

# TAKING STOCK:

Fashion's progress towards net zero,  
priorities for action and what  
that means for the Fashion Pact

S Y S T E M I Q

for

THE  
FASHION  
PACT

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## Acknowledgements

In conducting the Stocktake of industry progress and priorities for action, SYSTEMIQ benefited from the generous input of a range of organisations and partners, including: 2050, Apparel Impact Institute, Boston Consulting Group, Canopy, Ellen MacArthur Foundation, Global Fashion Agenda, Material Economics, McKinsey & Company, (RE)SET, Sustainable Apparel Coalition, Textile Exchange and of course, the Signatories and Secretariat of the Fashion Pact.

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# Collective Action Opportunities for the Fashion Pact

The members of the Fashion Pact recognise that the time is ripe for the sector to transform. The industry is a significant contributor to global greenhouse gas emissions (GHGs) and generates profound negative impacts on nature and the livelihoods of many who work in its supply-chains. These effects are set to mount given continued volume growth. As climate impacts, regulatory pressure, consumer demands and investor scrutiny intensify – all the more so in light of the coronavirus pandemic – the case for change is clear. In driving action, the fashion industry can not only improve its impact on people and planet, but also boost its resilience, future-proof business models, and secure sustainable long-term growth.

The 2020s must be a game changing decade for climate action. The world needs to halve emissions by 2030 to have a chance of delivering on the Paris Agreement.<sup>1</sup> Already, the symptoms of a heating planet are becoming hard to ignore, as forest fires, floods and other extreme weather events grow in intensity and frequency. Recognising the urgent need for action, countries, companies and citizens are stepping up to the challenge. The fashion sector can play a critical role in this effort: a range of recent studies show that dramatically reducing emissions is achievable.<sup>2</sup> Failure to do so will result in the

sector falling behind in the global race to zero. By committing to action, the Fashion Pact signatories are choosing to lead in an unprecedented coordinated international effort.

To deliver maximum impact, the Fashion Pact has committed to go beyond existing efforts, applying the power of collective action and CEO leadership to address barriers to progress. We assessed the level of industry progress against its environmental footprint, determining where there are gaps to fill. First, we identified key areas of emissions reduction potential. A range of analyses points to a set of shifts, or **Emissions Reduction Wedges**, with the potential to halve emissions by 2030 relative to today.<sup>3</sup> (See Exhibit 1.)

Based on our stocktake, we identified a sub-set of Wedges that have substantial emissions reduction potential, lack strong industry progress and for which collective action by the Pact could unlock transformational change in the near-term. They are:

- Accelerating the **energy transition** across the supply-chain can deliver the most significant emissions reduction of all the Wedges. Industry progress has been slow in part due to the limited leverage individual companies have over indirect

## EXHIBIT 1

\*2030 FIGURES

### Collective Action Opportunities can drive progress against key Emissions Reduction Wedges

*Reduction contribution = the proportion of total GHG reduction by 2030 that each wedge accounts for*

Emissions Reduction Wedges	Reduction Contribution*	Industry action	Value of Collective	Co-benefits
1. Energy transition	~35%	LOW	HIGH	
2. Energy efficiency	~15%	MEDIUM	MEDIUM	
3. Feedstock production	+12%	MEDIUM	HIGH	
4. Product care	~11%	LOW	MEDIUM	
5. Pre-consumer waste reduction	11%	LOW	MEDIUM	
6. Circular business models and dematerialisation	++ 9%	LOW	HIGH	
7. Alternative Materials	++ 3%	MEDIUM	HIGH	
8. Clean logistics and distribution	2%	MEDIUM	LOW	

Source: SYSTEMIQ analysis; Global Fashion Agenda & McKinsey, Fashion on Climate (2020)

suppliers and national grids. Therefore, collective action could unlock transformational change.

- Shifting to sustainable **feedstock production** practices can deliver significant emissions reduction and huge co-benefits including biodiversity and rural livelihoods. While uptake of sustainably produced materials has increased, collective action is needed to signal large-scale demand and drive sector-wide shifts.
- Scaling **alternative materials** is critical if the sector is to unlock the potential of innovative fibres. Yet many innovators face a series of “Valleys of Death” that hold back progress. Pooling resources and signalling demand could help to overcome this challenge.
- **Circular business models and dematerialisation** represent a critical opportunity for the sector to decouple business growth from environmental impacts. While many are engaging in circular business models, these have yet to be prioritised over dominant, linear models. Pre-competitive, collective action can enable the sector to signal intent for a more fundamental shift.

Informed by this analysis, together with 2050, we propose five **Collective Action Opportunities** for the Pact to apply its unique strengths to shift the needle on key Wedges mentioned above. Critically, these represent activity areas that go beyond or complement efforts led by other initiatives in the field. They are:

- 1. Harness collective purchasing power and policy advocacy to accelerate the clean energy transition** for electricity and heat in Tiers 1-3 of the supply-chain in key producing countries
- 2. Scale regenerative practices in raw material production in climate and biodiversity hotspots** by partnering to equip and incentivise Tier 4 producers to adopt sustainable approaches
- 3. Enter into pioneering offtake agreements** to secure demand for innovative low-impact fibres (especially closed-loop synthetic fibres), addressing barriers to scale and facilitating a shift to low impact portfolios
- 4. Commit to CEO-backed transformational pledges on circular business models** and set shared metrics to track progress, creating new industry norms and a race to the top
- 5. Work with a technology partner on a digital platform for the purchase of virtual, digital garments from brands** to enable the creation of business value from digitised product

Three of the Collective Action Opportunities (on the energy transition, regenerative practices and alternative materials) are targeted at delivering

on the Pact's existing climate commitments on renewable energy and low climate impact materials. The fourth and fifth opportunity areas offer the potential for the Pact to look beyond its existing commitments and show leadership on circularity: an essential part of a sustainable fashion future and one where the Pact can add value to existing efforts (such as those led by the Ellen MacArthur Foundation and UN Environment Program).

**The CAOs provide compelling ways for the Pact to deliver progress against key Wedges near-term.**

**Longer-term, we see huge opportunities in looking beyond this shortlist to the broader set of Wedges.**

For example, shifting **product care** practices among consumers is an area that has had very limited industry action and for which a collective behaviour campaign could unlock significant gains. We propose that this is an area for future consideration by the Pact. Key improvements in **energy efficiency** and **pre-consumer waste** can be delivered by companies individually or through existing initiatives, rather than the Pact. However, signatories could consider collective commitments and strategic partnerships with relevant initiatives to scale-up best practice in these areas. And while we do not recommend that the Pact prioritises **clean logistics and distribution** for collective action, we highlight opportunities for signatories to drive progress against this Wedge individually later in the document.

Finally, there is a significant opportunity for the Pact to **raise ambition**, going beyond the goals of halving emissions by 2030 and achieving net zero by 2050 to maintain its role as a leader on climate in the fashion sector and beyond. For now, it is key for the Pact to focus on delivering on existing commitments. However, once momentum has built, we see a huge opportunity for the Pact to develop strategies to further mitigate emissions and continue to set the bar for the industry.

**In the following pages, we position the CAOs within their broader context.** We describe each of the Emissions Reduction Wedges, identifying key gaps in action and priorities to address these. In doing so, we highlight where there are immediate Collective Action Opportunities for the Pact and where broader strategic priorities could lie. In addition, individual Pact members can use these summaries to inform strategy and direct resources within their own organisations.

**The 2050 Support Package** will provide deeper guidance for individual companies at different stages of their journey on climate. It will bring together external best practices, an overview and contact list for third-party support, and a series of webinars on relevant topics.

# Defining Emissions Reduction Wedges

**The most significant Emissions Reduction Wedges target key sources of emissions across the value-chain.** Estimates of the fashion sector's baseline range from 2 GT CO<sub>2</sub>e<sup>4</sup> to 4 GT CO<sub>2</sub>e. This disparity is due to a combination of differences in scope, sources and assumptions.<sup>5</sup> A coordinated effort is needed to resolve

confusion and align on reduction milestones along a pathway to 2050. (See Box 1.)

**Nonetheless, there is broad consensus on the key drivers of emissions across the value-chain and the areas – or Wedges – with greatest potential to address**

## BOX 1

### Estimates of the fashion sector's baseline emissions vary considerably

**Recent analyses of the fashion sector's baseline emissions have generated a range of estimates.**

In this document, we use the following terms to describe the steps of the value-chain: raw material production (Tier 4), raw material processing (Tier 3), material preparation – knitting and weaving, bleaching and dyeing (Tier 2), assembly (Tier 1), in-bound and out-bound distribution, owned operations (brand, retail), use phase, end of life (EOL).

- The **New Textiles Economy** report (2017), the Ellen MacArthur Foundation and McKinsey estimated sectoral emissions at **1.2 GT** for apparel only, from raw material production onwards, not including the use phase.<sup>6</sup>
- The Quantis **Measuring Fashion** report (2018), which covers apparel and footwear (not including the use phase but including EOL), estimated **4 GT** (of which 3.3 GT was generated by apparel alone).<sup>7</sup>
- The Global Fashion Agenda and McKinsey **Fashion on Climate** report (2020) estimates emissions at **2.1 GT** for apparel and footwear, including the use phase and EOL.<sup>8</sup>
- The World Resources Institute (WRI) and Apparel Impact Institute (All) draft **Roadmap to Net Zero: Delivering Science-Based Targets in the Apparel Sector** cites **1.4 GT** for apparel only, not including the use phase or EOL.<sup>9</sup>

A summary of these estimates is outlined in the table below. The WRI and All Roadmap provides a more detailed review.

**The lack of alignment on emissions holds back progress on decarbonising the sector** by causing confusion, undermining the credibility of estimates, and limiting perceived urgency to act. A collective effort is needed to develop and build consensus around a sector-wide picture of baseline emissions to build trust and direct action. This requires organisations to share data sources and analyses more openly to identify the drivers of discrepancy and build a fuller picture together.

#### Summary of Emissions Baseline Estimates

Where studies do not include footwear, the ratio of apparel to footwear calculated in Quantis (2018) is applied. As for the use phase, this is assumed at 20%, in line with McKinsey & GFA (2020). Where we have applied these assumptions, we have marked them in green.

System enablers	Apparel	Apparel & Footwear	Use phase	Total
EMF & McKinsey, <i>New Textiles Economy</i>	1.2 GT	1.5 GT	0.4 GT	<b>1.8 GT</b>
Quantis, <i>Measuring Fashion</i>	3.3 GT	4 GT	1 GT	<b>5 GT</b>
GFA & McKinsey, <i>Fashion on Climate</i>	1.4 GT	1.7 GT	0.4 GT	<b>2.1 GT</b>
WRI & ARI, <i>Roadmap to Net Zero</i>	1.4 GT	1.7 GT	0.4 GT	<b>2.1 GT</b>

**Despite the range of estimates of total emissions, there is broad alignment on the distribution of emissions across the value-chain,** making it possible to target reduction efforts where they are needed most. Analyses consistently find that the vast majority of emissions (around 90%) are in fashion brand and retailers' "Scope 3" emissions. In particular, they are highest further upstream in the supply-chain (particularly in Tier 2), as well as in the use phase (although consumer behaviour and therefore emissions in the use phase are highly assumption-based, there is a strong understanding of key drivers of energy consumption in this stage). The fashion sector can direct efforts towards these areas while working together in parallel to establish a stronger understanding of the baseline.

**these.** The reduction potential of each Wedge indicated in Exhibit 2 is drawn from estimates provided by the **Fashion on Climate** report. The report provides the most comprehensive assessment of reduction opportunities and their relative costs, pointing to where priorities should lie. However, as the exhibit highlights, there are some areas where we believe greater or lesser reductions could be achieved. These nuances are described in more detail later in this document.

The majority of the reductions achieved by accelerating the **energy transition** and enhancing **energy efficiency** come from decarbonising high-emitting activities in raw material processing (Tier 3) and wet processing, spinning, knitting and weaving (Tier 2).<sup>10</sup> Equipping and inspiring consumers to adopt sustainable **product care** practices can reduce energy consumption in the use phase, which may account for an estimated one-fifth of emissions (although estimates vary significantly).<sup>11</sup>

By reducing **pre-consumer waste** and adopting **circular business models**, the sector can protect and grow revenues while reducing volumes and impact. Potential reductions are even greater if accompanied by a broader cultural shift towards slower fashion and dematerialisation, centred on caring for clothing and elevating experience beyond physical products.

Shifting to sustainable **feedstock production** practices and scaling **alternative materials** can drive down emissions in raw material production (Tier 4), deliver huge co-benefits for biodiversity and stabilise supply for the sector. Their importance in delivering on the Pact's commitments reflects the value of holistic climate strategies that address interactions between biodiversity and climate.

**Clean logistics and distribution** systems deliver only small emissions reductions but there are clear and

## EXHIBIT 2

\*2030 FIGURES

### A set of Emissions Reduction Wedges can help to decarbonise the sector

Emissions Reduction Wedges	Reduction Contribution*	Description
1. Energy transition	~35%	Accelerating the transition to <b>renewable and clean energy sources</b> across the value-chain, including heat-intensive processes. The focus of this Wedge is Tiers 1-3, where emissions intensity is high, and the sector has greater influence than the use phase and Tier 4.
2. Energy efficiency	~15%	Increasing the <b>efficiency of operations across the supply-chain</b> (excluding T4) by applying tried-and-tested technologies that optimise the use of energy and other inputs
3. Feedstock production	+12%	Scaling <b>sustainable feedstock production practices</b> in Tier 4 by increasing energy efficiency in polyester production and reducing chemical inputs in cotton production. <b>12% is an underestimate</b> as it does not account for avoided deforestation and the benefits of regenerative agriculture.
4. Product care	~11%	<b>Inspiring and equipping consumers</b> to reduce emissions associated with the <b>washing and drying</b> of clothing. The reduction potential is significantly higher if combined with a shift to caring for <b>clothes to last</b> .
5. Pre-consumer waste reduction	11%	Reducing waste generated in the <b>production and processing</b> of textiles (Tiers 1-3) and as a result of <b>over-production</b> (at the retail stage)
6. Circular business models and dematerialisation	++ 9%	<b>Keeping garments in circulation</b> and finding new ways to fulfil consumer demand for newness and individual expression decoupled from purchasing products to reduce the consumption of virgin resources. <b>9% could be an underestimate</b> as assumes limited scale-up of circular models.
7. Alternative Materials	++ 3%	<b>Substituting high-emitting materials</b> with sustainable options like <b>recycled</b> and <b>regenerative</b> fibres. <b>Potential reduction is likely much higher than 3%</b> as assumes innovations are slow to scale and recycled fibres may have greater reduction potential given EOL emissions are likely underestimated.
8. Clean logistics and distribution	2%	<b>Shifting to lower-emissions transport</b> options (out of air freight; electrifying fleets) and <b>optimising operations</b> to increase efficiency. This Wedge could be higher if opportunities to shift to sustainable shipping fuels and enhanced packaging efficiency are pursued.
9. Raising ambition	Double GHG reduction	Greater ambition is needed to <b>go beyond halving emissions by 2030</b> and <b>continue to drive abatement to 2050</b> . We outline key considerations when exploring how to do so.

Source: McKinsey & Global Fashion Agenda, Fashion on Climate (2020); SYSTEMIQ synthesis

financially attractive opportunities for industry actors to accelerate this transition.

Driving progress against these Wedges could halve emissions by 2030. Industry actors can **raise ambition** to fill the gap to net zero and contribute to global decarbonisation efforts by driving emissions reductions in hard-to-reach parts of the value-chain and supporting interventions that sequester carbon and regenerate nature.

To fully unlock the power of the Emissions Reduction Wedges, industry actors can draw on **a set of system enablers with the potential to deliver gains across all.** (See Exhibit 3.) These enablers are central to each of the Collective Action Opportunities proposed for the Pact.

In the rest of this document, we highlight the ways in which Pact signatories can draw on these enablers to deliver priorities against each Wedge.

### EXHIBIT 3

## Pact signatories can draw on a set of system enablers to deliver gains across wedges

	System enablers	Description
Tools for Transformation	 Evidence and knowledge-sharing	There is a huge opportunity to <b>share data and knowledge sources</b> more openly to build a shared picture of the sector's environmental impacts, align on areas for improvement and identify key issues to address. (See Box 1.) In addition, brands, retailers, suppliers and producers can <b>share best practices</b> to replicate and scale, delivering widespread improvements.
	 Standards and targets	<b>Developing and enforcing standards</b> , including integrating climate into existing certifications, and setting science-based targets (SBTs), can help to raise ambition, enhance accountability and monitor progress.
	 Traceability and transparency	<b>Enhancing traceability and transparency</b> is critical to identify and address issues across the value-chain, from understanding the environmental impacts of the sector at large (see Box 1) to detecting unsustainable practices linked to particular fibres, geographies or suppliers. This can equip industry actors to deliver improvements, build trust with consumers and limit regulatory and financial risk.
	 Technological innovation	<b>Technological innovation</b> offers huge opportunities to boost efficiency, transform production practices (from waterless dyeing to 3D printing) and monitor progress across the value-chain. What's more, innovation underpins many of the most exciting alternative textiles and sustainable business models emerging today – from fibres made of CO2 to virtual reality fashion experiences.
	 Business model innovation	Driving improvements within existing business models can significantly drive down emissions. Yet many of fashion's <b>environmental impacts are embedded in the sector's linear models</b> of high volume production and consumption. Pioneering and scaling innovative business models that decouple volume from value is both critical to address these issues and represents a huge opportunity for the sector.
	 Digital technology	The sector can unleash <b>digital technology</b> to enhance <b>supply-chain operations</b> (including monitoring equipment) and support <b>new business models</b> . By connecting consumers to producers and sellers, digital platforms can facilitate resale, rental, subscription and production on demand. Meanwhile, COVID era runway shows have shown the power of digital to unlock new <b>customer experiences</b> .
System Settings	 Policy & regulation	Industry actors can engage <b>policymakers to address systemic barriers to progress</b> that they cannot address alone. Interventions include <b>policy and regulation</b> that reward leaders on sustainability and penalise laggards, <b>fiscal incentives</b> that account for the real costs of production and equip supply-chain actors to invest in the transition, <b>investments</b> in infrastructure, including renewable energy, and more.
	 Finance and investment	The fashion sector can leverage <b>innovative financing mechanisms</b> to increase investment into sustainable interventions. In parallel, the finance sector can <b>integrate climate-related risks</b> into investment assessments to <b>redirect finance</b> away from destructive practices towards sustainable ones. While the sector has been largely under-scrutinised and under-served to-date, this is beginning to change.
	 Consumer engagement	The fashion sector can unlock its <b>creativity and cultural influence</b> to engage consumers on environmental issues. This includes prompting attitudinal shifts towards greater care and consideration, <b>inspiring and equipping</b> consumers to adopt environmentally friendly <b>consumption behaviours</b> , and <b>empowering</b> them by responding to their preferences and needs.
	 Multi-stakeholder Partnerships	Fashion brands and retailers can <b>work with partners</b> within and beyond the fashion sector to <b>address systemic issues and unlock opportunities</b> . This includes moving away from transactional engagements with suppliers to deeper relationships that facilitate greater change; working with communities linked to supply-chains to amplify positive impacts of the sector; and collaborating across sectors.

# Emissions Reduction Wedges: Progress and Priorities

## 1 Energy Transition

**Actively driving the Renewable Energy transition is one of the biggest opportunities for the fashion sector to curb emissions by 2030** and a core commitment of the Pact. Industry actors can leverage collective buying power and political influence to decarbonise electricity in key production and consumption markets and switch to renewable and/ or electrified heat sources in fabric dyeing and finishing. As well as reducing emissions, this transition can generate jobs, improve air quality and avoid deforestation and habitat destruction for wood and coal extraction.

**The majority of CO<sub>2</sub>e emissions in the fashion sector relate to the generation of electricity**, incurred mostly during the raw material processing (Tier 3), material preparation (Tier 2), assembly (Tier 1) and use phases.<sup>12</sup> Transitioning to 100% renewable electricity (RE) is both technically feasible and economically viable.<sup>13</sup> RE sources like solar and wind are now the cheapest available technology in most geographies, thanks to feed in tariffs<sup>14</sup> delivering dramatic costs declines over the last decade.<sup>15</sup> Based on deploying the lowest cost source of electricity, Bloomberg estimates that by 2050, zero-carbon sources will account for 70% electricity generated globally, double that of 2016.

**Heat-intensive processes used in dyeing and finishing fabrics contribute another significant share of CO<sub>2</sub>e emissions, given the reliance on hard coal and gas in key production countries.**<sup>16</sup> These processes require large amounts of heated water. Yet temperatures are not so high as to be classified “hard-to-abate”. Depending on the fibre and dye used, temperatures range between 60 and 700°C, typically sitting between 150-200°C.<sup>17</sup> As such, these processes may be decarbonised with existing technologies: electrification, switching to solar/geothermal heat or using sustainable biomass (for example, from local farming residues). The optimal choice will depend on the market or region in question, based on the available natural resources and expected energy transition.

### Industry Progress to-date

**The fashion sector recognises the need to shift to RE sources, yet greater action is required to unlock its full potential.** The UNFCCC Fashion Industry Charter and Fashion Pact have each committed to specific goals on RE and the phase out of coal.

The Charter's [Manufacturing and Energy Working Group](#) is developing a roadmap to define and identify opportunities to scale up renewable energy (and increase energy efficiency) in the supply-chain. Twenty fashion groups have committed to 100% renewable energy by joining [RE100](#). Individual companies are taking efforts into their own hands. For example, NIKE, Inc. have launched a comprehensive on-site rooftop [Solar PV Program](#) to maximise coverage at participating factories, following a successful launch phase in Vietnam.

However, initiatives like these are the exception, not the rule. Most efforts tend to focus on brand and retailer owned operations, which account for less than 10% of sectoral emissions.<sup>18</sup> Those committed to decarbonising their Scope 3 emissions struggle to apply sufficient leverage or buying power to shift country grids and/ or secure access to the required amounts of RE.

**Despite the lower economic costs of clean energy, the following barriers slow progress:**

- **Inertia, outdated beliefs, capability gaps and perverse incentives stymie progress.** The economic case for RE and its potential to replace fossil fuels at scale is not well understood. As a result, policy-makers and other key decision-makers do not see a clear case for disrupting the status quo (including reform of fossil fuel subsidies), perpetuating perverse incentives to delay the transition.
- **Brands and retailers have limited influence over indirect suppliers** or those for whom they make up a small share of business, because they lack direct working relationships or financial leverage on which to base discussions around transitioning to RE.
- **Supply-chain actors are not prioritising this shift due to knowledge gaps and limited access to investment capital.** Many small and medium sized suppliers are either unaware of lower energy alternatives and their associated cost savings or unable to access the upfront investment needed to implement this shift and materialise those savings.
- **An absence of sustainable biomass supply-chains limits access to alternative fuels.** Local farming residues could in some cases provide a low-carbon and low-cost alternative for existing heat sources like wood. Yet without established supply-chains, there lacks a means to source these



alternatives. In addition, strategies are needed to ensure that decisions on biomass do not result in unintended consequences for nature.

## Sector-wide Priorities for Action

To overcome these barriers, industry actors can draw on system enablers including **policy and regulation, finance and investment** to deliver the following priorities:

- **Commit to bold ambitions on climate to provide demand signals for RE to scale.** Companies can join [RE100](#) to demonstrate public leadership, signal demand to markets with under-developed variable RE, set common standards and benefit from technical guidance.
- **Purchase 100% RE in own operations (Scope 1 and 2 emissions) as an immediate opportunity.** Companies can purchase RE directly from the grid, install on-site variable RE or engage in (virtual) corporate Power Purchase Agreements<sup>19</sup> (PPA) or Renewable Energy Certificates (REC) in applicable markets. What's more, companies can seek financial support from banks through a sustainability-linked loan, in line with

the Sustainability-linked Loan Principles.<sup>20</sup> Since 2008, 53 GW of clean energy has been purchased through corporate PPAs - more than Vietnam's total power generating capacity.<sup>21</sup>

- **Work closely with key suppliers to drive impactful change in the most energy-intensive production steps** in key production locations. Brands and retailers can work with suppliers to develop strategies to transition to RE that are tailored to their specific context and that provide incentives or financing to secure buy-in, such as long-term offtake agreements. For example, Apple has created an online platform which allows its suppliers to register and identify commercially viable RE solutions throughout the world.<sup>22</sup>
- **Work together to engage political decision makers to accelerate the transition to RE at a national level.** Industry actors can make the political, economic and technical case for the transition to policymakers in countries where the sector has significant weight, and engagement is therefore more likely to succeed. For example, Samsung and other international businesses are [voicing their interest in sourcing RE for in-country operations](#) in Vietnam.

## What does this mean for the Pact?

Coordinated action in this Wedge should centre on harnessing collective purchasing power and industry clout to overcome barriers linked to sourcing RE and incentivising its adoption across supply-chains and in producer countries. The Pact can draw on and complement the analytical and strategic work of the Fashion Industry Charter by helping to drive action. To do so, they can develop tailored strategies for key production country/ies to increase the availability of clean energy on- and off-site through financing models (including PPAs, RECs and other options mentioned above) and, where relevant, coordinated policy engagement.

## 2 Energy Efficiency

**Improved energy efficiency can drive significant emissions reductions in raw material processing (Tier 3) and wet processing, spinning, knitting and weaving (Tier 2) by 2030 and reduce other resource requirements.**<sup>23</sup> The processes and technologies involved in this Wedge are relatively well understood and available, and there is an attractive business case in reducing input use. At an industry level, enhancing energy efficiency in wet processing alone could deliver savings of ~\$200 per tonne of CO<sub>2</sub>e avoided.<sup>24</sup>

Key interventions include improving boiler efficiency; avoiding heat and water leakage; recovering and reusing inputs – including heat from gas, oil and water; and reducing chemical and water use through technological improvements. For example, DyeCoo Textile Systems' waterless textile-dyeing machine uses recycled CO<sub>2</sub> to dissolve and transport dyes into fibres, saving around 25 litres of water per t-shirt.<sup>25</sup> These interventions could also reduce levels of toxic waste and pollution into local ecosystems, a critical priority given textile dyeing accounts for an estimated one-fifth of industrial water pollution.<sup>26</sup>

### Industry Progress

**Notable efficiency improvements have been made, but these are largely ad hoc.**<sup>27</sup> Over 200 facilities have engaged in the Apparel Impact Institute's Clean by Design programme, which combines knowledge-sharing, partnerships and financial innovation to roll out best practices across Tier 2 factories, delivering 10% emissions and 13% water use reduction.<sup>28</sup> There are some intersects with the work of ZDHC, as some of its interventions on sustainable chemical inputs and management practices can also reduce energy requirements.

However, these principles have not been rolled out across the sector. Wet processing remains highly inefficient and energy intensive. For example, half of the fabric dyed worldwide comes out the wrong colour and needs correcting, meaning the water, chemicals and energy used in the first round are wasted.<sup>29</sup> What's more, there is a risk that efficiency improvements in existing production countries will be lost as the industry shifts to less economically developed countries like Cambodia and Ethiopia – a shift that may be accelerated by the response to the coronavirus pandemic.<sup>30</sup>

**Barriers to action include:**

- **Short-term and transactional supplier relationships reduce incentives to improve.** Insecure and often short-term contracts do not provide suppliers with an incentive to invest up-front in efficiency improvements that may only deliver returns in the longer-term.
- **Limited access to finance makes it difficult for suppliers to invest in improvements.** Many suppliers lack significant savings due to low margins and have high risk profiles due to insecure demand, making it difficult to borrow. This limits their capacity to invest in more affordable improvements (\$1000-\$15,000), let alone more transformational changes.<sup>31</sup>

### Sector-wide Priorities for Action

Industry actors can draw on system enablers such as **transparency, partnerships and finance and investment** to make efficiency gains more feasible and attractive for suppliers. Priorities include:

- **Enhance traceability and transparency to identify and address inefficiencies.** This Wedge would benefit from sector-wide enhancements in traceability across the value-chain to enable more effective management of issues. As a first step, companies can use meters and measuring software to monitor resource use. For example, Fung Group is rolling out an energy sensor package across its supplier network, following a pilot that revealed opportunities to deliver energy savings of 3100 kWh per month.<sup>32</sup>
- **Deepen partnerships with suppliers to address barriers to improvement.** Fashion companies can work with suppliers to design interventions to secure their buy-in and enhance their likelihood of success. This may involve committing to longer-term contracts and/ or financing agreements that provide incentives for action, co-developing interventions and providing training opportunities (drawing on resources like All's Mill Impact Initiative).
- **Coordinate to increase investment and scale efficiency gains across the sector.** An easy win is to join the Apparel Impact Institute to scale finance and roll out processes and technologies designed to enhance efficiency and accelerate the energy transition. All identifies and verifies programs for scale, and where programs are lacking, identifies opportunities to pre-seed and pilot programmatic

Financial instruments and support to incentivise improved sustainability performance



Supplier financing	Sustainability-linked loan	Sustainability-linked loan
<p><b>PUMA's Supply Chain Finance program</b></p> <p>PUMA entered into a partnership with financiers to provide financing to supply chain players in 2016.</p> <p>Through the program, IFC and BNP provide finance to suppliers, linking capital costs to performance in PUMA's supplier rating.</p>	<p><b>Prada's €50 million 5-year Sustainability Term Loan</b></p> <p>In November 2019, Prada S.p.A obtained a loan from Crédit Agricole, the interest rate of which is linked to the achievement of environmental and social targets, including:</p> <ul style="list-style-type: none"> <li>• green buildings</li> <li>• employee training, and</li> <li>• The use of Re-Nylon (regenerated nylon).</li> </ul>	<p><b>Moncler's €400 million 3-year Sustainability-linked Revolving Credit Facility</b></p> <p>In July 2020, Moncler secured a sustainability-linked revolving credit facility that incentivises the achievement of environmental targets.</p> <p>The new credit line will reward Moncler for achieving specific objectives aiming to reduce the environmental impact of its operations.</p>

solutions with relevant industry partners. Similarly, [Fashion for Good's Scaling Programme](#) supports innovations that have passed proof-of-concept stage across the value-chain, including processing and manufacturing. Financial mechanisms such as green bonds can also be used to raise capital for supply-chain improvements. For example, VF Corporation released a €500 million bond in February 2020 to advance sustainability initiatives along its supply-chain.<sup>33</sup>

- **Development banks, commercial banks and investors can use performance indices to inform lending terms for suppliers, fashion brands and**

**retailers.** For example, PUMA, Prada S.p.A and Moncler have worked with finance partners to link financing terms to supplier sustainability performance. (See Exhibit 4.) While these have tended to focus on owned operations, the same models could be rolled out for suppliers. In doing so, the sector could draw on rankings like that of the NRDC and Institute of Public and Environmental Affairs [Green Supply Chain Map](#), which has ranked nearly 150 multinational corporations on their supply-chain performance in China. Efforts to enhance the transparency of performance criteria and supplier data are essential to underpin this opportunity.

**What does this mean for the Pact?**

This is not a priority for collective action for the Pact, given existing initiatives are already coordinating actors in this space. However, there is an opportunity for Pact signatories that are not already doing so to engage in the Apparel Impact Institute to scale best practice across the sector.

## 3 Feedstock Production

**Shifting to sustainable agricultural and forestry practices in raw material production can significantly reduce emissions and deliver huge benefits for nature**, in line with the Pact's commitment to sourcing low impact raw materials. This shift can cut emissions at this point in the supply-chain across a range of materials, including cotton<sup>34</sup>, viscose<sup>35</sup> and leather<sup>36</sup>, by avoiding emissions and providing opportunities to enhance carbon sequestration. To do so, producers, supported by brands, can transition to a range of practices to better manage 'working lands', including avoiding land use change (especially deforestation and peatland damage), adopting regenerative agriculture practices, restoring critical habitats and protecting key species. These are examples of **Natural Climate Solutions (NCS)**, which provide an estimated 30% of the solutions to climate change globally.<sup>37</sup>

This Wedge centres on natural fibres where there is an opportunity to influence change in the short to medium term. While improving production practices for synthetic fibres has significant emissions reduction potential, this is a costly exercise over which brands and retailers have limited leverage.<sup>38</sup> In addition, reducing emissions from synthetics production does not generate significant 'co-benefits' such as biodiversity and livelihoods outcomes, nor does it overcome issues around microfibre and chemical pollution leakage. Moving away from virgin plastic altogether, including petroleum-based fibres, should be the aim long-term.

NCS can enhance the resilience of fashion supply-chains by equipping producers to steward nature and maintain ecosystems on which they depend. Regenerative practices promote vital ecosystem services including soil fertility, pollination and improving freshwater cycles, while reducing resource use through precision agriculture technologies.<sup>39</sup> Significantly, with the right enablers in place, regenerative production systems can improve farm profitability, benefiting rural communities. These practices can also mitigate regulatory risks and provide ways to connect to consumers through storytelling.<sup>40</sup>

### Industry Progress to-date

**A range of initiatives have helped to increase the uptake of sustainably produced fibres in recent years.** The market share of "preferred" cotton has risen from 5% to 25% of total cotton sales since 2012.<sup>41</sup> Programmes like the [Leather Working Group](#) and the [Responsible Leather Round Table](#) are incentivising improved practices for livestock production through

standards, targets and knowledge sharing. Similarly, the Savory Institute's [Frontier Founders Initiative](#) is promoting regenerative grazing in food and fibres supply-chains. Zero deforestation commitments provide signals of intent and a basis for collaboration. The [CanopyStyle initiative](#) has helped to drive up the market share of viscose producers avoiding Ancient and Endangered Forests to 84%, while 43% of producers have no known risk and are progressing on next generation viscose.<sup>42</sup> Industry actors will also benefit from the emerging Science-based Targets for Nature (SBTN) guidelines in developing climate-smart supply chains and sourcing.<sup>43</sup>

However, sustainable practices are not the norm. Despite growing on only 2.4% of cropland, cotton accounts for around 15% of the world's synthetic pesticide use, with associated emissions and negative impacts for soil and water sources.<sup>44</sup> Every year, 150 million trees are logged and turned into cellulosic fibres.<sup>45</sup> Leather has been linked to deforestation in the Brazilian Amazon.<sup>46</sup> While there is some debate over the proportion of the impacts of cattle production that can be attributed to leather, the reality is that we need to account for the material's impacts in primary production.

### The following barriers prevent sustainable practices from scaling:

- **Markets do not account for the true costs of production, rewarding unsustainable practices.** Government subsidies often support more input-intensive forms of agriculture. Most fashion companies do not internally account for the environmental impacts associated with production, making it harder for sustainable raw materials to compete on price with more 'commoditized', unsustainable options.
- **Long and complex value-chains make it hard to detect and address unsustainable practices.** While the sector is beginning to understand its impacts and dependencies on nature further upstream in the supply-chain, companies remain highly exposed to risks of insecure supply, legal and reputational damage. The stakes are high. For example, Brazilian meat processor JBS, was dropped by Europe's largest financial services group in July 2020 due to its links to Amazon deforestation.<sup>47</sup>
- **Producers lack confidence in the shift to regenerative practices.** Without access to finance, insurance and/ or clear demand signals to mitigate the risks of investment, many producers struggle to invest up-

front in a transition to regenerative practices, despite the potential for returns long-term. In addition, there lacks widespread training for producers to acquire new knowledge and skills – or examples of best practice that demonstrate the benefits of this shift.

## Sector-wide Priorities for Action

To address these challenges, industry actors can leverage **standards and targets, traceability and transparency, finance and investment, and multi-stakeholder partnerships**. Priorities include:

- **Commit to avoiding degradation and loss of natural ecosystems as part of a holistic approach to sustainable sourcing across all raw materials.**

Companies can engage in initiatives like [CanopyStyle](#), the [Responsible Leather Round Table](#) and the [2025 Sustainable Cotton Challenge](#) and work with suppliers in hotspot areas to adopt sustainable practices. The [Impact Incentives](#) programme provides a powerful way for brands and retailers to support farmers implementing sustainable practices in relevant supply-chains.

- **Develop integrated climate strategies** to identify opportunities for win-wins across climate, biodiversity and livelihoods. This includes quantifying the benefits of production practices for each of these outcomes and finding ways to incentivise the uptake of NCS. Companies can align climate strategies with emerging best practice by working towards setting SBTs for nature. The Fashion Industry Charter [Raw Materials Working Group](#) is mapping out material impacts and exploring ways to quantify positive impacts. In addition, the Fashion Pact Biodiversity pillar provides guidance on tools to measure impacts on nature, such as the [Biodiversity Impact](#)

[Metric](#) and Conservation International's [Resilience Atlas](#) and approaches for developing strategies that are coherent across climate and biodiversity commitments.

- **Enhance traceability and transparency to identify and address issues.** Just as [Unilever discloses all the suppliers and mills](#) it sources from, fashion companies can trace and disclose the gineries, tanneries and/ or textile mills in their value-chains, committing to efforts like the [Transparency Pledge](#) and developing monitoring processes for sustainability standards. Arcadia Group, C&A, H&M Group, Levi Strauss and Patagonia are among those that have started to do so.<sup>48</sup>
- **Partner across and beyond the supply-chain to enable transformational change.** Companies can engage with suppliers, communities, and others to deliver impact within and beyond their supply-chains. For example, [One Planet Business for Biodiversity](#) brings together stakeholders from fashion, food production and other industries to identify cross-company regenerative agriculture projects. Similarly, global coalition [Business for Nature](#) convenes a united business voice to influence key political decisions on nature and communicate the business case for reversing nature loss, as well as aggregating, amplifying and scaling commitments and solutions on-the-ground.
- **Implement an internal carbon price** to create a level playing field for sustainably produced raw materials. This could also fund internal commitments to increase the uptake of sustainable materials and processes across supply-chains. 605 companies (including just three fashion companies) account for their carbon impact internally, creating incentives to make environmentally sound decisions.

## What does this mean for the Pact?

Multi-stakeholder partnerships can create the enabling environment for change. Pact signatories can work together to scale regenerative practices in key climate and biodiversity hotspots, partnering with initiatives like the [Impact Incentives](#) programme to signal demand and create incentives for producers to adopt sustainable practices.

In addition, Pact signatories could explore together committing to 100% sustainable sourcing and avoided degradation and loss of habitat to mainstream sustainable practices, holding one another accountable and building on the Pact's commitment to 25% low climate impact key raw materials by 2025.

## 4 Product Care

**The fashion sector can harness its creative power and influence to encourage and equip consumers to adopt sustainable product care practices.** A shift to sustainable cleaning and drying practices could deliver 11% of emissions reduction potential to 2030 (although estimates vary).<sup>49</sup> While determining product care practices involves a degree of assumption, there is a clear set of actions that are known to reduce environmental impacts in this stage. Washing clothes less frequently, at lower temperatures, limiting tumble drying and dry cleaning, and shifting to sustainable detergents drives down energy intensity, reduces microplastic leakage and can reduce negative impacts on biodiversity.

### **Promoting product care is also good for business.**

Companies can differentiate themselves in the market by highlighting the quality and other material attributes of their products. They can get ahead of the curve on policy developments. For example, policy shifts in the plastics sector are extending the range of producer responsibility to include the time during which a product is in use. Similarly, eco-design standards mandating the energy efficiency of categories like consumer electronics are going to be extended to other items, with implications for textiles in terms of design for durability and repair.<sup>50</sup> Similarly, investors and financial institutions have begun to benchmark financing terms to sustainability in the food sector through the FAIRR Initiative and Access to Nutrition Index. This could be replicated for fashion, with investors linking financing terms to companies' Higg performance on engaging consumers on product care.

### **Industry Progress to-date**

**While there are examples of companies engaging consumers on cleaning practices, these are not largescale.** Groupe *Beaumont* is providing training and developing an app for staff to advise customers on appropriate care practices. Decathlon S.A. is using clothing labels to communicate with consumers about the environmental footprint of 1,500 products in their range.<sup>51</sup>

Yet few of the interventions designed to shift care practices are led by the fashion sector itself.<sup>52</sup> FMCG innovations have benefited the fashion sector, such as Unilever's "Day 2" dry-wash spray for clothes.<sup>53</sup> Procter and Gamble is credited with helping to grow the proportion of UK households that wash at

low temperatures from 2% in 2002 to 32% by 2011 through efforts like the 2006 cross-sectoral "Turn to 30" campaign.<sup>54</sup> Household appliance producer AEG convenes the *Care Label Project*, which brings together appliance makers, emerging designers and manufacturers to engage consumers on sustainable care practices. Fashion brands and retailers make up just 10% of UK-based *Love Your Clothes* campaign, which seeks to change the way consumers buy, use and dispose of their clothing.

**Barriers to progress** include:

- **Industry actors have lacked an incentive to drive the change:** historically, there has been little clear mandate for companies to engage in the use phase due to a lack of clarity on the emissions associated with this stage and a perception that it is beyond their remit. However, as noted above, policy shifts are causing this to change.
- **Brands and retailers do not wish to be liable for product damage:** companies cautious of bearing responsibility for product damage can promote unsustainable behaviours, such as dry cleaning for all products. Yet these are often unnecessary. In fact, many of the shifts in this Wedge – such as washing at lower temperatures – help to extend the lifetime of goods.

### **Sector-wide Priorities for Action**

The key system enablers to accelerate this shift are **consumer engagement, finance and investment** and **policy and regulation**. These underpin priorities for the sector, including:

- **Engage consumers via behaviour change campaigns** that address misconceptions around cleaning and raise awareness of the emissions associated with care practices. A quick win would be to change all labels to encourage washing at minimum temperature rather than the maximum: 70% of consumers use care label information when purchasing clothing; 80% when laundering.<sup>55</sup>
- **Commit to design principles and invest in innovations to make it easier for consumers to care for their clothes sustainably.** Companies can train design staff, partner through innovation platforms and support pilots centred on creating clothes suited to washing at low heats and line drying (for example, using quick-drying textiles).

## What does this mean for the Pact?

While this Wedge does not contribute to existing Pact commitments, engaging on product care is a key part of the journey to net zero and Pact signatories could add significant value, given the sector's light-touch approach to this value-chain step to-date. Collective action should centre on channelling efforts into a coordinated campaign that shifts behavioural norms by reaching a critical mass of consumers. The Pact could launch a joint campaign in key geographies or commit to shared principles on communicating care practices in marketing, labelling or other touchpoints.

## 5 Pre-consumer waste reduction

**Reducing waste generated before it reaches the consumer can drive down the fashion sector's emissions and generate cost savings.** An estimated 40 million metric tonnes of textiles are lost before reaching the consumer each year.<sup>56</sup> Significant reductions can be achieved by halving over-production of stock from 20% to 10% and optimising processes in material processing and production.<sup>57</sup>

Opportunities to avoid over-production centre on improved demand forecasting, planning, stock management and shorter lead times; minimising returns; and developing leaner business models, such as production on demand. Opportunities to reduce waste in production include design decisions; technological solutions like laser-cutting; re-integrating unavoidable waste into existing and/ or new value-chains – for example, using scraps for pockets or producing new items, like clothing brand Nudniks; and closed loop recycling to avoid downcycling, incineration or open burning.

**This Wedge can unlock significant opportunities and enhance resilience.** Halving over-production could deliver savings of ~\$300 per tonne of CO<sub>2</sub> reduced.<sup>58</sup> Improving the accuracy of production and revenue forecasting can reduce volatility, while stronger supplier relationships can boost productivity by securing buy-in and rewarding high-performing vendors. Moreover, shifting to efficient practices and transparency prepares companies for potential regulatory shifts and builds trust with consumers.

### Industry Progress to-date

**Industry progress on this Wedge** is very hard to track due to low levels of traceability and disclosure. Perverse incentives encourage over-production. For the luxury segment, high margins mean that a wasted product is better than a missed sales opportunity, exacting quality standards prevent items with any faults from being sold and destruction is favoured over discounts to protect the exclusive image of the brand. For the high-street segment, heavy discounting is increasingly becoming part of the business and operating model. KPIs of buying and sourcing departments often do not reflect the end-to-end margin after discounting in the sales channel. There are signs that some product lines are designed with heavy discounting in mind.

**Despite the clear cost savings from reducing waste, a set of barriers slow action**, including:

- **Low industry awareness of the opportunities offered by advanced analytics holds back uptake.** Many companies have not grasped the potential of advanced technologies and approaches to improve demand planning accuracy, limiting their appetite to implement these.
- **Weak supply-chain traceability and brand transparency** makes it hard to identify issues and design technological and procedural solutions to address these. Brands lack data on waste generated by suppliers, making it very difficult to implement solutions and monitor progress.
- **Misaligned incentives** encourage suppliers to conceal volumes of waste generated. Suppliers can achieve 24% of their traditional margin by reselling leftover production scrap on the after-market.<sup>59</sup> This incentivises them to underreport leftover information after production. By contrast, suppliers lack the financial means to roll-out solutions such as laser cutting.<sup>60</sup>

### Sector-wide Priorities for Action

Industry actors can seize the opportunity in reducing pre-consumer waste by leveraging system enablers, including **digital technology**, enhanced **traceability, standards and targets** and **multi-stakeholder partnerships**. Priorities include:

- **Commit to reducing waste to create a race to the top.** Industry actors can replicate best practice in the food sector. Champions 12.3 initiative brings together public and private partners to dedicate to halving food waste by 2030. The Consumer Goods Forum is working to develop a science-based yet practical definition and metric for food loss and waste.
- **Implement best practice solutions to cut waste out of business and operating models.** Fashion companies can work with service providers (including Pact Delivery Partner BCG) to develop and deploy existing advanced analytics solutions to optimise demand forecasting and planning. Similarly, brands can train designers to maximise efficiency in design, including efficient pattern design and working with materials that generate less waste.



- **Enhance traceability and integrate performance on waste reduction into business decisions.** Companies can engage technology start-ups to enhance traceability using blockchain and RFID technology. Aligning internal incentives through performance indicators linked to waste is critical to encourage employees to make the right decisions in all parts of the business. Investors could peg financing terms for fashion brands, retailers and suppliers to performance on a 'waste reduction index', creating further incentives for action.
- **Deepen partnerships with suppliers to identify opportunities for shared benefits and secure buy-in for interventions.** Companies can move away

from transactional engagements to co-develop strategies and ensure that interventions have staying power. For example, the [Circular Fashion Partnership](#), led by Global Fashion Agenda and Reverse Resources collaborates with textile and garment manufacturers, recyclers and major fashion brands to re-integrate fashion waste into supply chains. By enhancing the collection systems, exploring ways to generate value from waste and catalysing the textile fibre recycling market, the partnership demonstrates the linkages between pre-consumer waste, circularity (see Wedge 6) and alternative materials (see Wedge 7) – and delivers benefits across all.

### What does this mean for the Pact?

Action against this Wedge does not help to deliver on existing commitments. In addition, key priorities (such as implementing advanced analytics) can be delivered individually, while other priorities are being targeted by existing collective initiatives. However, the Pact could help to cultivate a race to the top by making collective commitments to reduce waste and collaborating on shared systems to enhance traceability and transparency across the value-chain.

## 6 Circular Business Models and Dematerialisation

**One cannot be serious about transforming the fashion sector for the better without addressing business and consumption models.** The recent *Fashion on Climate* report estimates the decarbonisation potential of circular business models at 9% of the total reduction by 2030. Yet decoupling the value derived from fashion by its users from extraction of virgin resources is the one scenario in which a world with a growing global middle class and sector-wide decarbonisation are not at odds. Enter the performance economy. Individual expression and newness – core needs of fashion consumers – can be catered to via models that keep garments in circulation at their highest value (such as resale, rental, leasing, subscription and repair) and that deliver fashion experiences without purchasing products, for example through virtual reality and in-store experiences. The benefits could be even greater if accompanied by a cultural shift towards buying and caring for clothes to last.

**Circularity is often treated synonymously with recycling.** Yet while closed-loop recycling is a key priority, it is not a silver bullet: less than 1% of production is closed-loop,<sup>61</sup> no solutions are proven commercially at scale, and even advanced recycling of synthetics and cellulose require a purity level of ~95% (see 7. Alternative Materials). An absolute reduction in volumes is needed.

**What's more, circular business models and dematerialisation provide a compelling business opportunity for brands and retailers.** Companies can respond to consumer demands for newness while cutting production costs. They can also capture growing investor interest. The size of funds with a circular focus grew sixfold to \$2 billion in the first eight months of 2020.<sup>62</sup> BlackRock, one of the largest asset managers globally, developed a circular economy investment fund in partnership with EMF in late 2019. Several other investment managers have followed suit.<sup>63</sup> Brands and retailers can embrace circular business models so as not to lose out on the financial value created in re-commerce channels and retain control over their brand and design.

### Industry Progress to-date

**Circular business models are growing fast.** Their US market share is estimated at ~8%<sup>64</sup> today and expected to grow to ~20% by 2030. Digital resale business models have experienced ~15% growth p. a. in the US for over 10 years and attracted significant venture capital investment globally – \$240 million and

\$106 million in the case of Vestiaire Collective<sup>65</sup> and Depop<sup>66</sup>, respectively. Rental and subscription models are more nascent but growing fast, with internet giant Alibaba Group investing in pioneer Rent the Runway (the company has secured \$540 million total funding) and China's newcomer YCloset.<sup>67</sup>

**Yet circular business models today are mostly driven by external innovators with a strong digital backbone and existing sustainability champions, rather than incumbents.** Performance and outdoor clothing brands are leaders on repair. Bergans, Jack Wolfskin, Patagonia, Salewa and Houdini all offer repair services for their used products. Patagonia's North American facility repairs 50,000 pieces annually and their WornWear hub enables consumers to buy second-hand and repaired items.<sup>68</sup> Larger players across all segments are starting to experiment with these models too. For example, Selfridges Group announced the launch of an in-house rental platform in collaboration with HURR. However, these typically complement rather than challenge dominant business models. Meanwhile, promotion of a slower consumption model has largely been restricted to sustainability champions.

However, increasing numbers are questioning the traditional fashion model and urgency has increased in light of the coronavirus pandemic. Early movers, including Kering brands Gucci and Saint Laurent, have announced plans to set their own schedule for the year, moving away from ever more seasonal collections.<sup>69</sup> Extending this shift across the luxury segment and finding ways for high-street brands to rationalise their calendars is critical to establish new, more sustainable norms and enhance resilience of the sector at-large.

### Barriers to action include:

- **Unclear business case and inertia:** many industry actors have thrived under the linear fast fashion model and are struggling to see a financially viable circular economy for fashion. This is particularly the case for brands and retailers selling lower-quality items that would struggle to retain value beyond a limited number of wears.
- **Complexity of business model transformation:** fully embracing circular business models can mean a complete overhaul of existing processes and structures – no easy feat, but likely the only way to stay relevant and win in the fashion sector 10 years from today.

- **Lack of supportive regulation.** Government policies and regulatory frameworks are lacking in many geographies, compromising traceability, transparency, verification, and market surveillance. At the same time, perverse incentives reinforce linear business models, including a lack of clear end-of-waste criteria for textiles that disincentivises the reuse and recovery of secondary raw materials.<sup>70</sup>

## Sector-wide Priorities for Action

System enablers including **business model innovation, digital technology, standards and targets** and **policy and regulation** underpin the following priorities:

- **Engage in policy dialogues to enhance the enabling environment for circularity,** especially in markets like the EU, where the Green New Deal and Circular Economy Action plan will inform new ways of doing business. The EU Textiles Strategy will be announced in 2021, setting the trajectory for further work; the sector should make itself heard and informally consult with relevant Director Generals *this autumn/winter* to influence strategy, policy instruments and upcoming “eco design” requirements for products sold in EU markets, which will cover aspects such as repairability and durability.
- **Linked to this, the sector can define shared durability standards** for colour, physical properties and visual appearance of clothing to ensure clothes are made to last, drawing inspiration from the furniture and automotive industries, which have long-standing durability regulations.<sup>71</sup>
- **Create the digital infrastructure** to enable the efficient circulation of garments to underpin the performance economy. This includes developing and adopting common technology standards (e.g. RFID tags, product IDs), leveraging digital tools like [Circular ID](#) and [EVRTHNG](#), and contributing to platforms that enable virtual fashion experiences.
- **Rationalise fashion cycles.** Seasonless collections and timeless, more durable designs are an important part of creating a circular economy for fashion. Companies can build on recent announcements made by fashion houses to this effect to create new norms for the sector.
- **Harness the sector’s creativity and influence to engender a cultural shift that embraces new ways of experiencing and consuming fashion.** Fashion companies can re-direct marketing and consumer engagement away from creating a culture of ‘more stuff’ and towards one of more diverse and richer experiences of fashion.

## What does this mean for the Pact?

To avoid duplicating initiatives in this space, the Pact should unlock the potential of high-level leadership by committing to CEO-backed transformational pledges that create new industry norms and unlock investment. These could include ambitious targets on revenue share from circular business models or commitments to a maximum number of collections per year. To translate commitments into action, Pact signatories could work with 2050 on a critical piece of digital infrastructure to enable the dematerialisation of business value.

An immediate opportunity for Pact signatories is to join [COUNT US IN](#). This global collective effort brings together a range of international companies and other partners to engage 1 billion people to drive action on climate through individual behaviour shifts across 16 steps, including “Clothes that Last” and “Repair and Re-use”. Pact members interested in joining COUNT US IN can secure contact details of organisers from the SYSTEMIQ team and/or reach out via the COUNT US IN website, which launches October 2020.

## 7 Alternative Materials

**While shifting to lower impact materials is not estimated to deliver significant reduction potential by 2030, it could unlock substantial advances beyond this point.** The *Fashion on Climate* report finds that improving material mix delivers just 3% of total emissions reduction potential to 2030.<sup>72</sup> This is based on the assumption that substitution rates of high impact materials for low impact options remain low during the period. Indeed, limited demand signals for low impact options and limited access to capital result in multiple 'Valleys of Death' for innovators. Recognising that this is a longer-term shift, companies can begin to address these barriers today. In doing so, the sector can potentially accelerate substitution rates, exceeding the *Fashion on Climate* reduction projections for 2030 and helping to deliver on the Pact's commitment to low impact materials.

**In driving this shift, the sector can tap into compelling business opportunities.** Innovative materials offer companies the opportunity to meet consumer demand for sustainable products and newness. A parallel can be seen in the food sector, where plant-based meat sales growth is outpacing that of conventional meat in the USA.<sup>73</sup> Meanwhile, fashion companies can enhance supply-chain resilience by reducing reliance on raw materials that expose them to reputational, regulatory and even legal risks due to their impacts on people and planet.

To deliver on this Wedge, fashion companies cannot simply expand their portfolios to include lower impact materials alongside high-impact options: they need to ensure that the former is *replacing* the latter. This means committing to phase out high impact materials while helping to create the enabling environment for existing natural materials, new blends and innovative alternatives to scale. (See Box 2.)

### Industry Progress to-date

Many see innovative fibres as a promising driver for decarbonisation. 67% of fashion executives think that using innovative sustainable materials is important for their company.<sup>75</sup> Annual textile patent filings increased eightfold from 2013 to 2019.<sup>76</sup> Disruptive start-ups are gaining attention, such as [Orange Fiber](#), an innovator working with major fashion brands including Salvatore Ferragamo to create a cellulose yarn alternative to silk from by-products of citrus juice. However, despite the excitement around innovative alternatives, conventional fibres remain the norm: 55% of textiles are made of either virgin polyester (38%) or conventional cotton (17%).<sup>77</sup>

**Significant barriers are preventing innovations from reaching commercial scale.** These include:

- **Low financial risk appetite reduces sources of capital for innovations to scale.** Short-termism reduces available support for promising early-stage ventures to move beyond proof-of-concept, creating a vicious cycle as innovative alternatives struggle to achieve economies of scale, preventing them from competing on price for mainstream collections.
- **Limited Research and Development budgets reduce available funding for innovation.** In the UK, the fashion and textile sector spent just 0.3% on R&D as a percentage of sales in 2015, compared to 40% in consumer electronics and pharmaceuticals. Only the pulp and paper sector spent less.<sup>78</sup> Funding tends to be provided by venture-capital funds and sustainability champion brands rather than mainstream players, although this is starting to change.

### BOX 2

#### Environmental benefits of alternative fibres

A wide range of natural and synthetic options offer potential environmental benefits. Bast fibres like hemp, jute and kanaf use up to half the water and land per tonne of fibres relative to conventional cotton, and a fraction of the pesticides and herbicides.<sup>74</sup> Innovative alternatives include textiles based on regenerative inputs and waste (from pineapple leaves in [Piñatex](#), to mycelium- and mushroom-based leathers, to [Algalife's](#) fabrics and dyes made from algae), biotechnology such as [Bolt Threads](#), genetically-modified spider silk alternative, recycled fibres like adidas' pioneering [Futurecraft](#) shoe and even fibres based on CO<sub>2</sub>.

- **Design characteristics and inadequate collection systems make it difficult to scale recycled fibres:** closed loop recycling processors like [Evrnu](#) require over 90% purity to breakdown textiles, yet the majority of clothing is made of blends (only an estimated 10% of clothing is 100% pure).<sup>79</sup> A shift away from blends is needed to unlock the full potential of closed-loop recycling. Depending on geography, inadequate collection systems also undermine supply.
- **The lack of a comprehensive, sector-wide framework to assess the relative environmental impacts of fibres creates confusion over which to back.** For example, commitments to using recycled polyester do not distinguish closed-loop from open-loop recycling. Yet the majority of recycled polyester is mechanically recycled from PET bottles. This is increasingly seen as an unsustainable option given limited resources of PET bottles as a feedstock, for which bottling companies already saturate demand. An honest conversation on what it will take to achieve textile-to-textile recycling – and action to deliver on this – is needed for the sector to claim long-term climate benefits from circularity.

## Sector-wide Priorities for Action

To overcome these barriers, industry actors can draw on system enablers including **technological innovation, finance and investment** and **evidence and knowledge sharing**. Priorities include:

- **Commit to offtake agreements for immature but promising innovations.** By generating long-term demand, companies can give investors the confidence to provide innovators with the up-front capital necessary for them to scale. This ultimately drives down costs, as has been seen in the renewables space: government offtake agreements helped to kick-start the scale-up of solar PV technology, resulting in 82% cost declines between 2010 and 2019.<sup>80</sup>
- **Invest directly in innovative fibres to increase available funds for innovators to scale.** Companies can increase R&D budgets and partner with innovators to develop and/ or scale alternative

fibres, for example through the [Fashion For Good Accelerator programme](#).

- **Leverage innovative financing mechanisms to enhance collection systems and integrate recycled textiles into fashion value-chains.** For example, [Next Gen Consortium](#) brings together Starbucks and McDonalds with experts and entrepreneurs to develop viable market solutions for reusable, recyclable and compostable cups. This includes collaborating with ecosystem players (recovery facilities, municipalities, and paper mills) to scale up identified solutions. The EMF [Make Fashion Circular](#) initiative has a similar application for fashion. Core partners Burberry, Gap, Inc., H&M Group, HSBC, Inditex, PVH, Corp. and Stella McCartney are collaborating to ensure clothes are made from safe and renewable materials, new business models increase their use and old clothes are turned into new.
- **Commit to ambitious design-for-recycling standards and targets:** the potential for textiles to be remanufactured and recycled is determined at the design stage. This means committing not just to increasing the use of innovative fibres, but also those that are pre-configured for circularity, such as wool. Fashion companies can draw on the [EMF's Circular Design Guide](#) to design for greater closed-loop recycling, as well as the Global Fashion Agenda's [circular toolboxes](#) on design, garment collection, resale and recycling.
- **Build a consistent framework:** industry actors can work with civil society and suppliers to map the environmental impacts of different fibres and develop a consistent assessment framework that informs procurement and investment decisions. Industry actors can join efforts like the [Fashion Industry Charter](#) to align on shared definitions for low impact materials in terms of both climate and nature. Engaging with partners including [Textile Exchange](#) and the [Higg Index](#) is key given their central role in mapping, assessing and indexing the sustainability of different fibres. Such assessments can be used to raise consumer awareness around sustainable products, helping them to make informed choices – an effort Farfetch is pioneering through their [Positively Farfetch](#) selection.

## What does this mean for the Pact?

The Pact can deliver maximum impact by harnessing collective purchasing power and/ or demand signals to encourage increased investment in innovative alternative materials. A key opportunity could be for Pact signatories to enter into innovative offtake agreements to secure demand for textile-to-textile synthetics recycling and scale up technologies. By providing demand signals, large, long-term offtake agreements strengthen the business case to accelerate the development of solutions and bring them to market.

## 8 Clean Logistics and Distribution

**Transport and distribution do not represent a large proportion of overall emissions in the textiles and apparel sector.** Reducing reliance on air freight, electrifying fleets and optimising distribution systems contributes just 2% of potential emissions reduction to 2030 (with further potential reductions through scaling sustainable shipping fuel and enhancing packaging efficiency).<sup>81</sup> However, this is an area with clear and financially attractive opportunities for the industry to get behind and accelerate. Substituting air freight with shipping could deliver savings of over \$600 per tonne of CO<sub>2</sub>e reduced, while electrifying fleets could unlock \$200 per tonne of CO<sub>2</sub>e cut.<sup>82</sup>

### Industry Progress

**Fashion companies are shifting to sustainable transport options.** Based on current trends, the sector will achieve a 2% shift out of air and into sea transport by 2030. Regulation, technological advances and declines in the cost of electric vehicles also indicate that by 2030, one in three light commercial vehicles (LCVs) will be electric, along with 12% of medium duty trucks and 5% of heavy-duty trucks.<sup>83</sup> The Fashion Industry Charter [Logistics Working Group](#) is helping to accelerate action by working to create full visibility of the logistics carbon footprint, developing targets and integrating emissions performance into business processes, plans and procurement policies. MatchesFashion.com is among those focussing on improvements in logistics. They are working with logistics partner XPO and Eco-Age to minimise the environmental impact of their distribution centre.<sup>84</sup>

**In addition, brands and retailers increasingly recognise the opportunities in nearshoring production,** which can reduce emissions, increase production speeds, drive down transportation costs and cut waste.<sup>85</sup> A 2020 survey finds that 46% of sourcing managers expect nearshoring trends to increase over the next year.<sup>86</sup> Yet greater action is needed to fulfil the potential of 2% of emissions reduction – for example, achieving 90% of electric LCVs by 2030 rather than one-third.<sup>87</sup>

**This means addressing barriers to progress,** including:

- **Long and complex supply-chains combined with short production cycles** increase the pressure for brands to use air freight to fulfil orders as quickly as possible.

- **Operational inefficiencies drive greater use of high-impact transport options.** Inaccurate forecasting, faulty samples and changes in design decisions increase dependence on air freight as the fastest mode of transport.

### Sector-wide Priorities

Industry actors can leverage **digital technology, technological innovation** and **multi-stakeholder partnerships** to deliver the following priorities:

- **Optimise supply-chain operations to facilitate a move out of air freight.** For example, PVH, Corp. brand Tommy Hilfiger plans to shift to a 100% digital process to create, develop and sell samples from 2022 onward to decrease waste, save money and drive down emissions.<sup>88</sup>
- **Partner across sectors to scale clean transport options.** Industry actors can engage in initiatives like the [Pathways Coalition](#), which commissions research on smarter logistics, electrification of vehicles and biofuels. Similarly, companies can work with distribution partners to optimise systems. For example, Groupe Galleries Lafayette are part of the Last Mile project, which is establishing the first zero emission hydrogen mobility network in France.<sup>89</sup>
- **Optimise packaging and work with cargo providers to maximise container space utilisation.** For example, Inditex's 'Green to Pack' initiative saved 660 sea-container shipments and more than 185,000 m<sup>2</sup> of cardboard in 2015 by optimising and reusing packaging materials.<sup>90</sup>
- **Incentivise outbound distribution partners to optimise their fleet.** Companies can embed electrification targets into procurement criteria and work with distribution partners to optimise systems. For example, Asos is working with courier partners to build out more efficient fleets, optimise routes and increase load capacity.<sup>91</sup>
- **Cultivate industry-wide dialogue on nearshoring and a just transition.** Fashion companies need to balance environmental gains from nearshoring production against the economic challenges that traditional production geographies could suffer as a result of this shift by finding ways to mitigate negative impacts and secure a just transition.

### What does this mean for the Pact?

This is not identified as a priority for collective action for the Pact due to the limited emissions reduction potential of the Wedge and the lack of a strong need for collective action beyond efforts driven by the Charter.

## 9 Raising Ambition

**The fashion sector can raise ambition to go beyond existing commitments and lead in a global race to zero.** Delivering on all the Wedges can at least halve emissions by 2030, in line with a 1.5°C pathway. With concerted action, the sector can exceed that target within its own supply-chain (for example, by scaling regenerative and alternative materials more quickly). Yet more can be done. Fashion companies can join leaders across sectors who are stepping up to drive bolder and faster action. Microsoft has committed to become carbon negative by 2030.<sup>92</sup> Apple will be 100% carbon neutral across its supply-chain and products by 2030.<sup>93</sup> Google has committed to help over 500 cities reduce 1 gigaton of carbon emissions annually by 2030.<sup>94</sup> All three companies will combine deep reductions in their own supply-chains with efforts and investments to deliver reductions elsewhere. To maximise ambition, the fashion sector can look beyond its immediate supply-chain.

Increasing numbers in the fashion sector are exploring the opportunity to neutralise “residual emissions” that would remain after every possible effort has been made to drive reductions within the value-chain. **It is critical to enhance understanding and develop strategies** to ensure that these efforts comply with guidelines, avoid misleading claims and target interventions that maximise co-benefits for nature.

To ensure best practice, companies can work with partners to develop strategies linked to a ‘mitigation hierarchy’, prioritising the actions that lead to the best outcomes for people and nature. Such a hierarchy involves:

- **Reducing emissions within company value-chains as a top priority.** Companies can look to deliver above and beyond the ambition envisioned within the Emissions Reduction Wedges outlined above.
- **Partnering to drive down emissions in harder to reach parts of the value-chain.** Fashion companies can raise ambition across their supply-chains through direct action and engagement with other sectors, for example accelerating the energy transition (see 1. Energy Transition) and promoting sustainable production practices (see 3. Feedstock Production).
- **Enabling others to reduce their emissions:** companies can work with communities and suppliers to encourage and facilitate sustainable practices beyond their direct supply-chains. For example, Mars calls on its palm oil suppliers to prevent deforestation throughout their entire supply-chain, not just for the palm oil that Mars sources, as a condition of doing business with the company.<sup>95</sup> This should be accounted for separately to a company’s own net zero ambitions to ensure credibility in the approach.
- **Only once these steps have been assured, companies can explore engaging in offsetting as a short-term, additional activity.** Companies can purchase offsets to demonstrate commitment and kick-start the journey to zero. Credible, robust mechanisms such as REDD+ can enable companies to deliver significant benefits for livelihoods and nature, in addition to those for climate. However, offsetting cannot be treated as a substitute for emissions reduction, nor can it be counted against a Science-based Target for climate: it is an annual cost that should not be made at the expense of maximum investment in emissions reduction. Similarly, companies should avoid misleading claims of a “neutral” product, collection, or company without concerted emissions reduction. Advice around the use of these mechanisms is evolving, including how the use of offsetting could play a role in an emissions reduction strategy going forward. It will be important for the Pact to track these developments to ensure advice is up to date.

### What does this mean for the Pact?

Pact signatories can work with 2050 and other Delivery Partners to raise ambition beyond the goal of net zero by 2050, including exploring options for a stepwise increase in Pact goals if delivery against current targets is strong.

**The Fashion Pact has a critical role to play in driving decarbonisation across the sector and beyond.** The Collective Action Opportunities provide ways for Pact signatories to apply targeted support where it is needed most. By unleashing the power of innovation, creativity, partnerships and bold ambition, Pact signatories can deliver on ambitious commitments on climate, biodiversity, oceans and livelihoods. In doing so, signatories will not only enhance the sector’s impact on people and planet, but also boost its resilience and unlock huge opportunities for diversification and growth, decoupled from negative environmental and social impacts.

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