repeated use. To inspire its audience to repair their denim items (e.g. DENIM REPAIR), they leverage storytelling to create connections between people and their clothes, while sharing repair tips from experts.

Facilitate remaking and recycling



WHAT IS IT?

Designing products so that they can be disassembled and their components and materials be remade or recycled into new products. This includes consideration of product construction as well as which components and materials are used.

WHY DO WE NEED IT?

For circular business models to succeed in reducing GHG emissions in perpetuity, new styles of clothing will need to maximise inputs from materials that are already in use, and move away from finite virgin resources. For this to be possible, products need to be designed and made in a way that allows them to be disassembled, remade, and recycled. This also prevents products becoming waste and can maximise the positive environmental outcomes even further. For example, recycling business Recover claims that a T-shirt made with 50% recycled cotton, reduces water use by 50% – taking 1,350 litres of water instead of the regular 2,700 litres to make.[40]

HOW ARE BUSINESSES PUTTING IT INTO PRACTICE?

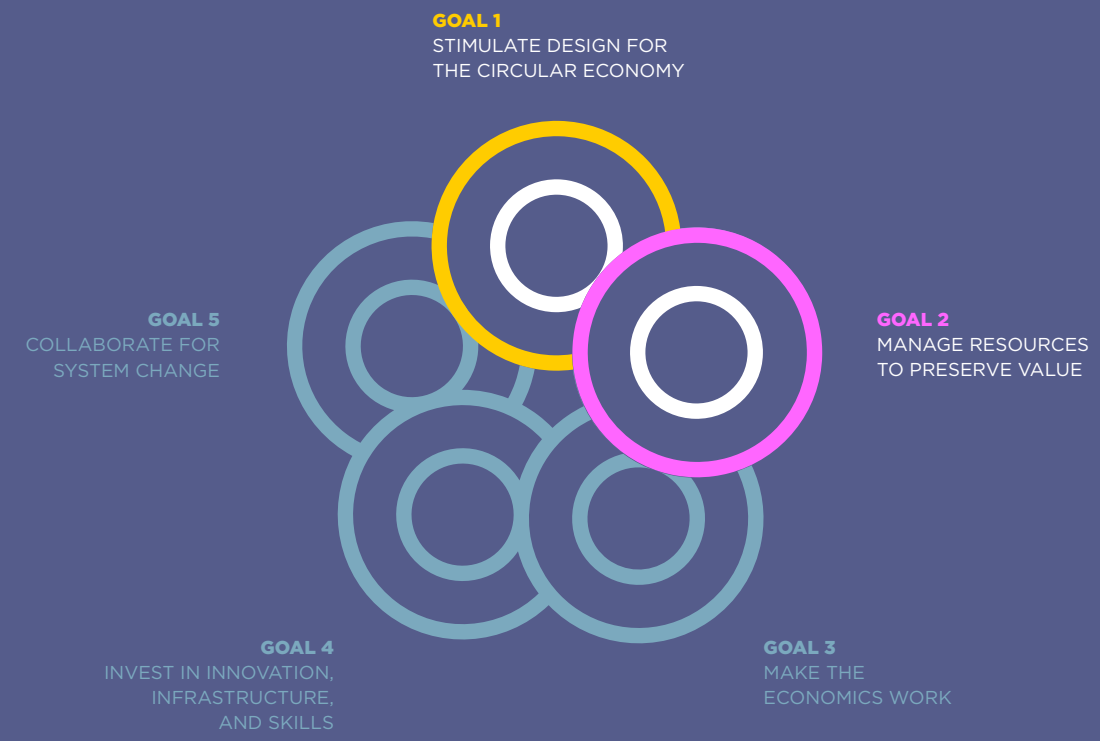
- **For Days** makes its garments from 100% cellulosic fibres (predominantly organic cotton) so that they can easily be remade into new garments or recycled once they are worn out. For Days incentivises its customers to return their used garments in exchange for a financial reward so that they can remake and recycle them in practice. The business has partnered with local designers to remake used garments into patchwork T-shirts, for example, and other capsule collections.

- For its Circular Series of jackets, **Napapijri** simplified the design so that its entire jacket – fabric, filling, and trimmings – is manufactured from one recyclable polymer: Nylon 6. Customers can return products from the Circular Series range after use so that they can be remade and recycled into new products.

- **Looptworks** is using its experience in repurposing pre-consumer and post-consumer materials, such as used uniforms or excess sports equipment material, to make limited-edition bags and apparel products in collaboration with other businesses. For example, they have partnered with the NBA to remake used jerseys into backpacks and crossbody bags. Such partnerships help businesses avoid waste while providing them with a better understanding of how to redesign their products.

What policymakers can do to stimulate product design that ensures items are used more and for longer

FIGURE 13: ACTIONS TO STIMULATE PRODUCT DESIGN FOR MORE AND LONGER USE FALL UNDER GOALS 1 AND 2 OF THE UNIVERSAL CIRCULAR ECONOMY POLICY GOALS



Source: Ellen MacArthur Foundation, Universal circular economy policy goals, Enabling the transition to scale

Existing product policies have often focused on developing aspirational benchmarks and design criteria in voluntary ecolabels or green public procurement. These can be further developed with a focus on physical and emotional durability, and remaking and recycling. Based on a thorough environmental impact assessment, policymakers can establish minimum regulatory requirements referring to mandatory information and technical design standards to ensure products are made to last (Goal 1) and never become waste for instance, through remaking or recycling (Goal 2).[41]

WHY THIS SUPPORTS THE SUCCESS OF BUSINESS MODELS

Good design solutions are a crucial enabler for various circular business models, and can trigger important material-, product-, and service-related innovations. As more and more industry leaders are starting to implement circular economy design principles, policymakers are also starting to identify how policy can promote the associated circular economy outcomes such as repairability and recyclability. In conjunction, policymakers are also exploring how to enable the associated reverse logistics and collection, sorting and recycling infrastructure.

QUESTIONS POLICYMAKERS CAN ASK TO INVESTIGATE FURTHER

- What can be done to provide access to relevant information that facilitates the durability, repair, remaking, and recycling of fashion products to different economic operators along the value chain?
- Building on existing voluntary industry commitments – such as the WRAP' SCAP, Fashion+ 'Circular Materials Guidelines', or the Ellen MacArthur Foundation's initiative The Jeans Redesign – how can regulations and standards be developed to raise the bar for all products entering the market?
- What could minimum requirements for durability, repairability, remaking and recyclability look like for different product categories and use scenarios?
- What role do legal guarantees, take-back obligations, or repair legislation have to play to link product design effectively with services to increase use per user or users per product in practice?
- How can public procurement be used to stimulate product design for circular business models and scale circular solutions beyond minimum requirements for durability, repairability, remaking, and recyclability?

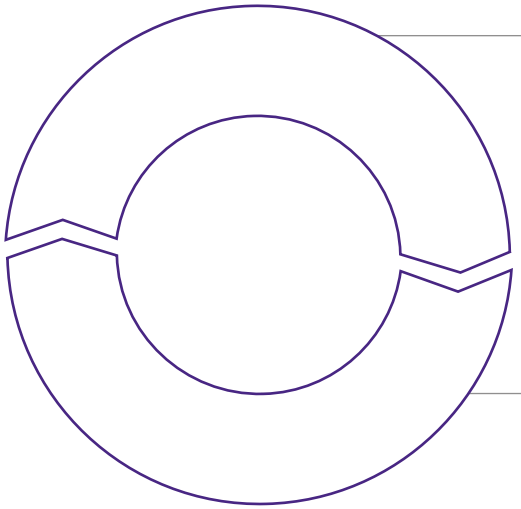
POLICIES AND INITIATIVES THAT CAN BE BUILT ON

- EU Green Public Procurement Criteria for Textile Products and Services[42]
- WRAP's Sustainable Clothing Action Plan (SCAP): Design for longevity guidance and Clothing longevity protocol and Textiles 2030[43]
- Fashion+ Circular Materials Guidelines[44]
- The Ellen MacArthur Foundation's Jeans Redesign Guidelines[45]

3. Co-create supply networks able to circulate products locally as well as globally

To successfully keep products in circulation, the fashion supply chain and associated infrastructure – currently designed for a predictable one-way flow of products – need to be transformed into supply networks capable of circulating products locally and globally. Businesses, such as those offering cleaning or repair services, will need to be distributed widely to achieve product circulation, and industry-wide collaboration will be needed to build the relevant infrastructure. Digital technologies can also be leveraged to enable multilateral communication and advanced logistics.

For example, it needs to be economically and technically viable to keep products in circulation, meaning they cannot readily be shipped around the world to be cleaned or repaired, to then be resold or redistributed. For circulation to be possible, services will need to be distributed, requiring effective collaboration by all industry actors. Technology can be leveraged to improve multi-way collaboration and move away from one-directional transactions towards mutually beneficial partnerships. For example, the rise of cloud computing has opened new avenues for collaborative work, allowing factories and fashion businesses to work together from many parts of the world at the same time. This enables them to access relevant data, making for a faster and more effective way of communicating.[46]



COLLABORATE TO BUILD A DISTRIBUTED NETWORK

Establish multi-way communication channels to proactively increase product reuse, globally. Infrastructure for needed operations, (e.g. handling ecommerce returns and incoming streams for resale and repair, handling, sorting, and repackaging/redistribution) need to exist across different locations (i.e. off-shore, near-shore, and on-shore). Where relevant, these can be shared between industry players to capture economies of scale. Such transformation implies moving towards a diverse and highly connected network between all actors in the fashion system (e.g. manufacturers, retailers, end-users, and collectors).

LEVERAGE TECHNOLOGIES TO ENABLE MULTI-WAY COMMUNICATION, TRACKING, AND TRACEABILITY

Leverage technologies, such as artificial intelligence and blockchain, to shift towards a distributed network that can effectively use product and customer data to operate in real-time and on-demand. This therefore enables the creation of effective and efficient circular business models that meet customer needs.

A NOTE ON THE POTENTIAL SOCIAL IMPACTS OF A CIRCULAR TRANSITION

The social impact of a transition to circular business models – and the resulting shift to a more distributed global and local supply network in the fashion industry – is not quantified in this study. However, it is vital that businesses consider the social implications of this transition and do their utmost to ensure its outcomes for people in the fashion industry and the societies in which it operates are positive. Making positive social outcomes a priority now, while a circular economy for fashion is emerging, could help address concerns in the industry about insufficient job security and quality, which can lead to increases in poverty, inequality, and exclusion in communities of affected workers.[47]

Academia and organisations, including BSR and Circular Apparel Innovation Factory (CAIF), have begun to explore the social implications of a transition towards a circular fashion industry.

Business for Social Responsibility's (BSR) report *Taking a people-centered approach to a circular fashion economy* found that "Impacts on workers' incomes and job opportunities will depend on their location, current situation, and how the transition to circular models is managed. Certain types of jobs, such as in-store retail and apparel factories in traditional supply chains, where most workers are women, will likely decline. At the same time, jobs in logistics and IT, currently male-dominated sectors, will likely increase to enable circular models. New working opportunities related to transportation of goods for resale, rental, and repair could also lead to more gig employment, which offers workers more flexibility but most often without benefits or job security." Further analysis on the implications of a circular economy for fashion on workers in the fashion industry is forthcoming in the BSR report *Keeping workers in the loop*.

Collaborate to build a distributed network

WHAT IS IT?

Establish multi-way communication channels to proactively increase product reuse, globally. Infrastructure for needed operations, (e.g. handling ecommerce returns and incoming streams for resale and repair, sorting, and repackaging/redistribution) need to exist across different locations (i.e. off-shore, near-shore, and on-shore). Where relevant, these can be shared between industry players to capture economies of scale. Such transformation implies moving towards a diverse and highly connected network between all actors in the fashion system (e.g. manufacturers, retailers, end-users, and collectors).

WHY IS IT CRITICAL TO THE SUCCESS OF CIRCULAR BUSINESS MODELS?

As the volume of used products has increased in many countries, a lack of infrastructure and relevant skills in many areas has been highlighted.[48] Some countries have resorted to exporting these items. However, the large volumes and lack of reuse, remaking, and recycling infrastructure in receiving countries has led to a huge waste management problem in these geographies.[49] For example, 15 million items of used clothing arrive in Ghana every week and an estimated 40% end up in landfill.[50] Circular business models provide an opportunity for products and their materials to remain at high value within the economy, yet the current one-way supply chain does not facilitate this.

HOW ARE BUSINESSES PUTTING IT INTO PRACTICE?

- **The Restory** offers a shoe and handbag restoration service. It typically works with high-end fashion products and is expanding by partnering with retailers, allowing brands to offer after-care services to its customers (e.g. 'Farfetch Fix', Harvey Nichols). These partnerships are mutually beneficial. For example, The Restory has identified that 85% of brand loyalty comes from the aftercare services, rather than from marketing before the sales.

- **EverybodyWorld** is bridging the gap between customer, supplier and brand, by co-creating designs. Its unisex pair of shoes named 'untitled' is based on acrowdsourced design, is made locally, and comes with EverybodyWorld's lifetime repair policy. The owner of the 'winning' design gets 10% of every pair sold.[3] Co-creating designs with its customers allows EverybodyWorld to better predict demand.

- Research institute **HKRITA** has launched a 'Planet First program', seeking to uncover innovation gaps throughout the value chain. For this, they are developing a lab in Hong Kong where innovators, researchers, suppliers, and brands can meet, test new ideas, and scale faster. By doing this, the programme provides space and access to equipment, enabling different fashion industry stakeholders to collaborate in finding innovative solutions to keep materials in circulation.

- **Sojo** connects its users to local seamstress or tailoring businesses, picking up and delivering items to be altered or repaired. All pick-ups and deliveries are via bicycle and orders typically take between 3–5 working days. As such, the mobile app provides a hassle-free solution to clothing alterations and repairs. Sojo is now an in-store option in all of Beyond Retro shops, a UK vintage retailer, enabling customers to get their vintage items tailored.

Leverage technologies to enable multi-way communication, tracking, and traceability

WHAT IS IT?

Leveraging technologies, such as artificial intelligence and blockchain, to facilitate a distributed supply network for circular business models and more easily share information that facilitates circulation of products and effectively use product and customer data to operate in real-time and on-demand.

WHY IS IT CRITICAL TO THE SUCCESS OF CIRCULAR BUSINESS MODELS?

Leveraging technologies to enable multi-way communication, tracking, and traceability will enable smooth exchanges between businesses and service providers to manage processes– such as collection, cleaning, repair, and distribution – needed to make circular business models work. This requires the development of collective business cases, effective data exchange, and transparency. Furthermore, leveraging technologies to inform business collaboration could also add new value to fashion users (e.g. through personalised products or experiences), while businesses benefit from insightful and actionable non-financial data (e.g. product use data or identification of 'timeless' styles). Thus, brands and manufacturers could jointly design customisable products.[xxi]

HOW ARE BUSINESSES PUTTING IT INTO PRACTICE?

- **E-on** has launched **Circular ID**, an industry-wide digital protocol that establishes the essential product and material data (e.g. materials, origin, authenticity, price, style, and recycling instructions) for identification and management of products in a circular network, and ensures this data is accessible and communicated in a consistent way. The digital identification of these fashion products can aid in the resale, rental, and recycling of clothing and accessories. At the same time, giving access to a product's original features and benefits creates a better customer experience[51].

- Rental platform **Hirestreet** has partnered with reverse logistics provider Advanced Clothing Solutions (ACS) to manage its warehousing and has developed its own white-label technology solution for rentals, Zoa – giving fashion brands the opportunity to add rental of their clothing as an option alongside buying. Brands provide the stock but Zoa takes care of all of the rental technology, cleaning, logistics, and customer service with an option to integrate with warehousing service by ACS.

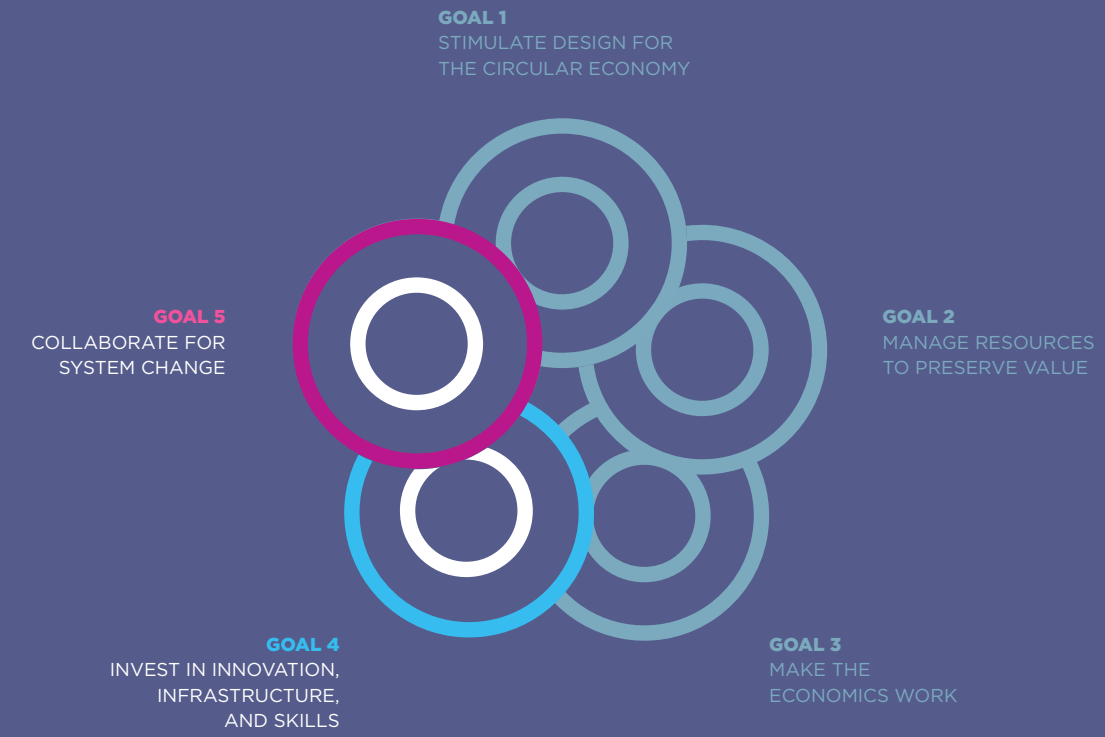
- Rental and resale logistics provider, **Lizee** helps brands and retailers extend the life of their products by launching, managing, and scaling rental and resale business models. Lizee handles the picking, packing, and shipping of products, and facilitation of payments. It also oversees quality checks for returned products, refurbishing, and more. In so doing, it provides its partners with product data related to use and quality, which they can then leverage to improve their product design. As a result, brands and retailers are able to adjust their inventory, and minimise their environmental impact.

- **Save Your Wardrobe** (SYW) is a tech-enabled wardrobe management platform that leverages online receipts, computer vision, and AI to digitise wardrobes. The platform provides an ecosystem of aftercare services including 'eco-cleaning', repairs, alterations, and end-of-life services like donation to help users extend the life of their garments with ease. SYW provides personalised insights and recommendations to users based on their wardrobe composition and use. SYW's B2B arm, helps brands and retailers hyper-personalise the post purchase experience for customers.

xxi Customisations typically range from smaller adaptations (like embroidery in store) to pre-designed items such as specific colour combinations, to products designed almost completely by the end-user

What policymakers can do to support the development of local and global circular economy supply networks

FIGURE 14: ACTIONS TO DEVELOP LOCAL AND GLOBAL SUPPLY NETWORKS FALL UNDER GOALS 4 AND 5 OF THE UNIVERSAL CIRCULAR ECONOMY POLICY GOALS



Source: Ellen MacArthur Foundation, Universal circular economy policy goals, Enabling the transition to scale

Governments can foster public-private collaboration to remove barriers for businesses that offer more localised, diversified, and distributed services, including repair, reuse, and remaking (Goal 5). They can also facilitate investments to develop the skills and infrastructures required to ensure an inclusive transition and to bridge the innovation gaps, paving the way towards a more resilient future that benefits all actors of the fashion supply network (Goal 4).

WHY THIS SUPPORTS THE SUCCESS OF CIRCULAR BUSINESS MODELS

By fostering public–private collaboration, policymakers can help develop the shared systems and infrastructure needed to make circular business models a reality at scale. Policymakers can also help bridge innovation gaps, support research and development, and connect businesses pre-competitively.

The public sector also has a key role to play in investments in people and skills, supporting technological, digital, and manual training. This is of particular importance given that there are skill gaps and high labour costs, particularly when it comes to stitching and sewing capabilities in highly industrialised countries, and gaps in business and infrastructure support in developing countries.[52] Supporting more localised, diversified, and distributed supply networks are particularly important for policymakers in the post-pandemic context, as the fashion industry's supply chain fragility has been highlighted.[53]

QUESTIONS POLICYMAKERS CAN ASK TO INVESTIGATE FURTHER

- What type of collaborative and pre-competitive multi-stakeholder platforms are needed to harness and share expertise, and facilitate innovation and infrastructure development?
- How can research and development efforts, and innovation be scaled and leveraged to allow the development of local services in a viable way?
- What role can public investment play, directly or through blended finance solutions, to unlock infrastructure funding, and attract private finance and make projects investable?
- How can employment policies contribute to making circular business models more inclusive, for example through developing training and education programmes to close the technological, digital, and manual skills gaps to capture the associated job creation opportunities?

POLICIES AND INITIATIVES THAT CAN BE BUILT ON

- The Sustainability Pledge launched by the United Nations Economic Commission for Europe (UNECE)[xix]
- The EU's sustainable finance strategy and implementation of the action plan on financing sustainable growth[xx]

xxii This initiative is inviting governments, garment and footwear manufacturers and industry stakeholders to pledge to apply its toolkit of measures and take a positive step towards improving the environmental and ethical credentials of the sector. Source: The United Nations Economic Commission for Europe (UNECE), Traceability for Sustainable Garment and Footwear (2021)

xxiii European policymakers are stepping in to develop a classification system ("EU taxonomy") that defines 'green' economic activities, to increase transparency for financial institutions to better assess the climate-related risks of investments, or to develop dedicated finance instruments, such as green bonds. Source: European Commission, Overview of Sustainable Finance (2021)

4. Scale a wider range of circular business models

Scaling a variety of circular business models can increase the economic and environmental opportunity. While resale, rental, repair and remaking have gained the most traction to date, implementing a wider variety of circular business models and combining them where effective could open up new markets within the fashion industry and bring greater environmental benefits.

WHAT IS IT?

Exploring a wider and more diverse range of circular business models means innovating new ways to generate revenue without producing new products. resale, rental, repair, and remaking models are not the only way to decouple revenues from production and resource use. Other models can be created by considering the three categories of circular business models (see column on the right).

WHY IS IT CRITICAL TO THE IMPACT OF CIRCULAR BUSINESS MODELS?

While it is possible for circular business models to grow to 23% of the global fashion market by 2030 by scaling resale, rental, repair, and remaking alone, this is still a small market share compared to that held by the traditional linear fashion market. In order for circular business models to gain a bigger market share more rapidly new circular business models and combinations of circular business models need to be developed.

Bringing together multiple circular business models under one overarching strategy can increase their effectiveness in decoupling revenue streams from production and resource use. For example, combining resale (which falls under the more users per product category) and repair (which falls under the more use per user category) could help users keep second-hand purchases in use for longer. Such a model could also be combined with a digital model, for example to enable a user to 'try on' an item before buying it, therefore ensuring it is used by the buyer and not wasted after purchase.

Models that go beyond physical products have a huge opportunity to increase the environmental opportunities of circular business models. On a like-for-like comparison, for example, producing one digital product vs one physical product eliminates material waste and reduces GHG emissions by 97% while, on average, using 3,300 fewer litres of water. It also eliminates transport (e.g. air travel), resulting in additional GHG emission savings.[54]

CIRCULAR BUSINESS MODELS FALL INTO THREE CATEGORIES:

MORE USE PER USER

Enabling a user to wear a product more and for longer. This could include designing products to be physically and emotionally durable, providing services to support long-term use, and empowering users to use their products more and for longer (e.g. tips for DIY customisations).

MORE USERS PER PRODUCT

Designing and providing platforms and/or services that facilitate the movement of products from user-to-user so the products can be used more. Products can pass from one user to another after any period of time and on a 'one-off' or periodical basis.

BEYOND PHYSICAL PRODUCTS

Designing and developing non-physical, digital products and/or services that replace, enhance and complement users' fashion needs and aspirations.

How are businesses scaling new circular business models?

BEYOND PHYSICAL PRODUCTS

- **DressX** is a digital fashion multi-brand retailer, providing users with digital clothes that they can purchase to be digitally worn immediately. Users receive the picture of themselves with the bought look, which they can use as many times as they want. Users tend to use the images in their social media platforms and to curate their own virtual identities. As such, DressX provides a solution for social media content creation without the need for physical products.

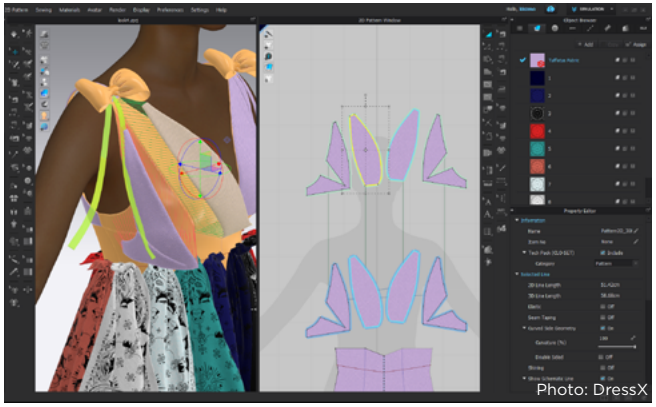


Photo: DressX

- **The Fabricant** collaborates with physical brands such as Napapijri and Tommy Hilfiger to digitise their marketing campaigns and collections so that products don't need to be made for them. It also gives away many of its 3D pattern files to its audience of digital creators, encouraging them to create their own iterations of digital garments. The Fabricant works with its brand partners to create digital solutions that are inclusive by design while avoiding the production of items that would not have been used for long.

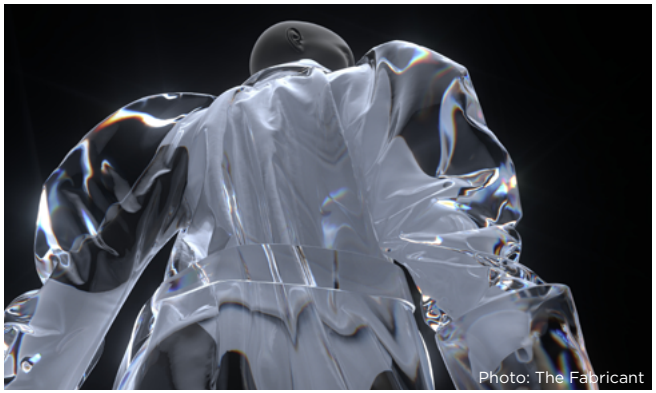


Photo: The Fabricant

MORE USERS PER PRODUCT

- **Hack Your Closet** offers a rental subscription service of used or unsold fashion products. It curates each box to match users' style, thus maximising the use of the selected items. Hack Your Closet leverages data analytics and human judgement to curate each subscription box to match subscribers' individual style. As such, it offers a personalised service that introduces 'new' clothes to its users on a periodic basis while maximising the chances of increasing the use of those products. Its technology solution to curate each box aims to reduce decision fatigue (i.e. choosing what to wear in the morning) and provide users with a convenient styling solution while reducing their impact on the environment. Additionally, Hack your Closet reuses all their packaging and maximises their transport routes and vehicles so as to be as close to zero-emissions as possible.

Photo: Hack Your Closet

- **GANNI** is combining rental, remaking and resale business models. It launched rental platform, 'GANNI Repeat', as a first trial in Denmark in 2019, which has now been expanded in the UK and US, and has introduced remade products to the platform from GANNI's previous collections. To achieve such creative and innovative designs, GANNI has collaborated with other brands such as LEVI's and Nanna Bernholm, creating 'one-of-a-kind' rental-only collections reworked from existing fabrics. Recently, GANNI also partnered with luxury resale site **Vestiaire Collective** to work on keeping products in circulation together.

Photo: GANNI

MORE USE PER USER

- **H&M Group** is working on extending the use of their garments through different initiatives. **H&M brand** for example, offers a customisation service to encourage products being used for longer. Users can customise suitable garments from prices starting at GBP 3 (about USD 4). H&M brand has also published tips, guidance, and information on keeping existing pieces in use through customisation, such as making a maxi dress into a different garment through hm.com. Recently, it launched **M.IN.T Care**, an initiative providing repair, mending, and washing. Users sign-in to the platform to arrange for their items to be collected from their home. Then, once repaired, they are delivered back to their door. The platform also provides 'do-it-at-home' tips, including useful repair hacks and remake tips – inspiring users to make fashion last longer.
- **Tommy Hilfiger** has rolled out different circular business models through **Tommy for Life**. It takes pre-owned TOMMY HILFIGER and TOMMY JEANS pieces as well as damaged items from retail operations to repair for resale, or remix into unique new styles. When implementing their take-back programme, they have partnered with **The Renewal Workshop** (TRW). Products collected by TRW get cleaned (using waterless cleaning technology), repaired and then sent back to Tommy for Life to circulate through more users. Tommy for Life provides the Tommy product teams with data on the most common points of damage of an item, which can then be fed into the design process to create more durable products in the future.

Photo: Tommy Hilfiger

MORE USERS PER PRODUCT AND MORE USE PER USER

- **ARKET** focuses on contemporary Nordic designs that are relevant throughout the seasons. Given the high physical and emotional durability of its garments, it looks to increase the number of users per product through different models. For example, it launched a new series of 'Patchwork Denim' using vintage fabrics from its take-back programme with textiles collector **I:Collect**. ARKET makes each garment 'one-of-a-kind' and the sourcing and manufacturing process provides the garments with a richer story. ARKET also offers products from its children's collection for rent through a new partnership with the online shop and clothing subscription **Circos**. Now, a broad selection of ARKET designs can be rented either individually or as part of a bundle. Once children outgrow the garment(s), they can be returned and exchanged for a new item(s).
- **By Rotation** encourages users to rent what they need from other users and lend what they don't, therefore the business provides a service without holding any inventory itself. To make the cleaning process easier for lenders, By Rotation has partnered with the clothing care provider, **Clothes Doctor**. Its emphasis on community and in-person events encourages users to lend or rent items in-person. Users tend to have similar interests as they are mostly young female working professionals who live in urban areas.

There remain numerous opportunities to develop new ways of doing business in the fashion industry. The possibilities of creating new circular business models across the three categories is not limited to these examples.

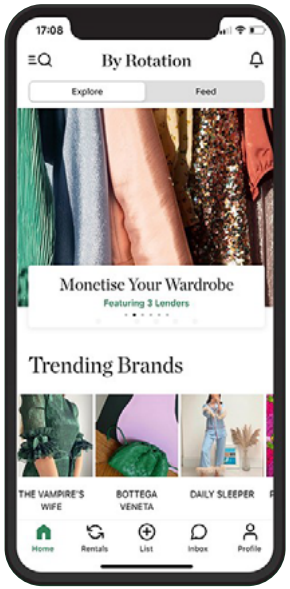


Photo: By Rotation

Key considerations when developing circular business models

There are a number of overarching aspects to consider when developing and scaling circular business models:

- **Internal business capabilities:** Changes to design and services may impact how a business operates and the skills and teams it needs to make circular business models work. Building capabilities internally is key to the success of these circular business models.

- **Operating spaces:** To offer new services to keep products in use, businesses may need to invest in new physical and digital spaces or reconfigure existing spaces (e.g. to create a repair workshop). This is particularly crucial given the increase in digital-first as a result of the Covid-19 pandemic,[55] with research suggesting more people now prefer on-demand services that extend their item's life (e.g. repairs) to be offered digitally.[56]

- **Product authenticity:** This is particularly relevant for the high-end/luxury market where there is a need to ensure product authentication while emphasising and communicating to users which tools and measures have been employed to guarantee a product's authenticity and instil trust in the service.[57] It is also important to consider distinct cultural perceptions.[58]

- **Product hygiene:** There is a need to innovate, invest, and scale cleaning solutions that are low-impact and safe for the environment.[59] Such innovations are particularly important in a post Covid-19 context, as there is a high user concern regarding product hygiene during previous use and handling.[60]

- **Product packaging and delivery:** Circular business models that achieve more users per product will likely require more transportation. As such, businesses should consider the impact on packaging and delivery. Increasing the recycled content in product packaging, for example, increasing the number and types of drop-off points, and bringing all cleaning and maintenance into the distribution centre can all contribute significantly to environmental savings.[61]

- **Cost of service operations:** Reverse logistics and processing costs, specifically single-item handling, is the single highest cost for most of the circular business models.[62] Businesses will need to consider the different options available to increase the profitability of the circular business model (e.g. assessing B2B partnerships, opting for peer-to-peer models where these costs are externalised).

- **Technology needs:** To enable more use per user in a way that is cost effective and efficient, businesses may need to invest in new technologies or support their supply network to make investments (e.g. to identify and use new materials that are both durable and recyclable). This includes digital infrastructure for circular business models that include or go entirely 'beyond physical products'.

- **Product or service marketing and communication:** Some circular business models will challenge commonly held assumptions, such as a lower price being associated with a lower quality product,[63] meaning that if a business is offering a durable product at a low price, communication will be vital to users making the most of the product and related services. Efforts will need to be made to communicate effectively with users so that they have an understanding of how to access and make the most of these circular business models as well as the benefits of those models to them.

Potential revenue and cost benefits of circular business models

Circular business models benefit from better product margins and competitiveness. Additional services during product use – such as restoration, customisation and tailoring – can provide businesses with multiple revenue streams from one product, while customers can tailor products to their style. At the same time, there tends to be costs that can be reduced due to savings from better resource productivity and risk reduction,[xxiv] valorising production by-products (e.g. in remake), or innovation rendering new markets.

REVENUE BENEFITS

- **Increased brand loyalty:** Physically durable products sold with quality guarantees (e.g. free repairs) can increase user confidence in products and thereby increase brand loyalty. When customers are confident they will get greater levels of use out of a brand's products and a good aftercare service, they are more likely to return to that brand.

- **Access to customer and product use data:** Additional services (e.g. repairs and customisations) provide brands with access to user demand and product use data. This can be used during product design and to reformulate products in order to increase physical and emotional durability. It enables businesses to develop their customer offering to increase traction and revenues.

- **Increased customer base:** As circular business models can provide the same product to multiple users, they can expand the customer base of a business by making luxury items, for example, more affordable.

- **Access to rare and unique clothes:** Many items being resold are no longer available from brands, increasing the chance of users finding unique, 'one-of-a-kind' items which allow self-expression and individuality, increasing the product's emotional durability.

- **Proactive to financial institutions' requirements:** Fulfilling investors' ESG (Environmental, Social, and Governance) requirements is likely to be facilitated by engaging in circular business models that improve firms' environmental performance.

- **'Newness' without the 'new':** This approach is able to meet user needs of novelty, 'accessibility', 'affordability' and 'fast delivery',[64] without having to make any new physical items.

- **Improved organisational performance:** There is evidence that the implementation of circular business models – such as reusing, recycling, recovery and restoration of resources used in manufacturing, distribution and use-phase processes – contributes to improved financial efficiency.[65]

xxiv See Appendix page 59 for more information on the internal and external risks of the linear model

COST BENEFITS

- **Improved inventory management:** Reduced reliance on raw material extraction and new production decreases risk from early value chain stages and lowers dependence on global supply chain. For example, applying the 'beyond physical products' approach dramatically reduces lead times and facilitates on-demand manufacturing. In the case of replacing physical clothes for digital alternatives, this category eliminates returned items, which are commonplace in traditional ecommerce.

- **Improved employee retention:** As a circular business model portfolio increases, the appeal of a business as an employer (especially for younger generations valuing sustainability more[66]) — largest impact is expected from introducing resale and/or rental.[67]

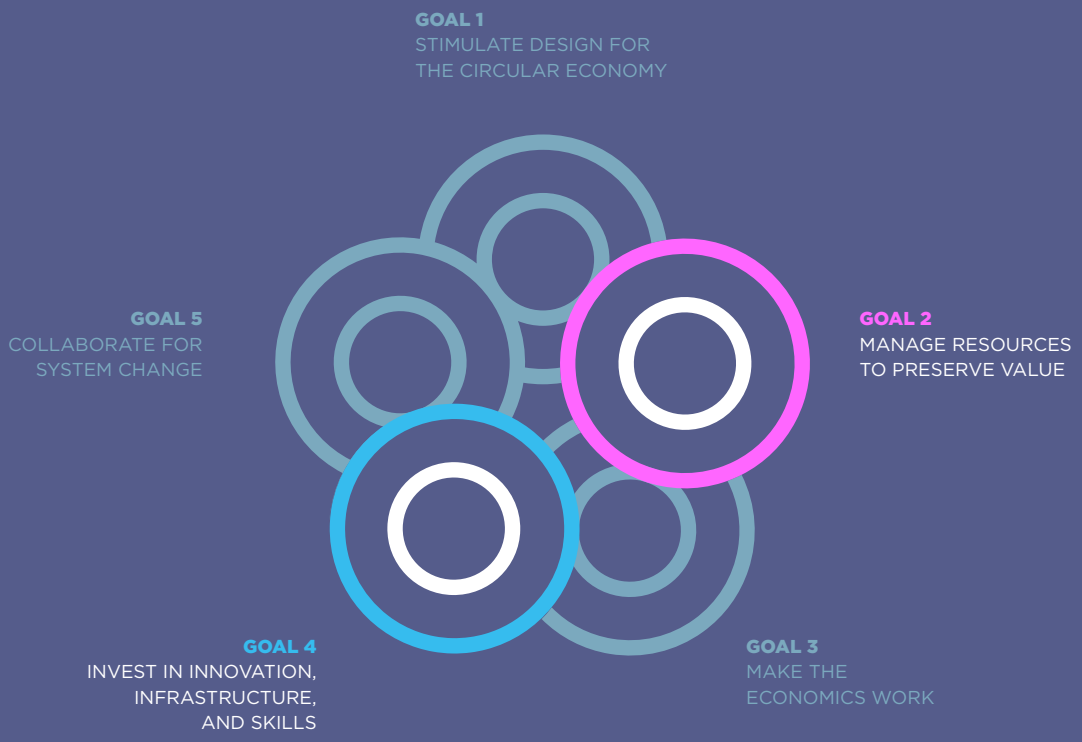
- **Increased resilience:** Circular business models decrease the negative impact of crises due to diversified revenue streams (higher resilience, especially when applying a combination of different models, e.g. rental and resale)[68]

- **Ahead of regulation:** As the need to address climate change is becoming more urgent, policymakers are working to reduce emissions, restore ecosystems, and prepare for the inevitable impacts of a globally changing environment. In fashion, for example, the European Commission announced that it will table its proposals for a EU strategy on sustainable textiles in March 2022. It aims to ensure that the European textile industry recovers from the Covid-19 crisis by making it more competitive, applying circular economy principles to production, products, consumption, waste management and secondary raw materials, and directing investment, research, and innovation.[69]

- **Positive impact on reputation:** Businesses that place circular business models at the centre of all activities, have a better reputation and are less likely to be publicly criticised.

What policymakers can do to ensure a wider range of circular business models is explored and scaled

FIGURE 15: ACTIONS TO SUPPORT A WIDER RANGE OF CIRCULAR BUSINESS MODELS FALL UNDER GOALS 2 AND 4 OF THE UNIVERSAL CIRCULAR ECONOMY POLICY GOALS



Source: Ellen MacArthur Foundation, Universal circular economy policy goals, Enabling the transition to scale

Policymakers can enable the exploration of a wider range of circular business models and accelerate their uptake by harmonising collection systems, aligning standards to support markets for used products and materials, and preventing textiles being landfilled or incinerated (Goal 2). For this, mobilising public-private collaborations and facilitating dedicated investments (Goal 4), for example through the introduction of well-designed Extended Producer Responsibility (EPR) schemes, will be crucial.

WHY THIS SUPPORTS THE SUCCESS OF CIRCULAR BUSINESS MODELS

To enable a wider range of circular business models in the market so that the transition to a circular economy can accelerate and scale faster, policymakers can develop systems and infrastructure that will help to make circular economy practices the norm. This can include systems and infrastructure needed for collection, sorting, and processing, including cleaning and repair facilities, as well as enabling traceability of products and materials. These are not yet existing in domestic markets at the capacity that would be required to scale the full range of circular business models.

By introducing mandatory, fee-based Extended Producer Responsibility (EPR) schemes all industry players putting new fashion products on the market have to provide ongoing funding dedicated to collecting and processing of their products after use. In addition, EPR can deliver benefits such as increased transparency, efficiency, and have the potential to incentivise upstream solutions to ensure that fashion products are designed to be used more, made to be made again, and made from safe and recycled or renewable inputs. To achieve this at scale, alignment on common rules across national EPR schemes is key, including on product categories covered, criteria for collection and sorting for reuse and recycling, as well as harmonised reporting obligations for the participating businesses.

QUESTIONS THAT POLICYMAKERS CAN INVESTIGATE FURTHER

- What kind of benchmarks can be defined for businesses to work towards that enable better environmental outcomes to be achieved, whilst setting the baseline for mandatory producer responsibilities in the future?
- What does a good EPR system look like that ensures dedicated, ongoing, and sufficient funding for collection, sorting, and reuse of fashion products?
- How can we develop EPR schemes in a way to create additional incentives for producers to adopt circular designs and business models?
- How can bans or penalties on the destruction of unsold goods, as well as caps or fees on landfilling and incineration create incentives to develop upstream solutions (e.g. aligning product design with intended circular business models or the development of digital fashion collections)?
- What role can public procurement play in creating demand for recycled fibres and reuse of clothing components?

POLICIES AND INITIATIVES THAT CAN BE BUILT ON

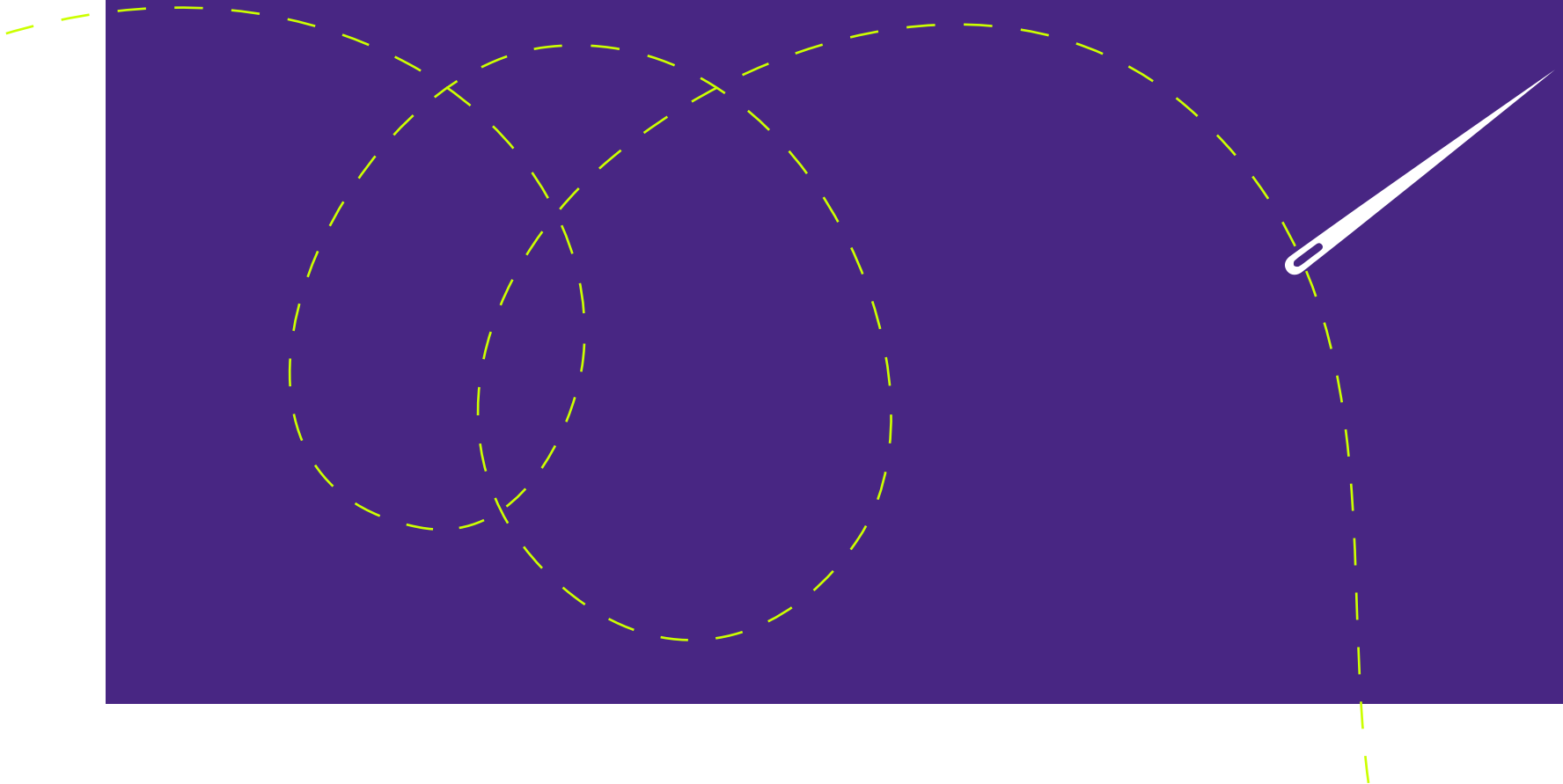
- European Commission: Study of the Joint Research Center on Circular Economy Perspectives in the EU Textile sector[73]
- France's Extended Producer Responsibility (EPR) scheme[74]
- Textile Exchange Content Claim Standard (CCS), Global Recycled Standard (GRS), and Recycled Claim Standard (RCS)[xxii]

xxv Textile Exchange develops and manages a suite of standards that provide the industry with a way to verify sustainability claims from the raw material to the final product. Read more about the standards here.

This is an ambitious agenda that offers **businesses and policymakers** the opportunity to ensure the fashion industry shifts towards a **better growth model**.

Now is the time to transform the way fashion does business.

Appendix



The linear fashion model is increasingly risky for fashion brands

INTERNAL RISKS

Operational challenges

- Increasing supply and sourcing risks due to changing raw material availability. For example, climate change impacts on renewable materials production (e.g. cotton), and sociopolitical impacts on movement of products through global supply chains
- Manufacturing and production risks due to potential labour disruptions and dependence on cheap labour
- Inventory management risks due to unsold overstock (e.g. resulting from fast pace of trends, price competition, and shocks, such as Covid-19)

Employee considerations

- Employee retention strategies (e.g. employees of brands with linear model may be dissatisfied with environmental commitments and actions)

Strategic concerns

- Strength of traditional business model potentially at risk (e.g. lack of diversification in times of crisis)
- Disruption from new players acquiring market share (e.g. resale platforms)
- Reputation and implications for brand value (e.g. customer sentiment regarding workers' health)

EXTERNAL RISKS

Political and economic volatility

- Policy and regulatory uncertainty (e.g. strained trade relations, changes in regulation and taxation) can impact relationships between different actors and negatively affect supply chain resilience
- Price volatility (e.g. raw material prices) can impact profitability and market growth

Investor pressure

- Investor pressure changing (e.g. increased ESG focus), setting new expectations and performance criteria for businesses

Competition

- Increased competition from new players entering the market (e.g. start-ups with more innovative design and materials, niche technologies, better customer experience)

Customer behaviour

- Change in preferences and shopping behaviour (e.g. millennials' and Gen Z's increased focus on the environmental impact of brands) affects businesses' customer base

Public attention

- Public scrutiny impacts businesses' image and brand value (e.g. NGO activism, social movements)

Fashion market

Overview of quantification methodology to establish the size of the fashion market in 2019 and projected growth

3-step approach applied to quantify the market size of the global fashion market today and project the revenue opportunity up to 2030:

1. **Evaluation** of available data from **external data sources** as a first indication

2. **Adjustment and refinement** of projections based on GDP and population correlation

3. **Refinement of data** with Boston Consulting Group (BCG) and fashion industry experts (both mass market and luxury) across the key regions

Outcome
Detailed projection of revenue opportunity from USD 73 billion in 2019 to USD 700 billion in 2030, including Covid-19 pandemic implications and broken down into key regions.

Circular business models market

Overview of quantification methodology to establish the market size of circular business models in the fashion industry in 2019 and projected growth

MARKET SIZE OF CIRCULAR BUSINESS MODELS 2019

- Quantification methodology defined for each circular business model (for details see Appendix pages 60-65)

- Assumptions for key variables based on external data sources (for details see Appendix pages 60-65) and testing of assumptions during 1:1 interviews with pioneers and incumbents

PROJECTED MARKET SIZE OF CIRCULAR BUSINESS MODELS 2019–2030

Forecast of market growth for circular business models assuming a best possible growth scenario by 2030.

- Analysis of historic growth rates, consumer insights; and expected trends (e.g. social activism, technological improvements), investor behaviour, and regulatory landscape with a focus on Europe

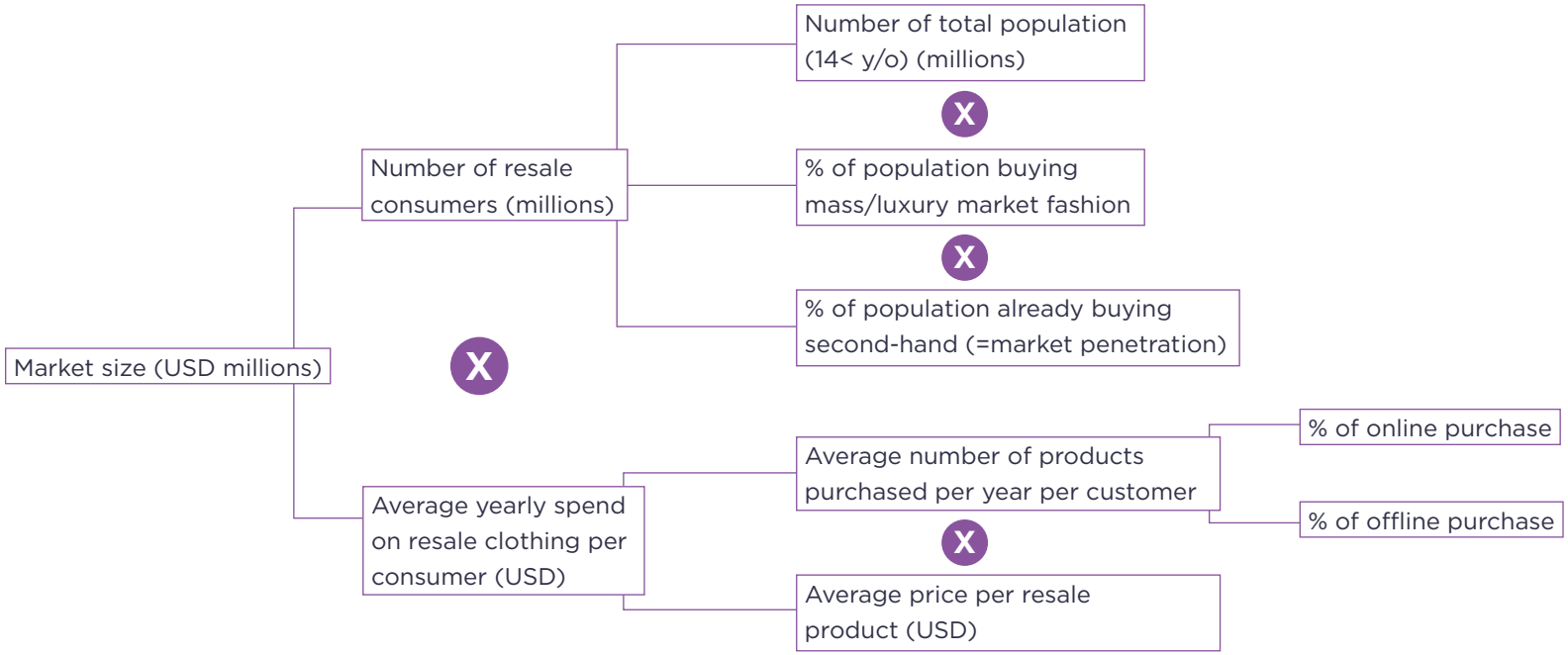
- Based on the above outlined research, bottom-up quantification of growth rates (2019-2025 and 2025-2030) up to 2030 for each business model along the key regions

Resale: Approach to quantify the market size in 2019

Expanding the lifecycle of a garment via multiple owners

Includes: **Peer-to-peer** sale of second-hand items (online and offline); **Third-party** marketplaces (online and offline); **Own-brand recommerce** (online and offline)

Calculated per key region and price segment



Note: Key regions include: North America, Europe (Western and Eastern), Asia Pacific, Middle East and Africa, Latin America

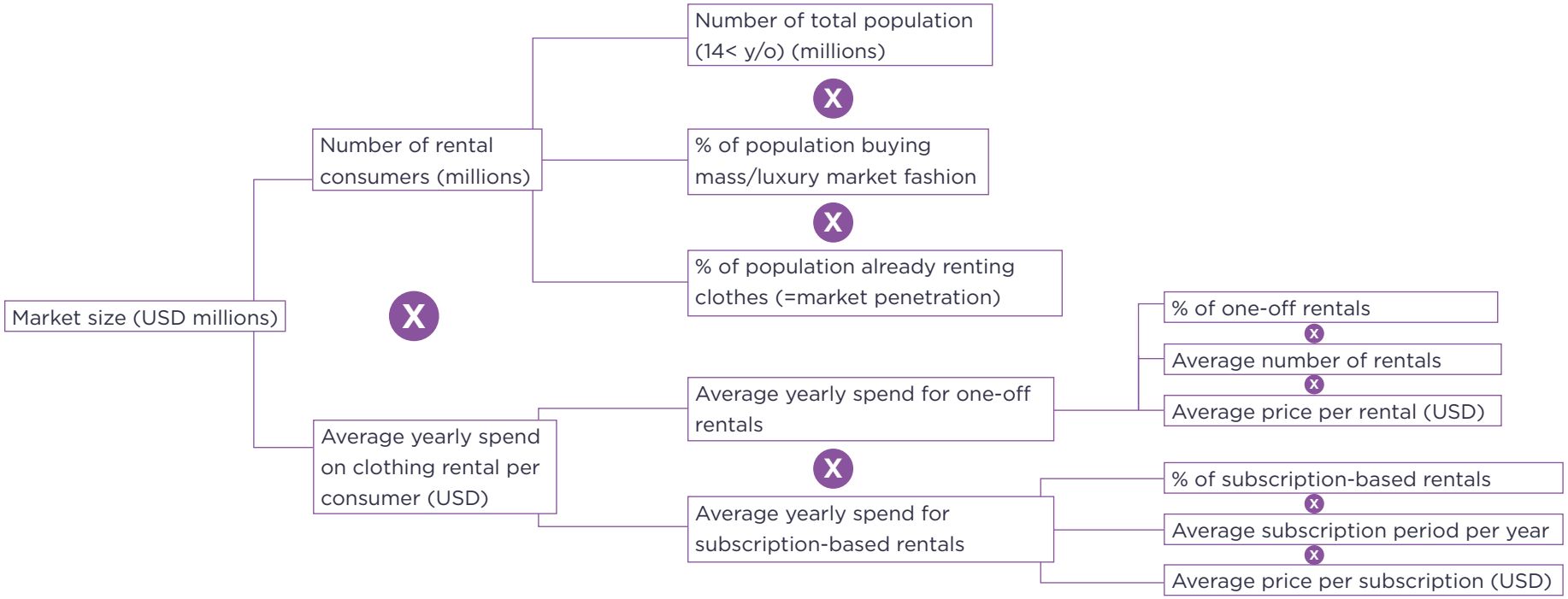
Sources: Oxford Economics (2018), BCG Triangulation based on expert interviews (2020); Bain and Altagamma (2020); UBS Resale Market (2020); Coresight Research, *Apparel Resale Goes Mainstream* (2019); Mintel, The rise of secondhand; Kantar Worldpanel (2019); thredUP Resale Reports (2017-2020); Vogue Business (2020)

Rental: Approach to quantify the market size in 2019

Increasing the utilisation of a garment by multiple users

Includes: One-off rentals peer to peer by private owners or rental platforms;
Subscription models by rental platforms or individual brands

Calculated per key region and price segment



Note: Key regions include: North America, Europe (Western and Eastern), Asia Pacific, Middle East and Africa, Latin America

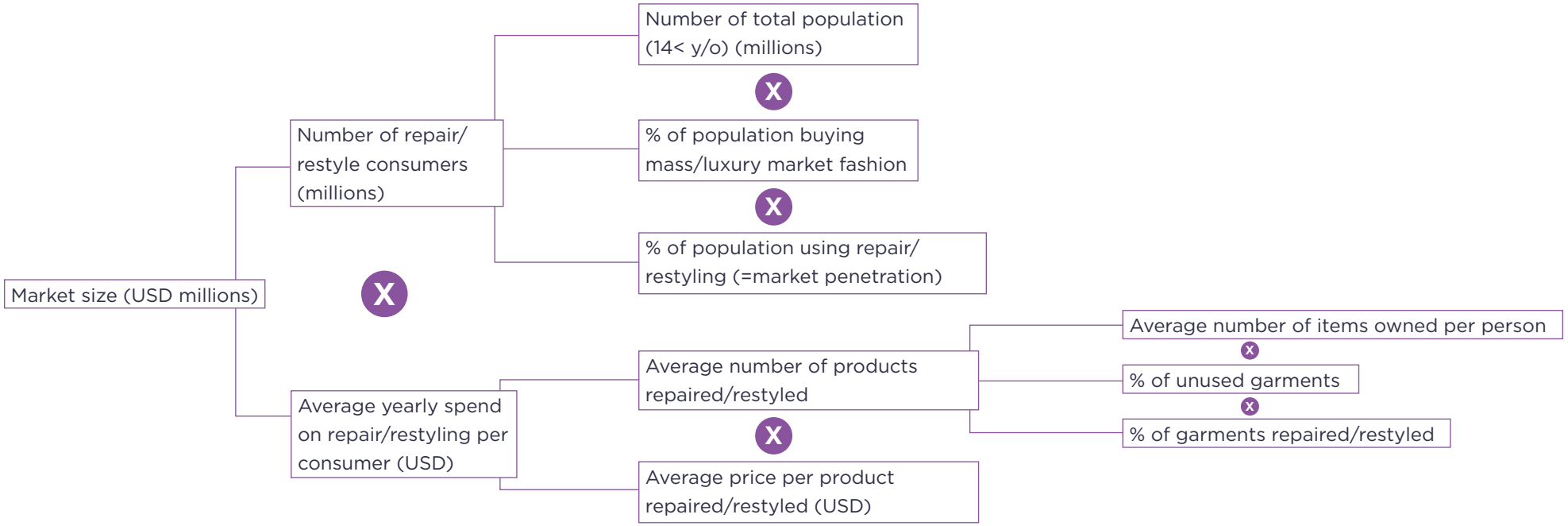
Sources: Oxford Economics (2018); BCG Triangulation based on expert interviews (2020), BCG-Altagamma, *True-Luxury Global Consumer Insights* (2020); Mintel, *Retailers partner with fashion rental disruptor* (2020); FFG (2020).

Repair: Approach to quantify the market size in 2019

Keeping a garment longer in the lifecycle of the same private user

Includes: Corporate repairs and **remake** services

Calculated per key region and price segment



Note: Key regions include: North America, Europe (Western and Eastern), Asia Pacific, Middle East and Africa, Latin America

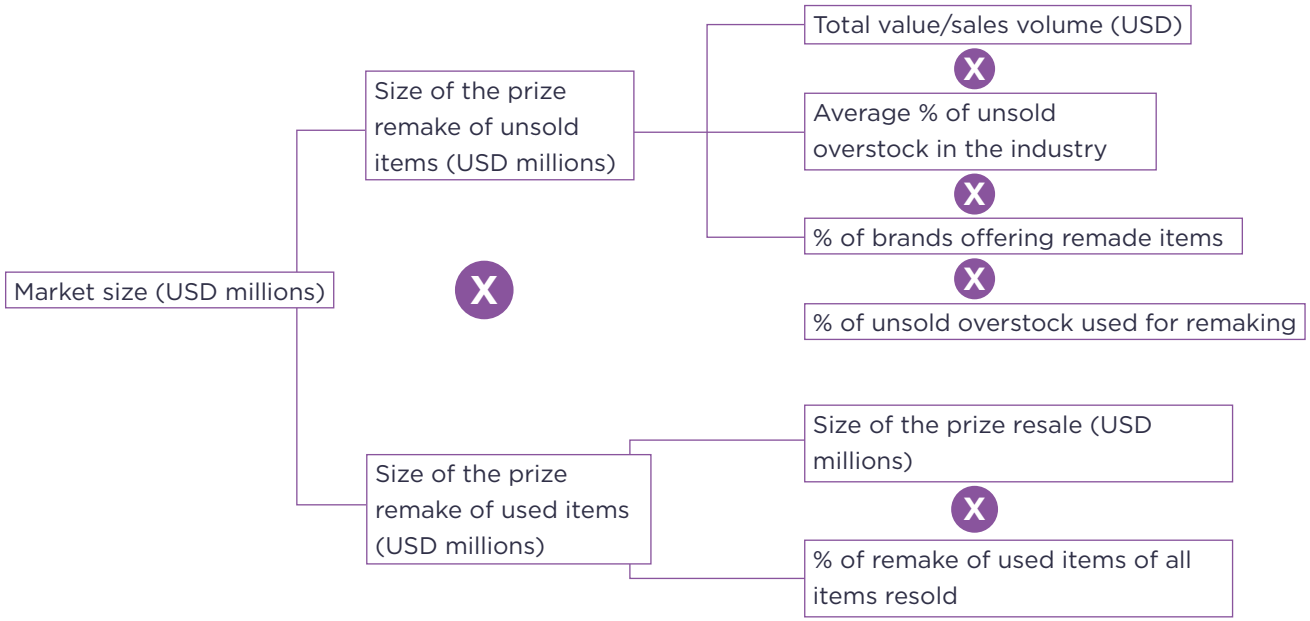
Sources: Oxford Economics (2018); BCG Triangulation based on expert interviews (2020); *BCG Fashion Consumer Trend Study* (2020); WRAP, *Consumer Clothing Survey* (2017); Ecotextile, *Young shoppers seek to make clothes last* (31st January 2020).

Remaking: Approach to quantify the market size in 2019

Expanding the lifecycle of materials of the same private user or via multiple owners

Includes: **Remade unsold overstock** to make it more attractive to customers;
Remade used, vintage items into newly attractive items

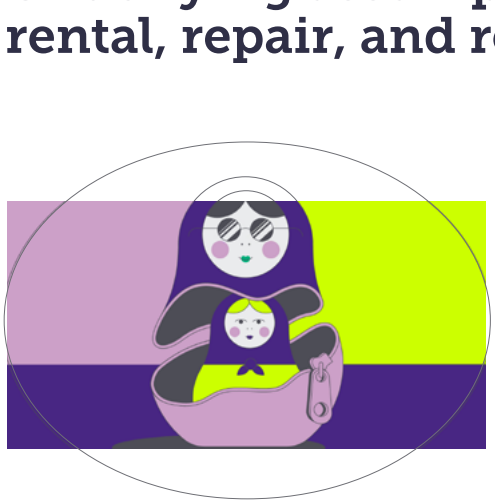
Calculated per key region and price segment

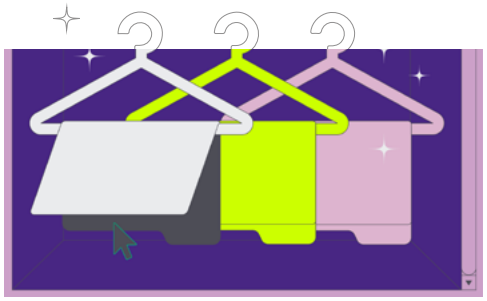


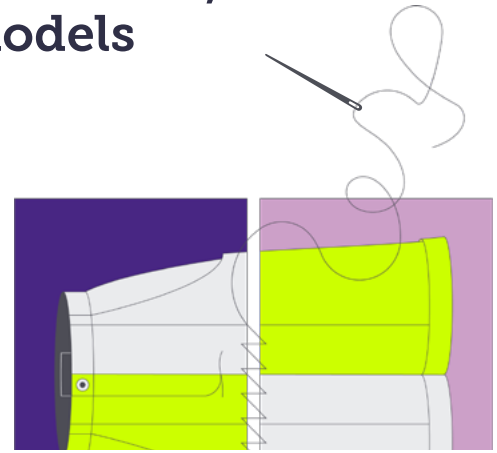
Note: Key regions include: North America, Europe (Western and Eastern), Asia Pacific, Middle East and Africa, Latin America

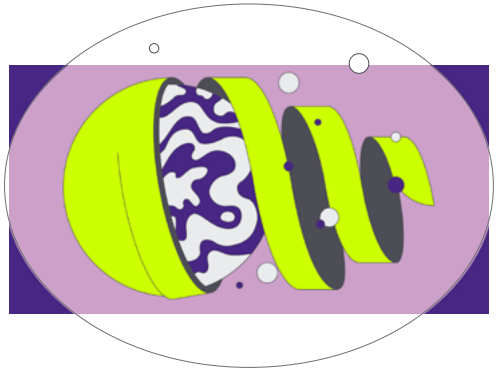
Sources: BCG analysis and expert interviews (2020): Remake was considered as part of the Resale calculation as remake items can be made out of used items and are then resold (3% assumed)

Underlying assumptions for modelling of resale, rental, repair, and remaking business models









RESALE

Increasing demand and adoption by younger generations, especially in Europe and the US, driven by environmental awareness and additional income opportunity and lower prices influences uptake.

The success of a few industry players to date leads to a wave of businesses following a similar model.

Hygiene, trust, and authenticity concerns impact the speed of resale uptake in Asia Pacific (due to historic experiences of counterfeiting, for example), with resale accelerating only after business-led strategies to reduce customer concerns and create trust.

EU regulation on the separate collection of textile waste indirectly incentivises brands to explore resale.

Improvements in textile collection facilitate collection of used items.

RENTAL

Slower growth than resale (based on assessment of growth to date) but expanding market in Europe and the US as customers become more comfortable with renting not just for special occasions but also for everyday items.

Increasing investment and innovation in reverse logistics technologies improve automation of warehouse logistics.

EU regulation on the separate collection of textile waste indirectly incentivises brands to explore rental.

A small number of industry players undertake a global expansion strategy that inspires other brands to follow.

REPAIR

Offering in luxury segment grows, as repair of luxury items provides higher margins due to better quality and durability of items, and customers' interest in preserving high-value items. Customers increasingly value repair services, particularly in the luxury sector, and put pressure on brands to scale existing repair offerings across regions and product categories, especially true after 2025 due to expected growth trajectory for repair market.

REMAKING

Brands explore new ways to handle used items and overstock in the post-pandemic economy. Remaking is an accessible solution to address this while creating additional revenue.

Demand for unique and individual pieces is driving the growth of remake items.

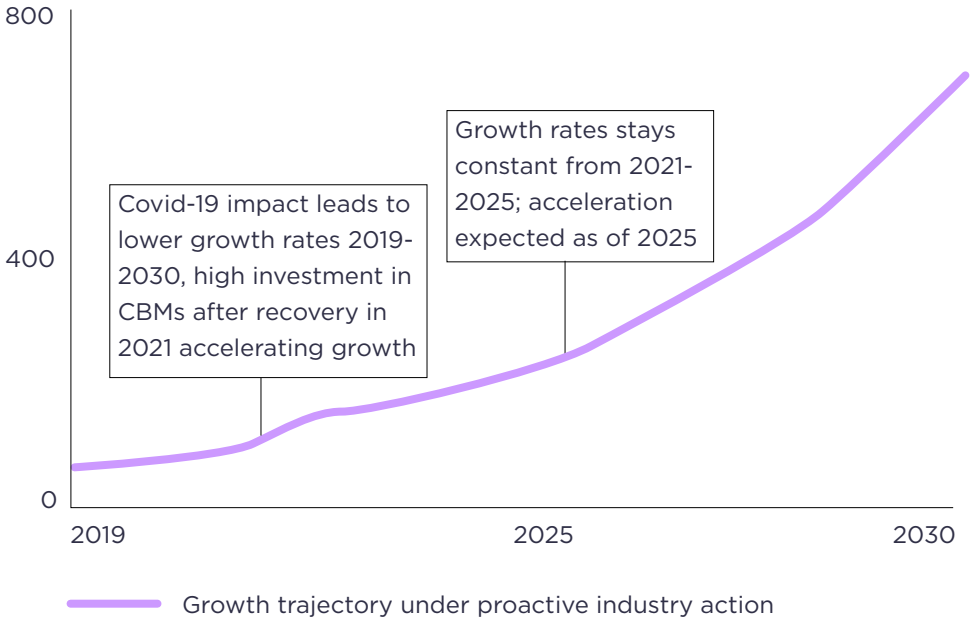
Customer sentiment related to environmental concerns is especially pressuring brands in ecommerce to avoid waste and keep products in circulation.

Material innovation and improvements in product design, motivated by growth of other CBMs like rental and resale, are expected to make it easier for brands and retailers to remake products.

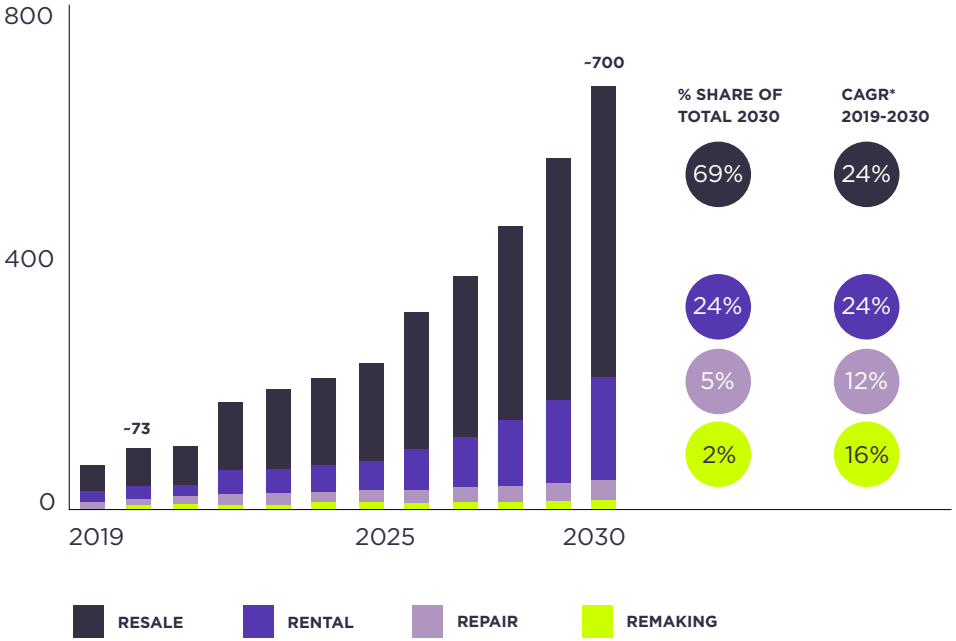
Regulation and investments improve demand planning tools and reverse logistics technologies, reducing the amount of overstock over time. Meanwhile, growth of other CBMs and waste regulations increase the amount of used clothes available to be remade.

Growth in market share of circular business models

Resale, rental, repair, and remaking market size 2019-2030 (USD Bn)



Market share of resale, rental, repair, and remaking up to 2030 (USD Bn)

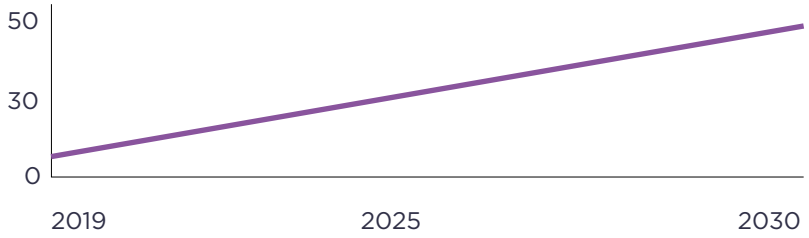


Note: The market share made up by circular business models at the time of publication is estimated to be around 5%, considering the growth of individual rental and resale businesses in 2020 and 2021.
* The compound annual growth rate (CAGR) is the rate of return that would be required for an investment to grow from its beginning balance to its ending one.

Quantification of circular business models' potential to reduce GHGs

Utilisation on global level across whole fashion market increases by factor of ~1.8x

Average utilisation rate for total fashion market 2019-2030
Global perspective



Assumptions: Utilisation in linear and circular business models

22
AVERAGE NUMBER OF TIMES AN ITEM IS WORN BEFORE CUSTOMER DISCARDS ITEM IN A LINEAR BUSINESS MODEL

126
AVERAGE NUMBER OF TIMES AN ITEM IS WORN BEFORE BEING DISCARDED IN A CIRCULAR BUSINESS MODEL

PRODUCT UTILISATION ASSESSMENT

1.8x Increase of utilisation from an average of 25 times per item in 2019 up to an average of 45 times in 2030

Jackets and jeans have in general a higher utilisation vs. shirts or knitwear due to their high durability and lower focus on newness and trends

As Europe and North America are expected to be the biggest markets for circular business models (based on current size and growth), utilisation is projected to increase. While circular business models are expected to make up a smaller market share elsewhere, utilisation in India, the Middle East; and Africa is already higher than in Europe or North America. Therefore, the impact of circular business models in utilisation is expected to be significant overall

Luxury items have a higher utilisation than mass/mid-price items due to their higher quality

Note: Utilisation for circular business models does not take into account potential improvements in durability and garment quality until 2030. If a garment were designed for circular business models it could go through various cycles and/or circular models. However, this is assumed to be unrealistic within the current garment specifications and is therefore not considered in the calculation

Sources: EMF A New Textiles Economy (2017); thredUP (2018); Greenpeace (2015, 2019); Wrap (2020); WSJ (2019); FARFETCH (2020); BCG Industry expert interviews (2020).

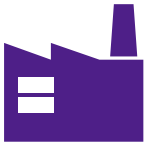
Two assessments of the potential impact of CBMs on CO_2e emissions were conducted

PRODUCT LEVEL

Like-for-like comparisons of linear and circular models based on utilisation: illustrative examples for a mass market cotton dress indicate potential emissions savings of ~30-60%.

Garment utilisation is based on average utilisation in Europe. Achieving high utilisation in circular models (e.g. 100 times for rental) requires a highly durable material and design.

Crucially, the dress also needs to be non-seasonal–otherwise, it is unlikely that it can be rented out to 20 different users and still be resold afterwards (see pages 21-22 for assessment for a non-seasonal dress).



INDUSTRY-WIDE

Top-down assessment of CO_2e savings due to CBMs (if 23% of the market) compared to the linear fashion industry indicates emissions savings potential of 16%.

This impact depends on the market share of CBMs in the total fashion market and the displacement rate (see Appendix page 69 for calculation breakdown).

Other factors affecting emissions (e.g. new production technologies, changes in energy sources, or infrastructure development) are not considered, as these are assumed to affect both the linear and circular model.

Source: BCG analysis

Calculation of the overall environmental benefits of circular business models

CURRENT FASHION VALUE CHAIN	DIRECT EMISSIONS IMPACT INTENSITY	SHARE OF TOTAL CO_2E EMISSIONS	EXPECTED CHANGE IN CO_2E EMISSIONS
DESIGN			
RAW MATERIAL EXTRACTION AND FIBRE PRODUCTION		~70%	- 23%
YARN, FABRIC; AND GARMENT PRODUCTION			
TRANSPORT		~5%	+ 2%
LOGISTICS			
RETAIL			
USE (E.G. CARE)		~20%	+ 6%
END OF LIFE		~5%	- 23%
		100%	~16% REDUCTION

Sources: WRAP (2012); Global Fashion Agenda (GFA) CEO Agenda (2020); BCG industry expert interviews (2020)

KEY ASSUMPTIONS

- Circular business models make up ~23% of the total fashion market (CBM market share in 2030 in high-impact scenario with 100% displacement)
- Displacement rate is 100%, thus ~23% of linear models are replaced by circular models
- Transport, logistics; and retail phase: only ~10% higher emissions from CBMs than linear model due to increased reverse logistics, assuming low emission local transport for CBMs
- Use phase: ~25% higher emissions from CBMs than linear model due to additional processing (especially washing and drying) required before reuse, assuming players use low emission care technologies
- Assumes proactive action by the fashion industry and continued efforts to address GHG emissions from infrastructure (e.g. energy and transport)
- Assumes decrease in revenue of linear model translates into decrease in production; decrease in production translates into decrease in production emissions and end of life emissions

Peer to peer (P2P) rental can generate a reduction in CO_2e emissions of up to 58% compared with the linear model

COMPARING RESALE TO THE LINEAR MODEL

Production (70% of total emissions): ~96% decrease in CO_2e emissions. Assumes a production decrease that translates directly into decrease in emissions from production.

Transport, Logistics, Retail (5% of total emissions): ~100% decrease in CO_2e emissions. Logistics emissions by customers sending items assumed to be 50% lower than for retailer; plus decrease in initial transport.

Use phase (20% of total emissions): ~94% increase in CO_2e emissions (dress is cleaned once by each user). Assumes each customer cleans special occasion dress once in linear model; each user cleans dress once in P2P rental.

End of life (5% of total emissions): ~96% decrease in CO_2e emissions. Assumes lower production translates directly to lower EoL emissions.

Overall, ~58% CO_2e emissions are saved in this rental model compared to the linear one*

FIGURE 9: P2P RENTAL CAN GENERATE A REDUCTION IN CO2E EMISSIONS OF UP TO 58% COMPARED WITH THE LINEAR MODEL

To achieve 52 uses in the linear model, **26 new special occasion dresses** need to be produced — each customer wears the dress twice.

Special occasion dress is rented out **50 times and worn once** by each customer. After 50 rental cycles, the dress is sold and worn another two times by the final customer — in total, it is **used 52 times over its lifecycle**. Then, the dress is no longer fit for reuse and needs to be remade or recycled.

Illustrative example for one-off peer-to-peer rental for a special occasion dress. To achieve 52 uses, the dress needs to be highly durable from an emotional and physical perspective.

*Differences in production set-up, energy sources, transport options and end of life options; between linear and circular models that would also affect emissions are not considered; average utilisation based on Europe
Sources: WRAP (2012) ;Global Fashion Agenda (GFA) CEO Agenda (2020); BCG industry expert interviews (2020)

Utilisation assessment methodology

Assessment of product use in Europe by business model type

LINEAR BUSINESS MODELS

Opportunity for clothes to be worn:

365 (days) x 6* = 2,190 items

Average items in one wardrobe at any one point in time: 110[1]

Utilisation per item (taking into account the whole wardrobe): 2,190/110 = ~20 times an item is worn

Cross-check with other studies

Utilisation in linear model ranges from 5-40 times with a mean number of uses as 14.7 times per item:

- Greenpeace 2015: 9.5 times in Germany
- WSJ 2019: 7 times in the UK
- WRAP 2020: 40 times
- Barnardo's, Survey (2015): 10 times
- Morgan, L.R. and Birtwistle, G. (2009): 7 times

RESALE

Luxury market

Item is used ~74[2] times by the first user, 59 (-20% of first usage) by the second user and 47 (-20% of the second usage) by the third user (reduced utilisation due to fast changing trends in luxury; but assumption that higher quality leads to longer durability)

Utilisation per item: 74 + 59 + 47 = ~181 times an item is used in total

Mass market

Each user is assumed to be using items as often as in the linear model. Item is sold twice, leading to a total of 3 users

Utilisation per item: 2 x 20 x 3 = ~60 times an item is used in total

Average utilisation per item: ~74 times, based on 20% luxury market share and 80% mass market

RENTAL

One item is rented out on average 20 times. Each rental item is worn 4 times. The item is sold after the rental, and assumed to be used a further 20 times before being discarded (for remaking or recycling in the circular economy)[3]

Same utilisation for luxury and mass market; one-off and subscription rental both included

Utilisation per item: 20 x 4 + 20 = ~100 times an item is used in total

REPAIR

Item is used 20 times, as in the linear model, but is then repaired and used a further 15 times (less than before the repair, as the quality of the material is reduced and potentially repair is visible)

Utilisation per item: 20 + 15 = ~35 times worn

REMAKING

Same behaviour as in the linear model (item is like a new item) = **~20 times worn**

Remake of used item: item is worn 20 times (same assumption as in resale for mass market products), resold in new style and worn again 20 times = **~40 times worn**

Utilisation per item: ~40 times worn

*It is assumed that in Europe, a person wears, on average, 6 items of clothing per day

1. thredUP, Resale report (2018-2020), Greenpeace, Detox Fashion (2015)
2. Farfetch, consumer research (2020)
3. Based on interviews with businesses that contributed to this study, listed on page 74; Fashion For Good and Accenture Strategy, *The Future of Circular Fashion* (2019)

Source: BCG analysis

Disclaimer

This study has been produced by the Ellen MacArthur Foundation (the "Foundation"). The Foundation exercised care in preparation of the study, and used information it believed to be reliable, but it makes no representations and provides no warranties in relation to the completeness, accuracy, reliability, fitness for any purpose, or any other feature, or in respect of any use, of the study, and you should not rely on this study as the basis for any business, legal or any other decisions. Further, any financial evaluations, projected market and financial information, and conclusions contained in this document are based upon standard valuation methodologies, are not definitive forecasts, and are not guaranteed by the Foundation. You use and rely upon the study at your own risk, and on condition that the Foundation (and its related people and entities and its and their employees and representatives) shall not be liable for any claims or losses of any kind arising in connection with or as a result of use of or reliance on this study, including but not limited to lost profits and punitive and consequential losses.

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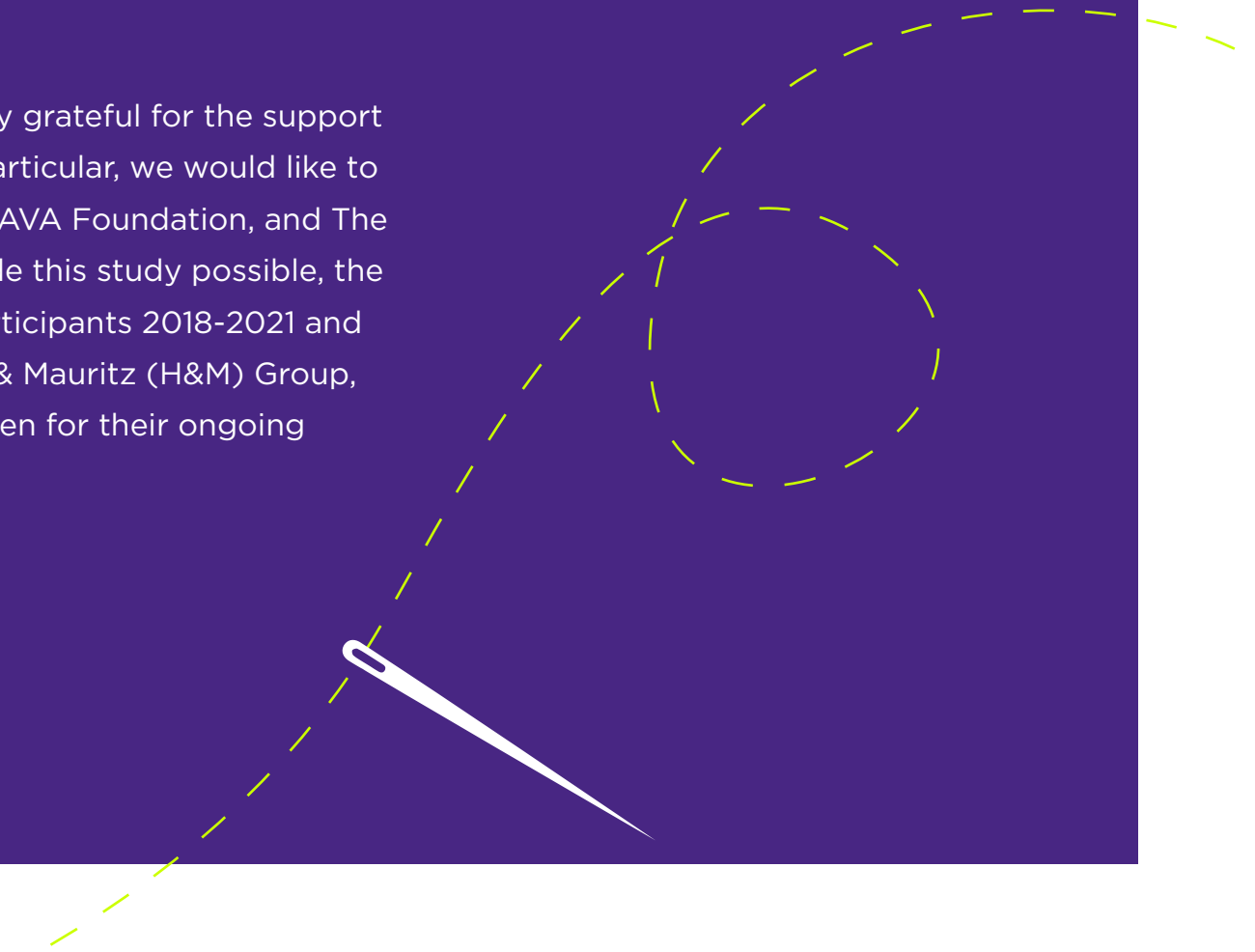

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About the Ellen MacArthur Foundation

The Ellen MacArthur Foundation is an international charity that develops and promotes the circular economy in order to tackle some of the biggest challenges of our time, such as climate change, biodiversity loss, waste, and pollution. We work with our network of private and public sector decision-makers, as well as academia, to build capacity, explore collaborative opportunities, and design and develop circular economy initiatives and solutions. Increasingly based on renewable energy, a circular economy is driven by design to eliminate waste, circulate products and materials, and regenerate nature, to create resilience and prosperity for business, the environment, and society.

ABOUT THE FOUNDATION'S FASHION INITIATIVE

The Fashion Initiative was launched by the Ellen MacArthur Foundation as 'Make Fashion Circular' at the Copenhagen Fashion Summit 2017, and brings together leaders from across the fashion industry to work with cities, philanthropists, NGOs, and innovators. Fashion companies that are in the Foundation's Network include: Strategic Partner – H&M Group; Partners – Inditex, Lacoste, Primark, PVH Corp., Ralph Lauren, and Zalando; and members. The Foundation's Fashion Initiative is leading international efforts to stop waste and pollution by creating a circular economy for the industry, where products are used more, are made to be made again and are made from safe, recycled or renewable inputs.

Further information: www.ellenmacarthurfoundation.org | @circulareconomy

Endnotes

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