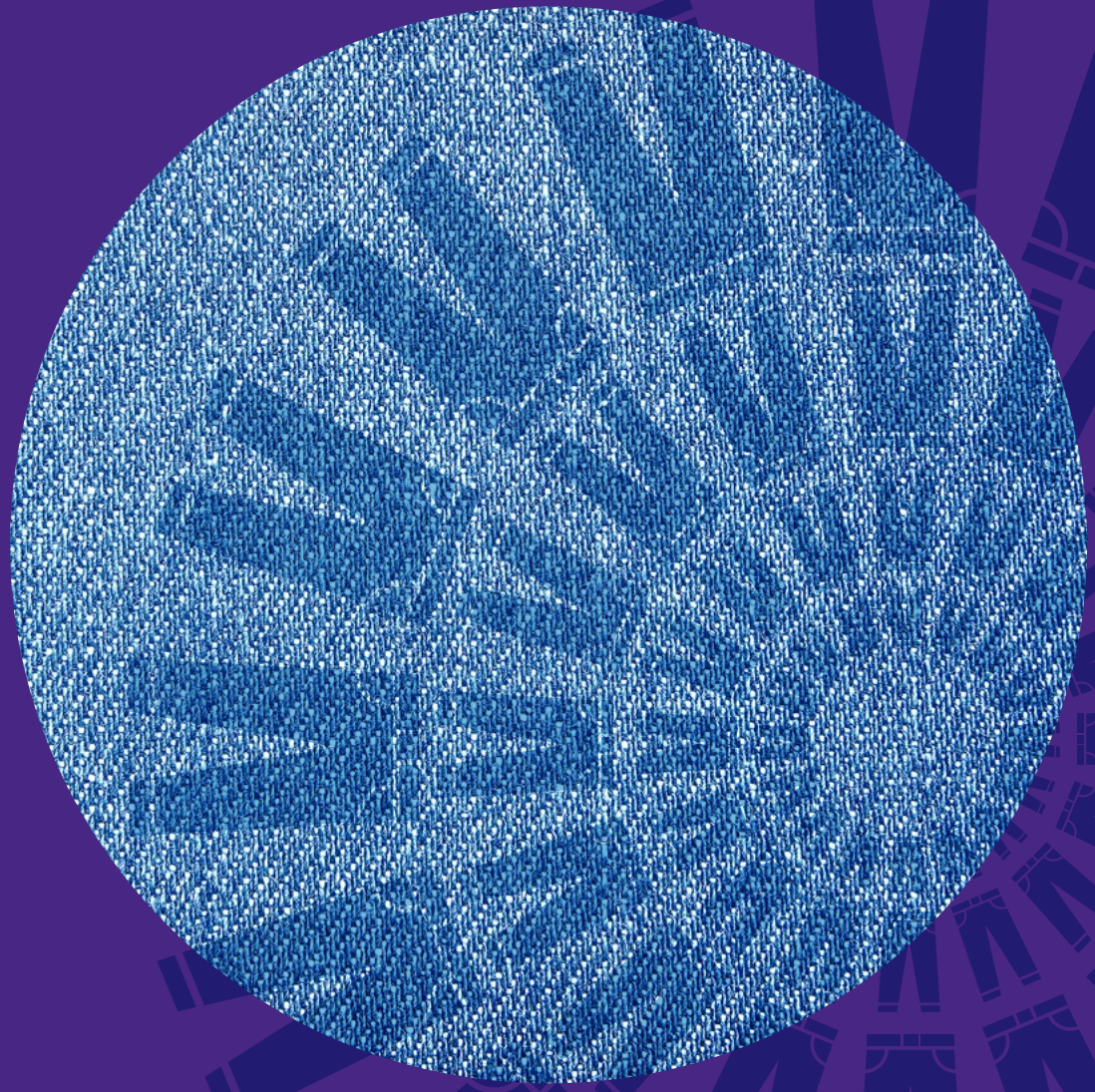
ELLEN MACARTHUR FOUNDATION | THE JEANS REDESIGN

The Jeans Redesign

Insights report



2021 - 2023

Jeans are **iconic**.

But the way we make jeans today causes **waste and pollution**.

The Jeans Redesign demonstrates that **it can be different**,

by making jeans fit for **a circular economy.**

Meet the participants

100
participants

VALUE CHAIN

8
vertically integrated units

19
fabric mills

23
manufacturers

50
brands

ACROSS

25
countries

5
continents

The Jeans Redesign 2021-2023

100

Brands, retailers, garment manufacturers and fabric mills participated

25

Countries represented across Africa, Asia, Europe, North and South America

1.

Circular design can become the norm

- Participants have demonstrated it is possible to redesign 100% of their jeans portfolio to be fit for a circular economy
- Garment manufacturers and fabric mills are ready to supply brands and retailers
- Circular design principles are increasingly being applied to other garments, with 29% of participants applying principles beyond denim

72%
of participants have made fabric or jeans that meet the guidelines

1.5m+
1.5 million pairs of redesigned jeans were brought to market by brands in 2023 - 3x more than 2021

40%+
11% of brands redesigned 40%+ of their jeans portfolio with some reaching 100%

2.

The solution pathways are clear

- For certain criteria, it is no longer a question of technical capability, but a design choice
- Progress has been made to scale previously limited solutions
- Action has been taken to surface innovation
- Remaining design challenges and material innovation gaps to bridge are clear

Technical capability exists for organic content, rivet elimination, safe chemicals, and alternatives to conventional electroplating

87%
Up to 87% of post-consumer recycled content was incorporated into participant jeans, while still meeting the durability guidelines

2%
Limiting non-cellulose-based fibres to 2% remains a material innovation challenge to deliver styles and comfort that appeal to customers, including jeans with stretch

3.

Without systems change progress will not be fully realised

- Businesses are investing to bring redesigned products to market
- Organisations are sending demand signals to stimulate the necessary infrastructure
- Participants are taking action beyond product design

Participants continue to report making investments and paying premiums to bring redesigned products to life

Increased public commitments to source a minimum percentage of post-consumer recycled content sends demand signals crucial for stimulating the development of infrastructure

69%
of brands reported having ongoing circular business models in place, including 29% offering resale and 24% offering repair services

Calls to action

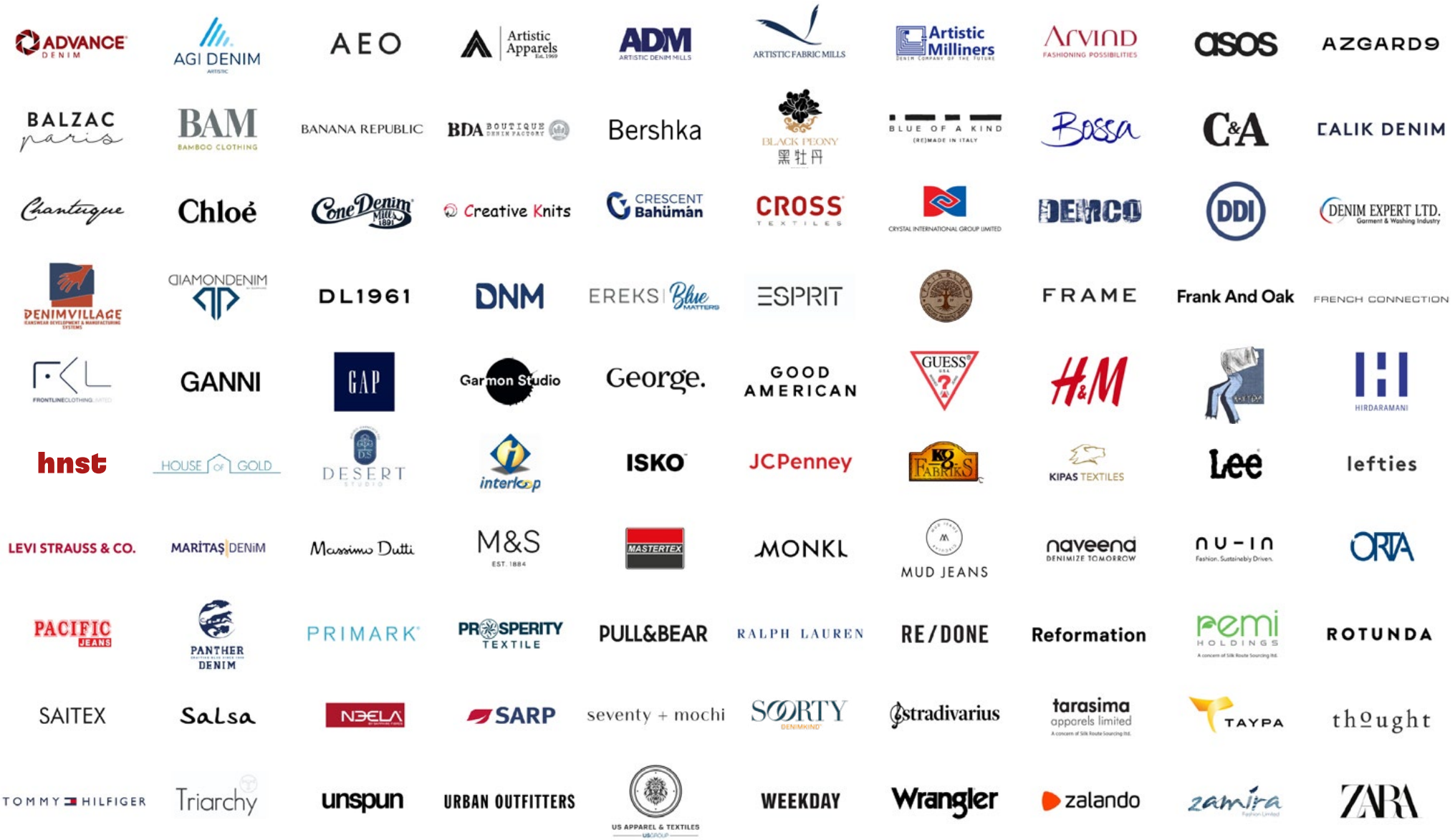
To drive forward, the Ellen MacArthur Foundation calls on businesses and policymakers to:

> Make circular design the norm - scale to include all jeans and other garments

> Make the economics work - price in the true cost to level the playing field

> Move from product redesign to systems redesign - take bold and unprecedented action

The participants



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Context

PHOTO: MONKI

Why jeans need a redesign

THE CURRENT FASHION SYSTEM IS BROKEN

It extracts resources to make products that are used for a very short amount of time and, ultimately, thrown away. As a result of this take-make-waste model, every year the fashion industry misses out on hundreds of billions of dollars and contributes significantly to climate change, biodiversity loss, waste and pollution.

The fashion industry is responsible for more annual greenhouse gas emissions than all international flights and maritime shipping combined.[1] Between 2000 and 2015, clothing production doubled, while utilisation – the average number of times a garment is worn before it ceases to be used – decreased by 36%.[2] Global apparel production is projected to increase in volume by 63% by 2030 – equivalent to more than 500 billion additional T-shirts.[3] If growth continues along this trajectory, industry greenhouse gas emissions are estimated to rise to 2.7 billion tonnes per year.

The fashion industry is also a significant contributor to global biodiversity loss, driven by the pollution of air, water, and soil, and the degradation of ecosystems caused by raw material production methods, intensive washing, dyeing, and finishing processes, and eventually the incineration and landfilling of discarded clothes.

Jeans – which have been at the heart of countless fashion collections for decades, sold and worn almost everywhere and by all generations – are no exception to the fashion industry's take-make-waste model. Making jeans today requires large amounts of resources, such as water, and energy, and the way they are designed and constructed makes them difficult to remake and recycle after use.

A CIRCULAR ECONOMY FOR FASHION IS REQUIRED

In recent years, businesses across the fashion industry have started to take action to address these interlocking environmental issues. Such efforts – including the reduction of carbon emissions and water use – are essential. However, to create a thriving, nature-positive fashion industry, a radical transformation of the way products are designed, made, and used is required.

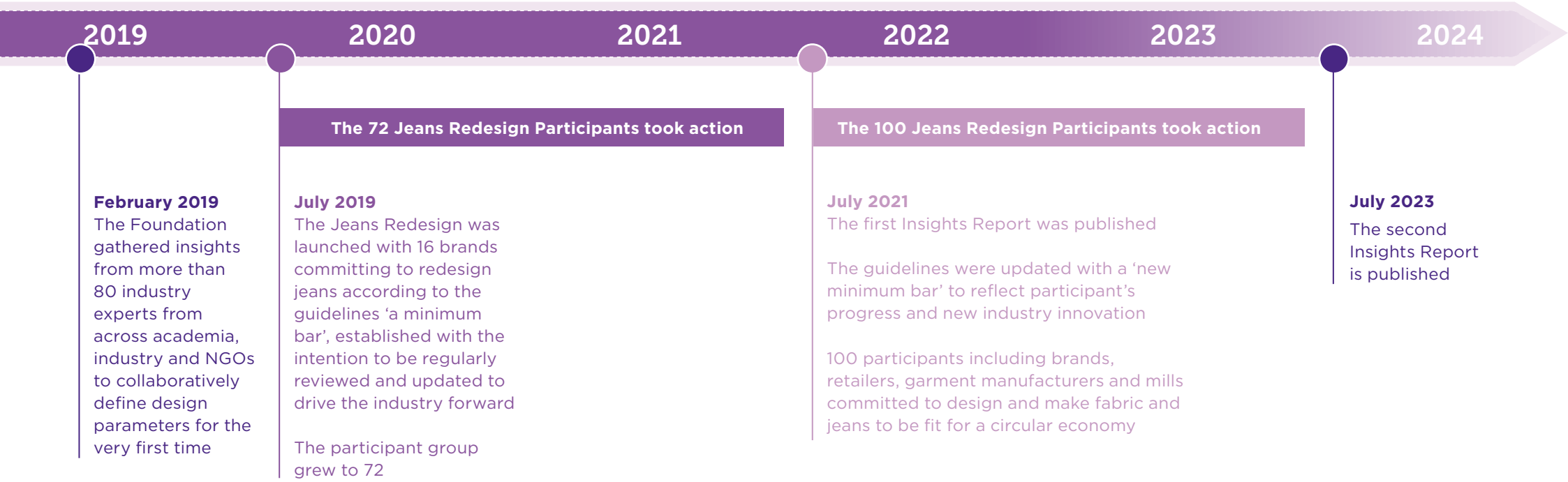
In a **circular economy for fashion**,[4] products are

- used more
- made to be made again
- made from safe and recycled or renewable inputs

Transforming the fashion system so fundamentally is a complex challenge. There is no single or simple solution, and no one organisation or system actor can do it alone. It means not only designing the products of the future, but also the processes, services, supply chains, and business models that will deliver them and keep them in use.[5]

The opportunity is both immense and exciting – **but where to begin?** By taking an iconic and universal product: **jeans**.

The Jeans Redesign: a starting point on the circular economy journey for fashion



The Jeans Redesign aims to demonstrate how jeans can be designed and made for a circular economy. In 2019 the Ellen MacArthur Foundation published the first-ever set of guidelines,[6] underpinned by common definitions, to make jeans fit for a circular economy and brought together the first participants committed to redesign these iconic garments. Today, 100+ organisations across the industry have redesigned and brought to market jeans that align with this ambition, by moving beyond theoretical discussions, learning by doing, testing new solutions, and overcoming innovation gaps.

The Jeans Redesign project has a built-in reporting mechanism to make it as robust and transparent as possible. Participants are required to report every two years, committing not only to produce fabric or jeans in line with The Jeans Redesign guidelines but also to provide full transparency on progress and the methods they have used to meet the guidelines. Any claims made by any organisation on progress towards a circular economy must be specific and transparent about the scale in which they are applied to the business. Individual company reports from 2021 and 2023 featuring reported data against each guideline from each company are published in full on the website.

Through their participation in The Jeans Redesign, **organisations are taking a step forward in their long-term circular economy** journey by putting redesigned products on the market. We welcome this progress. But in order to truly challenge conventional linear models at scale – and for a circular economy for fashion to become the norm – we must ensure that efforts focus not only on redesigning the products of the future, but on the services and business models that deliver them and keep them in use. **The path forward is clear. What is needed now is to accelerate the pace and scale of change.**

Jules Lennon, Fashion Lead

Summary of outcomes

PHOTO: HNST

Circular design can become the norm.

Participants of The Jeans Redesign are pushing their ambition further by not only proving it is possible to redesign a higher percentage of their jeans portfolio, but also by increasingly applying circular economy principles to other garments.

REDESIGNING UP TO 100% OF A COMPANY'S JEANS PORTFOLIO TO BE FIT FOR A CIRCULAR ECONOMY IS POSSIBLE

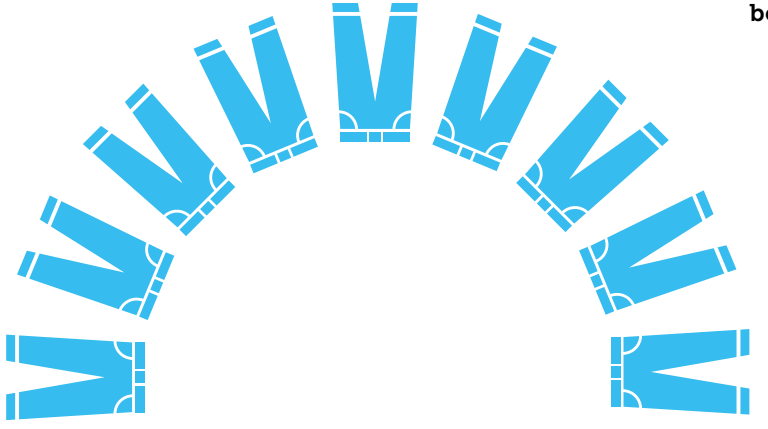
72% of participants overcame design and innovation challenges, resulting in brands bringing 1.5 million pairs of redesigned jeans to the market between 2021 and 2023. That's more than three times as many as in 2021, with one-in-nine brands redesigning at least 40% of their jeans portfolio to meet the guidelines with some companies reaching 100%, demonstrating that change is possible.

GARMENT MANUFACTURERS AND FABRIC MILLS ARE READY TO SUPPLY BRANDS AND RETAILERS WITH FABRIC AND JEANS COMPLIANT WITH THE GUIDELINES

Three-quarters of participating garment manufacturers and fabric mills have produced fabric or jeans compliant with The Jeans Redesign guidelines. Of the remaining garment manufacturers and fabric mills, a further 9% are ready to, with some reporting they are in discussion with buyers to start producing orders.

COLLABORATION, LEADERSHIP BUY-IN, AND CAPACITY BUILDING ARE ESSENTIAL FOR SUCCESSFUL CIRCULAR PRODUCT INNOVATION

Collaboration, internally and across the supply chain, and endorsed by leadership, has been crucial to progress. Participants who have successfully developed collaborations across the supply chain have seen higher levels of innovation at a product, material and component level, and have also been able to expand their circular business model offerings. Collaborations outside of the fashion value chain on research projects have also played an important role in developing circular design capacity across the industry.



GOING BEYOND JEANS: CIRCULAR DESIGN PRINCIPLES ARE INCREASINGLY BEING APPLIED TO OTHER GARMENTS

By building organisational understanding of how to apply circular economy principles to jeans, participants have begun to apply these principles to other fashion products. 38% of brands and manufacturers have reported applying the principles to other denim garments in their portfolios and 29% of brands and manufacturers have reported applying the principles beyond denim garments to jumpers, tops, and accessories such as hats and bags.

From the starting point of redesigning jeans, participants have progressed beyond proof of concept, and can now harness the creativity they've applied at a product level to ensure circular design becomes the norm.

2 The solution pathways are clear.

Participants of The Jeans Redesign are overcoming some barriers and surfacing innovation, proving that many circular design solutions are no longer a technical capability question, but a design choice.

THE JEANS REDESIGN HAS RAISED THE MINIMUM BAR FOR CIRCULAR DESIGN

In 2021, the 'minimum bar' of The Jeans Redesign guidelines was raised, increasing the ambition level to reflect positive participant progress (from 2019 to 2021) and a more mature innovation landscape.

FOR CERTAIN CRITERIA, IT IS NO LONGER A QUESTION OF TECHNICAL CAPABILITY, BUT A DESIGN CHOICE

In 2021, participants commonly applied solutions for use of organic content, rivet elimination, and safe chemicals. In 2023, progress has consolidated, and a further five criteria have been widely adopted, including: the use of 98% cellulose-based content, care labelling, durability testing, water usage for denim fabric, and safe wastewater. For several criteria, garment manufacturers commonly reported that while they have the technical capabilities available to meet the guidelines, they continue to add traditional hardware components where buyer orders specify them.

PROGRESS HAS BEEN MADE TO SCALE PREVIOUSLY LIMITED SOLUTIONS

In 2021, participants reported that, while available, post-consumer recycled content was costly and presented trade-offs with durability requirements. They also reported that finding hardware solutions that prohibited conventional electroplating was among one of the toughest criteria to achieve. In 2023, participants demonstrated progress in both these areas, with increased incorporation of recycled content and widespread elimination of conventional electroplating.

ACTION HAS BEEN TAKEN TO SURFACE INNOVATION

In 2021, only limited solutions existed for disassemblable hardware and built-in traceability. In 2023, design solutions and technology now exist for disassemblable buttons and garment traceability, and the path to scale these solutions is clear. Similar steps forward can be seen in regenerative sourcing with pockets of promising progress to source cellulose-based fibres with nature-positive outcomes, which was extremely limited in 2021.

REMAINING DESIGN CHALLENGES AND MATERIAL INNOVATION GAPS TO BRIDGE ARE CLEAR

Limiting non-cellulose-based fibres to 2% is still consistently reported by participants as one of the toughest requirements to meet, while delivering styles and comfort that appeal to customers and meet the guidelines, including jeans with stretch. Other key innovation gaps from 2021 still remain to be overcome in 2023, such as disassemblable threads and zippers.

The efforts of The Jeans Redesign participants over the past two years have clarified where investment and innovation are needed. Now the solution pathways are clear, there is no reason to delay progress.

See Section 4 The Guidelines: Progress, Solutions, Barriers for further details.

3 Without systems change, the progress that has been made to redesign products will not be fully realised.

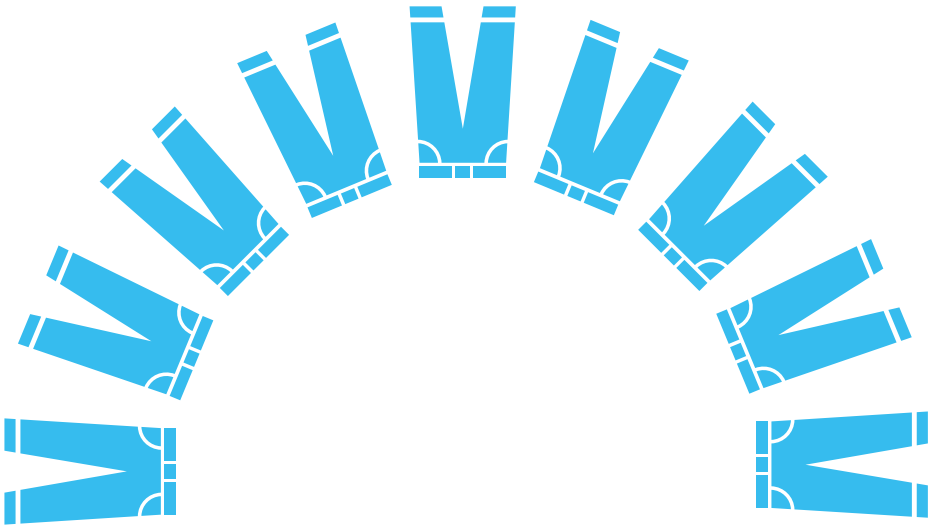
Participants of The Jeans Redesign are starting to move beyond redesigning products to be fit for a circular economy to increasingly offering services and business models to deliver them and keep them in use. Unlocking these models at scale will require a radical system change.

BUSINESSES ARE INVESTING TO BRING REDESIGNED PRODUCTS TO MARKET

In 2023, a third of the participant group reported making collective investments of over USD 39 million to support redesigning fabric and jeans to be fit for a circular economy. Brands reported paying premiums to source and certify recycled content, organic content, and disassemblable components. Garment manufacturers and fabric mills are investing in innovative technologies, particularly to reduce water usage. Other areas in which brands reported making investments included knowledge building, fixed assets, inventory, capabilities, and mergers and acquisitions.

ORGANISATIONS ARE SENDING DEMAND SIGNALS STIMULATING THE NECESSARY INFRASTRUCTURE AND INPUTS

In publicly committing to, and taking action to bring redesigned products to market, 100 organisations from across the value chain are sending collective demand signals to the wider industry. Such signals are crucial for stimulating the infrastructure that supports a circular economy for fashion. These signals can be further accelerated by organisations willing to publicly commit to such infrastructure in practice.



PARTICIPANTS ARE TAKING ACTION BEYOND PRODUCT DESIGN

Continuing to redesign the products of the future is essential. However, designing for reuse, repair, remaking, and recycling can only be effective when complemented by actions which also rethink the processes, services, business models, and supply chains that will deliver them and keep them in use. In 2021, 6% of brands reported new models through which products can be accessed. Two years later, 71% of brands have reported having an ongoing service or business model in place to keep jeans in use at their highest value. While it is difficult to solely attribute this 12-fold increase to participation in The Jeans Redesign, the momentum is promising.

Building on the momentum generated by The Jeans Redesign, it is time to accelerate action to redesign the system these products enter.

Calls to action

To continue driving the industry forward, the Ellen MacArthur Foundation calls on businesses and policymakers to:

MAKE CIRCULAR DESIGN THE NORM

SCALE TO INCLUDE ALL JEANS AND OTHER GARMENTS

MAKE THE ECONOMICS WORK

PRICE IN THE TRUE COST TO LEVEL THE PLAYING FIELD

MOVE FROM PRODUCT REDESIGN TO SYSTEMS REDESIGN

TAKE BOLD AND UNPRECEDENTED ACTION

See Section 5 for further details on calls to businesses and policymakers

Detailed insights from The Jeans Redesign

PHOTO: PRIMARK

Circular design can become the norm.

Participants of The Jeans Redesign are pushing their ambition further by not only proving it is possible to redesign a higher percentage of their jeans portfolio, but also by increasingly applying circular economy principles to other garments.

REDESIGNING UP TO 100% OF A COMPANY'S JEANS PORTFOLIO TO BE FIT FOR A CIRCULAR ECONOMY IS POSSIBLE

72% of participants overcame design and innovation challenges, resulting in brands bringing 1.5 million pairs (more than three times as many as in 2021) of redesigned jeans to the market between 2021 and 2023 that are durable, recyclable, traceable and made using safe materials and processes.

One-in-nine brands redesigned 40% of their jeans portfolio to meet the guidelines. HNST and BAM Bamboo Clothing designed 100% of their jeans, Chloé redesigned more than 90%, and Weekday redesigned 40% of their portfolio to be fit for a circular economy.

While the number of redesigned jeans remains a fraction of the industry total, The Jeans Redesign demonstrates that it is possible to redesign and make up to 100% of a company's jeans portfolio to be fit for a circular economy today.

GARMENT MANUFACTURERS AND FABRIC MILLS ARE READY TO SUPPLY BRANDS WITH FABRIC AND JEANS COMPLIANT WITH THE GUIDELINES

Three quarters of participating garment manufacturers and fabric mills have produced fabric or jeans compliant with The Jeans Redesign guidelines. Of the remaining quarter, 9% reported that they are ready to produce fabric or jeans compliant with the guidelines, with some citing brand and buyer commitment as key to closing the gap between ability and action. This presents an opportunity to further scale production of jeans fit for a circular economy.

> Our customer sold out of the redesigned jeans at an increased sell-through rate of 75% compared to the jeans not designed and produced to be fit for a circular economy. In light of this, Artistic Apparels plan to offer redesigned products to other customers and aims to extend its range of garments designed to be fit for a circular economy in 2023/2024.
>
> **Muhammad Ahmed, Executive Vice President, Artistic Apparels Pvt Ltd**

COLLABORATING ACROSS THE VALUE CHAIN ENABLES BETTER SOURCING OF FIBRES AND COMPONENTS

In 2021, participants reported that some solutions to make jeans fit for a circular economy were either limited (for example buttons that can be disassembled and cellulosic thread), or simply did not exist yet. Catalysing conversations between participants and suppliers was key to overcoming these challenges and finding solutions to meet the guidelines.

Collaboration remains critical to enable participants and suppliers to collectively bring redesigned garments to life. In 2023, there has been a focus on collaboration to source cellulose-based fibres produced using organic or regenerative methods, as well as sourcing recycled materials of which, post-consumer recycled content from apparel-to-apparel recycling is the preferred source of recycled feedstock.[8]

Brands and manufacturers have also reported working closely with their suppliers to ensure organic certifications are in place and tracked throughout the supply chain. Additionally, some brands reported initiating long-term collaborations with garment manufacturers, academics and NGOs to secure future supply of organic cotton.

One of the key challenges we faced in meeting The Jeans Redesign Guidelines was the collaboration with suppliers to both ensure that fabrics and workmanship are aligned with the criteria and to get sufficient data points from the supplier to back up the product claims, for example, certificates. As part of our Jeans Redesign journey, we have recognised the dependency between ensuring good, accurate data and having a process that ensures regular follow-ups and check-ins with key suppliers.

Cem Oztat, Head of PL Sourcing and Operations, Zalando

Similarly, the importance of initiating collaborations between brands, garment manufacturers, fabric mills and farmers has been cited by a number of participants as a critical first step in transitioning to cellulose-based fibres produced regeneratively, due to the long-term nature of the transition and investment required.

Bringing our redesigned jeans to market required significant cross-functional collaboration internally at Reformation and externally with our suppliers. For example, designing for circularity training and engagement with product development teams was vital. Clear and consistent communication and process development for sourcing, fiber, and trim approval were also required. Supplier partnerships and collaboration were key to driving innovation. Overall, we need to shift from a competitive view to a shared mission. The Jeans Redesign has helped us do just that - fostering a community and pushing innovation forward in a more collaborative and holistic way.

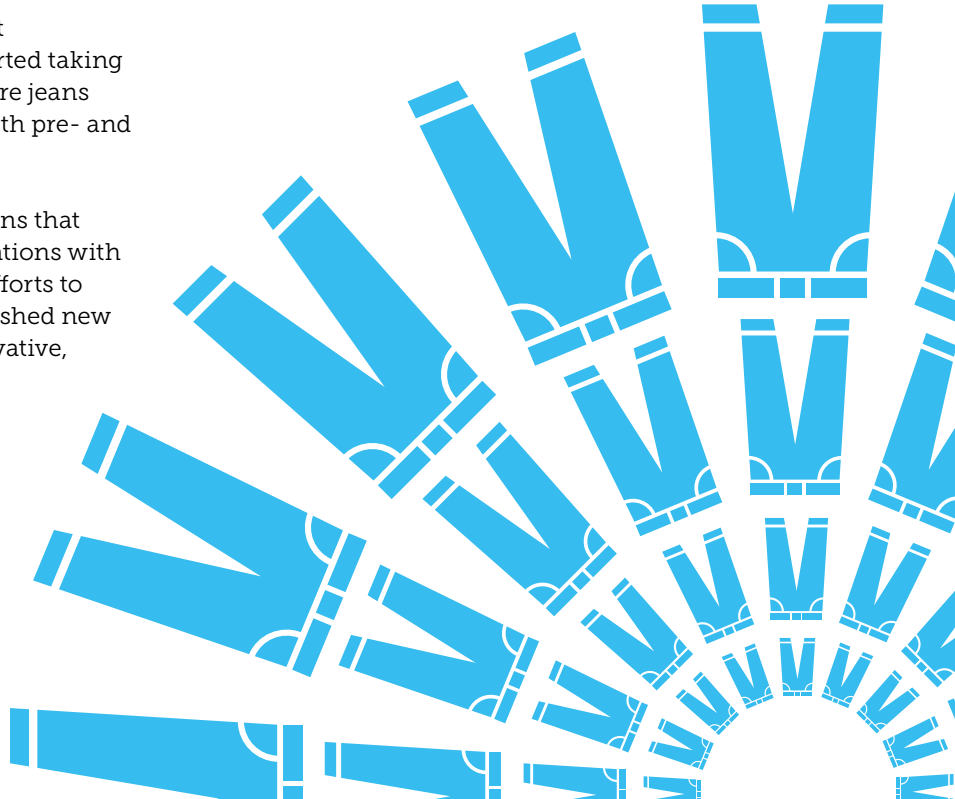
Carrie Freiman, Senior Director of Sustainability, Reformation

By working together, fabric mills, garment manufacturers, brands, and retailers reported taking action, and making joint progress to ensure jeans are made from recycled materials from both pre- and post-consumer textile products.

Similarly to 2021, the need to source buttons that can be disassembled accelerated conversations with suppliers, which triggered collaborative efforts to find solutions. In 2023, brands also established new partnerships with suppliers of other innovative, disassemblable components.

We have successfully used screw-based buttons that can be removed by an operator equipped with a simple screwdriver at the sorting stage. This was achieved through establishing a partnership with an innovative supplier of disassemblable components. The plastic parts inside the buttons are replaced with substitute materials made of corn starch - a bio-based alternative.

Sean Barron, CEO, Re/Done



SECURING LEADERSHIP BUY-IN SPARKS PRODUCT INNOVATION

Participants reported that securing leadership buy-in was not only essential to bring redesigned products to market, but also fuelled innovation, learning and collaboration both internally and externally.

> We love jeans and they have been at our core since the beginning. Weekday believes in a circular fashion future. So creating jeans that are prepared for a circular life is a natural and important step in our brand's circular journey. From the experience of making the first capsule, the team has learned that it is scalable. That's exactly the way we need to work to move towards a more circular fashion industry.

Kim Holm, Managing Director, Weekday

> The Jeans Redesign initiative enhanced the cross-functional collaboration within Chloé, spurring innovation and circularity within our design process and reducing the environmental impact of our Circular Denim.

Aude Vergne, Chief Sustainability Officer, Chloé

BUILDING CAPACITY TO REDESIGN PRODUCTS

Participants recognise the importance of internal circular economy capacity, with 18% reporting dedicated investments in knowledge building, from training existing employees to hiring staff with specialised skills, and engaging external consultants. Brands including Inditex, Primark, TOMMY HILFIGER, Urban Outfitters and Zalando, alongside manufacturers including Demco, have shared the importance of bringing internal teams along their learning journey by exchanging solutions, challenging linear ways of thinking, and bridging conventional organisational silos to change the way products are designed.

> Working with the guidelines has enabled ASOS' denim teams to channel their creativity through a focused framework. The development process has created new challenges for our designers and they have used their creative skills to problem solve, for example, the disassembly requirements encouraged our teams to develop new metalware and design different fastenings such as the self-fastening fabric corset back for the bralette. The process has helped our teams to consider the full product lifecycle of a garment and their personal impact when making design decisions.

Rebecca Garner, Senior Sustainability Partner, ASOS

Additionally, participants shared the importance of working with external partners to further research and develop knowledge-building, from initiating research with academic institutions and specialised think-tanks, to new partnerships with third-party verification bodies and research centres. These partnerships demonstrate an appetite across the wider fashion industry to work collaboratively to design and supply innovative solutions.

> As part of TOMMY HILFIGER's ambition to Waste Nothing and Welcome All, we have set ambitious targets that are helping us contribute towards a circular economy. In 2021 we launched a Circular Design Framework internally to help guide the design of products that are used more, made to be made again, and made from safe and recycled or renewable inputs. The curriculum and guidebook, created in partnership with the Centre for Sustainable Fashion, were used to train TOMMY HILFIGER designers and product developers on circular design strategies.

Esther Verburg, EVP Sustainable Business & Innovation, TOMMY HILFIGER Global

GOING BEYOND JEANS: CIRCULAR DESIGN PRINCIPLES ARE INCREASINGLY BEING APPLIED TO OTHER GARMENTS

While in 2021 very few participants applied circular design principles beyond jeans, the group made significant progress in 2023, with 38% of participants applying the principles to other denim garments, including jackets, shirts and dresses.

A further 29% have reported applying the principles beyond denim to garments, including jumpers, tops, and accessories such as hats and bags. Participants such as H&M Group also built on their previously launched Circular Product Development Guideline[9] to explore applying circular design principles to shoes. Garment manufacturer Hirdaramani has extended circular design principles to a workwear line.

> Inspired by the insights and learnings from The Jeans Redesign project by the Ellen MacArthur Foundation and leveraging our circular ambitions as a company, we created a Circular Product Development Guideline for our teams, called Circulator. We have made the Guide available for any brand, designer, or product team to use, learn and align their designs to circular principles and we will continue to share the latest learnings as we move ahead.
>
> **Sarah Hayes, Business Expert Circular Product Development, H&M Group**

Some companies pushed even further, building on the momentum gained from The Jeans Redesign project and applying their learnings across a much wider range of garments, with organisations including Primark[10], TOMMY HILFIGER[11] and Zalando[12] launching circular design guidelines.

> The Jeans Redesign collection has proven to be a great prototype for us to refine and scale our broader circular product and circular design efforts across the business. We've learnt the importance of maintaining our fashion DNA whilst applying circular principles to our products. Our next challenge will be to apply these principles across a greater variety of products & clothing types.
>
> **Nicholas Lambert, Circular Product Lead, Primark Cares, Primark**

Meanwhile, ASOS built on their previously launched circular design handbook (which debuted in 2018) and continued to collaborate with the Centre for Sustainable Fashion at the London College of Fashion to develop their ASOS Circular Design Handbook.[13] This is an interactive resource created to help internal teams, external designers, students and fashion brands design and create fashion products aligned with a circular economy for fashion.

> A small number of teams who had progressed through the ASOS circular design education programme created our first circular design collection which launched in September 2020. Fast forward to 2022, and every Commercial team across ASOS was involved in the creation of our SS22 and AW22 Circular Design Collections, reflecting the wider rollout of education across teams, including our Circular Design Guidebook. Through our renewed partnership with the Centre for Sustainable Fashion, we gathered lessons learned and feedback from the product development teams. This is helping us to refine our future process for developing circular products and support the implementation of our circular design strategies at scale.
>
> **Rebecca Garner, Senior Sustainability Partner, ASOS**

From the starting point of redesigning jeans, participants have progressed beyond proof of concept and can now harness the creativity they've applied at a product level to ensure circular design becomes the norm.

2 The solution pathways are clear.

Participants of The Jeans Redesign are overcoming some barriers and surfacing innovation, proving that many circular design solutions are no longer a technical capability question, but a design choice.

The Jeans Redesign participants set out on a journey to make jeans fit for a circular economy, collectively working towards shared minimum guidelines with common definitions. As a result, 72% of participants overcame design and innovation challenges to bring products to life.

While some businesses have shown high levels of ambition by bringing to market redesigned fabric and jeans, others have been more conservative in their approach. Of those that have been able to bring fabric or jeans compliant with the guidelines to market, many have exceeded the minimum bar and some have redesigned up to 100% of their portfolio. In the group that has not yet brought compliant jeans or fabric to market during the project (July 2021 - January 2023), several have taken actions to establish processes that will enable them to produce collections in the near future. A few (4%) brands are expected to bring redesigned jeans to market by the end of 2023. The participants who reported being currently unable to meet the criteria cited a number of challenges, including the organisational change needed to redesign garments.

Insights are laid out in The Guidelines: Progress, Solutions, Barriers on pages 21-27, with further details on actions taken by participants to produce jeans that meet the guideline criteria, as well as outlining solutions identified, and barriers that remain to be overcome. These insights are split into four categories:

1. **For certain criteria, it is no longer a question of technical capability, but a design choice**
2. **Progress has been made to scale previously limited solutions**
3. **Action has been taken to surface innovation**
4. **Remaining design challenges and material innovation gaps to bridge are clear**

It is now clear where technical solutions are available and are ready to be applied more widely in fashion businesses, providing a number of pathways for organisations to scale circular design practices across their collections. At the same time, technical challenges remain for a number of criteria, which require more direct action and investment to surface a scalable solution.

The efforts of The Jeans Redesign participants over the past two years have clarified where investment and innovation are needed. Now the solution pathways are clear, there is no reason to delay progress.

This is a summary of insights from the individual participant reports, for the full details, alongside case studies see the website.

3 Without systems change, the progress that has been made to redesign products will not be fully realised.

Participants of The Jeans Redesign are starting to move beyond redesigning products to be fit for a circular economy to increasingly offering services and business models to deliver them and keep them in use. Unlocking these models at scale will require a radical system change.

BUSINESSES ARE INVESTING TO BRING REDESIGNED PRODUCTS TO MARKET

In 2023, participants of The Jeans Redesign continued to report paying premiums to source and certify recycled and organic content, and for disassemblable components. Alongside this, garment manufacturers and fabric mills predominantly reported making investments in innovative technologies to meet the guidelines, including reducing water usage. Maritaş Denim reported investing in research and development studies for alternatives to stretch fabrics that remain difficult to recycle, and Artistic Milliners reported investing in fixed assets to improve mechanical fibre recycling and fibre sorting.

A third of the participant group reported making investments collectively totalling over USD 39 million in areas such as knowledge building (18%), fixed assets (17%), inventory (17%), capabilities (15%), and M&A (12%) to create fabric and jeans in line with the guidelines. With many participants yet to submit investment data, total investments are likely to be substantially higher.

While investments are required today, some participants have reported that they have accepted lower margins on redesigned products to avoid passing additional costs on to customers. However, brands and garment manufacturers have reported higher sell-through rates for their redesigned jeans. Brands reported the average sell-through rate of their redesigned jeans was 78% which, according to experts, is higher than the industry baseline, demonstrating the power of the industry to shape desire towards a circular economy for fashion. In parallel, garment manufacturers have also reported high demand for their redesigned jeans, with up to 25% higher sell-through rate than the non-redesigned jeans in their portfolio. This presents a significant opportunity for those willing to raise their ambitions and make circular design a core way of doing business.

> Being aligned with the requirements of The Jeans Redesign allows us to enter new markets. There are an increasing number of clients who are interested in making sustainable collections and it makes us proud to have the ability and knowledge to do so.
>
> **Jorge Bunchicoff, CEO, Blue Design America**

ORGANISATIONS ARE SENDING DEMAND SIGNALS STIMULATING THE NECESSARY INFRASTRUCTURE AND INPUTS

In publicly committing to, and taking action to bring redesigned products to market, 100 organisations from across the value chain are sending collective demand signals to the wider industry. Sourcing cellulose-based fibres from organic and regenerative methods, use of increased percentages of recycled content, and more disassemblable hardware solutions are some of the technical areas that suppliers will need to respond to. Such signals are crucial for stimulating the development of infrastructure that supports a circular economy for fashion, such as the supply of preferred feedstocks, and the collection, sorting and recycling processes that keep materials in circulation.

One example of organisations sending demand signals can be seen through the lens of post-consumer recycled content. In a circular economy for fashion, sourcing post-consumer recycled content from apparel-to-apparel recycling is the preferred source of recycled feedstock as it allows the fashion industry to continuously cycle the materials it puts on the market, and avoid material value loss within its own and other industries. By publicly committing to source and purchase a minimum percentage of

post-consumer recycled content, participants help decouple from the consumption of finite resources and stimulate demand for collection and recycling. A small number of ambitious participants, including H&M[14] and Monki[15] have pushed this further by publicly sharing their commitments to include a minimum of 20% post-consumer recycled content in their entire jeans portfolio by the end of 2023.

PARTICIPANTS ARE TAKING ACTION BEYOND PRODUCT DESIGN

In 2021 6% of brands reported new models through which products can be accessed. In response to these initial efforts, the guidelines were updated and the optional criteria 'offering jeans to market via services and business models that keep jeans at their highest value' was introduced. Two years later, 71% of brands have reported having an ongoing service or business model in place with participants most commonly reporting offering collection/take-back (60%), resale (29%) and repair services (27%).

A further 36% of brands have reported that business models/services are in development for the next financial quarter. 9% of brands, including Zalando (repair), Reformation (resale, collection/take-back), Weekday (resale), and American Eagle (collection/take-back) have reported an ambition to reach a target percentage of their portfolio (percentage not disclosed) to be delivered through circular business models by end of 2023, demonstrating their ambition to move beyond pilot and make these business activities mainstream.

MUD Jeans has an established leasing model, which from 2016 has supported free repairs during the jeans lease. While also collecting old jeans back from customers for free, enabling MUD Jeans to include up to 40% post-consumer recycled denim in their jeans. This demonstrates the power of combining product and service design. Primark detailed their programme of free repair workshops hosted in stores in the UK, ROI, Netherlands and Germany, with plans to scale further in 2023. Additionally, some brands reported initiating collaborations, for example, Marks and Spencer reported launching rental trials in collaboration with HireStreet for jeans and other products.

> "As part of our wider Primark Cares strategy, we've introduced a repair programme to help our customers to keep their clothes for longer. To date, we've held over 100 repair workshops in-store, and also launched a series of online repair tutorials helping people to learn basic hand sewing skills and how to attach zips and buttons. We know that educating colleagues and customers on repair is only a small step forward in our journey to becoming a more sustainable business, but want to use our scale for good to drive awareness around repair.

Nicholas Lambert, Circular Product Lead, Primark Cares, Primark

While it is difficult to directly attribute a 12-fold increase in uptake of services and business models to keep jeans at their highest value to participation in The Jeans Redesign, the momentum is nonetheless promising. In a circular economy design must align with the business model that will deliver the product - for example, durability and the ability to repair the products are critical when considering a rental model.

> "Achieving true circularity necessitates a holistic systems change and a continuous learning mindset; we need a 360 approach, with step-by-step action across every stage of our operations. From responsible sourcing and innovative design to sustainable supply chains and visionary business models, every aspect must contribute to a regenerative fashion ecosystem.
>
> Transforming an entire system may seem daunting, but progress lies in simultaneously addressing and interconnecting its various components. We must always keep the bigger picture in mind while diligently working on each separate element.
>
> Fortunately, the business case for sustainable transformation has never been stronger or more appealing. We have witnessed positive commercial results over the past decade, proving that sustainability and profitability are not mutually exclusive. By embracing circularity, we can unlock new avenues of success while safeguarding our planet for future generations.

Esther Verburg, EVP Sustainable Business & Innovation, TOMMY HILFIGER Global

Building on the momentum generated by The Jeans Redesign, it is time to accelerate action to redesign the system these products enter.

The guidelines: progress, solutions, barriers

* Note all statistics in this section relate to action taken by the participants to which the criteria applied, irrespective of whether they brought fabric or jeans to market by the 31st of January 2023. Therefore percentages can exceed the 72% of participants that met the guidelines.

PHOTO: HNST

1 For certain criteria, it is no longer a question of technical capability, but a design choice.

The most commonly applied solutions in 2021 – organic content, rivet elimination, and safe chemicals – remain in use in 2023. Alongside these established solutions, participants have widely adopted a further five criteria: the use of 98% cellulose-based content, care labelling, durability testing, water usage for denim fabric, and safe wastewater. Some commonly applied solutions, such as rivet elimination and care labelling, are no longer dependent on technical capability, but upon design choices.

PHOTO: HNST

ORGANIC CONTENT

More than 80% of participants have been able to source organic cotton. While this represents a percentage decrease compared to 2021 (93% of participants), the absolute number of participants (73) meeting this requirement remained the same across the two years, and garment manufacturers, such as Hirdaramani have reported experiencing an increasing demand for organic cotton across their customer brands. Some participants, such as the brand Weekday, have scaled the percentage of their jeans portfolio that meet The Jeans Redesign guidelines, growing from 2 styles in 2019 to 40% of their jeans portfolio in 2023. Weekday's styles incorporate organic cotton and recycled content (in a 70%/30% or 60%/40% split) to meet the guidelines. However, many participants continue to report common challenges such as limited market availability and premium sourcing and certification prices as a barrier to scaling organic content.

The importance of collaboration across the supply chain has been cited by a number of participants as crucial to successfully sourcing organic cotton. In particular, brands and manufacturers have reported working closely with their suppliers to ensure certifications are in place and tracked throughout the supply chain. ASOS, BAM Bamboo Clothing, and GUESS have reported attaining chain of custody of organic cotton throughout their supply chain for their Jeans Redesign orders. To enable this, many participant brands and manufacturers reported requesting proof of organic content certification from their suppliers (most commonly reporting Global Organic Textile Standard (GOTS)[16]or Organic Content Standard (OCS)[17] before placing orders. Additionally, brand JCPenney reported initiating long-term collaborations with their supply chain to secure the future of their organic cotton sourcing. For example, working with garment manufacturer Soorty's organic cotton initiative (SOCI), who are collaborating with 1,300 farmers in Naal, Pakistan.[18]

98% CELLULOSE-BASED FIBRE CONTENT

89% of participants have ensured that a minimum of 98% cellulose-based fibres are included in the textile composition of redesigned jeans, which enables materials to be recycled at the highest quality and value.

Mono-material garments can be more effectively recycled than those made out of multiple material blends. To that end, 62% of participants used more than 98% cellulose-based fibres and 20% reached 100% cellulose-based content across all their reported Jeans Redesign styles.

Since 2021, limiting non-cellulose-based fibres to 2% while delivering styles and comfort that appeal to customers, including jeans with stretch, has consistently been reported as one of the most challenging requirements. This barrier remains in 2023, with most participants commonly taking action to redesign their 'rigid' styles. See Jeans with stretch for further details.

CARE LABELLING

84% of brands and garment manufacturers provided users with information on how to care for jeans visibly on the garment, an increase of 10% from 2021. The information included guidance on reducing washing frequency, washing at low temperatures, and avoiding tumble drying. 60% of brands reported printing labelling onto the pocket bags, while 23% of brands and manufacturers used QR codes to link to more detailed online care instructions.

21% of this group went further still, empowering users with additional, but necessary, knowledge (visibly on the garment) to maintain the physical and emotional appeal of their jeans, most commonly reporting providing information on available take-back programmes or recycling ability. See Circular business models for further details.

DURABILITY TESTING

87% of participants have assessed the durability of jeans against elementary criteria of testing; whether they can withstand a minimum of 30 home laundries. Participants including Black Peony, Good American and Triarchy exceeded this by testing for 35 washes. Redesigned jeans must retain their ability to meet the participant's usual minimum durability requirements for 'as-new' jeans even after 30 home laundries.

Research to develop The Jeans Redesign guidelines, in collaboration with multiple brands, manufacturers and recyclers, revealed an inconsistent approach to garment durability measurement. Despite individual companies testing for various performance indicators, this lack of alignment on specific durability measures makes it difficult to set baselines or make effective comparisons. Ensuring jeans are able to withstand a minimum of 30 home laundries offers a starting point on the journey towards industry-wide durability alignment.

The number and type of durability tests that are conducted by participants after washing continues to vary, with participants conducting between 1 and 7 tests, a slight consolidation compared to the range conducted in 2021 (1-22 tests). The most commonly reported type of durability tests are tear strength and tensile strength, followed by dimensional stability, abrasion resistance, and colour fastness. Further investigation is needed to establish a minimum standard and harmonise durability performance measurement across the fashion industry.

However, a number of small and medium (SME) brands have reported meeting this requirement is costly, time-consuming, and energy intensive. Despite these reported challenges, more than three-quarters of SMEs ensured they met the minimum durability testing requirements. Additionally, some participants such as ASOS reported innovating to unlock efficiency advancements in wash testing.

RIVET ELIMINATION

More than 70% of brands voluntarily removed metal rivets from their products, increasing the recyclability of the jeans and eliminating waste by design. Of those, 38% eliminated the need for them entirely, and 49% reported substituting rivets with bar tacks, reinforced stitching, or embroidery techniques. Such design alternatives are being explored by brands like Frame, who developed the 'drivet'; an embroidery in 100% Tencel thread that mimics the look of a traditional rivet at the pocket scoops. Meanwhile, H&M developed a standardised library of circular bar-tacks to utilise across jeans styles.

Rivets are difficult to remove for recyclers and, as a consequence, larger parts of the upper fabric of jeans are cut off and landfilled or incinerated. In 2021, 65% of brands eliminated rivets by design, maximising the amount of fabric that can be recycled after use. Less than half of the brands that successfully reported eliminating rivets in 2021 continued to do so in 2023, commonly reporting still using rivets to deliver 'heritage styles' to customers. At the same time, more than 70% of garment manufacturers reported they have the technical capabilities to eliminate rivets and alternatives to substitute them and meet the guidelines, but continue to add hardware components to garments where buyer orders specify them. Vertically integrated fabric mill and garment manufacturer Soorty reported that as manufacturers, they need to follow the directions of buyers. If they request a specific technique for the hardware components they have to create jeans in line with the order.

Technical solutions exist today to eliminate rivets and deliver style and strength. Garment manufacturer Cross Textiles shared, "It's firstly a mindset, actions start at the design level. Understanding the 'why' behind the design guidelines empowers designers to become more creative. Everything is less difficult once the customer and we, as a garment manufacturer, align on what we aim to achieve."

PHOTO: BLUE DESIGN AMERICA

SAFE CHEMICALS

96% of participants have met the minimum criteria on phasing out toxic substances (Level 1, Zero Discharge Of Hazardous Chemicals Manufacturing Restricted Substance List),[19] consistent with 2021).

In a circular economy, substances that are hazardous to health or the environment are designed out of processes to allow for safe material circulation and ensure that no pollutants are released into the environment. 54% of participants exceeded the minimum criteria (a 39% increase since 2021), and commonly reported meeting ZDHC MRSL Level 3, ZDHC MRSL Level 2, verified using the ZDHC Gateway or Jeanologia® EIM (Environmental Impact Measuring) software. Increasing ambition is evident across the group, and garment manufacturer Taypa reported they do not allow any chemicals below ZDHC level 3 to enter their washing facility.

However, 20% of participants remained modest in their actions to ensure products are made with safe inputs, only meeting ZDHC MRSL Level 1 as a minimum. Further work is needed to deliver physical durability while ensuring all chemicals and processes used to make garments are not only safer but safe.

SAFE WASTEWATER

All (100%) of fabric mills met the minimum standard of the ZDHC Wastewater Guidelines[20] (including testing and reporting), an increase from 95% in 2021.

Further action is needed to ensure wastewater discharge does not contain hazardous chemicals which can have a significant impact on the environment and human health[21]. See Safe chemicals for further details.

PHOTO: HNST

WATER USAGE FOR DENIM FABRIC

96% of fabric mills ensured the water volume used for denim fabric was a maximum of 30 litres per metre (L/m), remaining consistent with 2021. Additionally, 87% of participants decreased further, using 18.84 L/m on average, with KG Fabriks reporting the least water used (6.5L/m).

The way denim is made – including fabric dyeing, sizing, and finishing processes – in a conventional linear model is water-intensive. However, a number of fabric mills reported improving practices to continuously lower the amount of water needed, while others are recycling their water. Artistic Milliners reported recycling 85% of their water, and being able to manufacture some fabrics using just 8 litres of water per metre. Some participants innovated in waterless and foam dyeing methods and others, such as Advance Denim, reported innovating to create a closed-loop denim production system which would recycle 100% of wastewater. Vertically integrated unit Azgard9 reported making design changes to chemical usage to lower water usage downstream by designing out using large quantities of chemicals, which results in less water usage to wash off at later stages. While progress is being made to increasingly lower water usage and improve wastewater recycling at the design and manufacture stage, further efforts are required to lower water usage at all stages of denim production, from fibre growing to manufacture and use, reuse, remaking or recycling.

2 Progress has been made to scale previously limited solutions.

In 2021, participants reported that, while available, post-consumer recycled content was costly and presented trade-offs with durability requirements. Meanwhile, finding hardware solutions that successfully prohibit conventional electroplating (a technique that generates hazardous waste) was consistently reported as amongst the toughest to achieve. Both requirements have seen significant positive progress from participants in 2023.

PHOTO: HNST

RECYCLED CONTENT

In 2021, more than half of the participants voluntarily included recycled content in their redesigned jeans. In recognition of this progress, the guidelines were updated to include a minimum of 5% recycled content (by weight) in jeans or fabric. In 2023 83% of participants ensured they met this new minimum bar, and, of those, 88% exceeded it.

The maximum amount of post-consumer recycled content participants reported being able to incorporate in jeans, while still meeting the other requirements for durability has remained steady since 2021. Brands such as Chloé, Triarchy, and Levi's included the highest percentage of post-consumer recycled content (87%, 43%, and 40%, respectively). However, other participants, in particular small and medium brands, have indicated this remains a challenge; unspun reported that there remains work to be done to get the quality of recycled fabrics on par with that of virgin materials, whilst being as durable as the fabrics that contain virgin fibres.

Participants commonly reported that cross-value chain collaboration remains critical to achieving this requirement. By working together, fabric mills, garment manufacturers, and brands were able to make joint progress to ensure jeans are made from an increasing amount of recycled materials. ASOS reported working with fabric mill Kipas and garment manufacturer Chantuque to make this a reality. Meanwhile, Reformation reported partnering with vertically integrated manufacturer Strom and fabric mill Bossa to progress towards zero-waste practices, and launched their denim collection made from fabric scraps recycled from the factory floor. Some manufacturers are implementing internal systems to provide their own supply of pre and post-recycled content in-house, such as vertically integrated unit Azgard9.

SAFE PROCESSES

The majority (89%) of brands and manufacturers met the minimum requirement to eliminate the processes of conventional electroplating, stone finishing, sandblasting and the use of potassium permanganate (PP). These processes, associated with decreasing fabric quality and garment durability[22], cause significant environmental impacts such as the generation of hazardous waste[23], and serious human health harms, including skin irritation[24] and damage to respiratory passages.[25,26]

In particular, the group demonstrated significant progress in eliminating conventional electroplating, compared to 2021 where only one-third of brands and garment manufacturers reported achieving this criteria. It was consistently cited as one of the most difficult to meet. Today, participants such as Cross Textiles reported achieving this through eliminating hardware finishing completely: "The choice of material is important at the design stage. When using pure copper, the full button can easily be reused with almost zero loss of material. In comparison, mixed metals are almost impossible to circulate in an effective way." Others have substituted it with an alternative to conventional electroplating, with 7% of brands using YKK AcroPlating.

Progress remained steady in eliminating the processes of stone finishing, sandblasting, and the use of potassium permanganate (PP) (94% in 2021). One participant reported eliminating finishing processes completely. Other participants reported substituting conventional finishing processes with alternatives such as laser finishing (79%), ozone finishing (68%), enzyme finishing (64%), "Eco" stones 45%) and abrasive plates (11%). Further investigation is needed to understand the impact of these techniques on the durability of garments.

3 Action has been taken to surface innovation.

In 2021, there was both an innovation gap and an implementation gap for certain criteria. For some requirements, such as hardware that can be disassembled and built-in traceability, early solutions existed but action remained limited. In other areas – such as regenerative sourcing – action was extremely limited. In 2023, design solutions and technologies now exist and are being increasingly used for disassemblable buttons and garment traceability, while notable action has been taken to advance the sourcing of cellulose-based fibres with nature-positive outcomes, an important step towards the sourcing of regenerative fibres.

REGENERATIVE SOURCING

One brand, Reformation, has continued to use cellulose-based fibres with nature-positive outcomes in 2023, and remains the only participant to do so. However, there has been a hub of participant activity towards regenerative sourcing.

Manufacturers and mills have initiated discussions and future collaborations to be able to source fibres with nature-positive outcomes, Advance Denim has reported initiating work with Good Earth Cotton®. Fabric mill Bossa has reported planning regenerative projects in Turkey with farmers. The importance of collaboration across the supply chain has been cited by a number of participants as crucial to be able to secure future supply; Maritaş Denim shared that they joined a project with academics and farmers in Turkey to both source regenerative cotton and generate learnings on challenges and best practices.

In addition, 9% of brands including Frame, HNST, and TOMMY HILFIGER have reported actively taking steps to transition to sourcing virgin inputs from regenerative sources, and have reported their ambitions to start to incorporate regeneratively sourced cotton in products by the end of 2023. Collectively, these activities are reflective of an industry that is increasing its ambition level and moving closer towards regenerative sourcing.

Two years on, Reformation has continued to work with Good Earth Cotton®, which uses agricultural practices linked to observed regenerative outcomes for nature at the farm level, including; increased carbon sequestration in the soil, and improved native vegetation stocks. Regenerative production was supported by a 'cradle-to-farm gate' greenhouse gas emissions audit, and traced through the use of FibreTrace®, blockchain technology.

Despite pockets of promising progress, a significant hurdle remains to be overcome for organisations to consistently and credibly report sourcing cellulose-based fibres with nature-positive outcomes, a step on the journey towards regeneratively sourced fibres. The certification landscape is still emerging, and is as yet unconsolidated (Good Earth Cotton®, regenagri® and Regenerative Organic Certification®), with participants commonly reporting the inconsistent approach to definition, measurement and data availability across the fashion industry as a significant challenge. Additionally, participants commonly cited the long-term nature of the transition to regenerative sourcing, and investment required as critical barriers to scale. Ensuring cellulose-based fibres have specific, measurable and evidenced nature-positive outcomes (such as increased levels of carbon sequestration and improved soil health) offers a starting point for the industry to move towards regenerative sourcing.

PHOTO: BLUE DESIGN AMERICA

HARDWARE THAT CAN BE DISASSEMBLED - BUTTONS

44% of brands used buttons that can be disassembled without the need to cut any fabric, an increase from 2021 (32%). Screw-based buttons were the most commonly used hardware solutions (36%), followed by clip-based buttons (7%).

In 2021, while disassemblable buttons were found to be available, participants reported that options were limited. As a result, in 2023, participants reported an acceleration of conversations with suppliers to collaboratively find solutions that meet the guidelines. Re/Done, for example, established a new partnership with an innovative supplier of disassemblable components, resulting in the use of screw-based buttons that can be removed by an operator equipped with a screwdriver at the sorting stage. Five participants reported working with supplier YKK to meet this guideline requirement.

While participants report that design solutions and technology have enabled a reduction in labour intensity of disassemblable hardware at point of assembly, participants report that key challenges – specifically, the continued labour intensity of removing components during the manufacturing process and deconstruction phase – remain to be overcome in order to scale.

Many participants reported that it was challenging to ensure the buttons were disassemblable whilst still meeting durability requirements, and some brands reported paying premiums for components that are easier to disassemble while also facing difficulties with minimum order quantities. George at Asda reported limited availability and affordability of stud buttons that can be easily disassembled; BAM Bamboo Clothing shared: "We developed unscrewable buttons with our trim supplier who had huge minimums which have taken us years to get through".

BUILT IN TRACEABILITY

85% of brands and manufacturers ensured it was easy to identify redesigned jeans for recycling during collection and sorting, representing a 6.5-fold increase from 2021. The effective sorting of jeans at scale can be made possible by the availability of accurate information about their capability to be recycled (for example textile composition and disassemblable components). This information can be made available to the sorter via labelling, or technologies incorporated into the garment.

The most commonly reported technique utilised was labelling (62%), followed by QR codes (23%), and traceable fibre technology (5%). While uptake of advanced technologies, beyond simple labelling, remains limited, QR codes experienced the greatest increase in adoption. Brand Weekday reported: "Weekday Jeans has used QR codes to be able to trace the redesigned jeans in the value chain. QR code labelling was the best option when we wanted to scale this fast, and where we could add information that is easily accessible also for our customers, which we saw was a plus."

4 Remaining design challenges and material innovation gaps to bridge are clear.

Significant design challenges and innovation gaps remain for a few criteria. In 2021, participants consistently reported limiting non-cellulose-based fibres to 2% as one of the toughest requirements, a material innovation challenge that remains in 2023. Similarly, disassemblable thread and removable zippers remain significant innovation gaps to be overcome.

JEANS WITH STRETCH

In 2021, limiting non-cellulose-based fibres to 2% was consistently reported as one of the toughest requirements for participants to meet, while still delivering styles and comfort that appeal to customers, including jeans with stretch. This material innovation challenge remains in 2023, with the majority of participants electing to redesign 'rigid' styles of their jeans portfolio to meet the guidelines. See 98% cellulose-based fibre content for further details.

One brand, Triarchy, has taken the decision to design out stretch from their jeans, while HNST stated they had made an intentional choice to redesign their jeans to avoid using elastane in the fabric blend. Other participants such as H&M reported producing jeans that meet the guidelines, with reduced stretch content: "We managed to reduce the stretch content to 1% in a few jeans styles across womenswear and menswear, whilst still adhering to the 98% cellulose-based fibres".

In 2021, BAM Bamboo Clothing reported bringing to market a solution to make 'skinny' and 'slim' style jeans with stretch in line with The Jeans Redesign guidelines, designing a material mix of 98% cellulose-based fibres (73% cotton, 25% viscose) and 2% elastane. This continued in 2023. Other participants are innovating to deliver 'super-stretch' styles to customers while using a minimum of 98% cellulose-based fibres and fabric mill Maritaş Denim has initiated research and development to overcome this gap.

To ensure materials can be recycled at the highest quality and value, mono-material garments should be prioritised over garments made out of multiple material blends. By design, material choice should align with available recycling technology so that it can practically be recycled after use, and further investigation is needed to assess the possibility of recycling this fabric into new fibres using widely available technologies.

HARDWARE AND STITCHING THAT CAN BE DISASSEMBLED

As in 2021, only one brand, Unspun, has reported using thread that can be dissolved, allowing fabrics and zippers to be disassembled for reuse or recycling without losing any fabric: "The entire garment is stitched with Resortecs®' Smart Stitch™ thread. It is fused at high temperatures and allows the zipper to be automatically separated during the disassembly process (by method of heat application from a specialised oven)". Garment manufacturer Frontline has reported initiating testing with Resortecs® threads to potentially bring products to market with stitching that can be disassembled. If stitching cannot be easily disassembled, cutting is often used, which creates significant amounts of fabric waste. Continuing to innovate and adopt existing stitching solutions that enable disassembly is vital for remaking and recycling garments without waste.

In 2021, no participants reported finding a solution for zippers that can be removed and reused or recycled without losing fabric during disassembly. In 2023, this remained the case, and the majority of participants (35%) opted to remove zippers altogether from the design of their jeans, commonly opting to use button flys designed for screw-based disassembly (36%) fastenings instead. Components that cannot be easily disassembled for removal can cause considerable waste at the recycling stage as they are often removed by cutting. To maximise the amount of fabric that can be recycled, further innovation is required to ensure design strategies allow fastenings, including zips, to be disassembled for reuse or recycling.

Calls to action

PHOTO: H&M

Calls to action

To drive the industry forward, the Ellen MacArthur Foundation calls on businesses and policymakers to:

MAKE CIRCULAR DESIGN THE NORM

MAKE THE ECONOMICS WORK

MOVE FROM PRODUCT REDESIGN TO SYSTEMS REDESIGN

The Jeans Redesign has provided a starting point for businesses to align on increasingly ambitious common design criteria, and explore the feasibility of creating a circular economy for fashion by focusing on the product redesign of an iconic garment - jeans. However, in order to make circular design the norm, businesses and policymakers need to take action now.

Despite the dedicated efforts by a number of participants to redesign jeans, circular economy efforts remain largely on the periphery. Although individual successes – from overcoming innovation gaps to carving out solution pathways – have demonstrated that circular design can become the norm, it is yet some way from being the norm.

Similarly, while businesses have built on insights from The Jeans Redesign and taken steps to collectively challenge conventional models and unlock creative solutions, pushing this progress to the point of scale remains stymied by the current landscape: at present, circular products are still entering a linear system. Business-led action, such as the progress made by participants of The Jeans Redesign, is key to accelerate progress towards a circular economy for fashion. However, voluntary commitments alone will not be enough to enact the system-level change needed. Since governments have the power to inform, incentivise, regulate, and develop the market to enable circular products, services, and systems to succeed, policymakers also have a significant opportunity to help shape the future of fashion.

As the environmental and economic impacts of climate change, biodiversity loss, waste and pollution are becoming increasingly felt, affecting fashion supply chains and after-use systems, implementing a universal approach to policy reform is vital. In the pursuit of this common goal, it is important to avoid a cross-sector patchwork of national and regional solutions. Businesses and policymakers must therefore work hand-in-hand to ensure that product, material, and system-level learnings from The Jeans Redesign are scaled in parallel with a wider industry transformation. For such alignment to be achieved, it is critical to agree on a common direction of travel.

Make circular design the norm - scale to include all jeans and other garments

All businesses in the fashion industry to: Apply circular design principles to all garments.

BUSINESSES

By bringing 100+ organisations together around a common vision[27], The Jeans Redesign has enabled participants to acquire and apply key learnings in circular design and help turn ambition to action. But the project is more than just a launchpad or entry point. Today, it has evolved into a powerful – and practical – demonstrator of a circular economy for fashion.

However, the pace of change needed to transform the fashion industry from one which actively contributes to climate change, biodiversity loss, waste, and pollution into one which is regenerative by design demands a significant step change in scope and scale. (See Call to Action 3)

In order to fully capture the economic and environmental value of a circular economy for fashion, businesses must ensure the products they design are physically durable, emotionally durable, and can be remade or recycled at the end of their usable life. But making garments fit for a circular economy will not be enough if their internal organisational and cross-industry collaboration conditions are not also fit for a circular economy.

To counter this mindset challenge and mainstream circular design, businesses should publicly commit to circular design by securing and communicating senior leadership buy-in.

Businesses also need to ensure that high-level targets set at CEO level trickle down, and are reflected in core operational objectives and key performance indicators at an individual and departmental level. Performance indicators which today serve the linear model – that is, to increase sales of products made from virgin materials - need to be re-developed across the industry to make circular design the norm. This must be combined with rethinking how businesses engage customers to keep garments in use with carefully designed incentives and elevated customer experiences.[28]

In order for these commitments and measurements to meaningfully translate into accelerated progress, businesses must invest in building the skills and mindsets needed to overcome legacy linear thinking. By pursuing educational and capacity-building programmes in circular design, businesses can not only elevate internal knowledge, but also unlock innovation and attract further investment.

For each affirmative action businesses take to further the scope and scale of their existing circular design practices, it is important that collaboration with peers and across the entire value chain is also championed.

By combining their creativity, collaborating around key indicators, and sharing their learnings, businesses can together apply circular design principles to all garments.

Make circular design the norm - scale to include all jeans and other garments

Policymakers to: implement mandatory product policies, deliver a harmonised approach, and set a minimum bar for all products on the market.

POLICYMAKERS

The Jeans Redesign demonstrated that circular design is not utopian, but can and should become the norm. To scale this approach across markets, and to mobilise the necessary innovation, product policies are key.

Product policies focus on extending the use of materials and/or products, and improving product footprints. They define standardised metrics on aspects such as durability and recyclability, setting a minimum, mandatory ambition level as a starting point for the industry. Building on voluntary commitments, such as The Jeans Redesign, product policies can deliver a mandatory and harmonised approach, setting a minimum bar for all products on the market. This is a fundamental driver to rapidly scale the adoption of circular economy principles.

Typically, product policies - such as the EU's Ecodesign for Sustainable Products Regulation[29] - define performance criteria at the level of the individual product. To be most effective, however, product policies should also consider collection, sorting, repair and recirculation systems for the products in scope. By moving beyond the individual product, product policies can help build a system that not only sees better products put on the market, but also ensures they are circulated at the highest utility at all times.

To make circular design the norm, and ensure circular products do not end up stranded in a linear system, an acceleration of policy efforts is required.

2 Make the economics work - price in the true cost to level the playing field

All businesses in the fashion industry to: value and account for the true cost of materials and production processes in the price of products.

BUSINESSES

Our current extractive economy generates significant negative externalities – related to climate change, biodiversity loss, waste and pollution – at all stages, accumulating over time. In today's linear system, based on price competition, the true cost of products to society is not accounted for. As such, products which have been redesigned according to the principles of circular design – such as the garments produced by participants of The Jeans Redesign – face a loss of competitiveness in a linear system. While these products may be fit for a circular economy, the way in which business currently interacts with the wider system in which their products flow is not optimised for their success.

To ensure that circular design, circular products, and circular economy decision-making can become the norm, we need to level the playing field. To ensure effective competition, all businesses need to accurately reflect the true cost of a product, including those related to environmental and social externalities. Internalising the costs of materials and production processes – for example, by calculating the impact of GHG emissions, capturing the economic loss of biodiversity loss, or putting a price on pollution – can be a powerful incentive for businesses to move towards a circular economy.

Investment is essential to enable circular business practices, which predominantly operate within linear constraints at present, to scale. In parallel to pricing, therefore, businesses need to accelerate the investments already made to enable not only redesigned fabric and jeans to be fit for a circular economy, but to develop the skills required to create further circular economy opportunities through continued – and continual – upfront investment in organisational capacity building, innovation technologies, and material premiums.

Fibre sourcing is a key area in which to implement transparent and true costing across the supply chain. Cellulose-based fibres which can demonstrate nature-positive outcomes such as increased levels of carbon sequestration and improved soil health represent an opportunity to value and account for true cost sourcing. Brands that understand the environmental impacts of sourcing decisions – by accounting for the negative externalities such as pollution or worker health impacts – will be better placed to demand improved processes and materials from their supply chains. For instance, it has previously been estimated that if the true cost of conventional cotton cultivation in India accounted for negative environmental and societal externalities, it would equate to EUR 3.65 (USD 4.28) per kilogram – around seven times the market price in 2016.[30]

For both true pricing and accelerated investment to come into effect, the fashion industry and policymakers need to work together.

Make the economics work - price in the true cost to level the playing field

Policymakers to: create a new level playing field in which circular economy decisions are the norm, including efforts to "internalise" costs, for example by realigning fiscal, trade, and subsidy policies.

POLICYMAKERS

In the transition to a circular economy, policymakers have an unprecedented opportunity to structure the system so that negative externalities are internalised (i.e. brought into the market mechanism), and in the end, eliminated. This can be achieved by, for example, putting a price on natural resource use and pollution; or incorporating the value of resources, ecosystem services, and externalities into prices through virgin material taxation, and carbon prices on emissions caused by extraction and material production.

Policy developments should include efforts to reform fiscal systems and remove environmentally harmful subsidies. For example, according to the World Bank, agriculture subsidies are responsible for the loss of 2.2 million hectares of forest per year - or 14% of global deforestation[31]. Existing agricultural subsidies, largely used to fund practices that deplete rather than replenish nutrients, could be redirected towards regenerative production methods for commodities like cotton, while fossil fuel subsidies - estimated at USD 577 billion in 2021 - could be repurposed to fund the energy transition across the fashion and other manufacturing sectors.[32]

In addition, shifting taxes from labour to non-renewable resources can support the transition to circular business models, breaking the link between economic activity and the consumption of finite resources. Where the introduction and increase of taxes on resources is coupled with a corresponding, revenue-neutral decrease in taxes on labour, the economic distortions that favour linear over circular business models can be addressed, in particular as circular models (such as sorting or repair operations) tend to be more labour-intensive than linear ones.[33]

By realigning the economic playing field, policymakers have a powerful role in creating a future landscape in which circular economy decisions are the norm.

Move from product redesign to systems redesign - take bold and unprecedented action

All businesses in the fashion industry to: redesign systems, not just products.

BUSINESSES

Continuing to redesign products (See Call to Action 1) so that they are fit for a circular economy is essential. As part of this, businesses need to ensure that products are redesigned to withstand the level of use circular business models require.[34]

But unless the system that they enter is set up to enable them to remain in circulation, efforts risk stagnating at the product level. In order to truly challenge conventional linear models at scale, the system itself must also be redesigned. The development of infrastructure which enables effective collection, sorting, repair, remaking, reuse, and ultimately recycling is imperative to ensure products, materials, and their components are circulated in practice and at scale. Such system-level unlocks require a thriving and cohesive innovation ecosystem; increased finance leveraged for redesigned services, business models, and supply chains; and unlocking the potential of circular business models to generate revenue without making more clothes.

Currently, while circular business models that decouple revenues from production and resource use - like rental, resale, repair and remaking - have great potential,[35] these business models do not always achieve this decoupling and the environmental benefits that come with it. Current business performance indicators, such as sales volumes and inventory turnover, are optimised for the linear economy. By reorientating their internal and external measures of success for an outcomes-based approach, businesses can ensure they have circular business models in place, which can ultimately benefit the environment. To ensure that these new parameters of success for circular business models trickle through their supply chains, businesses can engage customers by rethinking incentives and rewards, elevating customer experiences, and ensuring ease of access. Today's supply chains are optimised for simple, one-way production and distribution, whereas to ensure products remain in circulation, circular business models require local and global networks that facilitate services such as cleaning, repair and remaking.

All industry actors need to work together to co-create a supply network - as opposed to a linear chain - in which it is economically and technically viable to keep products in circulation.[36]

7 Move from product redesign to systems redesign - take bold and unprecedented action

Policymakers to: create the conditions and incentives that accelerate the development of infrastructure and industry processes for product and material circulation.

POLICYMAKERS

This infrastructure - largely missing today - must be invested in by individual organisations, through cross-value chain partnerships and support from policymakers. Without investment in services and collection, sorting and recycling infrastructure, the market for the recirculation of used products and the materials they contain within the economy is unlikely to ever scale. Policymakers can help mobilise these, by introducing mandatory, fee-based Extended Producer Responsibility (EPR) regulations in their jurisdictions,[37] which enable funding for scaled and harmonised collection and sorting systems to help prevent materials from ending up in landfill or incineration.

Beyond EPR, the public sector has a key role to play in steering investments towards innovation, infrastructure and skills, including digital, technical and repair skills. This is of particular importance given the skill gaps and labour costs in industrialised countries - two significant barriers to scaling circular business models that enable the repair, remaking and reuse of jeans and other garments.

By creating the right economic incentives and regulatory requirements, policymakers can enable circular economy solutions and infrastructure to become the norm.

The question is no longer whether a circular economy for fashion is possible,

but what we will do together to **make it the norm**.

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Appendix

DATA DISCLAIMER

This report has been compiled by the Ellen MacArthur Foundation (the Foundation), using input from participants of The Jeans Redesign.

The information relating to each participant's progress, reporting, and company information has been submitted to the Foundation and has not been audited or verified by the Foundation. Participants are responsible for all submitted data, which has been inserted verbatim in reporting templates on the website.

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Where a participant has not provided its commitment information within the timeframes requested by the Ellen MacArthur Foundation its Individual Progress page has been included indicating where no data has been provided. This version of the Summary Report was completed on July 10th 2023.

If you are a participant and you believe there has been an error in the reproduction of the information provided to us by your organisation, please contact us as soon as possible at jeans@ellenmacarthurfoundation.org, so that we can update our records.

Vision

A circular economy for fashion creates better products and services for customers, contributes to a resilient and thriving fashion industry, and regenerates the environment.

It prioritises the rights and equity of everyone involved in the fashion industry, and will create new opportunities for growth that are distributed, diverse, and inclusive.

We've created a vision for the fashion industry to redesign the way clothes are made and used. This will require industry and government to work together. It will need significant investment, large-scale innovation, transparency, and traceability. But if we take these actions together and get started today, this new system can scale fast.

Our vision of a circular economy for fashion means building an industry that designs products to be:

- **used more**
- **made to be made again**
- **made from safe and recycled or renewable inputs**

Together we can make fashion circular and help tackle the root causes of global challenges such as climate change, biodiversity loss, and pollution.

Read the full vision.

Acknowledgements

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ELLEN MACARTHUR FOUNDATION

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 Foundation's 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 in the Foundation's Network include: Strategic Partners - Gucci and H&M Group; Partners - Inditex, Lacoste, Primark, PVH Corp., Ralph Lauren, Tapestry 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.

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