



100% Certified
Fossil Fashion

**LICENCE TO
GREENWASH**

HOW
CERTIFICATION
SCHEMES AND
VOLUNTARY
INITIATIVES
ARE FUELLING
FOSSIL FASHION

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Contents

List of Abbreviations	5
List of Figures	6
List of Boxes	7
<i>Executive Summary</i>	9
Summary of schemes' assessment	10
1. Background: The false promise of certification in textiles	17
1.1. <i>The history of certification and multi-stakeholder initiatives</i>	18
1.2. <i>Certified greenwashing</i>	20
1.3. <i>The false promise of certification</i>	20
2. Do the schemes create change?	25
2.1. <i>Key findings</i>	25
2.2. <i>Continuous improvement and high ambition</i>	28
2.3. <i>Independence</i>	38
2.4. <i>Transparency</i>	41
2.5. <i>Performance</i>	47
3. How are voluntary schemes addressing fossil fashion?	53
3.1. <i>Key findings</i>	53
3.2. <i>Approach to synthetics and fossil-fuel feedstock reliance</i>	54
3.3. <i>Microfibres</i>	59
3.4. <i>Limiting fast fashion and overproduction</i>	63
4. How fashion brands are using certification and voluntary initiatives	65
4.1. <i>Key findings</i>	65
4.2. <i>Delay</i>	66
4.3. <i>Distract</i>	67
4.4. <i>Derail</i>	81
5. Conclusions	83

5.1.	<i>Low ambition and commitment to continuous improvement</i>	84
5.2.	<i>Cherry-picking issues covered</i>	84
5.3.	<i>Procrastinating on progress</i>	84
5.4.	<i>Compromised independence and woeful transparency</i>	84
5.5.	<i>Garbage in, garbage out</i>	84
5.6.	<i>Own brand standards – a licence to greenwash</i>	85
5.7.	<i>Fossil fashion ignored or exacerbated</i>	85
5.8.	<i>An invisible problem, ignored</i>	86
5.9.	<i>Green is the new black</i>	86
5.10.	<i>Undermining and pre-empting legislation</i>	86
5.11.	<i>The failure of self-regulation and the role of certification</i>	87
6.	Recommendations	88
	<i>Regulation</i>	88
	<i>Certification schemes and voluntary initiatives</i>	89
	<i>Fashion brands and retailers</i>	90
	<i>Fashion customers</i>	91
7.	References	93

List of Abbreviations

All	Apparel Impact Institute	PEF	Product Environmental Footprint
BCI	Better Cotton Initiative	PET	Polyethylene terephthalate
CMA	Competition and Markets Authority	PM	Product Module
EAC	Environmental Audit Committee	RCS	Recycled Claim Standard
EMF	Ellen MacArthur Foundation	SAC	Sustainable Apparel Coalition
EPR	Extended Producer Responsibility	SCAP	Sustainable Clothing Action Plan
FEM	Facility Environmental Module	STeP	Sustainable Textile Production
FSLM	Facility Social & Labour Module	TMC	The Microfibre Consortium
GHG	Greenhouse gas		
GOTS	Global Organic Textile Standard		
GRS	Global Recycled Standard		
LCA	Life Cycle Assessment		
MFC	Make Fashion Circular		
MRSI	Manufacturing Restricted Substances List		
MSI	Materials Sustainability Index		
NPE	New Plastics Economy		
OAR	Open Apparel Registry		

List of Figures

Figure 1.1 :	The rise of polyester and the founding dates of schemes	19
Figure 1.3:	Which, if any, of the following sources of information do you trust with regard to how sustainable a clothing brand is?	21
Figure 1.2:	To what extent do you agree or disagree with the following statement? 'I trust the sustainability or 'green' claims that brands make about their clothing'	21
Figure 1.4:	Thinking about when you are buying clothes, either for yourself or someone else: On average, how often, if at all, do you tend to choose items with third-party sustainability certifications or labelling?	21
Figure 4.1:	Boohoo delays the announcement of their microfibre goals for another 2 years	66
Figure 4.2:	How Boohoo communicates its involvement with 'sustainability' initiatives	68
Figure 4.4:	How M&S discusses its industry collaboration and involvement in initiatives	69
Figure 4.3:	Section of evidence presented to the Environmental Audit Committee	69
Figure 4.5:	C&A example of a gold-C2C-certified product	71
Figure 4.6:	Primark's statement on plastics in 2018 makes no reference to plastic and synthetic fibres	72
Figure 4.7:	How the benefits of recycled synthetics are communicated	72
Figure 4.10:	Tommy Hilfiger integrates Higg Index Sustainability Profiles onto its website	74
Figure 4.8:	How the Higg Index Sustainability Profile is communicated on the H&M website	74
Figure 4.9:	H&M product example using the Higg Index	74
Figure 4.11:	C&A promotion of its C2C certification	75
Figure 4.12:	Primark's C2C-certified denim jeans	75
Figure 4.13:	Next 2021 corporate responsibility report	76
Figure 4.14:	Primark industry partners	76
Figure 4.15:	Lululemon industry partnerships	76

List of Boxes

<i>BOX 2.1:</i>	Compliance and verification	50
<i>BOX 4.2:</i>	Spotlight 2 - Boohoo	68
<i>BOX 4.3:</i>	Spotlight - Primark	69
<i>BOX 4.4:</i>	Spotlight - M&S	69
<i>BOX 4.5:</i>	Spotlight - C&A	71
<i>BOX 4.6:</i>	Spotlight - Higg Index	74
<i>BOX 4.7:</i>	Spotlight - Eileen Fisher	77
<i>BOX 6.1:</i>	Key demands on fossil-fuel reliance	91



Executive Summary

The fashion sector is awash with certification schemes, sustainability labels and multi-stakeholder initiatives all seeking to steer the industry onto a greener course. As public and political awareness of the high environmental and social toll of the fashion industry has climbed the agenda, and scrutiny on brands has intensified, so has the visibility of certification schemes and voluntary initiatives pitched as holding the solutions.

The existence of such schemes serves a dual purpose for the brands. As the fashion industry is one of the least regulated sectors in the world, these schemes partially exist as a genuine attempt to move towards sustainability in the absence of environmental legislation. But they also enable the proliferation of 'greenwashing' on a remarkable scale. Whether it is the use of certification labels on individual products - assuring customers that they can shop guilt free by putting their money where their values lie - or brands proudly communicating their membership of various fashion-related voluntary initiatives, the existence of these schemes and the inherent lack of accountability within them are a key part of the greenwashing machinery of the modern fashion industry. Moreover, the level of influence exercised by fashion brands in these initiatives and the lack of any independent oversight, inevitably means that they end up promoting industry interests.

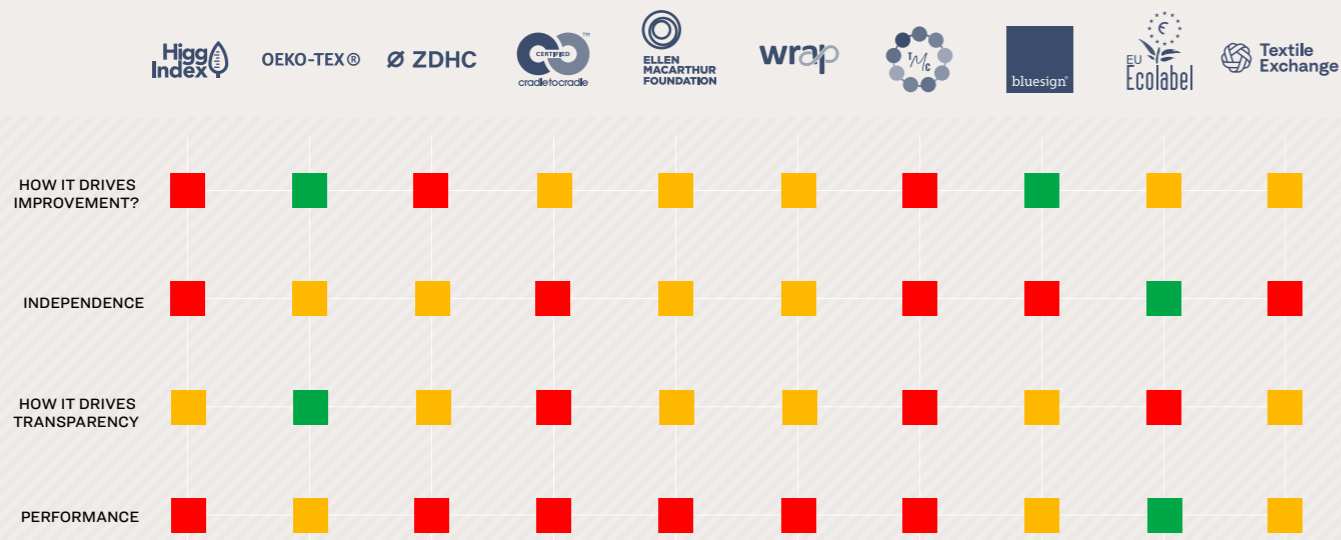
Reading the progress or sustainability reports of the majority of initiatives and brands alone would have you believe that we are just one label or initiative away from the total transformation of the fashion industry into a dreamscape of circularity and eco-design. Yet, beyond the greenwash, the unsustainable trajectory of the modern fashion industry is alarming. Over the past 20 years, the number of garments purchased per consumer has more than doubled and it is projected that overall apparel consumption will rise by 63%, from 62 million tonnes today to 102 million tonnes by 2030. At the same time, clothing utilisation - i.e. the number of times a garment is used before being discarded - has declined by almost 40% over the past 15 years. These trends are driven by the sector's heavy reliance on cheap synthetic fibres, which now represent more than two-thirds of all materials used in textiles and have enabled exponential growth of cheap clothing consumption over the last two decades. The globalised nature of fashion's supply chains is often represented as a challenge for the introduction of mandatory measures, but - as this report will demonstrate - self-regulation in the form of certification or voluntary initiatives has failed.

Of more than 100 sustainability certification schemes in use in the textile industry and listed in the Ecolabel Index, this report by the Changing Markets Foundation provides a qualitative analysis of the best-known

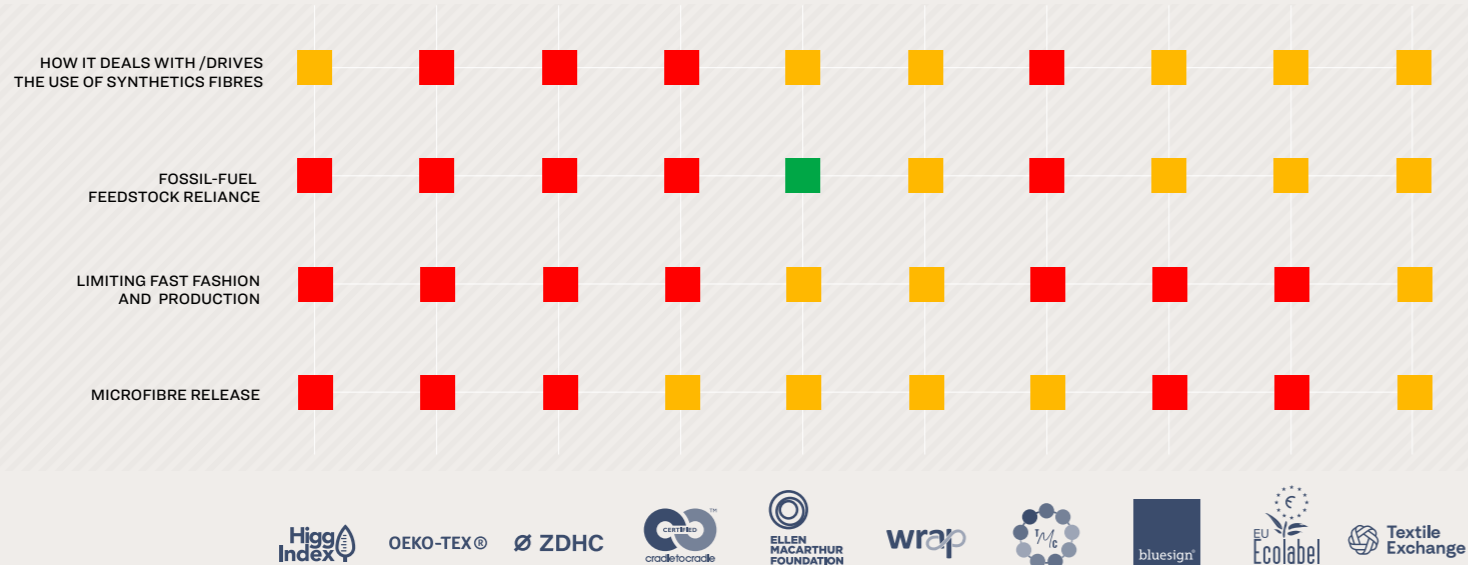
initiatives, with a focus on those that claim to address issues of circularity, overproduction and the rise of fast fashion, end-of-life management and the elimination of toxic chemicals from production or manufacturing. Of the ten initiatives analysed, several are certification labels (**bluesign**[®], **Cradle to Cradle (C2C)**, **EU Ecolabel**, **OEKO-TEX**[®] and **Textile Exchange's Global Recycled Standard** and **Recycled Claim Standard**), others are multi-stakeholder initiatives (the **Ellen MacArthur Foundation (EMF)**, **The Microfibre Consortium (TMC)** and **ZDHC**) and others provide a set of self-assessment tools (the **Higg Index** and **WRAP**) for the industry to measure their sustainability. What these schemes have in common are that they are all voluntary and enjoy high levels of industry buy-in and cross promotion.

Summary of schemes' assessment

HOW DO THE SCHEMES DRIVE CHANGE?



HOW DO THE SCHEMES ADDRESS SYNTHETICS ?



COLOURING CRITERIA:
 GREEN - addressed through quantitative measures;
 ORANGE - addressed through ambitions, recommendations, reports, or not yet implemented measures;
 RED - not addressed in any meaningful way,
 NO COLOUR: not applicable/unknown.

On their watch: Voluntary initiatives' failure to create change

Our investigation sought to establish the robustness of ten schemes and to assess whether they can claim credit for creating any transformational change. We undertook a qualitative assessment of their level of ambition, scope for continuous improvement, independence, transparency and ultimately, their track record of performance.

Most of the initiatives analysed in this report fail to meaningfully uphold **high levels of ambition** and thus merely provide a smokescreen for companies that want to appear to be taking steps towards sustainability. The majority do not set strict requirements and timelines for their members to progressively raise their ambition, but instead provide different modules with differing requirements, allowing companies with lacklustre ambition to still join.

Most initiatives, notably C2C and the Higg Materials Sustainability Index, focus on only a few aspects of a seemingly arbitrary selection of the product's life cycle stages. This enables schemes to shape a certain vision of sustainability that may not reflect the reality. Most schemes are also not comprehensive, i.e. they do not cover the full life cycle of textile production or they focus just on one material or product (e.g. jeans, in the case of the EMF). Thus, a brand will often need to use several labels and be signatories to several initiatives to cover the various social and environmental impacts of their products across the supply chain. Picking and choosing a patchwork of certifications and initiatives also means that the systemic issues around fast fashion, reliance on fossil fuels and overproduction are neatly avoided, allowing companies to keep their skeletons in the closet and distract consumers from the industry's wider environmental impact.

We also identified a concerning lack of accountability and **independence** across initiatives that offer labelling or certification, with no evidence of enforcement or consequences for those who commit to targets but fail to meet them. Although initiatives without labels of certification do not have compliance requirements per se, many are still being used on the ground as proxy-certification in company marketing. Additionally, we found little-to-no push for continuous improvement (with a few exceptions, such as EMF's Jeans Redesign guidelines) and no frequent revision of standards.

We found that the majority of the schemes have **compromised independence**. As voluntary initiatives, they are vulnerable to high levels of influence through the brands that fund the schemes or are otherwise involved in governance structures. Large schemes, such as the Sustainable Apparel Coalition (SAC) and its Higg Index, sit in a web of influence with other schemes and brands, creating an interwoven network that stifles debate and alternative models. **Accountability** is also severely compromised in this way, with little incentive for schemes to call out a lack of compliance from paying members and brands. The reputational greenwashing function of initiative membership represents a huge return on investment for brands: a win-win set-up for both the initiatives and their corporate members.

Transparency is a weak point for all the initiatives analysed, with even robust government-mandated schemes, such as the EU Ecolabel, not up to scratch. At worst, these schemes are operating as a black box, with no external scrutiny, yet are informing major decisions about fibre and material use. Some schemes, such as C2C and the Higg Index, seem to communicate profusely without actual transparency. Transparency is not just about bombarding the public with information, but is about presenting this information in such a way that information can be easily found and understood, and if necessary, challenged. A similar story emerges when we analyse the schemes on their ability to drive supply-chain transparency. Despite a flurry of transparency programmes, many skirt around important topics such as encouraging or demanding full supply-chain transparency from their members that goes beyond their Tier 1 supplier networks. Pages filled with rhetoric and empty words hide a lack of accessibility to scrutiny and the necessary level of detail. This can also serve

to cushion corporate members from reputational damage. For example, WRAP and ZDHC feature aggregated reporting, where it is impossible to see individual company performance and therefore hold them to account for the results. None of the schemes analysed was found to have reported publicly any compliance violation or communicated when a company lost certification or left an initiative. This lack of honesty deadens the schemes' function as tools for continuous improvement.

Some schemes have demonstrated **progress in limited areas**, such as chemical management. We found that certifications such as bluesign® and OEKO-TEX® broadly deliver what they offer and encourage continuous improvement. Nevertheless, such certification is not delivering system-wide transformation, as it is essentially focused only on chemical management.



It is clear that we are reaching the limit of what can be done without legislation. This voluntary approach has fundamentally **failed to improve performance** and to enhance sustainability in the sector. Over the last 20 years, while these schemes have proliferated (Figure 1.1), the fashion industry has become one of the world's most polluting, resource-intensive and wasteful sectors. In the midst of a climate emergency, the number one raw material for textile fibre is oil and gas, doubling down the industry's reliance on fossil-fuel extraction. How

to reconcile such trends with any declared progress towards decreasing environmental impact, is a question no scheme sufficiently addresses, as to do so would be to call into question their own existence. None of the schemes can claim transformational change, some have publicly acknowledged their missed environmental targets, or admitted that any lack of progress on targets is due to external factors not attributable to the actions of the initiative, and some can barely name a single substantive achievement, despite years of operation.

Fossil fashion: Certified

All schemes were left wanting in regard to the level of change they are creating. But they are also helping to cement the industry's reliance on fossil fuels for fibre and exacerbating the environmental harm caused by fossil fashion.

Our research finds that, at best, schemes and initiatives skirt around the issue of synthetic fibres, mentioning plastic-based fibres or the need to minimise reliance on virgin resources without explicitly stating that fossil fuels are now the dominant raw material or ignoring recognising key trends, such as the doubling of global virgin polyester production since 2000, which is on course to double again. At worst, schemes such as the Higg Index and elements of WRAP, **actually present synthetics as the better choice environmentally** - fuelling the very problem they claim to be tackling.

We found that, similarly to what we learned from brands' policies in Synthetics Anonymous, initiatives are putting all their eggs in one basket when it comes to **microfibres**. They cite a lack of research or measurement tools to justify lack of action and point to distant targets for action, which let the biggest users of synthetics off the hook. It seems that instead of taking precautionary measures with regard to limiting microfibre release, a majority of brands are relying on TMC, which, although tasked with developing a universal measuring method, has - after years of work - only released this to paying members and not to the public. Additionally, TMC seems to have a concerning bias in favour of synthetics, conspicuously ignoring the science suggesting that plastic microfibres are more persistent in the environment and cause more harm to health.

Our analysis reveals that schemes have little to say on **fast fashion and overproduction** and ignore how the prevailing business model of the industry is precipitating environmental disaster. No scheme has targets in place, let alone accountability, encouraging brands to limit production.

Finally, while some schemes are starting to address **end-of-life issues**, much of this is rhetoric rather than action and very few explain or address the issue that synthetic fibres will stay in the environment for centuries. Proper management of end-of-life issues is regarded as a nice-to-have rather than a critical issue that certification schemes and initiatives should be addressing.

Another significant observation is that schemes like OEKO-TEX® and ZDHC primarily concern themselves with chemicals and hazardous substances used during production of garments, but not the actual materials themselves. Therefore plastic in clothing remains overlooked, despite its hazardous and toxic nature as well as the abundance of information on the negative health implications of synthetic materials, such as microfibre release.

Licence to greenwash

Fashion retailers and brands are eager to promote their membership of voluntary initiatives and certification schemes to position themselves as active leaders in driving sustainable change. However, given what we know about the limitations of these initiatives, self-promotion about joining such initiatives is often little more than a corporate virtue signal. We investigated how brands' association with the schemes provides them with the opportunity to boast about their 'progress' across external-facing channels, including websites, reports, social media, press releases and their own sustainability reports. The tactics employed by fashion brands closely

follow those that we identified in earlier investigations into the plastics industry, consumer brands and retailers in our campaign, *Talking Trash* - grouped into three broad categories: delay, distract and derail. As such, we have followed the same categorisation in this report.

Delaying tactics by brands include their endorsement of a glut of voluntary targets set for the distant future, which serve to kick the can down the road while seeming to be taking action. For example, voluntary initiatives like WRAP's Textiles 2030 or the new Microfibre Consortium 2030 Commitment cite 2030 as a key date for targets to be achieved and Boohoo has given itself until 2023 to announce the deadline of its entirely voluntary and non-binding future targets.

We found **distraction** to be the primary tactic that certification and voluntary initiatives are used for. Most concerning is where membership of schemes has been used to distract legislators, such as Primark using its membership of TMC - which has yet to produce any tangible result since 2018 - to show its commitment to the UK's Environmental Audit Committee and Boohoo highlighting its membership of WRAP's Sustainable Clothing Action Plan, TMC and the SAC, when it was brought in front of the committee after accusations of modern slavery in their operations. Incredibly, this paper proof was all that was needed to convince the committee of their good intentions. Distraction tactics also included promotion of end-of-pipe false solutions promoted by the initiatives, such as using recycled PET bottles for clothing (e.g. Textile Exchange) and joining initiatives focused on plastic (e.g. EMF) but only disclosing plastic packaging rather than their huge use of plastic fibres.

What is more, the membership structure of these initiatives is further distracting the industry from bringing in necessary regulation. Our analysis of the crossover between voluntary initiatives and brands finds that not only are the majority of schemes members, affiliates or associates of each other, but that they also all count the same brands as members, some of which are even involved in the governance of schemes. This results in a highly interconnected web of influence and cross promotion, with the potential to stifle the dissenting views and healthy debate needed to create progress.

Finally, as a group, the mere existence of these voluntary initiatives is **derailing** positive transformation by creating the grand illusion of progressive action in the industry. Although the absence of any attempts to introduce meaningful legislation means that public evidence of tactics to derail such legislation is limited, organisations such as the SAC make pre-emptive moves to influence upcoming legislation and to frame their tools as 'effective' mechanisms that future legislation should build on. For example, their presence in the technical secretariat of the EU's Product Environmental Footprint for apparel and footwear gives them unrivalled influence over its development.

Conclusion: The false promise of certification continues

This report has sought to assess whether certification schemes, labels and multi-stakeholder initiatives are fit for purpose and what role they play in addressing the harms of the modern fashion industry. The results highlight that the majority of schemes represent a false promise of certification for textiles and represent a highly sophisticated form of greenwashing as few have the time or inclination to look beyond a certification or initiative's stamp of approval. At best they are a patchy promise of sustainability, able to offer a degree of assurance on a small production practice or section of the supply chain. At worst, they are unambitious, opaque, unaccountable and compromised talking-shops resulting in an industry-wide smokescreen for the unsustainable practices, enabling greenwashing on a vast scale.

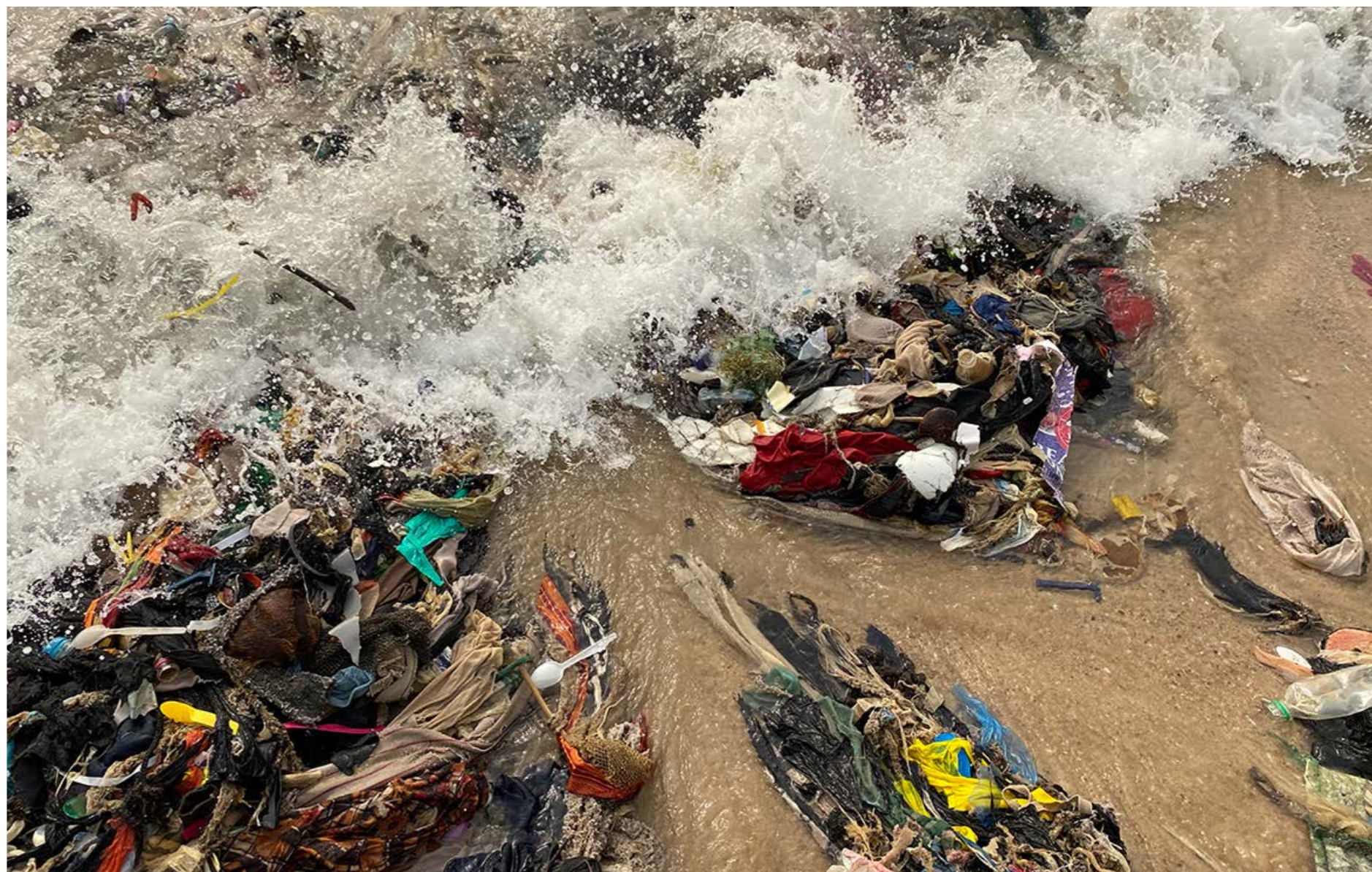
Such voluntary certification and membership of initiatives and schemes has been a key pillar of the industry's attempts to self-regulate as concerns over sustainability have mounted. Yet the decades-long experiment in self-regulation of the fashion industry has run its course, as confirmed by the mounting environmental and

social crises precipitated by the fashion industry and the continued enabling of skyrocketing production and overconsumption.

At this stage, legislation and effective regulation are the clear path forward. Sustainable products should be the norm, not the exception and the only way to achieve that is to level the playing field, placing the burden of proof on companies through their compliance with regulation, rather than on the customer to choose the 'more sustainable' option. Multi-stakeholder initiatives, an endless menu of certifications, and industry coalitions are currently standing in place of mandatory measures, but as this report shows they are a pale imitation of the real thing.

Yet certification and multi-stakeholder initiatives are more than just ineffectual. They are also part of the problem when it comes to fashion's lack of progress on sustainability. By acting as sophisticated greenwashing apparatus, brands, customers and policymakers are lulled into a false sense of security by these initiatives and led to believe that action is being taken. By being collectively convinced that corporations have the solutions in hand, more systemic measures such as regulation and pushing for greater accountability and transparency are overlooked. Greenwashing, however benign its intention, blinds us to the true solutions and true leaders in sustainability. As we rapidly run out of time to address these global challenges, any and every tool in the greenwashing arsenal must be rooted out or reformed as a matter of urgency.

Specific recommendations for policymakers certification schemes, fashion brands, retailers and consumers are available at the end of this report





1. Background: The false promise of certification in textiles

The fashion industry is one of the most lightly regulated global industries. It is also among the most globalised, with highly complex value chains, and as such it is associated with a vast range of environmental and social issues. As consumer awareness and concern over these issues has grown, so has the visibility of certification schemes, deployed as a mechanism to reassure them and build trust. For these reasons, the textile and apparel sector has among the highest number of voluntary certification schemes and green labels, second only to the food sector, with more than 100 listed in the Ecolabel Index.¹

1.1. The history of certification and multi-stakeholder initiatives

As climate change and environmental destruction barrel on at a frightening pace, and the world passes another critical decision-making way marker in the form of COP26, it is crucial to evaluate whether existing tools, frameworks and strategies are fit for the job, and whether they have done anything to mitigate harm so far. While voluntary standards for organic products have existed since the 1920s, the trend for certification accelerated from the 1990s onwards with schemes covering agriculture, fisheries and forestry, as well as specific areas such as textiles and electronics.² The rise of certification occurred in tandem with a restructuring of industrial supply chains to take advantage of cheaper labour and manufacturing available in low- and middle-income countries. Such diffuse supply chains, where different parts of a product could be made in any number of different countries, make regulation by government oversight a challenge.

The rise of certification, or 'governance beyond the state',³ and a shift towards non-state actors driving policy formulation, has been embraced by the industry, partly due to their theoretical ability to set standards across global value chains and partly because their voluntary nature means that they are low risk; easy to step away from should the requirements be too rigorous or should the scheme fail to deliver their ambitions. The lack of direct government involvement also means that voluntary schemes require a high amount of industry oversight and collaboration to function, making them open to being shaped and influenced by industry.⁴

The proliferation of certification in the 1990s and early 2000s also saw the creation of a sister group of organisations: the multi-stakeholder initiative.⁵ These hybrid organisations moved beyond standard setting and certification, bringing together actors from civil society, governments and the private sector to address sustainability issues collaboratively. The support of powerful actors, such as the UN as well as major multinationals, has cemented the influence of multi-stakeholder initiatives in particular, ensuring that they become incumbent institutional actors themselves rather than critical voices for change.⁶ Our research into several multi-stakeholder initiatives in the plastics space for our report, Talking Trash, laid their failings bare:

At best, by lending credibility to the worst polluters without accountability or enforcement, group alliances are helping to construct a smokescreen of sustainability behind which plastic polluters and consumer brands can continue to pump the world full of plastic unabated. At worst, these groups are complicit in actively delaying and undermining more transformative legislative action.⁷

1.1.1. Weak certification in the fashion sector

In the fashion world, despite the multiplication of certification schemes and multi-stakeholder initiatives, many fail to be ambitious enough. Alongside lacklustre environmental targets, many do not champion greater transparency or supply-chain due diligence and are limited in scope. A myriad of these schemes actually exacerbate these critical problems by providing a veil for companies behind which unsustainable practices can continue.⁸ As such, the existence of unambitious, voluntary schemes and a wave of non-binding pledges in the absence of sector-wide regulation acts as a dangerous placebo - misleading consumers and governments alike into believing that action is being taken, when in fact certification acts as little more than a marketing 'fig leaf' and thus undermines legislative approaches to lessening fashion's impact. Indeed, the existence of this extensive roster of voluntary initiatives should in fact signal to policymakers that there are serious governance gaps that need to be addressed.⁹

The failure of these schemes to provide an antidote to the worst impact of the fashion industry is self-evident: clothing production has nearly doubled in the last decade; of this, the use of fossil-fuel-based synthetic fibres has grown exponentially over the last 20 years and is projected to further increase to represent 73% of all fibre use by 2030;¹⁰ emissions from the fashion industry have also continued to rise, with the production of polyester alone

producing the equivalent of 180 coal-fired power stations per year¹¹ and steps towards any form of circularity are pitiful, with just 0.1% of textiles undergoing any form of fibre-to-fibre recycling.¹² A number of the schemes in this report position themselves as addressing this damaging state of affairs through a variety of tools. However, our assessment of how they approach synthetic fibres in relation to their assessment calculations, their levels of overall transparency and the high dependency on fossil-fuel feedstock is alarming.

THE MAJORITY OF FIBRE PRODUCTION IS SYNTHETIC AND COMES FROM FOSSIL FUELS

WORLD FIBRE PRODUCTION BY FIBRE TYPE 1980-2030

THOUSAND METRIC TONS

(Source: Tecnon OrbiChem; Cotton Analytics)

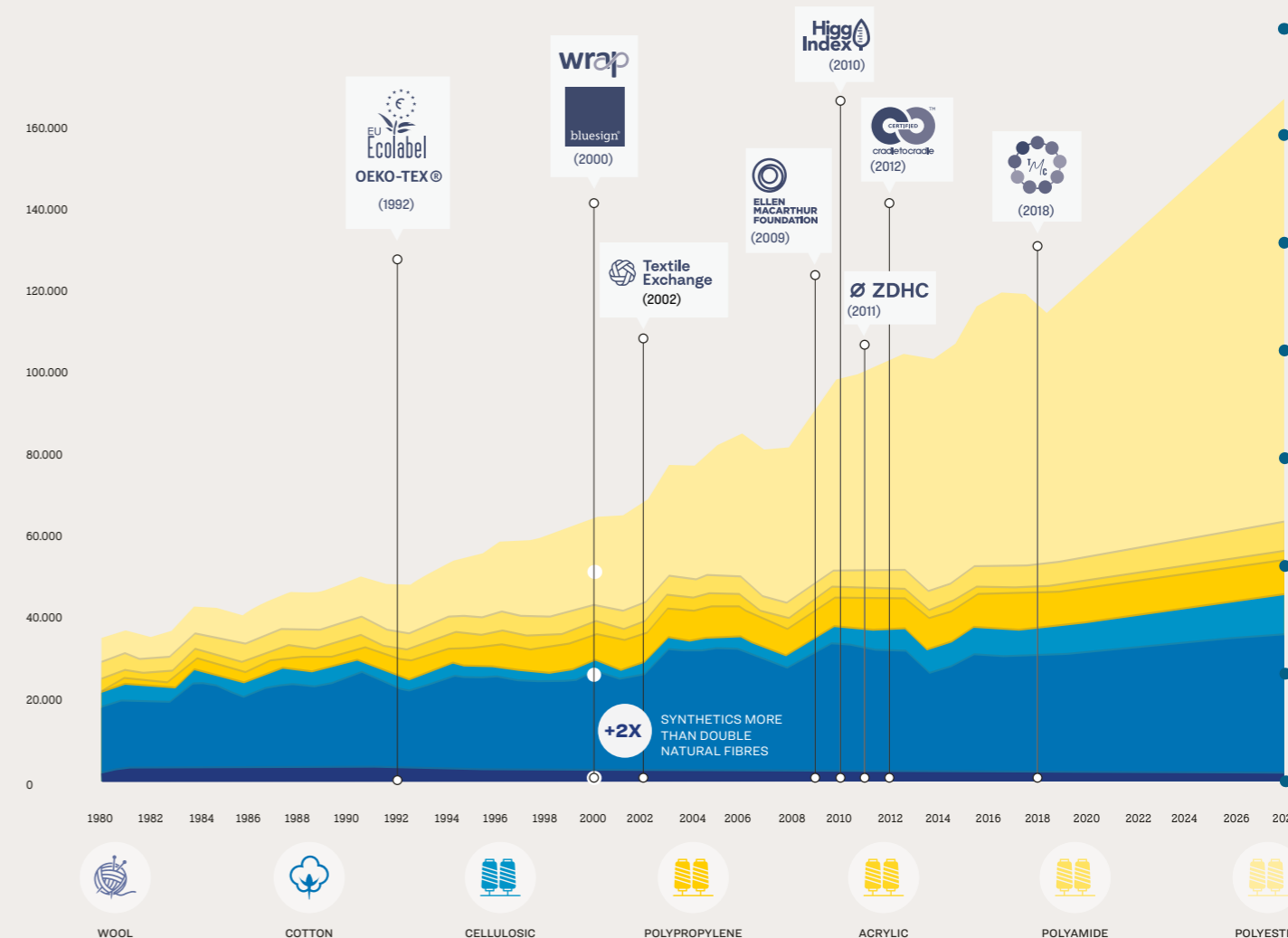


Figure 1.1: The rise of polyester and the founding dates of schemes

1.2. Certified greenwashing

The role of 'greenwashing' or 'marketing that answers inconvenient truths with convenient fantasies'¹³ cannot be understated. Whether unintended or by design, brands are using membership of voluntary initiatives and certification in textiles to give their products a green glow, knowing that the average consumer, or even policymaker, will have little time or inclination to dig deeper than the surface level. Market research of more than 4,000 products from 12 online shops for our report, *Synthetics Anonymous*, found that 59% of green claims made by brands were misleading or unsubstantiated, according to guidelines released by the UK's Competition and Markets Authority. In addition, a number of these claims were being backed up by highly flawed certification schemes, such as the Better Cotton Initiative (BCI), which makes no guarantee that the fibre is more sustainable than standard cotton. Such flawed schemes are the foundation of persistent sustainability myths: that certification equals sustainability, that a certified company is a sustainable company; and that certification means continued sustainability and improvement. This illusion is generated often simply because a multi-stakeholder initiative agreed on a standard, without any guarantee that the standard is fit for purpose or drives ambition towards true sustainability.¹⁴

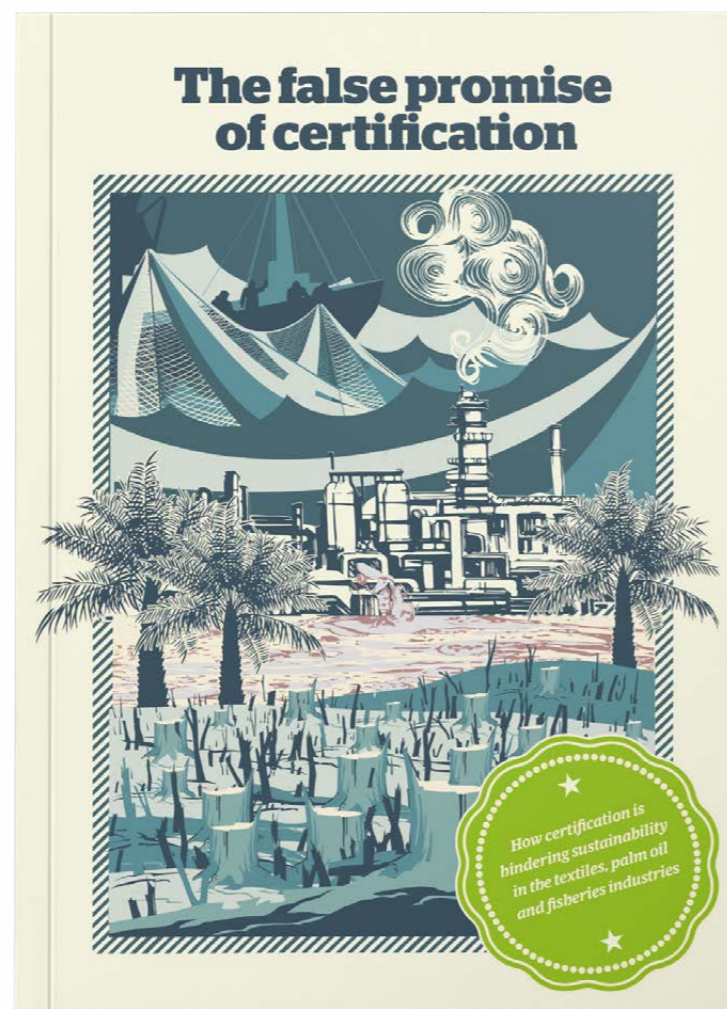
Indeed, greenwashing in the fashion industry is so pervasive that in early 2022 the UK's Competition and Markets Authority (CMA) announced it would be its first area of official investigation.¹⁵

1.3. The false promise of certification

This is not Changing Markets' first foray into the pitfalls of certification. Our 2018 report, *The False Promise of Certification*, scrutinised schemes and labels in the fisheries, palm oil and textile industries. In the fashion sector, we critically analysed eight schemes (of which one, Made-By, has since been dissolved), among them the Higg Index, OEKO-TEX® and ZDHC, which are also covered in this report. At that time, we found that, despite the proliferation of certification initiatives in textiles, there was no overarching scheme effectively addressing sustainability across the whole supply chain and there was an acute lack of transparency in some of the most widely used schemes.

The majority of these schemes' failings persist three years down the line, with none having undergone the necessary structural and methodological reforms to make them robust enough to fulfil their stated objectives. At the same time, the visibility of these schemes has increased, with many now being used in consumer-facing applications, in marketing and branding exercises or even as evidence of brands' good intentions in the face of government scrutiny.

This latter function should set alarm bells ringing. While good voluntary initiatives and certifications can play a role in informing best practice and encouraging those already leading the pack to be more ambitious, they cannot and should not, replace governmental and international regulations. Indeed, often the existence of a voluntary certification scheme or multi-stakeholder initiative, should highlight that a glaring governance gap exists and that a regulatory approach is called for.¹⁶ This report should serve as a stark warning to governments that the time of the fashion industry marking its own homework must come to an end.



BOX 1.1: Public attitudes to certification and labels

Polling conducted by YouGov for Changing Markets in December 2021 reached out to 8,651 individuals across five different countries (France, Germany, Spain, UK and US) to assess attitudes towards certification and sustainability labelling. We asked how much people trust the claims that brands make about sustainability, enquired about the sources of information most trusted for presenting this information and asked whether this kind of information influences purchasing decisions.

The results were surprising. Nearly 62% of respondents either distrust the green claims that brands make themselves about their clothing or do not know whether they trust such claims, showing high levels of scepticism about the brands' communication of their sustainability efforts (Figure 1.2). Further analysis reveals that, of those who distrust brand claims, their most frequently selected source of trusted information was third-party certification or labelling schemes (28.9%), followed by NGOs (17.2%) and media sources (10.2%).

Overall, the most frequently chosen trusted information source was third-party schemes, whereas one in five respondents chose to trust the brands' words on sustainability (Figure 1.3).

When asked how certification affects purchasing decisions, 34.3% said that they often, mostly or always chose clothing with certification (Figure 1.4). However, 44.4% said that they rarely or never buy clothes with certification.

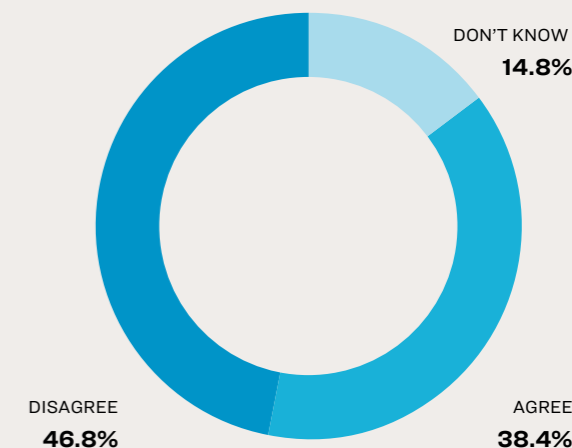


Figure 1.2: To what extent do you agree or disagree with the following statement? 'I trust the sustainability or 'green' claims that brands make about their clothing'

TRUSTED INFORMATION SOURCES ON BRANDS SUSTAINABILITY

Which, if any, of the following sources of information, do you trust with regards to how sustainable a clothing brand is?

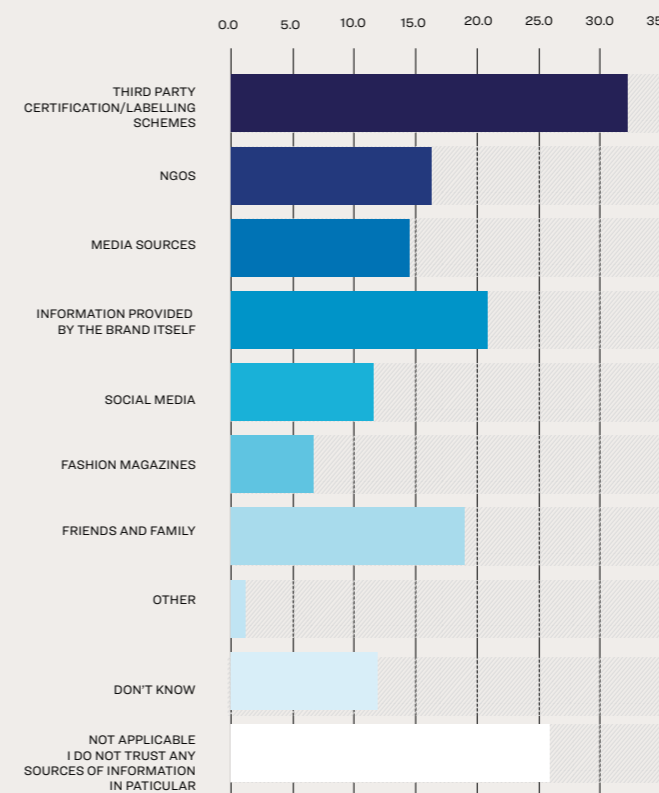


Figure 1.3: Which, if any, of the following sources of information do you trust with regard to how sustainable a clothing brand is?

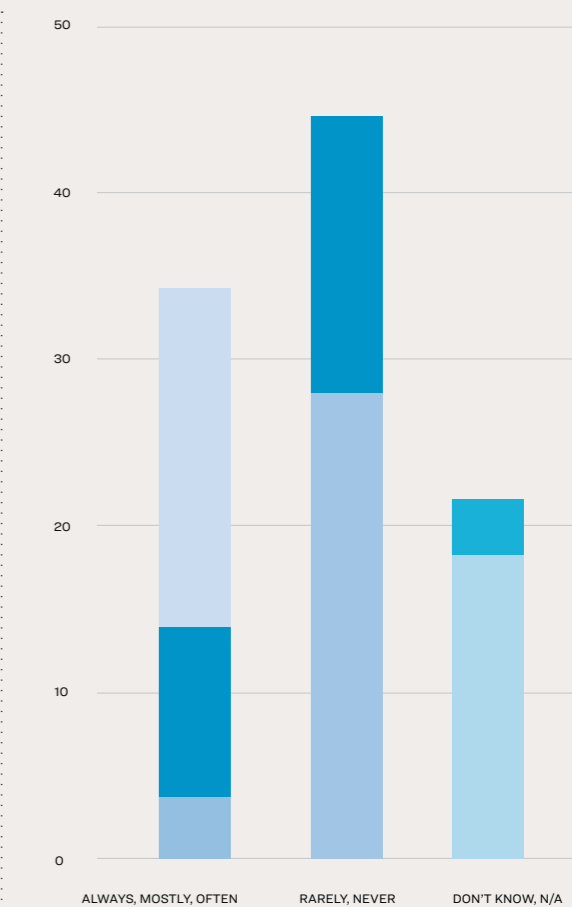


Figure 1.4: Thinking about when you are buying clothes, either for yourself or someone else: On average, how often, if at all, do you tend to choose items with third-party sustainability certifications or labelling?



HOW DO THE SCHEMES DRIVE CHANGE?

HOW IT DRIVES IMPROVEMENT?	Constant reinvention and proliferation of new modules diluting the sector's ability to drive real improvements and high levels of ambition, and allows members to cherry-pick the tools that suit them.	Scope is not holistic, but with regard to harmful substances and chemicals, it is a strict standard obtained through a comprehensive process. Certification has to be renewed regularly, and can be lost in case of non-compliance.	Not mandatory for members to show progress in their MRSL conformance and to move up between the levels over time. Lack of transparency about assessment results and conformance levels hinders these to be tools of continuous improvement.	Theoretically allows continuous improvement by awarding certification on the basis of ascending levels requiring renewal every two years. But in practice little is known about how, and whether, products actually improve their certification over time, or if this is encouraged. No visibility on delisted products.	In the New Plastics Economy and New Textiles Economy, improvement is voluntary and unenforceable. For the Jeans Redesign project, participants must specify how their jeans will meet the guidelines, and how they intend to accelerate progress beyond the minimum requirements.	Improvement is driven voluntarily. Signatories self-identify interventions which can vary annually, and need only pick one type of intervention, this fails to drive improvement. Reporting is only conducted at a collective level. Textiles 2030 is supposed to introduce new criteria and targets next year but still lack metrics on critical areas like microfibre loss.	Ambition is limited to a certain number of signatories by 2030, but no detail on how this will result in change.	Brands have to continually improve sustainable practices in their supply chain and operations and prove it. The scheme has a program that sets goals and monitors improvement on reducing emissions. Bluesign also regularly revise limits and usage bans for chemical substances that are published publicly.	Standards revised every four years in theory but not in practice, otherwise no improvement is built into the standard.	Seeks to drive improvement through standards, round tables, Corporate Fibre and Material Benchmark but member commitments are non-binding. No reporting on progress made towards 2019 Climate+ goal. Potential of Materials Change Index to drive improvement is limited by affiliation to Higg MSI's scoring/weighting methodology.
INDEPENDENCE	Prevalent use of affiliate relationships and joint initiatives including the Apparel Impact Institute and alliance with TE, ZDHC called 'Fashion Conveners'. Paid membership model offers opportunity for position on Board of Directors, gaining critical voting rights on SAC decisions. Founding brands such as H&M Group and Nike have a dominant presence.	Not heavily connected to other schemes. Consists of 18 independent institutes, including the Hohenstein Institute which is a member of the TE. Holds members to account, history of compliance outcomes where certifications have been revoked. Governance not dominated by paying brands.	Involved with many schemes and brands. Funding model lacks transparency, as contributors pay an annual fee, yet there is no publication of pricing brackets or use of funds. Bluesign partners receive a 20% discount when onboarded, which leads to further mutual reinforcement. Balanced governance structure with both brands, chemical suppliers and manufacturer holding seats.	Funded through programme fees and donations. Governance has balanced structure, with brand presence but also variety of other stakeholders. C2C has strong relationships with other schemes and high number of collaborations and co-funded projects.	Funding from corporate partnerships, memberships and philanthropy, including those tied to fashion brands. They have a strong presence in other initiatives and have worked closely with WRAP. They are an affiliate of the C2C Products Innovation Institute and are a member of TE.	Mostly independent and transparent as the majority of income comes from UK Government as opposed to paying members. Specific projects are funded from within the industry and additional financial and/or in-kind support has been provided by a working group of apparel brands and retailers, but no specific names are given. No representatives from fashion brands, retailers or other schemes at a governing level.	Funding streams originate from signatory and project revenue, fees vary according to company turnover. Deleted documents revealed that paying members are able to apply for a governance board seat with board members previously including Marks & Spencer and Primark.	Opaque governance and little information on funding. Bluesign is an affiliate of SAC, listed as a ZDHC 'solution provider' and is a member of TE. In 2019 it became a certifier for ZDHC MRSL Conformance. SGS Group owns a majority stake in Bluesign and is a third-party laboratory member of TMC consortium, highlighting an indirect connection.	Independent from other schemes/initiatives and fashion brands. The label is implemented through Regulation (EC) No 66/2010 of the European Parliament and of the Council. Fees are established by the EU Ecolabel competent body. Fees are transparent and reflect administration burdens. There are caps and a maximum annual fee for the use of the EU Ecolabel.	Heavily interconnected. Funding relies on external sources, primary revenues generated from certification (81%), membership fees (13%), grants and program funds (3%) and annual conference (3%). Recycled Polyester Roundtable is sponsored by Higg and SGS Group owner Bluesign. Brands have a strong presence in governance, including executives from paying member brands.
HOW IT DRIVES TRANSPARENCY?	Extensive communicators, but confuses publicity for transparency. Higg's on-going inability to live up to its own transparency promises continues to limit its ability to drive action and change, undermining credibility. Recent efforts to use technology and open data to enhance transparency offers some hope.	Information is shared in a transparent way, and objectives are clear. There is full transparency about what Oeko-Tex does and what it does not.	Communicates widely and information on assessment procedures is available, but actual assessment results remain limited and companies do not have to make them public.	Countless documents available but without providing much clarity or detail beyond slogans and promises.	Signatories to the New Plastics Economy do not disclose plastic fibres in clothing. Signatories are not ranked or called out. Progress reports are written by signatories without verification. The number of jeans (but not the percentage of total jeans sold) produced by signatories that meet the Jeans Redesign Guidelines will be published.	Conducts individual reports for signatory progress but these are not public. Textiles 2030 signatories will report annually to WRAP, who will only publish the collective progress of signatories against the targets. WRAP's progress reports are genuinely honest, communicating missed targets and detailing how much improvement is down to the initiative vs external factors.	Research and affiliate membership is by invitation only and only members get access to the TMC test methodology, along with results and analysis from the collective data pool. The roadmap is open source but scant on detail.	Standards are accessible and the most recent consultation for revising its standards was extended to NGOs, trade associations and other actors. However, important questions remain open, for instance whether certification decisions can be challenged; whether audit reports and results of objection procedures are public or available on request.	Only invited stakeholders can participate in the standard setting, and the revision can be extended by several years by the Commission. No information has been found on audit reports, the products of which license have been suspended, nor on non-compliances, and follow-up improvements actions.	Drives transparency through standards that encourage traceability across supply chains. High level of organisational transparency on verification processes, sharing the limitations of MCI methodology, disclosing income streams. Benchmark for MCI cites transparency as key theme in materials portfolio section. However, voluntary nature of Corporate Fibre & Materials Benchmark means brands can cherry pick which data is disclosed.
PERFORMANCE	Despite grand statements about progress over the past decade, they do not present a single concrete example of how real improvement in the apparel sector has been achieved, nor how any of these promises of potential are going to be implemented and how this progress will be measured.	Limited scope means Oeko-Tex cannot be credited with instigating any industry-wide transformation. However, it offers what it says and appears to deliver on the robustness of its certification processes.	Lack of transparency and mandatory requirements hinders performance. The scheme has progressed since 2018, adding new chemicals/materials to its scope but have silently abandoned its initial 2020 target, replacing it with a non-defined future time horizon.	Claims to be the 'world's most advanced, science-based standard' but how the scheme leads to on-the-ground environmental and social improvement remains unclear.	The majority of the impact claimed originates from the signatories to various EMF commitments on their respective targets. There is no apparent enforcement of consequences for failing to meet targets. Signatories aren't ranked by performance either, nullifying any potential accountability or stimulus to improve. No independent evaluation objectively assessing scheme's impact.	By its own admission, WRAP pins progress in the industry down to external factors, including changes to the fibre mix driven by market prices rather than because of its own actions. It shares specific success stories from brands on its website, however the failure to meet waste targets set out in the SCAP is concerning.	Very little action aside from testing method and roadmap since 2018.	Does not request an independent evaluation to evaluate its impacts. The result of reports from monitoring and evaluation processes are not freely available either, making it hard to determine the real impacts of the scheme. Have recently published 'average' impact results for system textile manufacturing partners from 2010-2020.	Covers the top 10-20% most environmentally friendly products in their respective categories and has several success stories attributed to it - albeit written by brands rather than independently. It has received praise from independent environmental NGOs for its ambition.	Hard to ascertain impact to date, especially on progress made towards Climate+ goal set in 2019. TE discusses record numbers of members, increase in number of organisations certified to TE standards and increase in volume of data being uploaded to CFMB - but no quantifiable data on how this are driving industry-wide progress.

HOW DO THE SCHEMES ADDRESS SYNTHETICS?

HOW IT DEALS WITH /DRIVES THE USE OF SYNTHETICS FIBRES ?	The Higg MSI abandoned the use of a single aggregated score but individual scores still favour synthetic materials. The MSI almost systematically rates synthetic materials as better than natural ones.	Out of scope	Out of scope	Not addressed	Main issues covered but without providing tangible actions or targets to address them. New Plastics Economy Global Commitment doesn't cover plastic used in clothing. The New Textiles Economy lists 'ambitions' and 'areas of action' while missing any concrete targets. No accountability or enforceability.	Addresses key issues around synthetics, including overproduction. Major oversight of footprint calculator for SCAP/Textiles 2030 is that it has no absolute targets. Targets are set per volume of garment sales/aggregate footprint of new products, respectively. Whilst there has been a decrease in carbon (and water) footprints of UK clothing per tonne, total carbon footprint of clothing in use in the UK has increased.	Apart from microfibre loss, TMC does not address the different problems of synthetic fibres. It also shows a bias in favour of synthetics.	As a standard it is focused specifically on chemicals, and there are only a few criteria for different types of synthetic fibers (e.g. on air emissions of acrylonitrile; off-gas from polyamide production processes; antimony content in polyester raw fibers). Besides these, no other issues on synthetic fibres are addressed and are out of scope.	Defines requirements for environmentally friendly processes along the production chain, for both natural/synthetic fibres textiles. However, very little detail in relation to the use of synthetic fibres, except for some specific rules for their production: 1) limitation of toxic residues in fibres; 2) reduction of air pollution during fibre process; and 3) their minimum recycled content.	Addresses synthetics in communications/membership activity. Uses material specific commitments, the MCI, material guides, and online resources to encourage transition from virgin to recycled/bio synthetics. 2025 Recycled Polyester Challenge, Recycled Polyester Roundtable and Biosynthetics Roundtable all address synthetics. They acknowledge the limitations of specific feedstock and downcycling challenges but could incentivise members with strict reduction targets.
FOSSIL-FUEL FEEDSTOCK RELIANCE	The MSI applies a cradle-to-gate approach for synthetic fibres which starts from the production plant and does not take into account the impacts from fossil fuel extraction. The recently launched Higg PM does not change this. It is said to include materials production from the point of resource extraction, but does not elaborate on what is understood by this.	Out of scope	Out of scope	Not addressed	Has the ambition to make effective use of resources and move to renewables. Mentions the use of renewable feedstock for plastic-based fibres and not using fossil-fuel-based fertilisers or pesticides in farming. The only initiative that talks about avoiding plastic-based fibres. The Jeans Redesign Guidelines requires that jeans do not include more than 2% non-cellulose based fabric by weight.	Addressed as an ambition: "The greatest potential is for closed loop recycling, by ensuring material is designed and captured for fibre-to-fibre recycling." However, this issue is unaddressed in the current Footprint Calculator. Textiles 2030 is supposed to add a target in 2022 to reduce the amount of virgin textile materials.	Not addressed	Addressed indirectly by asking companies to purchase recycled materials if possible; and prefer (certified) organic sources in the case of materials from natural sources.	Only indirectly. Sub-Criterion 7(b) asks for the minimum recycled content: for textile products, staple fibres should contain at least 50% recycled PET, but does not acknowledge the limitations of this approach.	Addressed as an ambition and makes reference to the use of coal for extraction for virgin materials on website/ in reports. Encourages adoption of renewable energy sources to reduce GHG emissions. Does not hold members to account on reducing reliance on fossil fuel feedstock, only voluntary commitments for recycled synthetics.
LIMITING FAST FASHION AND PRODUCTION	Not addressed	Out of scope	Out of scope	Not addressed	Covers broad themes and provides data. Includes recommendations to scale up short-term clothing rental, make durability more attractive, increase clothing utilisation.	Admits that "Physically, infinite growth is an impossibility and the apparel industry must accept and adapt to that fact." However, neither SCAP, nor Textiles 2030 has taken into consideration any action plans regarding limiting overproduction.	Not addressed	Not addressed	Not addressed	Through their COP26 trade policy proposal, TE has called for limiting the overproduction of 'non-environmentally preferred' materials. In MCI benchmark it asks companies questions about decoupling economic growth from resource use. It has also addressed the problem related to waste and rise in global clothing consumption created by the fast-fashion model on blog posts and website.
MICROFIBRE RELEASE	According to the SAC, the fact that the Higg MSI ignores microfibre shedding is a 'common myth', yet there is no indication that microfibre shedding during use is, or will be included soon. Higg PM does not change this. The Higg Product Module Methodology document, does not mention the issue, and there is much uncertainty about what it considers under 'use phase'.	Not addressed	Joined TMC in 2021, yet the performance of this scheme is questionable.	Passing reference to microfibre pollution risk from synthetics, but without detail.	Addressed as recommendations, including new materials and production processes to reduce shedding, and capture technologies.	Only addressed in a 2019 report where it notes potential to include microfibres in footprint calculator, but this has yet to happen.	Addressed as an ongoing research area. TMC advocates that until standardised test methods are in place, there is no way to determine which fabrics or fibres are "better" or "worse" in terms of shedding.	Not addressed	Not addressed	Draws attention to environmental harm created by microfibre release. Included in various reports and website pages. Highlights the need to tackle microfibre fragmentation to reduce water pollution.



2. Do the schemes create change?

2.1. Key findings

To assess whether the initiatives that we investigated are creating tangible change in the sector, we undertook a qualitative assessment of their level of ambition, scope for continuous improvement, independence, transparency and ultimately their track record of performance, based on indicators outlined below.

Most initiatives analysed in this report fail to meaningfully uphold **high levels of ambition**, and thus merely provide a smokescreen for companies that want to appear to be taking steps towards sustainability. The majority do not set strict requirements and timelines for their members and/or provide different modules with differing requirements, allowing companies with lacklustre ambition to still join.

Most initiatives, notably Cradle to Cradle (C2C) and The Higg Materials Sustainability Index (MSI), focus on only a few aspects of a seemingly arbitrary selection of the product's life-cycle stages and provide a selection of certification of varying levels of ambition. This allows members to cherry-pick which issues to tackle instead of setting a holistic set of criteria. Thus, a brand will often need to use several labels and be signatories to several initiatives to cover the various social and environmental impacts of their different products or raw materials across the supply chain. Picking and choosing a patchwork of certifications and initiatives also means that the systemic issues around fast fashion, reliance on fossil fuels and overproduction are neatly avoided.

We also identified a concerning **lack of accountability and independence** across initiatives that offer labelling or certification, with no publicly available evidence of enforcement or consequences for those who commit to targets but fail to meet them. Although initiatives without labels or certification do not have compliance requirements per se, many are still being used on the ground as proxy-certification in company marketing. Here, brands frequently tout these 'green' badges online, in-store and in social media communications to appeal to customers, despite the lack of robust environmental or social criteria set out by the scheme or by providing the nuance of the limitations of a given voluntary initiative. For example, very few customers are likely to investigate the fine print when it comes to BCI mass balance cotton, the Ellen MacArthur Foundation's (EMF) Jeans Redesign initiative or C2C bronze certification, which still allows for synthetics to be incorporated into designs.

We assessed that the majority of the schemes have **compromised independence**. As voluntary initiatives, they are vulnerable to high levels of influence through their funding models, and the presence of fashion brands in governance structures weakens their independence further. Large schemes, such as the Sustainable Apparel Coalition (SAC) and Higg Index, sit in a web of influence with other schemes and brands (Figure 2.1), creating an interwoven network and revolving doors between brands and initiatives. **Accountability** is also severely compromised in this way, with little incentive for schemes to call out a lack of compliance from member companies.

Transparency is a weak point for all the initiatives analysed, with even robust government-mandated schemes, such as the EU Ecolabel, not up to scratch. At worst, these schemes are operating as a black box, with no external scrutiny, yet are informing major decisions about fibre and material use. Some schemes, such as C2C and the Higg Index, seem to confuse communicating profusely with transparency. Pages filled with empty words hide a lack of accessibility to data and the necessary level of detail that underpins several of the Higg modules. SAC/Higg has been promising transparency for decades, but the goalposts keep changing. This often serves to cushion corporate members from reputational damage that could be done to them by consistent lack of progress. For example, WRAP and ZDHC feature aggregated reporting, where it is impossible to scrutinise individual company performance and therefore hold them to account for the results. In addition, schemes are not driving greater supply-chain transparency by obliging companies to disclose who they are sourcing from.

In summary, schemes are fundamentally **failing in their performance and purpose** to enhance sustainability in the sector and discourage the proliferation of fast fashion. All the schemes are also missing the elephant in the room: significant growth in production that has been enabled with the explosion of cheap synthetic fibres produced from fossil fuels. People are buying more clothing because they are cheap, they are cheap because they are mostly synthetic, and in this way the whole system is enabled by fossil fuels.¹⁷ Eight of the ten schemes analysed in this report were founded between 2000 and 2018, yet in this time the production of polyester tripled from 20 million tonnes (on parity with cotton) to 60 million tonnes and is projected to reach more than 90 million tonnes by 2030.¹⁸ It is clear that this glut of polyester enables the growth of fast fashion, yet no scheme addresses either in any way.

The way that these schemes address synthetics or avoid the topic entirely is paramount to understanding the lacklustre performance made to date. A tool such as the SAC Higg MSI, which systematically rates synthetic materials more favourably than natural ones, is merely one example. Alongside this, the failure to explicitly discuss fossil-fuel feedstock, to develop binding concrete targets on plastic-derived clothes or championing a misplaced focus on recycled synthetics with feedstock that acts as a false solution are other key missed opportunities.

2.1.1. Methodology

This section provides a qualitative analysis of the ten best-known initiatives in the textile sector, with a focus on those that claim to address issues of circularity, overproduction and the rise of fast fashion, end-of-life management and the elimination of toxic chemicals from production or manufacturing. Some of the initiatives analysed are certification labels (e.g. bluesign®, C2C, EU Ecolabel, the Global Recycled Standard (GRS), the Recycled Claim Standard (RCS) and OEKO-TEX®), some offer thought leadership (EMF and ZDHC) and others provide a set of self-assessment tools (Higg Index and WRAP) for the industry to measure textile sustainability.

While we analysed in detail each scheme in the study, here we will present case studies to illustrate the pitfalls common across certification and labelling schemes in the textiles and apparel sector. We also highlight good examples and the strengths of each scheme to highlight best practices where these exist.

In this section, we present a critical analysis of whether schemes are **driving transformational change** in the sector. We have based our analysis around the following indicators that are analysed in detail in the following sections:

Continuous improvement and high ambition: Does the scheme require members to achieve strict requirements in a set timeframe? Do they set the bar high enough to only certify companies that demonstrably go above and beyond average performance? Are they committed to continuous improvement, with clear exclusion criteria for bad performers? How holistic is the scheme? Does the scheme cover the whole life cycle of the product? If not, are they clear and transparent about not doing so or do they make claims about sustainability based on a limited picture of impact?

Independence: Are there conflicts of interest, such as membership revenue linked to certification and compliance outcomes or conflicted interest through funding models? Is the independence of the scheme compromised by the influence of industry players in decision-making?

Transparency: Is important information publicly accessible and presented in a clear and understandable manner? Is the scheme honest about failings and previous compliance issues? Are any assessment criteria, methodology and data used to make claims about sustainability publicly accessible and open to scrutiny? Are the results of assessments disclosed? Does the scheme drive great transparency of brands, for example by disclosing their suppliers or the materials they are using?

Performance: Is the scheme clear on its impact to date? Has it missed targets? Does it allow companies to use membership as a proxy for sustainability? When standards are not met, is this communicated? Are improvement actions required and is this disclosed?

2.2. Continuous improvement and high ambition

As voluntary schemes, certifications and labels often come in place of necessary mandatory measures to address sustainability, it is critical for a progressive initiative to set a high level of ambition and to ensure continuous improvement. Concerningly, our findings show that none of the major schemes has ambition or drives improvement, and those that do are limited in scope to chemical management or are not widely used across the industry.



2.2.1. Initiatives failing to drive a high level of ambition

2.2.1.1. SAC and the Higg Index



In *False Promise*, we gave the Higg Index the benefit of the doubt, indicating that it could be one of the schemes that could be reformed, and highlighted specific improvement areas, even on the most basic issues like the promise of transparency. The scheme has since continued on the same trajectory and has not structurally reformed any of the areas of shortcomings nor given tangible evidence of the progress made to date. Further to this, with such a large influence, the damage that Higg does by presenting an illusion of sustainability far surpasses any possible benefit it claims.

The SAC and Higg Index are diluting the sector's ability to drive real improvements and high levels of ambition due to the constant reinvention of tools designed for brands, facilities or products themselves. Whether that be the Higg Product Module (PM), the Higg Facility Environmental Module (FEM), the Higg Facility Social & Labour module (FSLM), the Higg Brand and Retail Module, the Higg MSI or the new customer-facing Higg Index Sustainability Profile included on brands' e-commerce websites, the list is lengthy and it is often unclear what the difference is between each offering.

Textile workers in Thailand

Credit: Shutterstock



Years later, it can be argued that the organisation continues to find new ways to reinvent modules or create initiatives that confuse and distract us from their shortcomings, despite their bold claims of progress mentioned in the *A Decade in Review* report.¹⁹ This publication shares how the Higg Index tools 'will unlock industry-wide transformation in sustainability,' yet fails to mention how the promises will be quantified and measured in actuality²⁰ – especially in the light of the critical lack of transparency that Higg perpetuates.

The Higg FEM offers an interesting lens through which to evaluate how initiatives such as the SAC are missing opportunities to drive the high level of ambition that could vastly improve environmental management throughout the supply chain.

The FEM was devised to assess a facility's environmental performance across important indicators, including chemicals, energy, waste and water and is now used by more than 19,000 organisations in 100 countries. The FEM is described by the SAC as 'one of the industry's most trusted and commonly adopted tools to measure a facility's environmental performance in the value chain'.²¹ In 2018, our *False Promise of Certification* report detailed that there was no obligation for facilities to publish their results, a decision that is likely to result in a reporting bias if only the companies with strong environmental performance externally communicate their scores.²² It was also recorded that vague incentives and a lack of sanctions was hindering the module's ability to drive change at the necessary pace.

Since then, the SAC has made progressive efforts to increase the transparency of the FEM through its integration with the Open Apparel Registry (OAR), which enables supply-chain partners to assess a facility's sustainable performance data via their unique OAR IDs.²³ Additionally, as of May 2021, it announced plans to integrate data from the FEM with the Higg Brand & Retail module to combine operations data, thus indicating a positive step to adopt a more holistic approach. Renewed commitments also include incorporating social data from facilities by early 2023,²⁴ a welcome move given that the module was first devised more than a decade earlier in 2012.

Despite this, there is still a gaping flaw in the ability of the module to drive ambition. This is due to the fact that the FEM is not a 'pass or fail' mechanism but merely a tool that 'identifies opportunities to improve' without holding facilities to account.²⁵ It is described as '[a] means to verify the facility understood and answered the FEM self-assessment correctly'.²⁶ Yet, from secondary research completed by UC Berkeley across an interval of four years, it was uncovered that a number of facilities in China and Bangladesh were unclear on how to complete the FEM assessment due to language barriers,²⁷ which calls into question the reliability of answers given in the assessment. This lack of clarity, alongside the lack of truly independent verification and the absence of a failing grade, means that the FEM is failing to catalyse a high level of ambition, which is promised in its 2020 refreshed commitments.

2.2.1.2. Ellen MacArthur Foundation



The EMF is one of the many initiatives embodying these shortcomings in ambition and continuous improvement. The UK registered charity was set up with a mission to accelerate the transition to a circular economy, by working with academia, businesses and governments. The organisation has two systemic initiatives that relate to synthetics: Make Fashion Circular (MFC) and the New Plastics Economy (NPE) Global Commitment. MFC aims to 'radically change the way clothes are designed, made, used and reused', whereas NPE was launched to bring together key stakeholders 'to rethink and redesign the future of plastics, starting with packaging'.²⁸

For both initiatives, improvement is driven voluntarily by signatories. For example, one of EMF's key reports entitled *A new textiles economy: Redesigning fashion's future*²⁹ outlines its vision, ambitions and actions to ensure 'products (apparel, footwear, accessories) are used more, are made to be made again, and are made from

safe and recycled or renewable inputs. It contains the following ambitions: 1) phase-out substances of concern and microfibre release; 2) increase clothing utilisation; 3) radically improve recycling; and 4) make effective use of resources and move to renewable inputs. While two areas of action are suggested for the first ambition – align industry efforts and coordinate innovation to create safe material cycles and drastically reduce microfibre release – the report sets no clear criteria on how this is to be practically achieved. Instead, it emphasises that further work is needed to build an evidence base that helps to address the challenges of microfibre release. One of the action points it mentions is to design new materials from scratch that are either biodegradable or do not shed microfibres, and which are good for high-performance applications. Again, this ambition comes without any actionable agenda, as such allowing brands to sign up to the broad ambition without committing them to anything. One of the obvious points that could enable brands to comply with these ambitions could be the phase-out of unsustainable fossil-fuel-based synthetic fibres, but as this represents a majority of textiles used, the initiative stops short of asking this.

Similarly, the major shortcoming of the NPE for fashion is that companies are committing to reducing plastic packaging, but not the plastic that is in the bag, i.e. the prevalent use of synthetics or plastic fibres in clothes. In this way, the initiative is misleading as it suggests that it is tackling plastic holistically, whereas in reality it focuses narrowly on packaging. Given that textiles represent 15% of plastic use compared with packaging's 36%,³⁰ this is a major oversight. Fashion brands that have signed up to NPE, such as ASOS, Burberry, H&M, Inditex and Walmart,³¹ are lauded for working towards the reduction of plastic hangers, bags and other packaging, while their huge and growing use of plastic for clothes passes under the radar. The NPE has also been criticised before for lack of ambition and for fundamentally lacking accountability. This is because, while EMF publicly publishes performance reports, these are not verified and they stop short of calling companies out for lack of progress – it is all carrot and no stick.

EMF also has a certification scheme that brands can use on labelling, the Jeans Redesign guidelines,³² which establishes minimum requirements for the durability, material health, recyclability and traceability of jeans. Participants must meet the terms and conditions of the guidelines to get permission to use the Jeans Redesign logo. They must disclose the number of jeans produced that meet the guidelines, how they will meet them and how they intend to accelerate progress beyond the minimum requirement. Annual reassessment is made for the use of the Jeans Redesign logo, based on compliance with reporting requirements. However, it is not clear what the repercussions are if these requirements are not achieved.

How this plays out in reality also calls into question the effectiveness of the scheme as well as the validity of claims relating to circularity. For example, in November 2021, Primark launched a circular denim collection as part of the Jeans Redesign Project³³. However, many of the items listed on the website still contain synthetic elastane, with no indication of how this can be responsibly taken apart or what infrastructure can actually support the recycling process³⁴. This is similar to bronze-certified C2C jeans that contain polyester thread, which are later discussed later in Section 4 (Box 4.5).

The synthetic product characteristics within these 'circular' designs has amassed online criticism stating that the EMF Jeans Redesign project has in fact given the retailer a licence to greenwash³⁵ another collection under its Primark Cares range. Yet, the organisation continues to promote the initiative within the fashion industry as what 'good jeans look like'³⁶ and dedicates space in their new Circular Design For Fashion to highlight how they are putting their design principles into action.

The wishy-washy language used by the organisation hinders its ability to drive serious improvements and falls short of the urgency of the issues at hand. For example, EMF's book, *Circular Design For Fashion*, paints sustainability as 'going on a journey'³⁷ without calling to attention the severity of the environmental degradation that will be caused if businesses do not shift their business models away from linear design principles or making clear, data-driven recommendations or concrete actions for what this 'journey' might entail.

2.2.1.3. WRAP



Similarly to EMF, WRAP uses a voluntary approach to drive improvement. The programme was set up in England, Northern Ireland and Wales to help businesses and individuals reduce waste, develop sustainable products and use resources in an efficient way.

Since 2012, WRAP has led the Sustainable Clothing Action Plan (SCAP), with the ambition to improve the sustainability of clothing across its life cycle, focusing particularly on reductions in carbon, waste and water. Signatories agree to take action in seven specific areas when signing the agreement. This includes using a common assessment tool to measure signatories' baseline carbon, waste and water footprints of clothing and track changes in footprints over time; reducing the environmental footprint of clothing through fibre and fabric selection; increasing reuse and recycling and developing actions that help to keep clothes out of landfill and incineration. A number of targets were agreed for 2020 against a 2012 baseline, and an internal tool – the SCAP Footprint Calculator – was developed to help retailers and brands calculate the carbon, waste and water footprint for their whole portfolio of garments.

Building on SCAP 2020, a new initiative, Textiles 2030³⁸ was launched in April 2021. The new voluntary agreement aims to engage the majority of UK fashion and textiles organisations in climate action, with more than 92 signatories and affiliates, spanning brands, retailers, reuse and recycling organisations from across the fashion and textiles sector, signing up to it.³⁹ The programme proposes targets on reducing the greenhouse gas (GHG) footprint of products, reducing the aggregate water footprint and introducing more circular approaches to businesses, including durability, recyclability, use of recycled content and minimising waste.⁴⁰ One of the upgrades of Textiles 2030, in comparison with SCAP, is that interim outcomes are to be publicly reported by the end of 2022, 2025 and 2030, which gives a better picture of how signatories are progressing. However, progress will only be reported on a collective level, so individual progress remains – similarly to SCAP – non-transparent.

Both the SCAP and Textile 2030 initiatives are based on voluntary targets, giving signatories the freedom to cherry-pick which interventions to target. Moreover, some targets are based on flawed data and assumptions. For example, when it comes to synthetic fibres, the water footprint of polyester fibre production is considered negligible, despite research published by the Water Footprint Network that states that '*the water footprint of polyester can be as high as 71,000 cubic metres per tonne of fibre*', in comparison with 10,000 cubic metres per tonne for cotton.⁴¹ The calculator suggests replacing cotton with polycotton to reduce brands' environmental impact,⁴² completely disregarding complications of such complex blends for the end of life and the fact that polyester is produced from fossil fuels. Concerningly, the footprint calculator, both in SCAP and in Textiles 2030, has no absolute targets. Thus, targets are set per volume of garment sales/aggregate footprint of new products respectively, which allows for infinite growth.

This is a critical oversight and an example of 'garbage in, garbage out', whereby poor data leads to inaccurate results. It does not incorporate a systems-led approach that also factors in the negative social consequences that the seemingly 'smaller' water footprint of synthetics, such as polyester, can have along the value chain, such as the leaking of toxic chemicals into waterways as well as the emissions produced. The glaring flaws of the SCAP Clothing Footprint Calculator, version 2.10 are also exemplified by the fact that default 'improvement' actions result in at least a 5% reduction in the carbon/waste/water footprint.⁴³ An example of the calculator's misplaced assumptions is that there is a three-point percentage reduction in the water footprint when conventional cotton is changed to BCI/REEL/Cotton made in Africa.⁴⁴ Given what we know about the limitations of these certification schemes to correctly trace the fibre at every stage of the supply chain and measure the environmental impact from end to end, this is unwarranted and makes the tool dangerously misinformed.

WRAP also reports achievement only on a collective level and does not publicly disclose performance of different brands, which inherently prevents any drive for improvements at a company level. In such a system, lacklustre companies can be free riders on the progress of others, while companies investing in improvements are not individually credited. In short, WRAP provides a lucrative way for companies to use their participation in the scheme to pay lip service to sustainability, regardless of their underwhelming performance in certain areas. This includes the final outcomes of the SCAP, which fell short of its target to reduce textile waste by 15%.⁴⁵ According to WRAP's own honest analysis of its impacts, most of the targets were reached irrespective of the SCAP initiative – meaning that ambitions were not set high enough in the first place or continuously revised.

2.2.14. Cradle to Cradle



Another scheme that fails to drive ambition is the C2C certification scheme. The initiative presents itself as the 'world's most trusted and advanced science-based standard' for designing and manufacturing products.⁴⁶ To receive certification, products are assessed for environmental and social performance across five critical sustainability categories: material health, material reuse, renewable energy and carbon management, water stewardship and social fairness. Based on the five criteria, a product is assigned an achievement level through a multi-level approach – bronze, silver, gold or platinum – for each category. A product's lowest category achievement also represents its overall certification level.⁴⁷ The certification, however, carries many uncertainties about the requirements, their science-based argumentation, how it is assessed and verified and the concrete implementation of the certification system.

A closer look reveals that requirements are formulated in broad terms and without scientific basis. General requirements for instance, ask that 'environmental risks are assessed', 'an environmental policy [...] is in place', '[c]ompany executives demonstrate commitment and support for establishing and maintaining a culture for achieving high levels of environmental performance' or '[e]nvironmental objectives are incorporated into relevant employee performance evaluations'.⁴⁸ Yet, while further explanations for these requirements do follow, these do not present measurable standards against which the fulfilment of a requirement will be tested. The same problem applies to the specific requirements for each of the five categories of assessment. While these include more quantitative benchmarks, they are vague and confusing. Take for instance, the silver level's material health requirement that the '[p]roduct is ≥ 95% assessed (complete formulation information collected for 100% of materials released directly into the biosphere)'.⁴⁹ What this actually implies is not elaborated on.

Besides, for many requirements, their implementation remains open to interpretation. As a gold-level product circularity requirement, we find for instance that '≥ 90% of materials by weight are compatible with the intended cycling pathway(s) (i.e. recyclable, compostable, or biodegradable) and support high-value cycling'.⁵⁰ This says nothing about different possible cycling pathways and according to the Product Standard's definition, for a material to be considered 'recyclable' it is enough that it is only recycled once, independently of what happens to it afterwards. This opens the doors to products and/or materials having lower quality after recycling compared with their previous function (e.g. PET bottles downcycled to clothes).⁵¹ In addition, it enables complex material blends, for example mixing elastane with cotton, which effectively prevents recycling, even when present in small quantities. The requirement also does not address how the remaining 10% of materials will be dealt with, especially in a context of increased production where the amount of non-recycled materials would continue to increase in absolute terms.

C2C's criteria and supposedly science-based approach has been criticised by several stakeholders. Eunomia raises concerns that 'Several relevant impacts, such as land use or energy efficiency aspects, are not considered and neither is the entire life cycle of a product, with the use phase of the product and extraction of raw materials excluded'.⁵² Similar critiques can be found with another assessment, carried out by researchers from the Technische Universität Berlin,

concluding that 'C2C is not scientifically reliable enough and does not assure that certified products are actually environmentally preferable'.⁵³ This echoes the *Journal of Cleaner Production* in 2015, which highlighted that:

(a) Cradle to Cradle requirements do not tackle the environmental aspects of products from a life cycle approach, (b) Cradle to Cradle does not guarantee environmental improvements for products that consume large amounts of energy during use, [and] (c) Cradle to Cradle does not always distinguish environmentally preferable products.⁵⁴

The standard also claims that it encourages continuous improvement over time by awarding certification on the basis of ascending levels of achievement and requiring certification renewal every 2 years.⁵⁵ While this seems reassuring, the initiative does not elaborate on how products improve over time by reaching higher levels nor does it present any circumstantial proof about how the whole programme actually contributes to any real environmental and social improvement. For example, the C2C-Certified Product Standard tells us that:

A product may be certified at the bronze level for a maximum of 4 years (i.e. two 2-year certification cycles) and must recertify at the silver level or higher once the second, 2-year bronze certification has expired or it will be de-listed from the programme.⁵⁶

Yet, this is immediately undermined by an explanation about how products may nonetheless be recertified at the bronze level 'in cases where technical, performance, or market barriers prevent the achievement of the silver level in any standard category'⁵⁷ – in other words a catch-all excuse. In this case, the applicant is asked to show that ongoing measurable improvement is achieved. However, Section 3.3 of the Product Standard, which should explain what 'measurable improvement' means, gives no further information.⁵⁸

As to the next levels – silver, gold and platinum – no further specifications are to be found in the Product Standard about how often a product can reapply for certification at the same level. Furthermore, in line with certain requirements and procedures, an existing C2C product certification can be extended past its expiration date.⁵⁹

So, except for the formal requirement for bronze-level products to level-up to silver within 4 years, the scheme is littered with exemptions and its lack of transparency and monitoring makes it unclear how companies are encouraged or obliged to advance their products through higher levels of certification. It is neither clear how long products actually keep a certain level without improving nor whether there are consequences to non-improvement. Furthermore, the branding and visual identity of the actual certification documents could be interpreted as deceiving as they all look the same; regardless of whether a product has platinum, bronze or even just basic certification, their labelling differs visually by just one word.

The C2C-Certified Products Registry, which (as of August 2021) listed a total of 689 certified products, provides no enlightenment. Product information only mentions when a current certificate has to be renewed with no information on how long the product has been certified and what the achievement levels of previous certificates were. There is no evidence that shows for how long the brands have held a particular level nor any indication about how many have improved their level over time. Critically, from an accountability perspective, neither the Products Registry nor any other publicly accessible information from C2C gives any insight on delisted products or whether this ever happens.

2.2.15. Other schemes

While the above examples highlight weak schemes that fail to drive ambition and improvement among its members, many other voluntary initiatives in the sector follow the same bad examples. For instance, setting weak and vague criteria (e.g. ZDHC, Higg Index, The Microfibre Consortium (TMC) and Textile Exchange), adopting a multi-level/multi-module approach instead of a pass/fail approach (e.g. ZDHC and Higg Index), failing to set

clear criteria and incentives for continuous improvement (e.g. ZDHC, Higg Index, TMC and Textile Exchange) and providing no exclusion criteria in cases where members continuously fail to comply with requirements (e.g. ZDHC, Higg Index, TMC and Textile Exchange). Moreover, all of the initiatives listed here take a partial approach and are only concerned with a small part of the supply chain, instead of embracing a holistic approach.

It is also highly concerning that many initiatives are shifting goalposts by delaying voluntary commitments to sometime in the future; for example, ZDHC has silently abandoned its initial ambition of zero discharge of hazardous chemicals by 2020, replacing it by a non-defined future time horizon; the SAC promised full transparency in 2020 but took until 2021 to take action; WRAP replaced their poor-performing SCAP 2020 programme with Textiles 2030; and TMC, while running from 2018, has from the outset developed a Microfibre 2030 Commitment, giving brands more than a decade before they find a way to address the pressing and exponentially growing problem of microplastic pollution.

2.2.2. Initiatives with room for improvement

2.2.2.1. OEKO-TEX®

OEKO-TEX®

OEKO-TEX® is one of the few schemes that partially delivers on what it promises. While not a comprehensive environmental assessment, with regard to harmful substances and chemicals in apparel products and production facilities, it is a strict standard to be obtained through a comprehensive certification process.⁶⁰ Furthermore, certificate-specific terms and conditions for its five labels and two services are clear and backed up by specific requirements.

Certification has to be renewed regularly. For goods, once issued, an OEKO-TEX® certificate is valid for 1 year.⁶¹ For a production site this is 3 years.⁶² Upon expiration, the applicant is entitled to request a renewal.⁶³ Compliance with requirements is regularly verified through control tests and unannounced visits (see Box 2.1).

OEKO-TEX® may decide to withdraw a certificate in the case of non-compliance (and has done so before), which is an incentive for certification holders to keep up. This is done in line with terms of use or the regulations and rules that, in accordance with the Standard, apply to a product or production site.⁶⁴ In this instance, it will first issue a warning, upon which a company or facility has 30 days to remedy the violation in question. If not done within this set timeframe, OEKO-TEX® reserves the right to withdraw the certificate, after which it can no longer be used.⁶⁵ A list of currently withdrawn certificates and labels is provided on the OEKO-TEX® website.⁶⁶ While this shows that such withdrawals indeed do happen, it does not communicate who initially held the label and the circumstances behind why it has been withdrawn.

Nevertheless, the fact that OEKO-TEX® comprises five certification schemes and labels and two services highlights a lack of a holistic approach. The existence of various modules allows companies to cherry-pick which issues to focus on: such as certifying the full supply chain or only chemicals in final products, instead of being required to adopt the most ambitious and holistic approach to chemical management across the entire supply chain. Another pitfall of the umbrella label is the confusion about the exact scope and purpose of the different labels, which may suggest that OEKO-TEX® is an ecological, and therefore organic, production certification. Also, further transparency about the retraction of certificates is needed and a more holistic incorporation of the many problems related to synthetic fibres into their assessment, such as microfibre release, is currently missing and would be a welcome addition.

2.2.2.2. Bluesign®



The bluesign® standard aims to improve the management of chemical substances used in the dyeing process by following five principles: air emission; consumer safety; occupational health and safety; resource productivity; and

water emissions.⁶⁷ Any bluesign® system partners can only use approved chemicals and components according to the standards and must submit to on-site tests to verify compliance with bluesign® criteria. Once they meet the high requirements, their products will be awarded the label.

While the standard covers impacts in the entire textile manufacturing chain, with all input streams analysed - from raw materials to chemical components to resources - it excludes transport, usage phase and some parts of the end of life, thus falling short of an entirely holistic approach.

The bluesign® criteria stipulate that brands should continually improve sustainable practices in their supply chain and operations and provide evidence of such improvement to the body.⁶⁸ The criteria stipulate that brands' continual improvement has to be supported by an increased number of suppliers with 'bluesign® System Partner' status, as well as 'bluesign® Approved' chemical products and articles in their supply chain. They also have a programme that sets goals and monitors improvement towards reducing emissions. Based on the audit, partners receive a list of concerns and suggestions for improvements that serves as an ongoing dialogue.

Bluesign® also regularly revises limits and usage bans for chemical substances that are published in the bluesign® system substances list. For a revision of the bluesign® system criteria in 2019, bluesign® extended consultation from system partners, to NGOs, trade associations and various textile industry authorities.

Despite a relatively progressive approach, there is still room for improvement. The standard is only revised every 5 years, as opposed to others - e.g. the EU Ecolabel which is meant to be revised every 4 years or the Global Organic Textile Standard (GOTS), which is revised every 3 years. There is substantial leeway given to partners to decide their own targets, and criteria in the standards are mostly phrased in a toothless manner. For instance, partners *'shall define and monitor their own objectives for GHG emissions reduction. The goal is to reduce GHG emissions by 30% by 2030 (against a 2010 baseline) and reach net zero emissions around 2050'*. This is considerably less ambitious than targets proposed by Stand.earth for the industry to reduce emissions by 55% or greater by 2030 in line with a 1.5-degree pathway.⁶⁹ Furthermore, in the case of non-conformities, corrective actions, including a timetable and recommendations for improvements are given, but there is no information about 1) which certifications had to be discontinued so far due to unresolved issues; and 2) which improvement actions were implemented or not by businesses after non-conformities had been detected and with what results. Greenpeace also stressed in its 2018 review of labels that both the negative list of harmful chemicals and the limit values it assigns could be stricter.⁷⁰

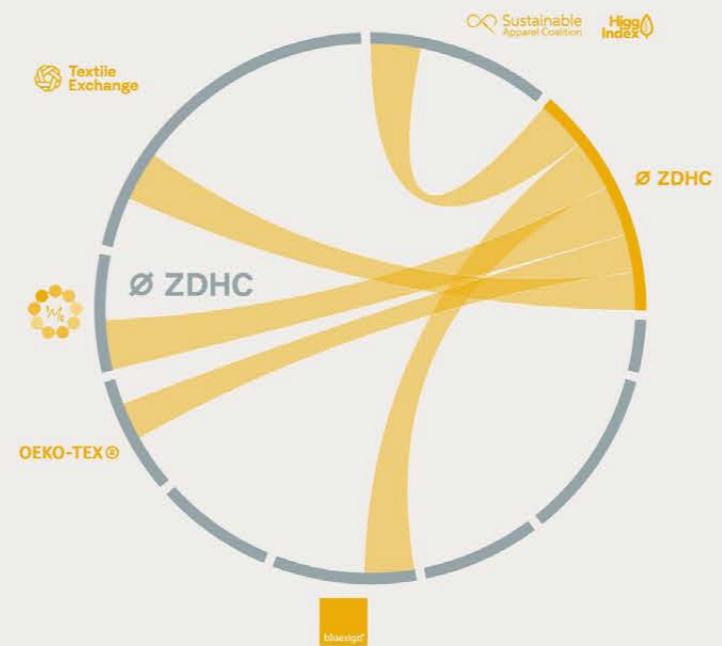
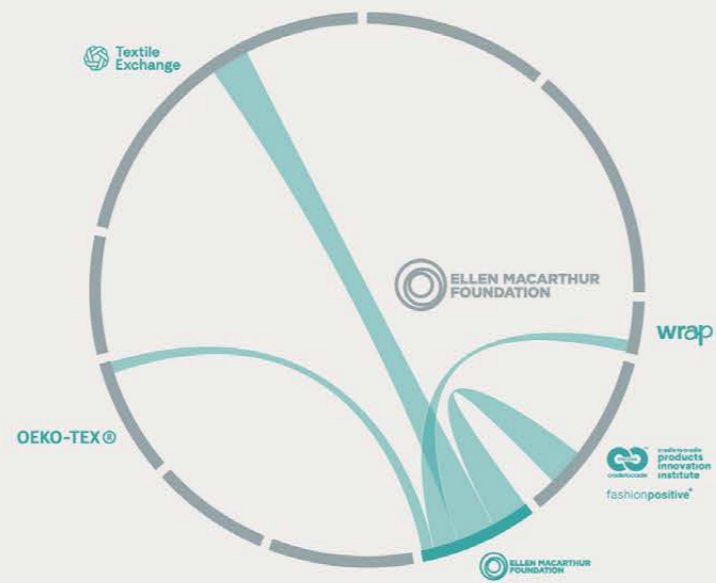
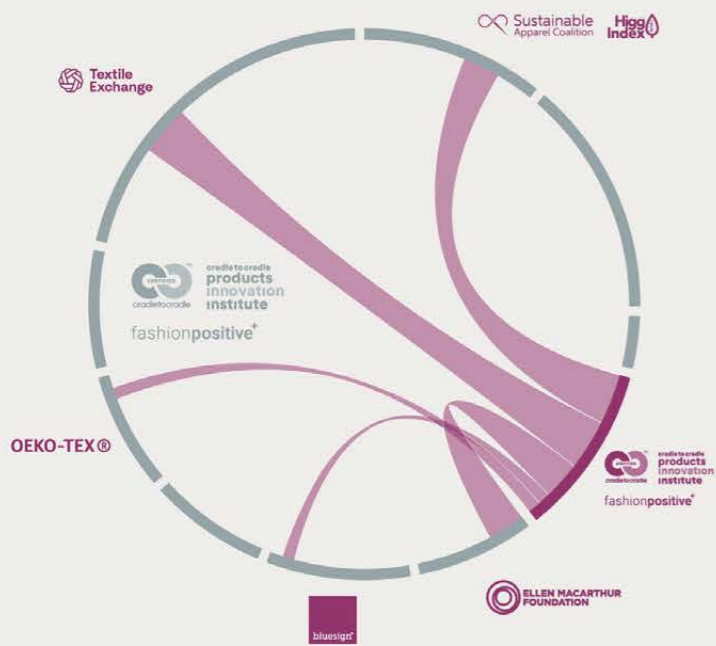
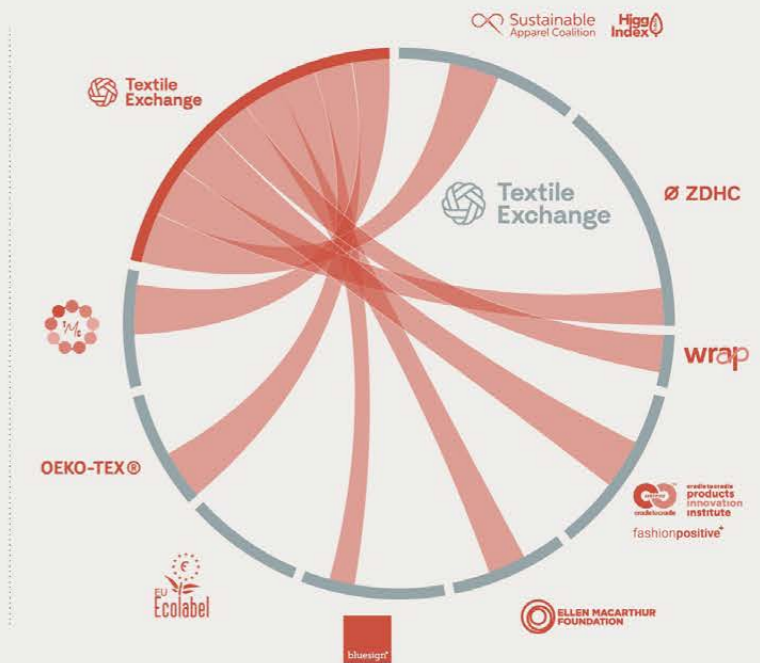
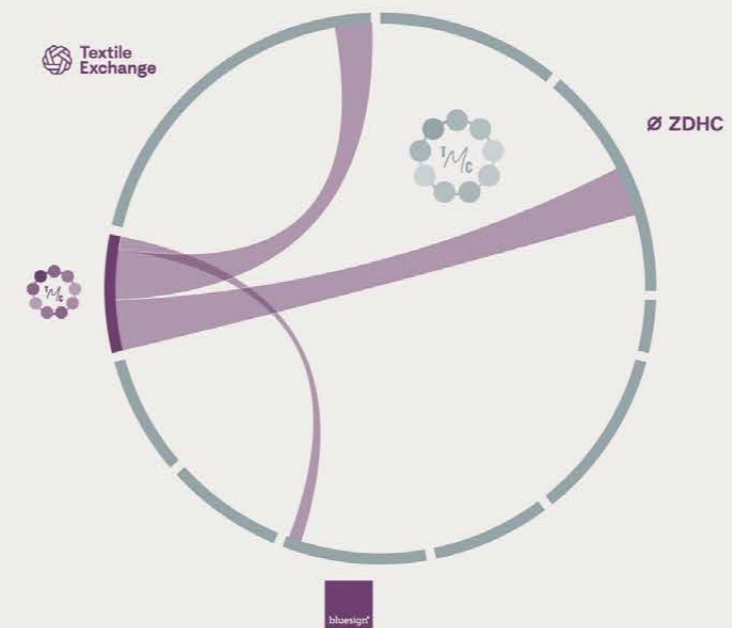
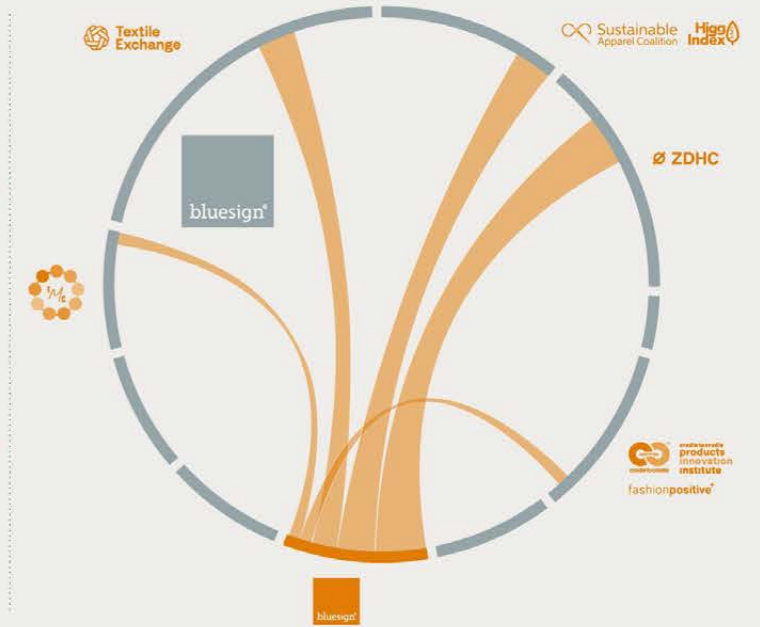
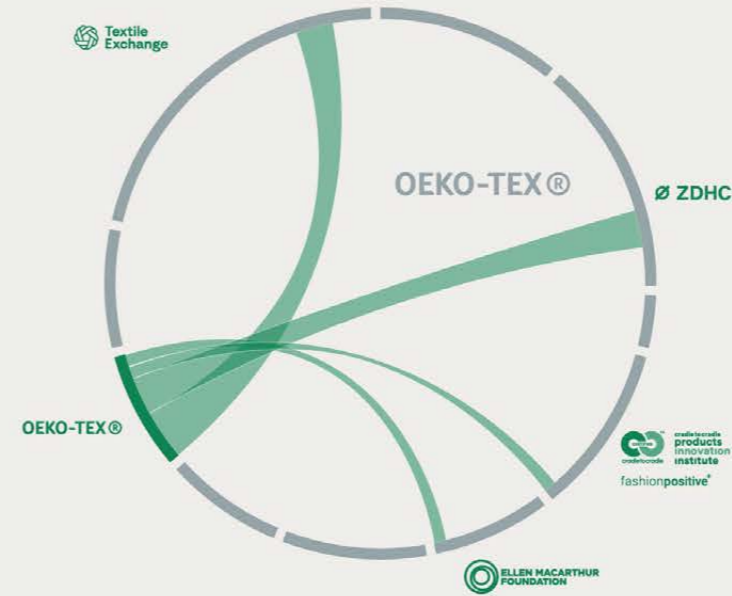
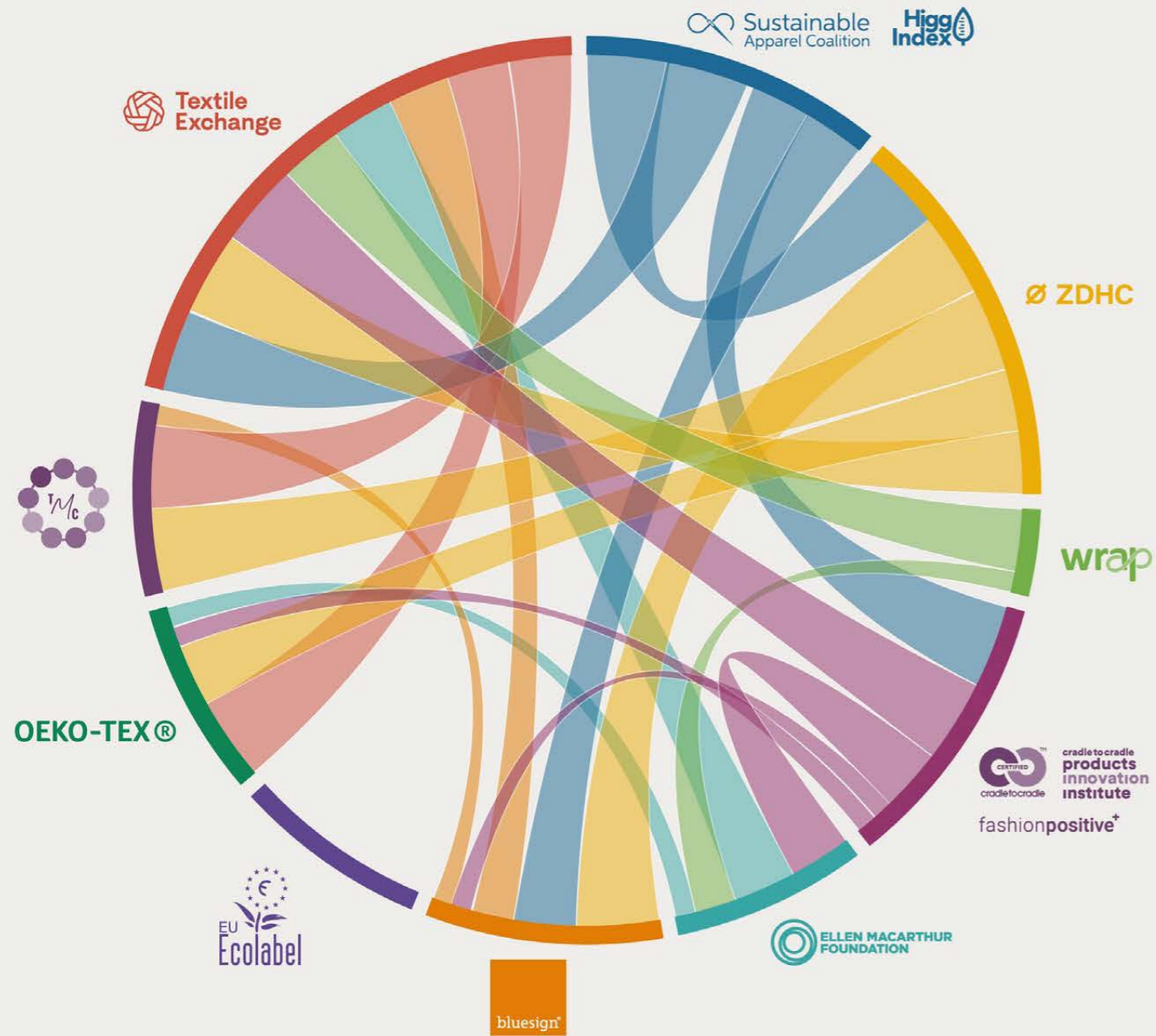
2.2.2.3. EU Ecolabel



Another label with the potential to drive improvement in the sector is the EU Ecolabel. The label, which is identified by the European Commission as a *'label of environmental excellence'*,⁷¹ and which covers the top 10-20% of the most environmentally friendly products within their category,⁷² indicates that this scheme is meant only for the best of class. The Ecolabel defines requirements for environmentally friendly processes along the production chain, for both natural and synthetic textiles. Their criteria guarantee the limited use of substances harmful to health and the environment; reduction in water and air pollution; and colour resistance to perspiration, washing, wet- and dry-rubbing and light exposure. As of September 2021, there were 7,272 clothing and textile products awarded the EU Ecolabel.⁷³

The EU Ecolabel is the only label among the ones analysed that considers the entire life cycle of a product, from design to use to recycling and disposal, and - uniquely among labels and schemes - puts a particular emphasis on the stages where the product has the highest environmental impact. However, even the EU Ecolabel fails to address many of the key issues in the clothing life cycle, such as reusability, reparability and recyclability and stays silent on issues around microfibre release, curbing the fast-fashion model and other end-of-life issues.

CUT FROM THE SAME CLOTH:
HOW ARE THESE INITIATIVES LINKED TO ONE ANOTHER?

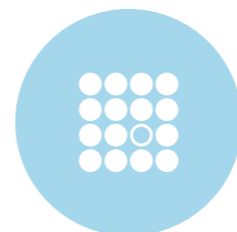


In the revision process, every set of criteria undergoes several rounds of discussion between the stakeholders, which include the European Commission, member states, Competent Bodies and other stakeholders, such as industry and NGOs.

While it is considered a strong label in certain areas, it still has its detractors. The label should, in principle, be revised every 4 years. However, it was last revised in 2014 and further revision has been postponed until 2025. Owing to this delay, the label drives some outdated and false solutions such as promoting downcycling of PET bottles to clothes. Furthermore, its circularity requirements and limits on the use of hazardous chemicals need to be improved, and criteria on water consumption and waste quantities need to be included. Although there is a formal complaint procedure, no information is available on non-compliances, follow-up improvement actions and whether certifications have had to be suspended.

2.3. Independence

As certification schemes and voluntary initiatives serve, in part, to communicate brands' commitment towards sustainability, and therefore also influence their reputation, it is vital that they retain a high level of independence to be able to award certification or membership free from ulterior motives.



2.3.1. Initiatives with compromised independence

2.3.1.1. SAC and Higg Index



The SAC and Higg Index lack independence and are highly interconnected within the industry and to other schemes. Due to the fact the SAC was founded by numerous brands and retailers, these organisations such as Patagonia, Walmart, Nike, Target, Gap, H&M Group and Marks & Spencer (M&S),⁷⁴ continue to have a large presence within the coalition. This is especially the case for Nike, which originally contributed its own MSI to create the Index. The Nike MSI was configured as a material evaluation tool to give scores to more than 80,000 materials available from their network of more than 1,400 suppliers to inform material selection.⁷⁵

The paid membership model offered by the SAC provides members with benefits that include eligibility to sit on SAC Board of Directors and voting rights on critical SAC decisions as part of their 'equal partnership'.⁷⁶ This means that members can pay to exert their influence and pursue their own agendas, which may in the long run derail progress, as outlined in Section 4. This model also favours incumbent businesses with the resources to pay their way into decision-making roles, over smaller brands with alternative models but more limited resources.

From a governance perspective, many brands currently have a heavy presence on the scheme's executive board; at the time of writing this included VF, H&M Group, Walmart and Patagonia.⁷⁷

In addition to its governance structure, the SAC compromises its independence through its myriad of partnerships and affiliations with other schemes. For example, its affiliate members include BCI, bluesign®, Textile Exchange and ZDHC, thereby presenting an opportunity to reinforce each other's position.

The SAC was also one of the founders of the Apparel Impact Institute (AII), yet another industry organisation created to 'identify, fund and scale proven quality solutions to accelerate positive impact in the industry'.⁷⁸ The SAC worked alongside the Sustainable Trade Initiative as well as Target Corporation to create the AII and has brand partners, including Puma, PVH, Gap and Levi Strauss & Co, enlarging its web of influence and interconnectivity.

Most recently, the SAC has launched another industry alliance called the Fashion Conveners alongside the Textile

Exchange, ZDHC and AII. According to an SAC press announcement: 'The alliance was established a year ago as a result of the four organisations coming together to partner more deeply in four key resource areas: Programmes and Tools, Global Implementation, Impact Management and Funding and Administration and Infrastructure'.⁷⁹ The Fashion Conveners have stated that they also want to have firm commitments made among the four organisations to work together to reduce GHG emissions by 45%. However, it is hard to envisage how these goals will be meaningfully addressed given the fact that the SAC fails to address fossil-fuel feedstock reliance and its general lack of transparency.

The SAC's level of influence should raise questions, as they are involved with almost every other scheme or initiative that we investigated. What is more, their constant creation of new modules, alliances and institutes creates a merry-go-round of self-endorsement and an illusion that the fashion industry's numerous problems are being resolved through such initiatives.⁸⁰ However, a closer look reveals that many of these modules are all form but no substance - designed to shield fashion brands from scrutiny. Given the lack of meaningful achievements by Higg and SAC in the past decade, with them even failing on something as basic as transparency, it is questionable whether yet more multi-stakeholder initiatives are the best antidote.

2.3.1.2. Cradle to Cradle



The C2C certification fails to exercise a satisfactory level of independence. The certification was devised by the C2C Products Innovation Institute, an organisation that works closely with brands and retailers in the industry.

The C2C Products Innovation Institute operates as a non-profit and states that its work is funded 'through programme fees and the support of foundations and sponsors',⁸¹ but it does not disclose any details on who these sponsors are or the revenue received annually. More clarity should be given for us to ascertain whether the sponsors in question are from impartial organisations or whether they have ulterior motives.

To gain the C2C certification, the Institute, in a similar manner to other initiatives such as SAC and TMC, sets out a schedule of fees associated with the certification of a product or product group into the programme. These are annual fees based on annual revenues of the corporate entity or individual brand and range from €1,500 for companies with an annual revenue of less than \$10million to an annual sum of €12,500 for those with a revenue greater than \$500 million.⁸²

The Institute discloses that these fees allow the 'C2CPII to provide resources to support certification holders and applicants, including enhanced services and support throughout the certification process, recognition of certification achievements, and access to additional resources and special events',⁸³ although a breakdown of costs is not published.

Creating a certification programme with a paid community model poses a threat to the impartiality of the scheme. It compromises the assessment process as reviewers may be inclined to authorise new products or product groups to increase revenue streams even if they fall short of assessment criteria.

In addition to founding the C2C certification, the C2C Products Innovation Institute founded another voluntary fashion initiative in 2014 called Fashion Positive Plus that was designed to 'design to lead the vision, definition and use of safe and circular materials for the fashion industry'. The initiative received attention during the 2017 Copenhagen Fashion Summit when high-profile names such as the Kering Group and H&M Group joined.⁸⁴

By association, this compromises the independence of the C2C certification. Mapping the stakeholders of the Fashion Positive Plus initiative highlights the interconnectivity of the C2C Products Innovation Institute with

other schemes and organisations that issue their own standards. As of 2020, Fashion Positive operates out of Textile Exchange, which is also a fiscal sponsor.⁸⁵ Additionally, it has a strong affiliation with the EMF, having previously collaborated to create the Circular Design Guide - a manual to 'help designers become better equipped to make positive material choices'⁸⁶ and the website also states that the principles of Fashion Positive Plus are derived from the three main EMF circular economy principles.⁸⁷

What is more, the circular framework devised by Fashion Positive Plus includes many of the schemes that we are investigating and again, illuminates the cross-promotional activity and endorsement taking place. The framework and circular material guidelines encourages the uptake and membership of bluesign®, Canopy, GOTS, GRS, Higg, OEKO-TEX®, RCS, Textile Exchange and ZDHC.⁸⁸ Members of the Fashion Positive Plus initiative include Eileen Fisher, Gap, G-Star RAW, H&M Group, Kering Group, Loomstate, M&S, Mara Hoffman and Stella McCartney.

From a governance perspective, as with the SAC, fashion brands have a stake in the C2C Products Innovation Institute executive decision-making. On the Board of Directors there is representation from Levi Strauss & Co. Similarly, on the C2C Stakeholder Advisory Council, there is currently representation from H&M Group's sustainability department.⁸⁹ These brands in particular are present in numerous boards of the schemes and initiatives investigated and thus highlight a lack of proper independence.

2.3.1.3. Bluesign®



The governance structure of bluesign® is relatively opaque and therefore to ascertain the level of independence, the organisation should increase its level of transparency. SGS Group, a company that inspects, verifies and tests certification services, acquired a 50% shareholding in Bluesign Technologies Group in 2008 and since 2011 has owned 80%.⁹⁰

Bluesign® is financed exclusively by client's fees; however, there is little public disclosure about bluesign® funding in either SGS's Annual Integrated Report⁹¹ or in SGS's Sustainability Report from 2020.⁹² Neither is there any information on the bluesign® website about their team or corporate governance structure. While the SGS Group does publish details of its own Board of Directors⁹³, there is no indication as to who or how executive decisions are being made for bluesign® and whether they are independent from other schemes or initiatives in the industry.

In terms of industry affiliation, bluesign® is well established and is an affiliate of the SAC, listed as a ZDHC 'solution provider,' as well as being a member of the Textile Exchange. It is very closely linked to the ZDHC and in 2019, became a certifier for ZDHC Manufacturing Restricted Substances List (MRSL) conformance.⁹⁴ Bluesign® partners also receive a 20% discount when onboarded with ZDHC,⁹⁵ which leads to further mutual reinforcement. What is more, SGS Group, the owner of bluesign®, is a third-party laboratory member of TMC, highlighting a notable indirect connection.

2.3.2. Initiatives with room for improvement

2.3.2.1. OEKO-TEX®



OEKO-TEX® can be considered as one of the more independent schemes and was created by the International Association for Research and Testing in the Field of Textile and Leather Ecology, a union of 18 independent research and test institutes in Europe and Japan.⁹⁶

It is not afraid to hold paying members to account and there have been compliance outcomes where certifications have been revoked⁹⁷ as outlined in Section 2.2.2.1 on driving high levels of ambition. This is a positive given that, unlike other organisations such as the SAC, it is exercising independence and has not been reticent to criticise paying members of the certification scheme or hold them to account out of fear of alienating them. It is also

positive to note that the international advisory board that guides the OEKO-TEX® steering committee is not dominated by paying brands or retailers.⁹⁸

While fairly independent, OEKO-TEX® is involved with other initiatives that focus on chemical management across the supply chain, including ZDHC. For example, in 2018, the OEKO-TEX® Eco Passport was recognised by the ZDHC MRSL conformance level 3, indicating that the certification meets the ZDHC's guidelines for safer textile chemistries that are also verified as being responsibly manufactured.⁹⁹

OEKO-TEX® is also incorporated into the C2C Products Innovation Institute's Fashion Positive Plus Framework and referenced in the widely distributed *A New Textile Economy* EMA report.¹⁰⁰ Last, it should be noted that the Hohenstein Institute, one of the founding research and test institutes of OEKO-TEX®, is also a member of the Textile Exchange.

2.3.3. Schemes with a high level of independence

2.3.3.1. EU Ecolabel



The only certification scheme investigated that showcases a satisfactory level of independence is the EU Ecolabel. The EU Ecolabel is independent from the other schemes that we have analysed, with no affiliation to specific brands in the industry. Although still voluntary, it is implemented through Regulation EC 66/2010 of the European Parliament and of the Council. Unlike other schemes with paid membership fees that provide eligibility to positions of power, the EU Ecolabel fees are established by the EU Ecolabel Competent Body.¹⁰¹ Fees are transparent and reflect administration burdens. There are also caps and a maximum annual fee for the use of the EU Ecolabel, signifying that this is more than just a revenue-generating operation. It is worth noting that the EU Ecolabel is not used by any brands that we assessed and has very little overlap with other initiatives and certification schemes (Figure 2.1).

2.4. Transparency

Transparency is a fundamental pillar of sustainability. You cannot manage what you do not measure and you cannot be held accountable for what you do not reveal. Particularly in the case of certification - where external stakeholders, including members of the public and policymakers, often have little more to go on than an assumption of the scheme's integrity when it makes sustainability claims - transparency on compliance, methodology, performance and progress is paramount. Many of the schemes assessed communicate widely, but seem to mistake publicity and the possibility to communicate for transparency. Transparency, however, is not just about communicating your or your members' successes if, when and how it pleases you. It is about a commitment to systematically share information even when this information is at times showing a lack of progress or even backsliding. Increasing transparency around supply chains and materials used by fashion brands is also really important for the sake of accountability.

It is worth noting that, although we profile a few of the most significant pitfalls below, no scheme lived up to the highest levels of transparency, with a common theme being a lack of transparency on corrective actions, retracted certification and member non-compliance. Herein lies the paradox of transparency for voluntary schemes. If an initiative is reluctant to criticise its members or hold them accountable for fear of alienating them, then who is the scheme really for?; societal good or the reputation of corporate members? Given the heavy involvement of corporate members in the establishment and development of these schemes, they also serve the function of shielding their members from scrutiny. We can see the knock-on effect of this in the conspicuous lack of disclosure of basic things like suppliers, material percentages or reporting disaggregated scoring - lack of transparency is a choice, not an oversight.

2.4.1. Initiatives with transparency issues

2.4.1.1. SAC and the Higg Index



Increased transparency from the initiative has been announced on multiple occasions, yet so far, concrete implementation is missing. In 2016, a *Higg Index Roadmap to Transparency* was supposed to be launched,¹⁰² which would allow members to roll out previously confidential Higg Index scores to the general public.¹⁰³ Earlier versions of the *Higg Index Communications Manual* also refer to this roadmap,¹⁰⁴ with 2020 put forward as a deadline for full public release of the Higg Index. Yet, SAC webpages that should be mentioning this, seem empty¹⁰⁵ or do not exist anymore¹⁰⁶ and the 2019 version of the *Communications Manual* no longer mentions the roadmap.¹⁰⁷ At the same time, new transparency measures were announced. A website dedicated to Higg Index transparency (transparency.higg.org), was meant to launch in beta version in 2019.¹⁰⁸ However, at the time of writing (in March 2022), the given URL just redirects users to an undefined login page.¹⁰⁹ Media coverage of the transparency roadmap from 2016 reports that the roadmap was to release data from the brand and product tool in 2019 and 2020 respectively. At the time, Jason Kibley, the CEO of SAC commented: *'We are in a position to provide a standardised, comparable way for the Higg scores to be used in public so data can all be used and interpreted in the same way.'*¹¹⁰ Yet, despite promises, in 2022, these data have still not been released to the public.

Furthermore, and without it being clear whether this relates to the Higg Index transparency website, in October 2020, the SAC and Higg Co - the technology company behind the Higg Index, spun out of the Sustainable Apparel Coalition in 2019¹¹¹ - proposed a new Open Data Portal that had been expected to launch in 2021.¹¹² This portal *'promise[d] to offer open access to credible, comparable and contextualised data behind the social and environmental sustainability claims about products by global brands, retailers and manufacturers.'*¹¹³ However, so far, as of March 2022, no such portal is publicly available. While the SAC website has no integrated search function, a general internet search for *'Higg'* and *'open data portal'* presents us with many out-of-date articles announcing the portal¹¹⁴ and even two concept images of the portal are shared by Higg Co;¹¹⁵ however, none of the results connect to an actual website. The URL <https://portal.higg.org/> does exist, but considering that a login and password are needed and you have to register as a company, this portal arguably is not open or transparent.

Finally, in a blog post, Higg stated that: *'as 2020 nears, we get closer to the SAC's vision of full Higg Index transparency'*,¹¹⁶ whereas the Higg Index's main webpage tells us that they are *'on a journey toward full product transparency'* which *'[b]y 2025 [aims] to have all SAC members participate in public-facing ratings of sustainable performance that are credible and trusted.'*¹¹⁷ To meet this goal, in May 2021 they *'launched the first phase of a transparency programme for publicly sharing data on a product's environmental impact, starting with its materials content.'*¹¹⁸ This programme *'enables brands and retailers to provide information on a product's environmental impact [...].'*¹¹⁹ As part of this programme, the *Higg Index Sustainability Profile* and the *Higg Index Materials seal* were launched. However, currently only Amazon, Boozt, C&A, Calvin Klein and Tommy Hilfiger, Columbia Sportswear, H&M, Helly Hansen, JustWears, Lenzing AG, Norrona, PUMA, Salomon and Zalando are part of the programme and even then, only for a selection of their products. In general, *'members are not required to participate in the programme at this stage.'*¹²⁰ It is not clarified whether and when this would change. So, until further notice, the programme remains voluntary and only applies to products that members themselves select.

Considering all this, the SAC seems to confuse *transparency* with *publicity*. It may well be *'developing a framework and standard for Higg Index performance publication, communication, and marketing use'*¹²¹ and *'[launch] performance communication toolkits and guidelines [...] [to] enable members to publicize their verified data through press materials, social media, web content and related collateral'*,¹²² however, this does not mean that these members have to publicize their data. On the introduction pages for the different tools on the Higg Index website, under the headings *'Transparency'*, we indeed find that companies or facilities are able to share (verified) scores (in accordance with communication guidelines). But as this is not mandatory, they may also decide not to do

this - giving an illusion of transparency. As discussed, currently, the newly launched transparency programme does not change this. This results in a likely reporting bias in which only companies with good environmental performance communicate their scores and those with something to hide can remain hidden - a flaw that has not changed since we launched *The False Promise of Certification* in 2018.

Thus, while paying lip service to the importance of transparency, the SAC seems to have continuously moved the goalposts of its actual implementation without explaining why. Also, at present it has a notably casual definition of *'transparency'* as an option to communicate, not an obligation, in this way contributing to the elusive transparency in the apparel sector it is claiming to denounce.¹²³ In light of these observations, claims about the Higg Index's focus on transparency and how it allows brands to improve their practices in a variety of areas are at best premature.¹²⁴ Rather, the Higg Index's ongoing inability to live up to its own transparency promises continues to limit its effectiveness in driving action and change¹²⁵ and harms the credibility of the standard.

Honing in on the supply chain, the SAC launched their Transparency Programme in May 2021 citing that: *'Transparency is essential to driving systemic change for a healthier planet and is one of the four core focus areas in the SAC's new strategic plan.'*¹²⁶ This programme, focuses exclusively on assessing the cradle-to-gate environmental impact of a product's materials, yet the organisation claims that the programme establishes a *'much needed consistent framework that allows companies across the industry to speak the same language and enables shoppers to make purchases based on trusted data'*,¹²⁷ but how can this framework be truly effective if it does not cover the end to end of the supply chain?

More positively, as outlined in section 2.2 of the report that evaluates the ability of schemes to drive improvement, since 2020 the SAC has worked to increase the transparency of the FEM and improve environmental management across the supply chain through its integration with the OAR. This platform enables supply-chain partners to assess a facility's sustainable performance data via their unique OAR IDs.¹²⁸

Also from a supply-chain transparency perspective, the SAC launched its Traceability Programme in September 2021, described as a global collaboration to *'fast-track global brands' efforts to track the hidden impacts within their manufacturing processes, ensure fibre integrity and to understand, communicate and accelerate product sustainability'*.¹²⁹

Through collaboration with innovation partners such as FibreTrace, the organisation is onboarding end-to-end tracking and solution providers onto the Higg platform to connect their users and bring a chain of custody. This offers hope for the SAC's supply-chain transparency efforts, given that FibreTrace technology is implemented at the raw fibre source, traces and verifies fibre throughout the global supply chain and collects primary farm data that are verified by a third party.¹³⁰ Such a level of increased due diligence is a welcomed step for the SAC, which has stated that: *'With the onset of new digital traceability technologies, we are poised to create more intelligent supply chains that track, trace and authenticate every stage of the manufacturing process - from raw materials to the finished products on retail shelves.'* Like other schemes, technology is being leveraged as an enabler for supply-chain transparency; however, it is too early to tell whether this is all talk and to what extent it will bring about mass change.

Overall, broad-termed and unsubstantiated statements such as those cited above are frequent in the SAC's communication, but seeing through the slogans and rhetoric on web pages, documents or blog posts filled with very lengthy explanations and declarations, is a marathon task and seems wilfully confusing. As to the underlying data, in a recent podcast, Cash East, Director of Analytics at Higg Co said with regard to the Higg MSI that: *'We welcome criticisms of our data [...].'*¹³¹ However, to be able to criticise data, you first have to be able to see and access them. They are accessible on the Higg website; however, to do so, you need to register as a company and create a login. For other tools, underlying data do not seem to be publicly available. Access to the Higg Index suite

of tools is said to be 'open to all', yet, if you are not an SAC member, you have to pay for the modules you would like to use.¹³² Although available information is confusing about whether and how this applies to all modules, at least the Higg FEM,¹³³ Higg FSLM,¹³⁴ and the newly created Higg PM¹³⁵ have to be purchased. This barrier to accessing underlying data hampers the public's ability to really understand what assessments are based on and how evaluations are done. More specifically, it hinders the possibility for everyone who is not a member of the SAC - including academics, journalists, NGOs and policymakers - to consult and assess the data and ultimately to assess whether the initiative is robust enough to justify its existence and what progress its members are making.

2.4.1.2. Cradle to Cradle



C2C presents us with another example of swamping the public with an abundance of information without creating transparency in the process. A general visitor to their website is able to quickly grasp and understand what the scheme is and how it works, but things get hazy when more detail is sought. Despite the countless documents and web pages available, we are still left in the dark on critical issues that would help assess the scheme's credibility and stance on important issues relating to synthetic fibres and the reliance on fossil-fuel feedstocks.

An assessment by Eunomia¹³⁶ acknowledges that the standard has 'historically been criticised for a lack of transparency' and this seems to still be the case. Beyond the slogans and inspiring rhetoric, there is very little specific detail on ambition, requirements, assessment procedures, achievement levels and the underlying scientific basis of the certification levels.

What is more, within the C2C-Certified, version 4.0 Product Standard document, there is little emphasis on supply-chain disclosure or transparency. It touches upon transparency in regard to GHG emissions data requiring that: 'Greenhouse gas emissions data are available to stakeholders, demonstrating the manufacturer's commitment to protecting the climate'¹³⁷ and also in relation to stakeholder engagement and governance but there is no application directly for disclosure on material impact.

2.4.1.3. ZDHC



In *False Promise*, we pointed out that ZDHC can only become a truly effective tool for driving sustainability by making publication of all assessment results mandatory.¹³⁸ This problem persists. With regard to ZDHC's evaluation of chemical substances, we are told that this is a transparent process.¹³⁹ This is only partially true. Indeed, information can be found about the MRSL,¹⁴⁰ about procedures and principles according to which this list is updated¹⁴¹ or about how the MRSL can be implemented;¹⁴² however, information about actual assessment results remains limited. Some general information about results is presented in the annual reports¹⁴³ and in the *ZDHC Impact Report*;¹⁴⁴ however, the website where these results are actually published in more detail - the *ZDHC Gateway* - is not open source. Access to this platform is only possible for registered users and on its main page there is no information about who can register, where and how.¹⁴⁵ Through further investigation, we found that only member companies can register.¹⁴⁶ That means for instance, that the 4,000 wastewater test reports published on ZDHC Gateway that we are informed about¹⁴⁷ are not openly accessible. In June 2019, ZDHC also launched a *Public Disclosure Portal*. This portal we are told 'builds on the ZDHC Wastewater Guidelines by providing clear public information on conformance';¹⁴⁸ however, in reality, 'in the Public Disclosure Portal, the name of facilities is not disclosed and their exact location is limited to a regional level'.¹⁴⁹ On the portal, testing data are presented in an anonymised and aggregated manner.¹⁵⁰ Only '[by] comparison via the ZDHC Gateway - Wastewater Module, ZDHC contributing brands and retailers enjoy full visibility'.¹⁵¹ This begs the question whether wastewater assessments, potentially providing information on pollution, should be something that only companies are privy to or whether the public should also be able to access this information. It could provide critical information to communities living in the vicinity of those factories, but ZDHC is mostly there to serve and defend the industry.

In our first report we pointed out that ZDHC standards did not include man-made cellulosic fibre. This has now changed and we have been informally and formally engaging with ZDHC to ensure that their guidelines are in line with our *Roadmap on responsible viscose and modal manufacturing*. We have highlighted several shortcomings that persist, such as a lack of incentive for improvement.¹⁵² This applies to the ZDHC programme overall. Companies can publicly share information on the conformance level they obtained,¹⁵³ but at no point does this seem mandatory. The ZDHC *MRSL Conformance Guidance* says nothing about this and no other information is available. As for wastewater, the relevant guidelines merely inform us that test results have to be reported to the ZDHC Gateway - Wastewater Module,¹⁵⁴ which is only accessible for registered companies, hence the results published there are not really publicly available. The lack of transparency about assessment results and conformance levels hinders these tools being used for continuous improvement.

Last, through its 2020 Impact Report, ZDHC emphasises its goals to increase transparency throughout the value chain with dedicated sections to the topic. It sets out how the use of technologies such as electronic data reporting and integrated application programming interface (API) technologies have created equal access to important data across the supply chain on important performance such as suppliers' wastewater tests.¹⁵⁵ Like the SAC, the ZDHC integration with the OAR facility identifier has been carried out with the aim to increase transparency within the supply chain and share data openly.

2.4.1.4. WRAP



One of the upgrades of Textiles 2030 in comparison with the SCAP is that interim outcomes are published by the end of 2022, 2025 and 2030, which gives a clearer indication of how signatories are progressing. However, WRAP will still report the collective progress of signatories against the targets, so individual progress remains - similar to the SCAP - non-transparent. Thus, despite the requirements for signatories to share information and reporting with each other, this is not open source and therefore the usefulness of the initiative for true accountability is reduced.

Supply-chain transparency is a critical enabler of the three main goals of WRAP's Textiles

2030; design for circularity, implement circular business models and close the loop on materials. Yet, rhetoric about disrupting the take-make-dispose model, should also emphasise that transparency is an essential part of this. It is surprising to find that there is no mention of the need to increase supply-chain transparency or disclosure in the Textile 2030 Circularity Pathway Document.¹⁵⁶ The Initiative's Circularity Roadmap stipulates that signatories should 'commit to build their visibility of their supply chain to facilitate engagement on sustainability goals, and demonstrate they are implementing good practice for responsible supply chain management';¹⁵⁷ however, this is non-binding and clear metrics on how responsible management of the supply chain could be measured are not included.

2.4.2. Initiatives with room for improvement

2.4.2.1. EU Ecolabel



Every 4 years on average, the scheme's criteria are revised to reflect technical innovation as well as factors such as emission reduction and changes in the market. Because of this, the EU Ecolabel is said to stand for the highest level of environmental performance. Although only invited stakeholders can participate in the standard-setting

process, every set of criteria undergoes several rounds of discussion between these stakeholders before a decision is reached by a simple majority vote. However, the ecological criteria for the product group 'textile products' and 'footwear' and the related assessment and verification requirements were due to expire end of 2020 and August 2022 respectively, but the European Commission extended their validity until end of 2025.¹⁵⁸

Moreover, whereas there is a formal complaint procedure for the label, no information is publicly made available on non-compliances, follow-up improvement actions and whether or not certifications have had to be suspended. Despite the scheme being mandated by the EU, there is clearly room for improvement regarding disclosure and transparency.

It is worth noting that in a document published in December 2020, the Strategic EU Ecolabel Work Plan from 2020 to 2024 does not make any specific reference to supply-chain transparency¹⁵⁹ – a missed opportunity given that the label takes into account the whole life cycle of a product and is meant to be championing 'transparent ecological criteria'.¹⁶⁰

2.4.2.2. Ellen MacArthur Foundation



Through documents such as the *New Textiles Economy* report, EMF outlines the importance of transparency throughout the supply chain, stating that:

*Enhanced knowledge, transparency, and accountability must be built in throughout the supply chain to ensure that better quality can be pursued as a goal. This will enable a shift in focus throughout the processes of design, sourcing and construction to create garments that last and can easily be repaired.*¹⁶¹

The organisation focuses on the benefits of supply-chain transparency to encourage increased adoption of recycled materials in the industry by helping to match supply with demand and improvements it can make to the textile recycling system on the whole noting that '*transparency on the materials flowing through the system is key to improving recycling rates*'.¹⁶²

While the NPE report mentions the need to increase transparency on material specifications and compositions, there is no explicit referral to encouraging supply-chain disclosure on these issues, only general guidance, with casual '*should*' language, which does not stress the importance of the issue to members nor hold them accountable to improving levels of transparency on this. For example:

*Following the precautionary principle, this research should be complemented, by enhancing transparency on the material content of plastics and plastic packaging as well as by focusing innovation on replacing substances of concern with harmless alternatives that have similar or even better functionality and costs.*¹⁶³

Similarly, the EMF's Jeans Redesign guideline highlights the importance of traceability and transparency of material composition and provides a definition of transparency for readers. However, it does not elaborate anywhere in the guidelines about supply-chain disclosure. On transparency, it states: '*Realising it will require collaborative efforts by industry and government, significant investments, large-scale innovation, transparency and traceability*' with little further expansion on how to move from realising to action. In the *Circular Design For Fashion* book, the organisation reiterates the importance of transparency, stating that:

Even when the supply chain can be traced back to the source, there is often little information shared about each stage of the process, for example the working conditions of factory employees or the safety data on dyes and finishing treatments.

It endorses technology such as radiofrequency identification (RFID), blockchain and DNA tagging as an enabler that can encourage transparency to eliminate poor and unsafe working conditions or the negative environmental impacts of supply chains.¹⁶⁴ However, EMF does not oblige brands to be transparent about their supply chains.

2.4.3. Initiatives going in the right direction

2.4.3.1. Textile Exchange



The Textile Exchange has made good efforts to address supply-chain transparency through its range of standards that have a large emphasis on a chain of custody.¹⁶⁵ This is a promising step to remove opacity throughout the value chain and verifies the path from the input material to the final product, as well as giving assurance that fibre content claims on organic and recycled materials are accurate.

It also underscores the importance of transparency and traceability across the supply chain through its reports, webinars, conferences and adoption of technologies to drive new programmes. For example, it notes that: '*The ability to map the materials value chain is not only critical for due diligence but core to tracking progress towards Textile Exchange Climate+ strategic direction and the Sustainable Development Goals*'¹⁶⁶ and calls out shortcomings to date, citing a 2019 UNECE study that found that a mere 24% of companies track and trace their value chains, of which half have visibility only up to their immediate suppliers.¹⁶⁷

With an overarching goal of increasing traceability at all stages of the supply chain, it has put words into action with the launch of Trackit – the Textile Exchange's traceability programme, which has two avenues, Digital Trackit and Electronic Trackit. This programme uses the infrastructure of Textile Genesis, a blockchain company, to aggregate and centralise certification data and track the volume of certified material of each product across the entire value chain. Textile Exchange is rolling this out to the GRS and RCS first, which means that it could be used to track the provenance of recycled materials, especially synthetics. However, although this is a great step towards traceability, there is no indication that participating companies will be obliged to publish the supply-chain data, reducing its effectiveness as a tool for increased transparency.

2.5. Performance

The faith placed by the market on voluntary initiatives and certification rests on their ability to create sector-wide transformation without the need for regulation or government intervention. Even if schemes were to set a high level of ambition, it is another thing entirely to fulfil those objectives and to be transparent about what is directly attributable to the scheme's work.

2.5.1. What have these initiatives achieved?

Across the board, there is an overwhelming absence of independent information reviewing what this group of schemes and initiatives have achieved to date. These organisations may publish their own progress reports, such as the SAC's '*A decade in review*' or WRAP's evaluation in the '*SCAP 2012-2019 progress report*'; however, few third-party publications or academic papers have rigorously examined the achievements of these initiatives. For example, while a recent study evaluating the impact of the SAC's Higg FEM on apparel factories environmental performance exists,¹⁶⁸ given the continuous introduction of new tools, guidelines and ambitions introduced by the SAC, the findings and recommendations from such a study may quickly become outdated. Due to the scarcity of unbiased information about performance this section offers an up to date critical analysis of what these initiatives have in reality accomplished since their inception.



2.5.1.1. Cradle to Cradle



Part of C2C's poor performance is its historical lack of transparency; similarly to other big schemes it presents the public with lots of documents to read without actually creating any real transparency about the scientific basis of their requirements, assessment procedure and certification levels.

Furthermore, it does not elaborate on how its level-based approach actually makes a difference, nor how it would create more tangible change compared with a simple pass/fail certification system. The fact that it does not report if and how products improve over time by reaching higher levels does not help. Nor does it present any circumstantial proof about how the whole programme actually contributes to any real environmental and social improvement.

Finally, the fact that the whole programme does not say anything about synthetic fibres, while at the same time attributing gold certificates to products containing such fibres without any argument or explanation why, is highly telling in this regard.

2.5.1.2. WRAP



According to WRAP, the value of being a SCAP signatory is demonstrated in the reductions of carbon, waste and water footprints achieved, over and above those seen for the UK as a whole. While the scheme reports some limited success stories on its website from Tesco, M&S, Primark and Whistles - ranging from shifting to BCI cotton, recycled polyester and achieving lower carbon and water footprints, at its own admission it states that: *'Much of the progress towards the carbon, water, and waste targets is from external factors, including changes to the fibre mix driven by market prices or fashion, rather than the improvement actions.'*¹⁶⁹ Most of the improvement for the carbon footprint comes from external factors and not improvement actions. Improvement actions (including use of more sustainable cotton, collecting garments for reuse and recycling and introducing lower-impact factory processes such as lower-impact dyeing technology) accounted for around 2% of the 15% reduction in per tonne carbon footprint.¹⁷⁰

The waste targets across the product life cycle (3.5% reduction by 2020) were not met, totalling only a reduction of 2.3% in 2019 on a 2012 baseline.¹⁷¹ The waste footprint included disposal along the supply chain and at the end of the primary-use phase. The reasons for this limited progress on waste are difficult to track; however, changes to SCAP signatories' fibre mix since 2012 have made the biggest contribution to the reduction. Waste-to-landfill targets (15% reduction by 2020) were also unmet (14% reduction by 2018), likely because of the apparent increase in clothing consumption. Clothing disposed of by UK households and sent to landfill and incineration has reduced by only 4% compared with 2012.¹⁷² Improvement actions have not significantly affected the waste footprint of signatories and it is disappointing that even an unambitious waste reduction target was missed.

2.5.1.3. Higg Index



Higg makes grand statements about its progress over the past decade and the transformation it will create.¹⁷³ However, it does not present a single concrete, on-the-ground example of how any real improvement in the apparel sector has been achieved thanks to Higg, nor how any of these promises of potential are going to be implemented and how this progress will be measured.

Despite its wide influence and position in the fashion industry and 10 years of existence, it has not delivered substantive change.

However, when SAC talks about its own past performance, empty words abound once more. The focus of their progress report is on future goals, without listing any achievements thus far. We are told that the SAC's work: *'will benefit the health of our planet and the well-being of individuals and communities'*;¹⁷⁴ that Higg Index tools: *'will [...] drive industry change through collective action'*;¹⁷⁵ or how they *'will unlock industry-wide transformation in sustainability'*.¹⁷⁶ Yet, for none of this is a *'comprehensive report detailing the organization's first decade of bold progress'*¹⁷⁷ available nor does it give the slightest information about how these goals will be reached in practice, how any progress will be measured and what the organisation has achieved in the first 10 years. In that sense, it is not clear in what way this document presents a *new strategic plan* - a way it is often referred to. Besides, while they talk about *'bold progress'* and the *'drivers'* they unleashed *'to reduce environmental impact and increase social justice'*,¹⁷⁸ the whole document does not present any examples of a concrete on-the-ground improvement in the apparel sector over the last 10 years and even less how it would have been brought about by the Higg Index.

Yet the SAC continues to bring out new initiatives, such as the RESET carbon project in February 2022, confusing a profusion of projects for progress. Notably, this latest project encourages brands to "nominate" their manufacturers to participate in the programme - another voluntary, toothless scheme.¹⁷⁹

2.5.1.4. OEKO-TEX®



As set out earlier in this report, OEKO-TEX® is one of the few schemes that delivers on what it promises.¹⁸⁰ Although not a comprehensive environmental assessment when it comes to harmful substances and chemicals in apparel products and production facilities, its *Detox to Zero* programme is considered by Greenpeace to be the strictest and most comprehensive on the market.¹⁸¹ And, according to their assessment, *Made in Green* has become a strict standard for textile production and final products.¹⁸² As such, it showed improvement in performance in comparison with an earlier Greenpeace assessment from 2014.¹⁸³ Its scope is limited by design, however, and as such it cannot be credited with instigating any sector-wide transformation.

2.5.1.5. EU Ecolabel



According to an assessment conducted by Siegelklarheit, the EU Ecolabel has a system for measuring the impact and progress with regard to its sustainability goals but it is only available on request,¹⁸⁴ making it hard to evaluate performance to date. An analysis by Greenpeace mentions that the list of banned chemicals is quite extensive, but the limits are weaker than in other textile standards and for the final products, only a few laboratory tests are required by the EU Ecolabel.¹⁸⁵ The Wardrobe Change Coalition finds in its recent report that the EU Ecolabel is one of the most ambitious textile schemes available (apart from Nordic Swan and Blue Angel - national ecolabels).¹⁸⁶ Another analysis by ECOS showed that the EU Ecolabel is a comprehensive instrument regarding durability requirements but lacks requirements on reusability, repairability and recyclability.¹⁸⁷

There are some concrete success stories, with the caveat that these have been written by the companies themselves on the EU Ecolabel website. Among these, since 2013 only two relate to textiles and one to footwear. For example, compliance with EU Ecolabel required Danish upholstery fabric manufacturer, Gabriel, to demonstrate implementations of best available technology in energy efficiency, such as the installation of heat-recovery systems, efficient burner systems and replacement of overflow washing with drainage/inflow washing.¹⁸⁸ This pushed the company to shift most of its energy-heavy production to use more renewable energy to lessen climate impacts and reduce the water and energy consumption per unit produced. Finally, by using fewer chemicals, Gabriel has been able to reduce both its use of water and electricity by about one-third.

In summary, the EU Ecolabel is a step into the right direction, but like any other label, the EU Ecolabel is not perfect and should not be a substitute for better mandatory standards across the industry.

2.5.1.6. ZDHC

Ø ZDHC

At its launch in 2011, the stated aim of the ZDHC initiative is to 'lead the apparel and footwear industry towards zero discharge of hazardous chemicals for all products across all pathways in our supply chains by 2020';¹⁸⁹ however, the initiative's annual reports show us what has become of this initial ambition.

In 2013 we were assured that ZDHC was 'eager to continue this momentum, taking on known and unknown challenges and pushing towards zero discharge. Our 2020 goal is ambitious but attainable'¹⁹⁰. Later in 2014, we were reassured that '[w]ith commitment, innovation and collaboration, the ZDHC Group and its key stakeholders accomplished major milestones on the path towards the 2020 zero discharge goal'.¹⁹¹ By 2015, however, although there is continued mention of the zero-discharge goal, the deadline of 2020 has been mysteriously dropped without explanation. Notably, even where the 2011 roadmap is mentioned, the goal is now a vague future time horizon; the 2020 goal is not referenced again.¹⁹²

While it is a positive step that the scope of the Roadmap to Zero Programme has extended to include the production of man-made cellulosic fibres¹⁹³ and there is a vague recognition that ZDHC '[hasn't] accomplished everything [they] set out to achieve back in 2011',¹⁹⁴ it would increase the credibility of ZDHC if it more openly communicated about its missed 2020 target, including why it did not reach its initial goal, how it will remedy this in the future and what its new time horizon is.

In short, from a performance perspective, while ZDHC has certainly been successful in gaining members from across brands, chemical companies and other certification bodies, including BASF, C&A, H&M Group, LVMH, OEKO-TEX® and the SAC,¹⁹⁵ a lack of mandatory requirements and transparency – including honesty about its own missed targets – hinders performance. ZDHC should consider increasing the ambition and coverage of chemical management and creating stricter requirements for participating companies.

BOX 2.1: Compliance and verification

Verification is an essential component of establishing accuracy, credibility and transparency when it comes to certification schemes.

Third-party audits, credible scientific assessments and screenings can bring a clearer understanding of where companies are falling short in their commitments and failing to comply with the scheme's stated objectives. Any assessment of factories or suppliers should be managed in consultation with workers and local communities.

From a governance perspective, the benefits of independent verification can instil credibility in a given scheme. Validating data can have a subsequent advantage of helping to inform the most appropriate corrective action and encourage a higher standard of reporting from companies that more accurately identifies progress towards a scheme's overarching goals.

These actions are a powerful mechanism to encourage members to share high-quality data and to prove they have nothing to hide to enhance the credibility of their products and underscore their commitment to rigid environmental and social due diligence.

A clear and publicly disclosed process for engagement with, and possible removal of, non-compliant members should be published. A clear and accessible grievance procedure should be in place to allow workers, local communities and other actors to report concerns without fear of recrimination.

Example of good:



- **OEKO-TEX®:** To verify continued compliance with the required limit values, OEKO-TEX® testing institutes carry out control tests each year for at least 25% of all issued certificates. In this context, products from preliminary stages

are tested and the testing institutes randomly purchase OEKO-TEX®-certified products from retailers and test these in their laboratory. Additionally, independent auditors commissioned by OEKO-TEX® conduct unannounced site inspections yearly.¹⁹⁶ To ensure continued compliance with the requirements of Sustainable Textile Production (STeP) certificates, OEKO-TEX® carries out unannounced visits in the production facilities on site. It should be noted though that OEKO-TEX® only refers to toxic chemicals, so other issues may not be reported/detected in these audits.

Examples of okay:



- **EU Ecolabel:** Each state of the European Economic Area designates a Competent Body, an independent and impartial organisation that implements the EU Ecolabel scheme at national level. They assess applications and award the EU Ecolabel to products that meet the criteria set for them. They are responsible for ensuring that the verification process is carried out in a consistent, neutral and reliable manner by a party independent from the operator being verified. The Competent Body can also request documentation and visit the holder's premises.¹⁹⁷

The EU Ecolabel textile products user manual¹⁹⁸ describes that where required by the criteria, declarations and laboratory testing results need to be provided by fibre manufacturers and feedstock suppliers. For instance, on the issue of recycled content, documentation must be provided that traces the recycled content back to the reprocessing of the feedstock. This evidence must be verified by feedstock suppliers and re-processors or independent third-party certification of the chain of custody. The label's criteria are supposed

to be revised periodically; however, there has been a long delay since the last revision deadline and the next is not expected¹⁹⁹ until 2025 – a hiatus that undermines the label's relevance. The scheme has also been criticised regarding the controls and site visits that are sometimes replaced by a company's written statement and self-assessment.²⁰⁰

- **Bluesign®:** This starts with an audit at the textile company and the chemicals used are evaluated according to a three-colour ranking. The second step is screening over a whole production year to determine, according to the chemicals used, where there is a need for change. The third step is implementing all necessary adjustments for an environmentally friendly production and finding further potentials for improvement. Only at this point does bluesign® start with product certification. Re-screenings and re-audits are required every 3 years to ensure the bluesign® standard continues to be met. Bluesign® states that it does not work with external auditors as the scheme needs trained specialists. In addition, every certification is checked again by a different auditor.
- Bluesign® checks the progress that a company has made in this regard, provides continual further development of solutions and continuously optimises its criteria. The bluesign® FINDER²⁰¹ guarantees verification based on a scientific full risk assessment, including hazard considerations of all substances and an extensive exposure scenario risk analysis directed at processes and applications. The requirements defined by the criteria are reviewed by bluesign® during assessments, including on-site inspections at the production site. The results of the assessment are summarised in an assessment report. In case of non-conformities, corrective

actions including a timetable are prescribed and recommendations for improvements are given. If there is a critical non-conformity, follow-up inspections are advised but not required. Clear exclusion criteria are published for serial violations.²⁰²

Example of bad:



- **SAC/Higg Index modules:** The Higg Index modules remain a set of self-assessment tools with limited evidence of third-party verification. For example, the Higg FEM verification process merely requires a company to clarify whether it has understood and answered the Higg FEM self-assessment questions correctly, as opposed to having an audit process to verify their results. This means that the SAC neither verifies what is stated in the self-assessment nor follows up to ascertain whether what is disclosed is implemented in practice. Regardless, the SAC states that 20% of facilities that completed the FEM went through the process of verification,²⁰³ which suggests that only a minority of the facilities that used the FEM assessment tool have even had their results verified to this questionable definition – it seems also to be optional as to whether this is conducted on or off site. There seems to be no obligation for facilities to publish their results, likely resulting in a reporting bias in which only companies with good environmental performance communicate their scores. There are also no follow-up visits or corrective actions.²⁰⁴ If a company does decide to share its results, its Higg Index score must be third-party verified, but it is not clear how frequent such audits are.²⁰⁵



3. How are voluntary schemes addressing fossil fashion?

3.1. Key findings

In this section, we analyse where the schemes and initiatives stand when it comes to issues around fossil fashion. These issues include the reliance of the industry on synthetic fibres and fossil fuels as a feedstock, microfibre shedding, end-of-life problems and durability, and overproduction.

Our research finds that, at best, schemes and initiatives skirt around the issue, mentioning plastic-based fibres or the need to minimise reliance on virgin resources without explicitly stating that fossil fuels are the backbone of these virgin and recycled fibres or recognising key trends, such as doubling of global virgin polyester production since 2000, which is on course to double again. At worst, schemes such as the Higg Index, **actually present synthetics as the better choice** - fuelling the very problem they claim to be tackling. Whether or not this is just selective data or a deliberate attempt by the industry to greenwash synthetics, is up for debate.

We found that, similar to what we learned from brands' policies in *Synthetics Anonymous*, initiatives are asleep at the wheel when it comes to **microfibres**. They point to the lack of research or measurement tools to justify lack of action and point to distant targets for action, which let the biggest users of synthetics off the hook. Even issue-specific initiatives, such as TMC, have heavy industry influence, have made next-to-no publicly visible progress and seem to have a bias in favour of synthetics.

Our analysis reveals that schemes have little to say on **fast fashion and overproduction** and seem to be ignoring how the prevailing business model of the industry is precipitating environmental disaster. No scheme has targets in place, let alone accountability, encouraging brands to limit production.

Finally, while some schemes are starting to address **end-of-life issues**, much of this is rhetoric rather than action and very few make the direct link between synthetics and increasing mountains of waste. Proper management of end of life is regarded as a nice-to-have rather than a critical issue that certification schemes and initiatives should be addressing. Similarly, on **durability**, while schemes display signs of ambition to encourage members to reuse and recycle, there is little evidence of these schemes holding companies to account on this vital issue.

Another significant observation is that, while out of scope for initiatives such as bluesign®, OEKO-TEX® and ZDHC - which primarily concern themselves with chemicals and hazardous substances - it seems counter-intuitive for them not to address this issue given the hazardous and toxic nature of plastic materials. As such, certification by these schemes may be giving an illusion of sustainability, while ignoring the wider issue of toxic environments.

The schemes investigated have displayed signs of ambition and made recommendations on how their members can enhance durability, be that through reuse, recycling, upcycling or correct garment care instructions. Yet, there is still an overall lack of evidence of schemes holding companies to account on this vital issue and it seems entirely redundant to continue to certify millions of garments without addressing how they are disposed of or repurposed correctly.

3.2. Approach to synthetics and fossil-fuel feedstock reliance

As highlighted in our Synthetics Anonymous report, virgin synthetics such as acrylic, nylon and polyester continue to dominate the material composition of garments and sustain the industry's high dependency on fossil-fuel feedstock. In addition to being the primary source of energy for supply-chain operations, brands' reliance on oil and gas to produce cheap synthetic material in vast quantities is often omitted from the scope of initiatives that are seemingly designed to drive industry transformation. This must be addressed if the industry is to curb its carbon footprint, given that in 2015, polyester production alone was responsible for the emissions of more than 700 million tonnes of carbon dioxide equivalent,²⁰⁶ similar to the annual GHG emissions of 180 coal-fired power plants. Synthetic fibres represent more than two-thirds (69%) of all materials used in textiles, which is expected to reach nearly three-quarters by 2030,²⁰⁷ underpinning and enabling the fast-fashion business model, synonymous with vast volumes of waste. A number of the schemes in this report position themselves as addressing this damaging state of affairs through a variety of tools, whether through multi-stakeholder collaborations and thought leaders or through tools that help brands choose the least-harmful materials and practices.



3.2.1. Initiatives failing to address synthetics and fossil-fuel feedstock reliance

Among the different Higg tools, there are two product-focused tools, the Higg MSI and the Higg PM. These are defined as 'life cycle assessment tools that measure the environmental impacts of producing materials and products'²⁰⁸ and they assess different aspects at the product level across five environmental impacts: global warming potential, eutrophication, water scarcity, fossil-fuel depletion and chemistry. They are meant to enable companies to make sustainable choices at every stage of a product's life cycle.²⁰⁹

The Higg MSI was originally developed by Nike (one of the biggest users of synthetic fibres in the apparel sector) and it was adopted by the SAC in 2012 and incorporated into the Higg Index.²¹⁰ It was designed to measure impacts from extraction of raw materials and production up to the moment the material is ready to be made into products, thereby disregarding critical carbon-intensive stages of the life cycle, such as the use and raw material extraction phase²¹¹ and waste at the end of life. In this way it is a cradle-to-gate tool and does not address the impacts through the entire life cycle of products, but only looks at the manufacturing state.²¹² Furthermore, despite the fact that the Higg MSI methodology states that '[t]he Higg MSI addresses impacts from the extraction or production of raw materials [...]',²¹³ it does not disclose precisely how the extraction would be included within its methodology. What is more, under the Higg Index, '[f]or synthetic fibers like polyester, the Raw Material Source is in pellet form'.²¹⁴ This would seem to suggest that, aside from water footprint, it has disregarded and not accounted for the impact of fossil-fuel extraction involved in creating the pellets,²¹⁵ such as oil drilling, including more carbon-intensive extraction methods such as offshore drilling and fracking.

The Higg MSI claims that that, of the 23 textiles listed as example materials in the MSI database, 7 of the 10 worst - i.e. with the biggest impact overall - are natural, while the 11 best-scoring fabrics are synthetic. This new version even reduced the impact of polyester per kilo from 44 to 36.2, while increasing the impact for silk from 681 per kilo to 1,086. The media outlet, Fibre2Fashion stated: '[This] significant change and corresponding impact calculation was done silently without offering any explanation as to what triggered it and how the new scores were calculated'.²¹⁶ Even based on individual scores, synthetics are generally rated better than natural fibres. For global warming and water scarcity, nine of the ten best fibres are synthetic, versus four of the ten worst being natural. For eutrophication, the ten best materials are synthetic, whereas the six worst are natural and for chemistry and resource depletion/fossil fuels respectively, six of the ten best and five of the ten best are synthetic - despite these materials literally being made from fossil fuels.

The science behind these scores have been questioned repeatedly. For example, their assessment of water scarcity is at odds with a study by the Water Footprint Network from 2017,²¹⁷ which found that polyester's water footprint is in fact seven times that of cotton - not significantly less.²¹⁸ Eunomia points out that 'Other ranking tools and LCAs rate synthetic materials as much more environmentally harmful than the MSI does.'²¹⁹ The SAC or Higg Co so far have never substantively addressed this criticism. On a webpage dedicated to common myths about the SAC - itself a highly telling piece of communication to need to publish - they just maintain that it is false that the Higg Index favours synthetics over natural fibres without actually explaining why. Finally, notably, the Higg MSI still only uses five environmental impact categories. Why only these five - compared for instance to the 16 impact categories listed under the PEF initiative²²⁰ - is not explained. The Higg MSI methodology argues why some of these are not considered,²²¹ but this discussion is too brief to present a real methodological justification and does not cover all possible impact categories that should be duly considered. Yet, the selection of these categories and their scope is critical for the final assessment. For instance, eutrophication due to nutrient excess caused by farming or husbandry applies much more to natural fibre production than to synthetic fibre production, but the fact that the scope of the assessed synthetics' impacts ends at plastic pellets ignores for example, the contribution to eutrophication from nitrogen depositions from the burning of fossil fuels.²²² In a move to counter criticism about the MSI, the SAC launched the Higg PM in September 2020, followed by a second edition of this module in June 2021, the Higg PM 'measures the cradle-to-grave environmental impacts of a product from the point of resource extraction to manufacturing impacts, all the way through product durability, care, and end of use'²²³ but does not explicitly address fossil-fuel feedstock reliance. Considering the critiques about the MSI cradle-to-gate approach and aggregated single score, the second edition of the Higg PM seems a promising step; however, due to the fact that the PM sits behind a paywall, with access exclusive for members,²²⁴ it is hard for the public to ascertain what precisely is meant from the point of raw material extraction. Therefore, the starting point of the environmental assessment still seems to be a grey zone where the public are unable to gain information on how precisely materials and products are assessed. An analysis of the Higg PM methodology



document, published on 15 September 2020,²²⁵ amplifies this issue. While *'there are references in this document which allude to the additional stages of product assessment that will be launching in the second edition'*,²²⁶ the document so far only covers materials and finished goods.²²⁷ Once again, the SAC communicates extensively about how it provides *'an industry-applicable consistent methodology for calculating a product's footprint'*,²²⁸ or how *'[t]he Higg PM is an industry-applicable and consistent methodology for calculating a product's environmental footprint'*²²⁹ and how it *'provides unique differentiating methodological characteristics'*,²³⁰ but how exactly these calculations are done or whether they incorporate fossil-fuel feedstock remains a black box.

The failure to explicitly address this, despite repeated criticism, highlights a gaping oversight in the work of the SAC and Higg Index.

3.2.1.1. Cradle to Cradle



Given that the C2C certification is aimed at assessing the environmental and social performance of items across various sustainability criteria, including material health and carbon management,²³¹ it seems like a significant flaw that the scheme fails to incorporate fossil-fuel feedstock into the scope of its assessment methodology. Research by Eunomia has duly noted that C2C does not consider the entire life cycle of the product, including raw material extraction and use phases,²³² which therefore implies that the use of oil and gas throughout the early stages of the supply chain has been overlooked. Similar critiques carried out by researchers from the TU Berlin, concluded that *'C2CP is not scientifically reliable enough and does not assure that certified products are actually environmentally preferable.'*²³³ This can be interpreted as a fair observation given the omission of fossil-fuel use from its documents.

For a certification that focuses on design and circularity, the failure to address fossil-fuel feedstock is counter-intuitive and counter-productive. The scheme does certify synthetics and fabrics made from or containing polyester²³⁴ or elastane²³⁵ and has previously awarded such garments the higher accolade of gold certification. Additionally, as outlined in Section 2.2.1.4, finished products from retailers that contain synthetic thread derived from fossil fuels are still eligible for the bronze certification. Further scrutiny reveals that the C2C-Certified, version 4.0 Product Standard does not include fossil fuels even once within the text²³⁶ and further underscores the gap in their assessment methodology.



3.2.1.2. Ellen MacArthur Foundation

EMF is the only initiative that directly discusses the importance of avoiding plastic-based fibres that are reliant on fossil-fuel feedstock, especially when an alternative material exists. However, even this initiative fails to meaningfully address the growing use of plastic in the fashion industry. As outlined in the 2017 *New Textiles Economy* report, EMF reported that 48 million tonnes of fossil-fuel feedstock had been used for plastic-based fibres production.²³⁷ As a response, it set out an ambition to *'Make effective use of resources and move to renewable inputs'*, which also means the use of renewable feedstock for plastic-based fibres and not using fossil-fuel-based fertilisers or pesticides in the farming of biologically based input.²³⁸ Building on this, as described in its vision of a circular economy for fashion published in the Jeans Redesign guidelines, EMF encourages that *'Production is fully decoupled from the consumption of finite resources'* (i.e. fossil fuels) and that *'the need for virgin resources is minimised by increasing the use of existing products and materials. Where virgin input is needed it is from renewable feedstocks sourced using regenerative production practices'*.²³⁹ Notably, these guidelines also require that jeans produced do not include more than 2% non-cellulose-based fabric by weight (e.g. plastic-based fibres, such as elastane, nylon and polyester) in the total textile composition.²⁴⁰ However, recycled plastic-based fibres from PET bottles that are originally created using fossil-fuel extraction are excluded, which is an oversight given that recycled plastic in textiles causes some of the same problems as virgin material, e.g. microfibre release and non-recyclability at the end of life.

The *Circular Design For Fashion* book published by EMF in late 2021 notes the harm that can be created during the wearing and wash life cycle phases of clothes. The organisation states:

*Textiles can release microfibrils that end up in the ocean and freshwater. These can be from synthetic fibres such as polyester, nylon or acrylic, that will not biodegrade, or from natural fibres whose coating or dyeing renders them non-biodegradable. Microfibrils can transport toxic substances that are harmful if ingested by marine life. Some of the chemicals are used in the dyeing and finishing process of clothes known to be harmful to human health.*²⁴¹ The book's chapter dedicated to eliminating waste and pollution also repeats this information, with the premise that this should spur the use of 'safe, recycled and renewable inputs'²⁴² and encourages organisations to question how they can ensure that their products will not release microfibrils when they are in the design phase.

While the foundation does make recommendations, it stops short of asking brands to phase-out the use of fossil-fuel-based (plastic) fibres. For example, signatories of the EMF's NPE Global Commitment only focus on fighting plastic pollution by removing plastic hangers, polybags, plastic windows and packaging, but do nothing to address the big plastic elephant in the room - that more than 60 million metric tonnes of plastic fibres are produced every year to feed their collections.²⁴³

3.2.1.3. WRAP



WRAP's SCAP and Textiles 2030 initiatives have reiterated their commitments to encouraging the use of more sustainable materials, with a particular focus on carbon footprint reductions along the supply chain, in addition to addressing water and waste.

In its *Valuing Our Clothes* report,²⁴⁴ WRAP claims that: 'As the use of polyester grows, there is an opportunity to grow the use of recycled polyester to help minimise carbon emissions. The greatest potential is for closed-loop recycling, by ensuring material is designed and captured for fibre-to-fibre recycling.' However, this issue is left critically unaddressed in the WRAP Footprint Calculator, which entirely fails to address the use of fossil-fuel-based synthetics, except for a minor note on improving the process efficiency in the material and fibre production stage by 10% for chemical, energy and water inputs.²⁴⁵ As mentioned in Section 2.2 on initiatives failing to drive improvement, the calculator deems that the water footprint of polyester fibre production is minimal and suggests that replacing cotton with polycotton is a viable option for brands to reduce their environmental impact.²⁴⁶ This indicates a critical omission and failure to factor in important considerations, such as the fact that polyester fibres are derived from fossil fuels, microfibre release and the lack of viability for end-of-life recycling, which it claims to support.

The main focus of WRAP, as part of the recently launched Textiles 2030 Initiative, is to decouple business growth from the use of virgin resources and set up partnerships to supply and use recycled fibres for new products, accelerating the commercialisation of fibre-to-fibre recycling in the UK. Textiles 2030 is set to add a target in 2022 to reduce the amount of virgin textile materials and it will be interesting to note whether fossil-fuel reliance is mentioned explicitly.²⁴⁷ WRAP's circularity pathway is punctuated by milestones such as using until 2024 to build the business case for circularity and until 2027 to scale these new strategies; however, the voluntary nature of the initiative means that signatories would incur no penalty if they were not to scale such a business model.

Microfibrils are not addressed in either the SCAP's nor in Textiles 2030's Footprint Calculator. However WRAP produced a report entitled: 'Textile-derived microfibre release: Investigating the current evidence base'²⁴⁸ where it concludes that significantly more research is needed to quantify textiles-derived microfibre formation, shedding and impact at each stage of the textiles life cycle. The report importantly notes that if suitable data were available, 'WRAP may include microfibrils in its clothing footprint calculator in the future as an additional metric'. In the meantime, taking a precautionary principle view and accepting the level of uncertainty in the evidence, WRAP could readily enhance the clothing footprint calculator to provide a quantity/inventory/count of harmful

microfibre losses, alongside the carbon, waste and water metrics that are already provided.²⁴⁹ At time of writing, this has not happened. Additionally, the recommendations of the report do not include following through on its dedication to the precautionary principle and encouraging its signatories to limit the use of synthetic fibre for clothing. WRAP should also consider updating its resources to reflect current research on the harmful nature of synthetic fibre versus natural fibres.

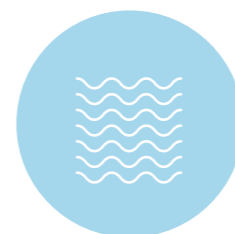
3.2.1.4. Other schemes

The scope of certification schemes such as bluesign®, OEKO-TEX® and ZDHC is limited to chemical management; however, this narrow focus is obscuring other potential chemical issues around products, use and recycling of synthetic fibres, as well as other substances of concern such as microfibrils. These schemes and their various standards could enhance their assessment criteria by addressing problems with synthetics and fossil-fuel feedstock across the supply chain.

OEKO-TEX® Standard 100 does look at how synthetic fibres are processed into a finished product, but does not review how they are produced in the first place and thereby crucially omits fossil-fuel feedstock or where it comes from.²⁵⁰ The Standard 100 also does not discuss the environmental hazards created through microfibre shedding. Similarly, the OEKO-TEX® Standard 100 does not make a distinction between synthetic fibres and natural fibres and the STeP certification does not say anything about synthetic fibre production in particular. In this regard, STeP does not concern itself with the extraction of fossil fuels needed for the production of synthetic fibres and this has arguably limited its capacity to deliver a true and thorough environmental assessment.²⁵¹ This omission from the OEKO-TEX® labels can be interpreted as a critical oversight given the chemically pollutive, hazardous nature of fossil fuels (and plastic) across their life cycle.

ZDHC is largely silent on synthetics and, at the time of writing, the MRSL did not apply to synthetics production. ZDHC has partnered with TMC on microfibrils as a research member, yet as we have seen, the ambition of the scheme is limited and their partnership has shown little concrete action. Bluesign® includes criteria which apply to man-made fibres derived from natural and chemical sources. There are specific criteria for different types of synthetic fibres but besides these, no other issues with synthetics are addressed within the scheme, aside from an unenforced suggestion that companies purchase recycled materials. Given the limitations of recycled polyester as a solution, this is a weak recommendation.

Indeed, the flaws of this limited scope were highlighted in recent push-back by the U.S. Nation Advertising Division against Everlane's claim that Bluesign® means its dyes are 'safer for the environment', stating that the focus on chemical management should not be confused with any wider claims about product sustainability²⁵²



3.3. Microfibrils

While an increasing number of initiatives acknowledge the growing problem of microplastics on the environment and human health, the widely adopted approach so far has been to delay action and stick to business as usual until 'more research' is done. Yet each piece of research published points in only one direction: that microfibrils are ubiquitous at every stage of manufacturing, use and disposal,²⁵³ that synthetic fibres are more persistent than natural fibres in the environment,²⁵⁴ that the effects on the body are more complex and serious²⁵⁵, and that proposed 'solutions,' such as filters for washing machines, may not seriously mitigate effects.²⁵⁶ Even though initiatives, including the EMF, WRAP and ZDHC report on the problems of microfibre release (as opposed to certification schemes, which stay silent on the issue), none of these has so far has offered concrete actions (e.g. phase-out of synthetic fibres) or quantitative measures to reduce the production of materials that shed microfibrils. Delaying real action is not in line with the precautionary approach, as there is enough evidence of harm available to merit action. While many brands cite concerns with microfibrils, the majority in our analysis outsource their 'action' on microfibrils to TMC, so in this section we take a detailed look at their performance to date.



BOX 3.1: The Microfibre Consortium

The most high-profile initiative in this area, TMC was founded in 2018 with an aim to develop an industry-aligned approach through practical solutions for microfibre release for the textile industry via several workstreams, including a Cross Industry Topic Roadmap,²⁵⁷ test methodology development, scientific support for policy development and development of industry guidelines.²⁵⁸

Transparency issues

By the end of 2018, TMC had attained a method for measuring microfibre material loss from textiles that they were confident was repeatable and had the potential to be reproducible. Since then, they have been working on validation of the method with the aim to create an industry tool that can be used by brands in-house to inform their material choices. At the end of 2019, TMC announced details of a microfibre-shedding test method that has now been released to its members, but not publicly. The TMC is still working on gaining a 'better understanding' of the causes and triggers of fibre shedding and can then start to work with the industry to find ways to mitigate these.²⁵⁹ The roadmap and accompanying report, launched in September 2021, are the organisation's most detailed publicly available documents to date.²⁶⁰ This is not saying much, however, as the documents are scant on detail and specifics and do not offer anything new on our understanding of microfibres, their sources, mitigation or accountability. Indeed, very little of the organisation's 'significant archives' are open to public scrutiny.²⁶¹ Their old membership crib document highlights that all paying members can apply for a Governance Board seat²⁶² so, in a similar fashion to the SAC there is the opportunity to buy their way in to influence decision-making and gain increased oversight.

Lack of performance

Despite running since 2018, the TMC has not established any criteria or commitments to concrete actions. This is concerning considering as our earlier research (published in our *Synthetic Anonymous* report), indicates that for many brands (such as Asda, ASOS and Morrisons) rely on their membership of the TMC as their main or only microfibre policy and they are using it as justification to delay action on microfibres.²⁶³ The initiative is undertaking not only a slow but a non-transparent approach, with data shared only internally with paying members.

Apart from a microfibre-shedding test method, TMC recently announced a 2030 commitment and roadmap for mitigating microfibre fragmentation,

a process which seems to have taken the best part of 3 years²⁶⁴ Despite aiming for 250 signatories to their 2030 target, the roadmap still only requires 80% of them to adopt its, as yet, undisclosed mitigation strategy by that date. Given that the initiative is very reluctant to admit the synthetic fibres are a major part of the problem, and the vague and flexible targets laid out in its roadmap, not only has the consortium achieved practically nothing to date, but its potential to create any progress in the future looks dim.

A synthetic bias?

TMC seems biased towards synthetic fibres. Without mentioning any challenges of synthetics (including the fact that polyester has the highest water footprint among all fibres), their frequently asked questions on microfibre shedding, highlight that: *'[n]atural fabrics and fibres are not without their challenges as well, some of which include [that] cotton is one of the largest crop users of water globally – a serious issue in places where water scarcity is a daily challenge'*. And again, without mentioning any of the biodegradability or recyclability advantages of natural fibres, the text goes on to wax lyrical about the performance and comfort of synthetics without also highlighting their serious problems, which points to a bias. *'All fiber types shed, natural and synthetic, and data is beginning to suggest that natural fibers actually shed more than synthetic'*, explained TMC's Executive Director.²⁶⁵ Advisor to the consortium, Phill Patterson, published an op-ed in *Ecotextile* staunchly defending polyester from attack, stating: *'The second thing being thrown at polyester is that it is made from oil. That will be natural oil then. The sort of oil that's more natural than a loaf of bread'*²⁶⁶ It is concerning that those advising the

group seem to wilfully overlook core issues the initiative is supposed to be tackling and points to a bias that could undermine the mission of TMC. TMC does not address the different problems of synthetic microfibres, it makes sure to highlight in every one of its publications that synthetics are no worse than natural fibres. Without a single practising scientist in microfibre research among its staff,²⁶⁷ one of the underlying aims for TMC seems to be suggesting that plastic fibres are not really a problem or

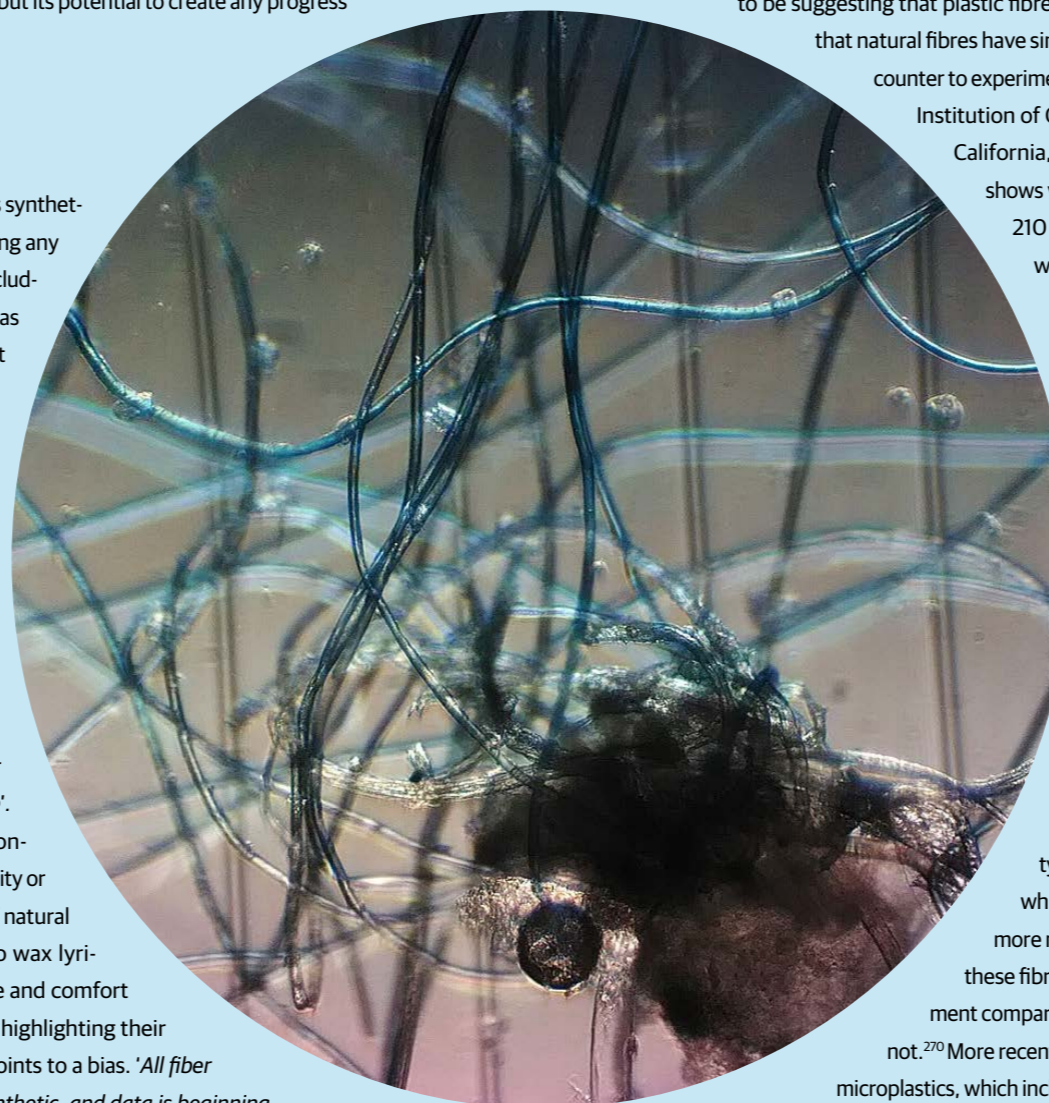
that natural fibres have similar issues. This runs directly counter to experiments conducted by the Scripps Institution of Oceanography, University of California, establishing that polyester shows very limited degradation after 210 days in seawater, compared with wood-based cellulosic fibre, which showed rapid biodegradation after just 21 days.²⁶⁸ Despite some uncertainty, another study found that the weight of evidence at present suggests that physical impacts of natural fibres are less likely to be of concern than those of more persistent man-made cellulosic or plastic synthetic fibres.²⁶⁹ A separate study by Duke University and the University of North Carolina found that while cotton and rayon released more microfibres during laundering, these fibres biodegrade in the environment compared with polyester, which does not.²⁷⁰ More recently, a meta-analysis found that microplastics, which include plastic microfibres, cause harm to human cells when ingested²⁷¹ It seems suspicious,

in this regard, that TMC is cherry-picking parts of the data that suit its pro-synthetic narrative. However unpalatable it may be to its paying corporate members, the upstream solution of limiting synthetic fibre usage to cut microfibre shedding is the most systemic action that could be taken, but is conspicuously ignored by TMC.

Limited in scope

ZDHC joined TMC as a research member in June 2021 and the two organisations were set to release a white paper on microfibres in November 2021,²⁷² which had not been publicly released at the time of writing; however, the focus of the paper, and indeed of the group in general, is on microfibre shedding at the preconsumer phase – a notably limited scope. With regard to how much difference they think this will make towards solving the real-world problem of microfibre shedding, we are not told. Yet, some further reflection should make us doubt about the significance of this manufacturing- and production-focused approach.

First of all, it should be questioned how genuine their motivation for tackling the microfibre problem is. After all, their main concern seems to be about *'mitigat[ing] industry risk'*, rather than risk to human health and environment. A highly telling statement appears on their 'About' page: *'Although exact figures to the extent of the impact from the clothing industry have not yet been quantified, both media and NGO organisations are quick to hold the industry responsible.'*²⁷³ Besides, while neither TMC nor ZDHC present any figures on the amount of microfibres released during manufacturing and production, available data indicate that just focusing on this phase only covers part of the problem. A report from the *Nature Conservancy* and *Bain & Company* estimates the annual emission of primary microplastic from preconsumer textile manufacturing to be 0.12 million metric tonnes per year, against 0.53 through laundry.²⁷⁴ Considering that shedding also occurs during drying or by simply wearing garments – with this last source possibly being of a similar order of magnitude to microfibre release into wastewater by laundering²⁷⁵ – it is obvious that dealing with preconsumer microfibre release is necessary but not enough. While they do not present their own information on this, a document from the *European Outdoor Group*, a funder of the consortium, can be found on their website, which in this regard essentially only refers to washing machines and what consumers can do to limit microfibre shedding.²⁷⁶ To summarise, TMC seems to be highly compromised in its ability to make progress on microfibre pollution. By limiting scope to production and preconsumer shedding it ignores many of the serious concerns and mitigation pathways; by overlooking or downplaying the role of synthetic fibres it seems to have a concerning prosynthetic bias that runs counter to established scientific research; and through its lack of transparency it remains a black box and risks being little more than a delaying tactic for brands wanting to seem like they are abreast of the problem while they play for time.





3.4. Limiting fast fashion and overproduction

Given that most schemes have arisen from an attempt to remedy the damage caused by the modern fashion industry, and that the prevailing business model of the industry is fast fashion - a model predicated on rock-bottom prices, heavy advertising, ever-changing trends, cheap materials and labour and disposability²⁷⁷ - it should be expected that most schemes would present even a high-level awareness of the importance of changing this destructive model and limiting overproduction in pursuit of planetary health over growth logic.²⁷⁸ Yet our analysis left almost every initiative wanting in this regard, let alone identifying the skyrocketing use of cheap synthetic fibres as the key enabler.

3.4.1. Initiatives ignoring fast fashion

3.4.1.1. Bluesign®, C2C, OEKO-TEX®, EU Ecolabel, SAC/Higg Index, TMC and ZDHC



All the initiatives listed above ignore the systemic problems with the prevailing fast-fashion business model and are silent on the wider trend of overproduction. To claim to be about the betterment of the sector, without addressing or mentioning the inherently unsustainable trajectory of the system itself, is myopic. Whereas certification of limited scope, such as bluesign® and OEKO-TEX®, could be forgiven for not commenting on the wider picture (although doing so would enhance their credibility), particularly notable in this regard is the radio silence from industry 'thought leaders' such as C2C and SAC.

3.4.2. Initiatives that mention fast fashion

3.4.2.1. WRAP



Uniquely among sustainability initiatives, WRAP admits that: *'Infinite growth is an impossibility and the apparel industry must accept and adapt to that fact'*,²⁷⁹ highlighting the folly of incremental circular solutions without core system change. However this recognition is not met with actionable goals or targets for the industry about tackling the issue of overproduction. Also distinctively among all analysed textile initiatives and certification schemes, WRAP addresses most of the problematic issues around synthetic fibres in several of its reports, including it enabling overproduction of clothes, which many others do not even touch upon.

3.4.2.2. Ellen MacArthur Foundation



The EMF acknowledges that more than half of fast fashion produced is disposed of in under a year. It lists one of its ambitions to *'transform the way clothes are designed, sold and used to break free from their increasingly disposable nature'*. The areas of actions to support this ambition are suggested as: 1) scale-up short-term clothing rental; 2) make durability more attractive; and 3) increase clothing utilisation further through brand commitments and policy.²⁸⁰ A similar problem appears again with EMF as with other indicators: that it has not communicated widely on this issue since its report in 2017 and that it gives fast-fashion brands signed up to its commitment a free pass by ignoring their usage of plastic fibres.





4. How fashion brands are using certification and voluntary initiatives

4.1. Key findings

Fashion retailers and brands are eager to promote their membership of voluntary initiatives and certification schemes to position themselves as active leaders in driving sustainable change. However, previously described limitations of these initiatives, whether that be a failure to address issues around fossil-fuel-derived fibres, unhindered growth of production of cheap and low quality fast-fashion garments or the pervasive lack of transparency in brands' supply chains, highlights that the membership in such initiatives is often little more than a corporate distraction tactic. Joining as signatories, affiliates and members provides corporate departments and marketing teams with the opportunity to boast about their 'progress' across external-facing channels, including websites, reports, social media and press releases.

The tactics employed by fashion brands closely follow those that we identified in earlier investigations into the plastics industry, consumer brands and retailers in our campaign, Talking Trash - grouped into three broad categories: delay, distract and derail. As such, we have followed the same categorisation here. Delay tactics are subtle in their approach and are achieved by companies who outwardly commit to change that is neither enforceable or binding. This prompts governments to wait and see if what they are aiming to achieve through legislation can be achieved voluntarily. This differs from distraction tactics, which focus specifically on activities designed to make customers and policymakers believe that real change is happening, while allowing brands to continue to grow exponentially and profit at the expense of the environment and their workers. Last, strategies implemented to derail progress look at preventing the introduction of strict legislation or undermining existing regulations. As no meaningful legislation has yet been proposed and subsequently adopted for the industry, the derail category has been left empty.



4.2. Delay

Delay tactics in the fashion industry are deployed by retailers across various market segments who continue to kick the can down the road and avoid taking systemic action. Procrastinating from progress includes tactics such as withholding data and creating a never-ending roster of voluntary commitments that have no enforceable or legally binding targets.

4.2.1. Voluntary commitments

There are a slew of voluntary initiatives that a brand could join to improve its image, purely through signatory status, which is often used to create a noise and distract us from their lack of progress in other areas.

Voluntary initiatives such as WRAP's Textiles 2030 or the new Microfibre Consortium 2030 Commitment give 2030 as a key date for targets to be achieved, despite the fact that we know by this time, it will be too late to mitigate the most damaging effects of fossil-fuel-derived fashion and the health fall-out caused by microfibre pollution.

Elsewhere, the Textile Exchange's 2025 Recycled Polyester Challenge signed by the likes of H&M Group, Inditex, Target, VF and Lululemon is encouraging the industry to integrate recycled PET within their collections at pace to meet the overarching target, which aims for recycled PET to make up 45% of the fashion's polyester market.²⁸¹ Use of recycled polyester is both a delaying and distraction tactic as it does nothing to reduce fundamental reliance on plastic for clothes and may even be scaling environmental problems, such as waste and microfibre pollution, all while giving an unwarranted eco-glow to the brand.



4.2.2. Withholding data

As highlighted in Sections 2 and 3 of this report, many of these initiatives only share data with their paying members. Locking data behind pay walls available to only those that can afford membership fees hinders transparency and ability to verify data, delaying progress. Another issue with voluntary initiatives is a general lack of transparency around the information submitted by their members. A prime example of this is the SAC, which repeatedly delayed their transparency roadmap. This hindrance was even highlighted in H&M Group's 2018 sustainability report that stated '[b]ecause of some unanimity issues with SAC membership, the timelines for development of a transparency platform for data sharing are somewhat delayed.'²⁸² We see similar issues with transparently sharing reported information in ZDHC, which collects data on pollution coming from factories, but only makes it available to their members.

Similarly, TMC's new membership structure requires signatories to contribute their test data results on microfibres to their data portal; however, this information is not publicly available, nor is the test method that TMC supposedly developed after years of deliberations with the industry. Members also supposedly gain access to TMC's platform and knowledge hub, which provides them 'with the information they need to act effectively on microfibres'²⁸³ - this again prompts the question, should salient information like this not be accessible to all to accelerate accountability and progress?

Reporting aggregated data also sidesteps true accountability. In the case of WRAP and ZDHC, it is impossible to scrutinise individual company progress or lack thereof, due to this method of reporting. This not only shields laggards from exposure, but also allows them to ride on the coat-tails of companies committed to improvement.

4.3. Distract

Excessive marketing and public relations activity surrounding membership and 'progress' of these schemes has created a smokescreen for what is truly happening. Whether it is greenwashing in press releases and product pages or the continuous praise for false end-of-pipe solutions, brands and retailers deploy numerous distraction tactics.

4.3.1. Using membership to defend poor environmental and social performance to legislators

Brands that have previously been exposed and reprimanded for their lack of supply-chain due diligence are leveraging their membership of certifications and initiatives as a reactionary measure to defend their new found 'sustainability' strategies. This can even serve to derail legislative processes, which might result in proper regulation of the fashion industry.

A UK Parliamentary Committee
Credit: UK Parliament

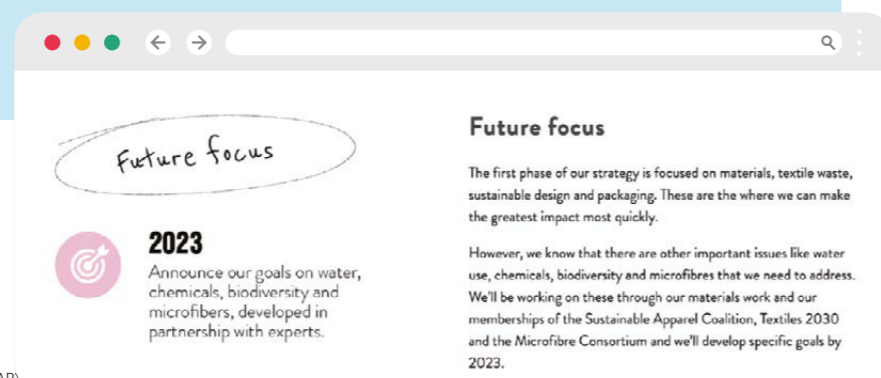


BOX 4.1: Spotlight 1 - Boohoo



Boohoo's 'Future Focus' commitment to publish their microfibre strategy in 2023, is indicative of procrastination and there is no viable reason why it cannot implement one now - setting a goal of 2023 to announce another goal for a some further time in the future is an empty promise. A brand that was found to be using the highest percentage of synthetic fibres in our *Synthetics Anonymous* report, states that by 2023, it will announce its goals on water, biodiversity, chemicals and microfibres developed in partnership with experts.

Figure 4.1: Boohoo delays the announcement of their microfibre goals for another 2 years



BOX 4.2: Spotlight 2 - Boohoo



Boohoo used its membership of SAC, TMC, BCI and WRAP's SCAP to highlight 'progress' made to the UK Environmental Audit Committee (EAC) following the Leicester factory scandal in 2020 and to craft a narrative of responsibility. This particular incident exposed the fast-fashion giant of falling short on modern slavery practices when a supplier factory was found to be paying its garment workers in Leicester as little as £3.50 an hour, less than half the UK living wage.²⁸⁴

This has been identified in written evidence submitted for Parliament following the Alison Levitt QC report into their supply chain. The document states:

Boohoo Group has taken important steps to set a solid foundation for our sustainability strategy since our last engagement. We are on a journey of continuous improvement and have joined some important collaborations, including becoming members of WRAP's SCAP 2020; the SAC; and TMC. The expertise, insights and tools these groups provide are enabling us to understand the impact of our materials mix and prioritise our sustainability action plans.

The below image taken from the written evidence highlights how they are trying to frame their 'progress' since 2018. This is misleading given what we know about the limitations of the various initiatives, including BCI.

Figure 4.2: How Boohoo communicates its involvement with 'sustainability' initiatives

1.8 Table 1 illustrating boohoo's progress on social and sustainability initiatives since 2018

boohoo	Brands		People		Transparency			Sustainability			
	Brands owned by boohoo	Permanent Contracts issued in Warehouses	Number of jobs in Burnley	Completed SAC Brand and Retailer Module and reporting materials mix through WRAP.	Commitment to publish full Tier 1 & 2 supply chain	Published ALQC Review in full	SCAP - Sustainable Clothing Action Plan 2020	Use of organic or sustainable cotton (e.g. BCI, Cotton2040)	SAC - Sustainable Apparel Coalition	Microfibre Initiative	In-store take-back scheme or textile banks
2018	-	-	1306	Incomplete	No	Not Applicable	In discussions	No	No	No	No
2020	Added 4 brands	plus 960	2089 (+783)	Yes	Within next 12 months	Yes	Yes	In Progress	Yes	Yes	Yes (online recycled scheme for customers)

What is more, as documented below in the written response, this seems to have successfully pacified and distracted the EAC, leading them to believe that their motives are genuine. Extracts from the letter state:

"Boohoo Group was identified during the Committee's original Fixing Fashion inquiry as one of the fashion retailers least engaged with sustainability concerns. Since the publication of the two reports from that inquiry, the company has signed up to a number of initiatives including the Sustainable Apparel Coalition and the Microfibre Consortium... We were pleased to hear that Boohoo Group is in discussions with the waste charity WRAP about participating in the forthcoming Textiles 2030 sustainability initiative, which will require carbon emission cuts of between 40-50% across the industry, including through encouraging textile recycling initiatives.²⁸⁵ Given the lack of enforceability and accountability with these schemes, to use them to successfully distract legislators is extremely concerning."

Figure 4.4: How M&S discusses its industry collaboration and involvement in initiatives

BOX 4.3: Spotlight - Primark



5. Is your company taking action to reduce the risk of microplastics being washed into the ocean? If so, what actions have you taken?

Primark has had a ban on any new products containing microbeads since 2015 and we can confirm that all Primark own brand products are now free from microbeads. On fibres, we are working with others in the fashion industry to look at impacts and identify potential solutions.

For example, we are a member of the Microfibre Consortium, consisting of the European Outdoor Group with partner University of Leeds. This project is conducting scientific research into which fabric types shed more fibres than others and how fibres are released.

We are also a member of Industry Acting on Microfibres, which comprises nine organisations across the full lifecycle of a microfibre supported by research and industry expertise from the University of Leeds and the Chartered Institution of Water and Environmental Management. Like the Microfibre

Directors: A. Ryan (Chairman), P. Marchant (CEO) (British), M. Bailie (British), L. Culligan, J. Lyttle, D. Paterson (British), S. Regan
Registered Office: PO Box 644, Arthur Ryan House, 22-24 Parnell Street, Dublin 1, Ireland | Registered in Ireland 47371



Consortium, it aims to establish an evidence base to drive solutions, while building consensus and galvanising the wider industry.

Scientific research into the spread and effect of microfibres is still in the early stages and we acknowledge that there is much work to be done on this issue by Primark, the wider industry and other stakeholders. We believe our active engagement in the two initiatives outlined above is a critical start towards creating solutions to address microfibre pollution and we are committed to continuing this work.

Primark also has detailed membership of schemes in parliamentary correspondence. Membership of such initiatives is used to defend its position or progress on microfibres despite the limitations we know about TMC to address feedstock and over production of synthetic garments. The retailer's submission to the EAC (Figure 4.3) is evidence of how it makes it seem that it is taking action through its membership of TMC. An extract taken from a letter written to Mary Creagh, then elected chair of the EAC, dated 12 October 2018 in response to the EAC's inquiry into the sustainability of the fashion industry, states:

On fibres, we are working with others in the fashion industry to look at impacts and identify potential solutions. We are a member of TMC....This project is conducting scientific research into which fabric types shed more fibres than others and how fibres are released.²⁸⁶

Figure 4.3: Section of evidence presented to the Environmental Audit Committee

BOX 4.4: Spotlight - M&S



M&S has also reeled off their extensive membership of initiatives to support their image as a sustainable retailer when communicating evidence to Parliament in 2020,²⁸⁷ as highlighted in Figure 4.4.

- **Sustainable Clothing Action Plan:** M&S has completed the Sustainable Clothing Action Plan (SCAP) 2020 programme in which M&S clothing greenhouse gas emissions were reduced by 16% and our clothing's water footprint by 25%.
- **Textiles 2030:** This year M&S, along with other fashion retailers, became members of Textiles 2030, WRAP's new ground-breaking, expert-led initiative, harnessing the knowledge and expertise of UK leaders in sustainability to accelerate the whole fashion and textiles industry's move towards circularity and system change in the UK. M&S was part of the steering committee which established this new initiative, which will launch formally in 2021. Textiles 2030 is a voluntary agreement which builds on the learning and success of the SCAP. It places greater emphasis on the circular economy to drive sustainability at every moment of a product's life and to date there has been much wider engagement across the retail and fashion industry than there was with SCAP.
- **Climate Action Roadmap:** M&S participated in the development of and signed up to the British Retail Consortium's Climate Action Roadmap, which commits retailers to achieving net-zero clothing supply chains by 2040.
- **Institute for Positive Fashion:** The British Fashion Council has become much more engaged with their Institute for Positive Fashion, of which M&S is a member.

4.3.2. End-of-pipe solutions

High-street retailers such as H&M, Primark and Zara, have been quick to implement take-back schemes into their bricks-and-mortar stores as part of their 'circular strategy' encouraged by the principles of the EMF and guidance of WRAP's initiatives. Yet, many of these take-back schemes send garments to countries in the Global South that are flooded by high volumes of second-hand clothing and are still sent to landfill or are incinerated²⁸⁸. A report by the Textile Exchange also found that 52% of companies surveyed do not know or have little visibility of what happens to the clothing when it is returned in the take-back scheme,²⁸⁹ although no transparency was provided as to which brands this covers.

Under the initiatives that endorse the 'circular' economy, brands continue to pursue false end-of-pipe solutions and have developed an affinity to 'storied materials' that are in actual fact downcycling, as opposed to recycling. This includes PET bottles and feedstock for recycled synthetics such as polyamide and nylon, which are usually derived from fishing nets, old carpets and industry waste. The use of such materials created from post-consumer waste or ocean plastic in their collections is usually tiny, but heavily marketed to consumers. However, although using a small part of waste plastic to create new products is better than leaving it in nature, it misses the mark and fails to address the flood of plastics into the environment in the first place and perpetuates the reliance on synthetic fibres.

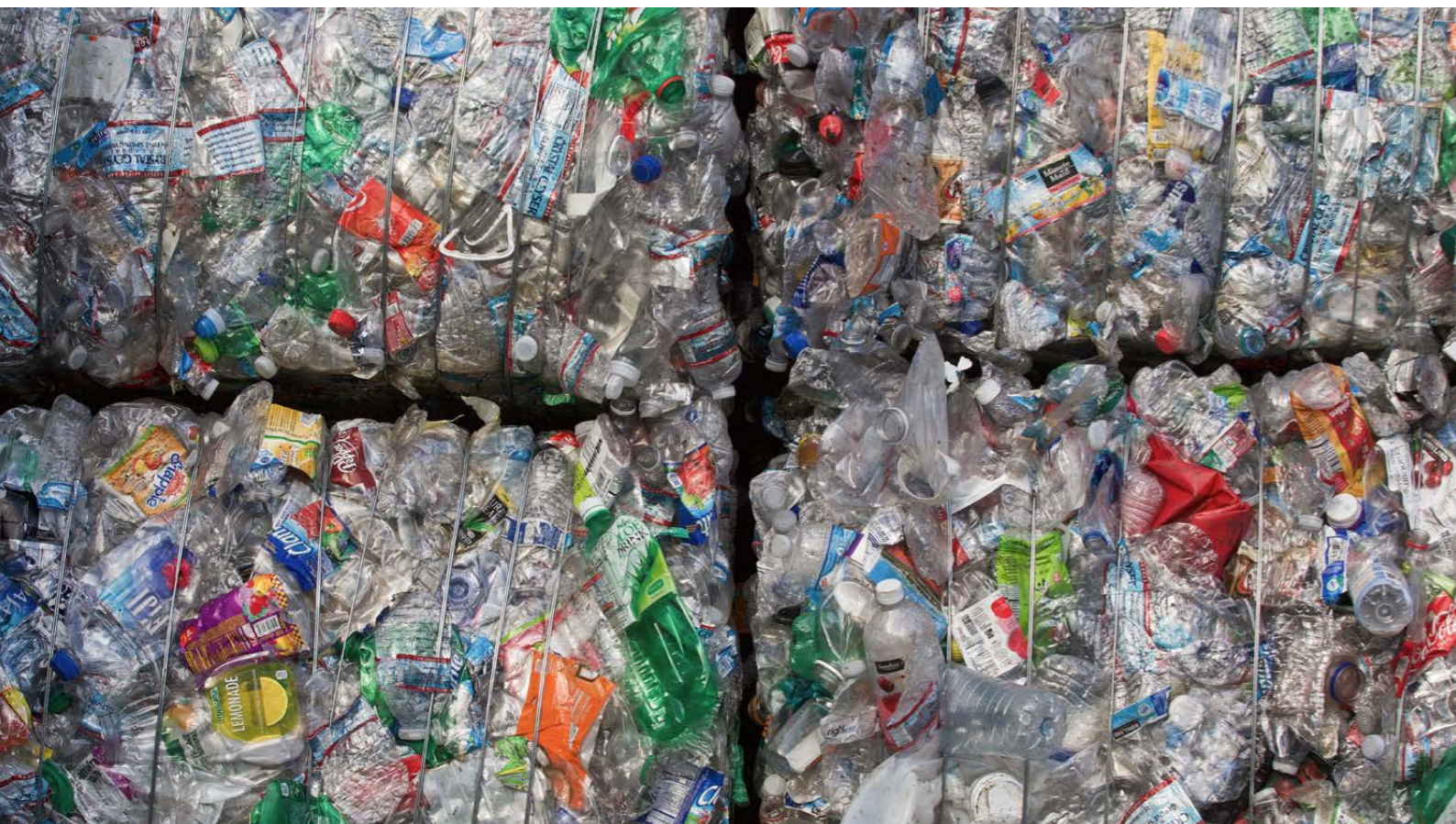
4.3.2.1. Promoting recyclability or composability

Membership and involvement in the EMF's MFC and NPE initiatives is often touted by brands as a key way for how they will excel in their 'circular', recycling and waste management programmes. However, members are not required to publicly disclose volumes of plastic packaging and volumes of plastic fibres are not included at all. They are able to set their own targets, which incur no penalty for not meeting them. Therefore, communications regarding this are often distracting us from the recycling reality.

Similarly, the C2C certification issued by the C2C Products Innovation Institute is used by brands to celebrate the circularity and composability of their products.

Plastic bottles for recycling

Credit: Les Stone



BOX 4.5: Spotlight - C&A



As of 2018, C&A has put more than four million pieces of C2C-certified apparel on the market²⁹⁰ and has experimented with multiple levels of certification, from platinum to gold, silver and bronze. These products are heavily marketed as compostable, for example, on the website it states: 'Our gold-level Cradle-to-Cradle-Certified™ T-shirts are completely compostable in home compost within 11 weeks.'²⁹¹ On its Circular Fashion page, it states:

Some of our Cradle-to-Cradle gold- or platinum-level-certified™ pieces can even be composted - just throw them on your compost heap. Let them become humus. Use that humus to grow salad. Enjoy eating the salad that literally grew out of your pants.²⁹²

However, not all C2C-certified products are compostable and this requires more nuance. C&A retail bronze-level C2C-certified jeans that contain polyester sewing thread, which means that the garment is not truly circular because it is unlikely that the synthetic thread would be removed to allow the garment to be recycled or composted after its initial use. The brand does communicate the differences on each individual product page; however, this possibly misleads shoppers who may be less informed on the caveats of circular fashion and may still believe that this is a truly 'circular' option. It also must be questioned why compostability is something to be lauded over reuse or closed-loop recycling. The waste hierarchy places this form of disposal at the very bottom, meaning all other routes to circularity should be aimed for first.

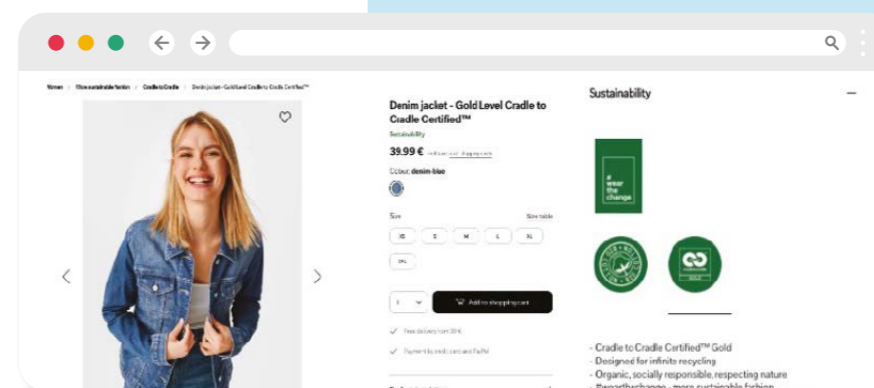


Figure 4.5 demonstrates how C&A uses the C2C standard to beef up their products' environmental credentials with a logo and note that it is 'designed for infinite recycling'. The product contains 2% elastane, so it would be advisable for the brand to clarify whether this is also infinitely recyclable and if so, how it will be separated out. Moreover, without a take-back scheme in place or viable recycling options, this claim is meaningless and would be considered in violation of the UK CMA guidance about truth and accuracy.

Figure 4.5: C&A example of a gold-C2C-certified product

4.3.2.2. Addressing plastic packaging, but not plastic clothes

Under the jurisdiction of the WRAP and EMF initiatives, as well as various industry pacts, brands are keen to disclose how they have made tangible strides towards reducing single-use plastics in packaging and banning plastic microbeads from their beauty products. Yet, they often fail to mention how they are working to reduce their reliance on plastic fibre in clothes or reduce plastic microfibre shedding.

Next is a prime example of this. It joined the UK Plastics Pact in 2020 to eliminate problematic plastic packaging that uses PVC, acetate and polystyrene,²⁹³ yet has failed to fully address the harmful nature of synthetics such as PVC and polyester in their actual product collection.

ASOS is another case in point. As a signatory of the EMF MFC Initiative and the NPE commitment, the press release announcing its involvement discusses plastic packaging at length and, while this is important, our report *Synthetics Anonymous* found a full 66% of the analysed sample of their collection contained plastic fibres. Simon Platts, Responsible Sourcing Director at ASOS, said: 'We've been working hard to reduce our use of plastic

across ASOS, including investing in developing our ASOS mailing bags, which will contain 65% recycled material in the new year and are already 100% recyclable'. This is a significant distraction from the volume of unrecyclable virgin plastic in their clothing collection.

Elsewhere, in Primark's 2018 Environmental Sustainability performance report (Figure 4.6) the brand states that they take plastic-based materials 'very seriously' and discusses packaging and cosmetic products,²⁹⁴ yet makes no reference to synthetic materials, likewise ignoring the synthetic elephant in the room.

The EU Ecolabel is one final example of this whereby its criteria has banned the use of microplastics in rinse-off cosmetics since 2014 but still fails to apply this to textiles.²⁹⁵

4.3.2.3. Switching to recycled synthetics

As explored in our *Synthetics Anonymous* report, this distraction tactic is applicable to every retailer and brand that continues to promote recycled synthetic fibres as a viable solution to virgin synthetics, especially recycled PET derived from water bottles or synthetics used from fishing nets. Brands that frame these recycled alternatives as sustainable, include ASOS, Boohoo, H&M Group, Inditex, M&S, Primark and Target.

The Textile Exchange Recycled Polyester 2025 challenge continues to encourage brands to make this switch and promotes a recycling illusion.

In an interview for JustStyle, Anna Biverstål, who works on the sustainability team in materials and processes for H&M Group described the challenge as a 'great example of taking joint responsibility for the future of the industry', lamenting that it was an important milestone to 'help us decrease our impact on the environment, lowering our carbon footprint and saving resources like water, energy and chemicals'.²⁹⁶

Elsewhere, Inditex perpetuates the fact that recycling synthetic products is a viable solution for reducing environmental impact. For example, the 2016 report notes that recycling synthetic products is 'beneficial to the environment' - a statement that requires more nuance. While in theory this statement is true, the reliance on plastic water bottles as a feedstock for recycled polyester remains problematic and is creating direct competition between the packaging and clothing industries for PET bottles. The dependence on waste streams from the packaging industry should be reduced and instead efforts should be focused on investing in circular product design and fibre-to-fibre recycling infrastructure that would enable brands to keep waste in their own sector.

SYNTHETIC FIBRES: The recycling of synthetic products, such as polyester or polyamide, is beneficial to the environment not only because it consumes plastic waste, but also because recycling significantly reduces the consumption of water and energy. For example, recycled polyester is produced from both synthetic textiles and plastic bottles that are shredded into small pieces. Through a process called polymerisation, they are transformed into a new synthetic fibre that allows us to create new garments.

4.3.2.4. Pushing technological fixes

Through their membership of EMF and WRAP's SCAP and Textiles 2030 initiatives, brands are keen to demonstrate that they are moving towards a circular business model. Technology is seen as a critical enabler for doing so, but actually can be used as a distraction tactic. For example, the launch of the H&M Group Loop machine

Figure 4.6: Primark's statement on plastics in 2018 makes no reference to plastic and synthetic fibres

Plastic

Primark takes issues related to the production, sale and disposal of plastic-based materials very seriously. We are working to address plastic issues directly within our business and are also collaborating with key academic and industry bodies to develop solutions on a global scale.

In 2017, we banned the use of plastic in our cotton bud stems, and now ensure that all cotton buds sold in Primark stores have paper stems. We also banned the use of synthetic microbeads in Primark cosmetic products...

H&M's Loop Recycling Machine

Credit: H&M Foundation

was promoted to underpin the retailer's circular innovation journey, yet it cannot handle polyester or polyester-blended garments.²⁹⁷ What is more, it is estimated that it would take the Loop machine almost 50,000 years to deal with 1 week's worth of waste, approximately 6 million garments, from the market.²⁹⁸

Using these data and given that there are currently 5,018 H&M stores in the world, if there was one machine allocated to each store worldwide, it would still take close to ten years to process one week's worth of textile waste from the market.

Elsewhere, while H&M Group have worked with the Hong Kong Research Institute of Textiles and Apparel on their 'Green Machine', which can separate cotton and polyester blends, this is not yet commercially or technologically scalable and serves instead as a gimmick and distraction from their excessive overproduction. Moreover, in an interview with Vogue Business, Erik Bang, innovation lead at H&M Foundation admitted that 'the reclaimed polyester is just as likely to shed synthetic microfibres in the wash and contribute to marine plastic pollution'²⁹⁹ - as good as admitting that recycled polyester is not a solution but a distraction.

4.3.2.5. Greenwashed marketing

The most dominant distraction tactic when it comes to communicating membership of industry schemes is misleading and greenwashed marketing and this manifests in a handful of different ways. Member brands flood external channels with narratives about sustainability, leadership and transparency associated with these schemes, yet for the most part this is simply a veneer and lacks detail to substantiate these claims.

Figure 4.7: How the benefits of recycled synthetics are communicated



BOX 4.6: Spotlight - Higg Index

TOMMY HILFINGER



Higg Sustainability Index profiles

In 2021, in collaboration with the SAC, brands such as H&M and Tommy Hilfiger are incrementally integrating the Higg Index Sustainability Profiles onto their e-commerce platforms.

They are being leveraged as a tool to reinforce brand 'transparency'. For H&M Group, the official press release from Pascal Brun, Head of Sustainability at H&M stated:

*We firmly believe transparency is key to transforming the fashion industry and we are excited to see this tool further develop so that we can share even more environmental and eventually social data with our customers across our products in the near future.*³⁰⁰

On further inspection, the Higg Index Sustainability Profile could be interpreted to create confusion and a distraction for customers surrounding the sustainability claims made. Figure 4.9 shows a 100% virgin



Figure 4.8: How the Higg Index Sustainability Profile is communicated on the H&M website

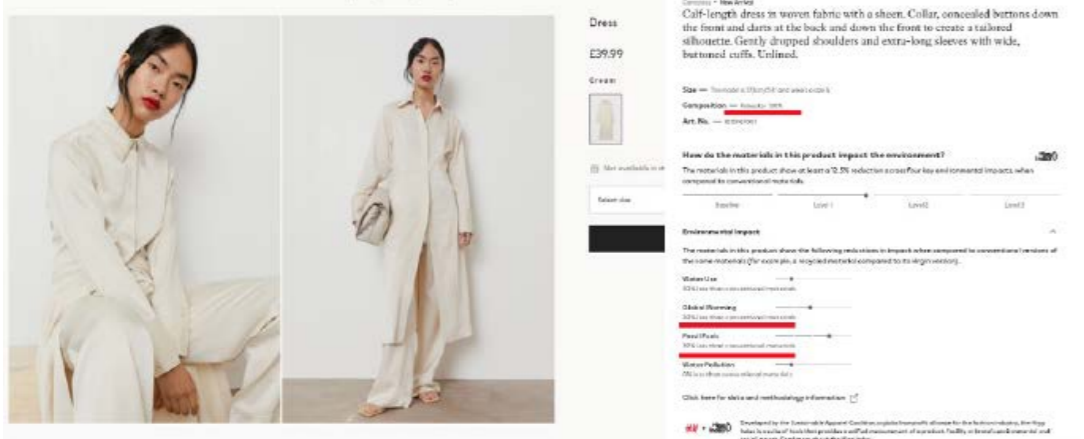
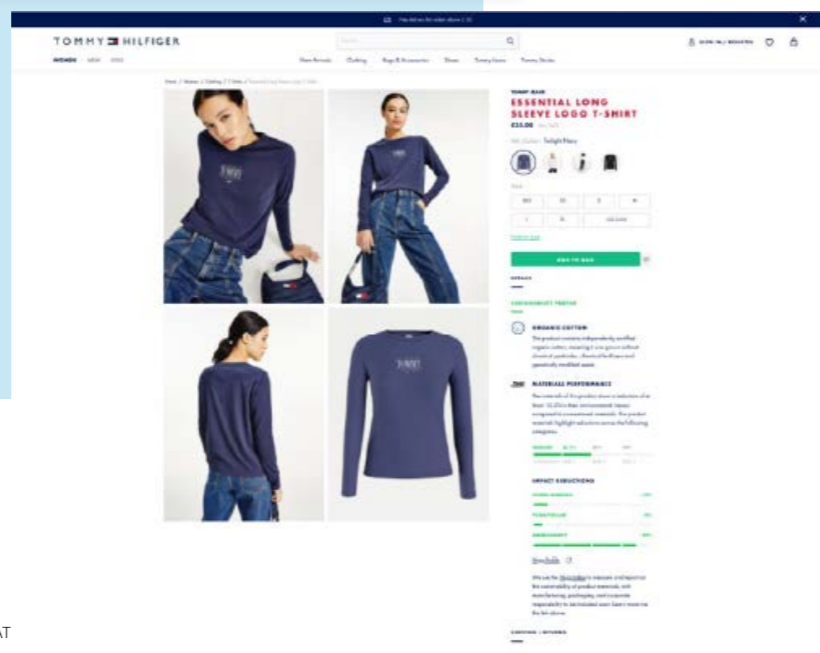


Figure 4.9: H&M product example using the Higg Index

synthetic item that, according to the Higg Index dashboard, uses 39% less fossil fuels, creates 20% less global warming than conventional materials and uses 30% less water than conventional materials.³⁰¹

It presents the image that brands are doing more to share the environmental footprint of the garment. However, we know further nuance is needed to provide full context to the environmental information disclosed.

Figure 4.10: Tommy Hilfiger integrates Higg Index Sustainability Profiles onto its website



4.3.2.6. Marketing activity disproportionate to quantity of items in collections

Another marketing tactic identified is that often, the certified garments represent a miniscule proportion of the total collection, yet receive extensive coverage on social media, in reports and on the website. For example, C&A has promoted its C2C certification extensively, yet, as of 23 August 2021, when filtering for items with C2C certification, out of more than 3,000 stock-keeping units only 21 products were certified. The level of attention given to these items in relation to the percentage of the total collection available illustrates how the retailer is keen to promote a strong image as a circularity leader in the industry, using a few of its items to convince the consumer of its sustainability credentials across the board.

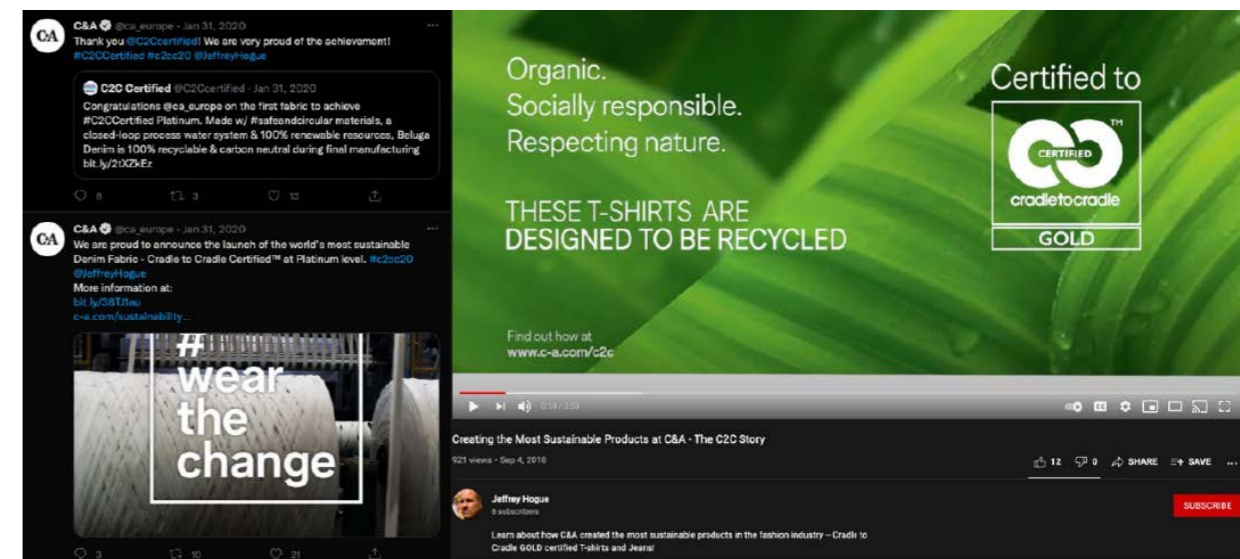


Figure 4.11: C&A promotion of its C2C certification

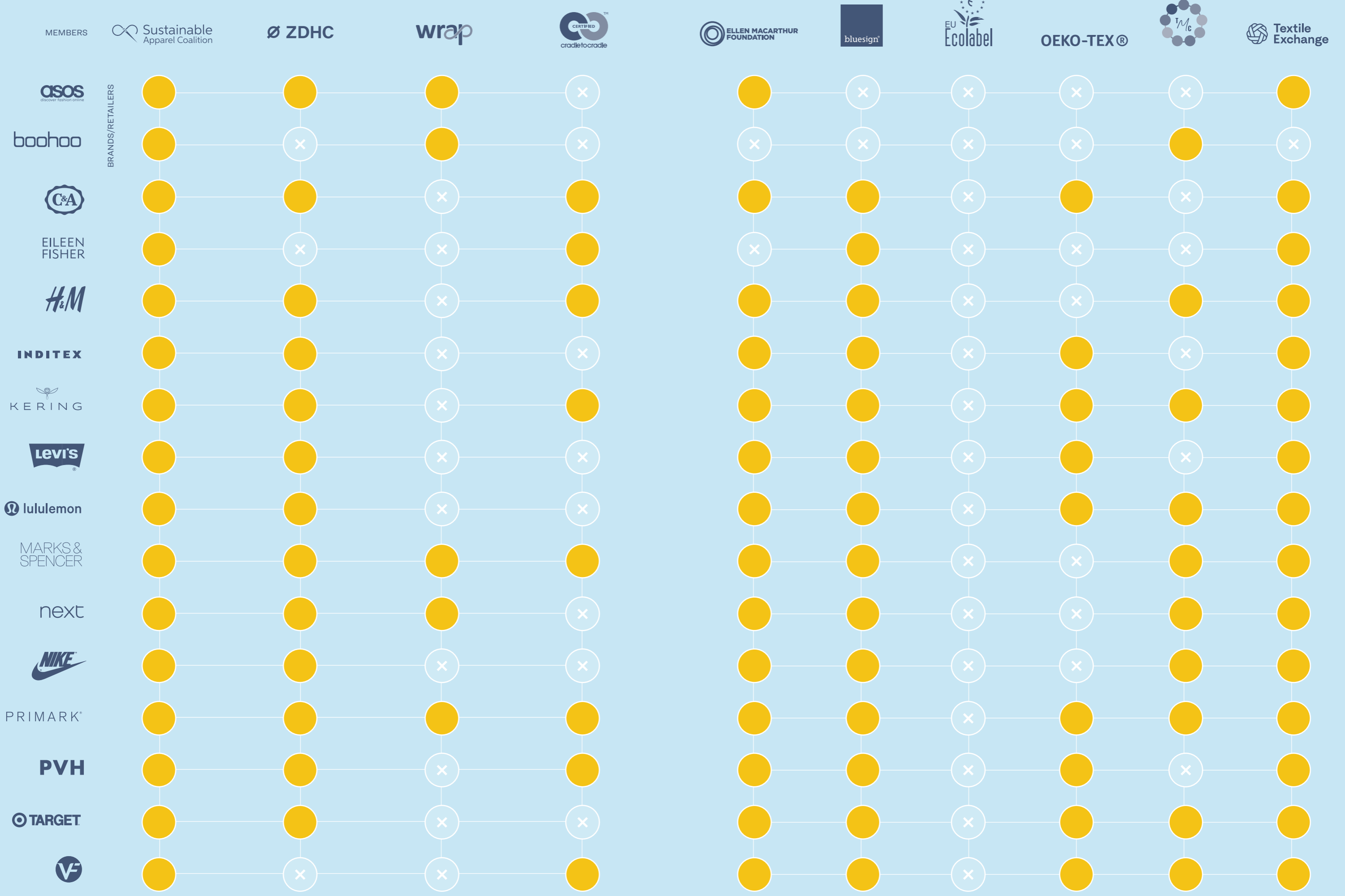
Similarly, the media hype created through press releases, blogs and social media posts attributed to the introduction of Primark's first pair of C2C-certified denim jeans is unequal to the ratio of clothing that remains uncertified or transparent about its provenance on the website and within its stores.

Figure 4.12: Primark's C2C-certified denim jeans

In June 2021, Primark launched their C2C denim jeans in two colours, ecru and blue at the price of just £19.³⁰² This represents 2 out of 540 women's clothing items that sit on the brand's commerce platform as of November 2021 and again underpins the disproportionate marketing activity given to a miniscule number of items in a collection.



STITCHED TOGETHER: MEMBERSHIP AND CONNECTIONS BETWEEN SCHEMES AND BRANDS



Similarly, H&M Group's animal welfare and material ethics policy goes as far as laying out the requirements for natural stone, cotton, man-made cellulosic fibres and bio-based materials,³⁰⁶ yet fails to include notes on synthetics. This is a peculiar omission given that their roster of brands relies heavily on synthetics within material composition as the *Synthetics Anonymous* report identified that 59% of H&M's Main Collection clothing items analysed contained synthetics in some capacity.³⁰⁷

4.3.2.10. Revolving doors

While individual fashion brands leverage their involvement in initiatives and certification schemes to delay and distract, it is important to look at the wider ecosystem of organisations to which they belong, and the interplay between them.

By examining the governance and membership structures of the initiatives that we have investigated, it becomes clear just how interwoven these bodies have become. As such, they present a united front and form an intricate web of influence that undermines their ability to be fully transparent and impartial. While sometimes well intentioned in pursuit of industry collaboration, the heavily intertwined relationships of brands and certification schemes or initiatives is creating a seismic distraction.

Through our research, we identified three main areas that act as a distraction and call into question the impartial risks of current governance structures:

1. **Membership of Boards of Directors:** It is common for sustainability executives of fashion brands to sit on the Board of Directors for these schemes. While it is important to ensure that industry voices have a seat at the table, all too often, they in fact dominate representation. Paid membership benefits of schemes will often include the opportunity to sit on the Board of Directors, therefore brands with enough capital are able to buy their way into positions of influence, ultimately increasing the risk of pushing ulterior motives that could derail progress of the scheme and prevent impartiality. Our research reveals that this exists across multiple schemes at any given time, for example, Primark with TMC and ZDHC or H&M Group with the SAC and C2C. H&M has used the quest for 'transparency' to justify their presence on the Board of Directors for the SAC. In their 2018 sustainability report - the retailer states:

*H&M Group recently joined the executive board of SAC to further drive industry-wide transparency of the fashion and apparel industry. This is needed now more than ever, with increased expectations from customers, stakeholders and legislators for transparent supply chains and disclosures on the impact on people and planet.*³⁰⁸

2. **Affiliation with other schemes:** It is not just brands seeking to forge close ties to the governance of initiatives. Whether it is as a research member, laboratory partner, industry 'expert', affiliate or as a standard member, initiatives are also highly interconnected with each other. Such connections allow these organisations to mutually reinforce each other's credibility within the sector. This also applies to the Fashion Positive Plus framework, which integrates and recommends involvement with the likes of bluesign®, Higg Index, OEKO-TEX® and ZDHC.
3. **Organisations creating and cofounding more industry initiatives:** A third and final observation related to governance is how many of these organisations give rise to even more initiatives and pacts. For example, the AII, designed to 'fund and scale proven quality solutions to accelerate positive impact in the industry'³⁰⁹ is a project founded by the likes of the SAC, the Sustainable Trade Initiative and Target Corporation. Similarly, the C2C Product Innovation Institute founded the Fashion Positive Plus initiative and Kering Group has also instigated the Kering Fashion Pact



with more than 60 signatories from the industry's supply chain ecosystem.³¹⁰ It begs the question, what is the point of constantly creating new initiatives and modules, if even the existing ones are not fit for purpose? In tandem, there is a history of fashion brands donating their own material sustainability indexes or standards to organisations. This can raise important issues relating to impartiality, for example - the Nike MSI was gifted to the SAC and the Responsible Down Standard created by The North Face was then given for use by the Textile Exchange.

4.4. Derail

The absence of meaningful legislation that is regulating the industry means that public evidence of derail tactics, designed to prevent regulation, is sparse.

What can be said is that the mere presence of this roster of voluntary initiatives can be seen to be derailing positive transformation by creating a grand illusion of action in the industry, which in part stalls the implementation of legally binding rules.

As momentum begins to build at a European level with the EU Textiles Strategy and the revisiting of the EAC's 2018 *Fixing Fashion* report in the UK, schemes and initiatives, such as the SAC and WRAP have positioned themselves to leverage their influence and push their weak industry-approved standards or tools as something that should be adopted by regulators. This tactic of pre-empting legislation has been seen in other sectors and the fashion's voluntary initiatives are well positioned to jump into action and ensure that any upcoming legislative initiatives align with the sector's aspirations.

For example, the SAC has positioned itself as the technical secretariat for the PEF Category Rules within the European Commission. The PEF Category Rules are devised as a set of specific rules related to the PEF - 'A Life Cycle Assessment (LCA) based method to quantify the relevant environmental impacts of products (goods or services)'.³¹¹ It describes its position of influence as a 'facilitator' of the collaborative conversation helping to develop policy standards for products in the EU. This is disconcerting, given the lack of transparency and public evidence on how the SAC has driven any positive progress since its inception.

The SAC states that:

*We also believe that good policy needs to build on these existing initiatives so we don't create duplicity and add unnecessary burdens on actors in the global value chain. By building on what has already been done, we can accelerate the action we need to see in the next decade on all fronts from social through to environmental. The OECD and UNDP have been creating effective frameworks for years now, and in the case of the SAC, we have spent 10 years together with the industry developing effective tools - legislation that does not build on these but goes off at tangents severely risks setting the industry back by a decade, which we cannot afford.*³¹²

This has been framed in such a way that alludes to the fact that the SAC is an indispensable and independent player, which is problematic, given the significant limitations and oversights of the 'effective' Higg tools, including the Higg MSI. What is more, their use of language and recommendations is indicative of the organisation's wishes to cement their authority, in a pre-emptive move to ensure that it has influence in determining the rules of the game as legislation begins to be written and enforced.

Last, as detailed in Section 4.3 on distraction tactics, brands continue to use their membership to defend their poor environmental and social performance to legislators or parliamentary committees such as the EAC. The case of Boohoo is a prime example of this and it can be deemed both a distraction as well as a moment of opportunity for such a retail group to derail progress, whether intentionally or not.



5. Conclusions

Our investigation and analysis of the schemes in this report has sought to assess whether certification schemes, labels and multi-stakeholder initiatives are able to live up to the task put to them by the fashion industry and whether they reflect the trust invested in them by the public. In examining their integrity as initiatives, we assessed their ambition and scope, transparency, independence and accountability and finally their overall performance. We also assessed how they approach issues related to fossil fashion, such as overproduction, reliance on synthetic fibres, end-of-life treatment and microfibre shedding. The results highlight that the majority of schemes represent a false promise of certification for textiles. Not only are they providing an industry-wide smokescreen for the unsustainable trajectory of fast fashion to continue apace, they simultaneously act as greenwashing fig leaves, obscuring the lack of progress from the industry and the absolute necessity for regulation.

5.1. Low ambition and commitment to continuous improvement

We found all schemes to fail to hold a sufficiently high level of ambition, with the majority not setting strict requirements and timelines for members. Only bluesign®, EMF's Jean Redesign guidelines, EU Ecolabel and OEKO-TEX® have explicit requirements that could lose a company certification if not met. All others fail to hold companies to a high standard and do not have a commitment to continuous improvement or the cadence in place to frequently revise and update of standards.

5.2. Cherry-picking issues covered

Another commonly identified issue is the scope of the schemes. Certification exists in part to address the problem of mounting unsustainable production in a highly unregulated, globalised value chain - but therein lies the problem. All schemes featured in this report either only cover a very small part of the life cycle or only one aspect of the problem (e.g. only one part of the supply chain or only chemicals used at a specific stage of the production process). For those taking a more holistic view, such as EMF and WRAP, their function is misleading, for while they have a lot of thinking on such issues and route causes, much is little more than rhetoric and their recommendations are non-binding. Meanwhile, signatory companies get a free pass by being part of an initiative making the right sounds but with zero accountability or enforceability. Companies with low ambitions on environmental sustainability, such as Boohoo, can still join schemes by cherry-picking only the issues or tools that they wish to engage with and self-reporting on their progress, meanwhile loudly signalling their participation to the wider community, including customers.

5.3. Procrastinating on progress

We looked for evidence that schemes and initiatives were fundamentally adjusting the unsustainable trajectory of the industry and were found wanting. A trail of missed or ignored targets, high-flown rhetoric and some schemes even admitting most change would be down to external factors, suggest that these initiatives exist for the sake of existing, without creating any transformational change.

5.4. Compromised independence and woeful transparency

Every scheme was found to have accountability issues. We have previously criticised the lack of accountability in schemes such as the EMF and we witness the same in initiatives like WRAP and TMC. Issues such as aggregated reporting of results, no provision of information on companies that have lost certification or failing to publicly disclose key information, such as the one used to develop certain tools, fundamentally undermine the schemes' usefulness in creating change or holding businesses to account. The majority of initiatives are funded either fully or in part by membership fees, creating a perverse lack of incentive to criticise those providing their primary source of income. More broadly, this encapsulates the failure of self-regulation and the voluntary approach to sustainability in general. Transparency also emerged as a key shared pitfall of the schemes. Even relatively robust certification, such as the EU Ecolabel and bluesign® have issues with public disclosure of information. Others have confused transparency with sheer quantity of communication; bombarding the public with rhetoric and endless documents to an extent that seems almost wilfully confusing, without resulting in any real disclosure.

5.5. Garbage in, garbage out

Another contributor to the greenwashing effect of these schemes is the contagiously bad data circulating around about the fashion industry's environmental impact. Therefore, once bad data are produced by someone (e.g. synthetic fibre production having negligible water footprint and very low carbon footprint), it is quickly taken

up by almost everyone in the industry without questioning and is soon adopted into numerous assessment tools and labels. The interwoven network of influence we have revealed between these initiatives demonstrates how easily this lack of robust, scientific data can proliferate and result in major material decisions being made based on highly questionable inputs. Lack of transparency makes it hard to trace and address these erroneous data sources.



A burning landfill in Buriram, Thailand

Credit: Shutterstock

5.6. Own brand standards - a licence to greenwash

Adding to the greenwashing effect is the rise of sustainability claims and standards set up by brands themselves. Brands not only work to reinforce their stewardship image through third-party industry schemes but have now expanded into creating their own with self-defined criteria. Whether it is Boohoo's Ready For The Future, H&M Conscious, Inditex's Join Life or Primark Cares, the creation of independent 'sustainability' hallmarks is a case of brands marking their own homework without any steps towards third-party verification.

5.7. Fossil fashion ignored or exacerbated

For all schemes addressed, fossil fashion remains the behemoth in the room. High-profile schemes such as the Higg Index and C2C, scarcely mention the vast fossil-fuel reliance of the fashion industry and those that include more detail, such as the EMF and WRAP, do so in the form of unenforceable recommendations or at least acknowledgement of the problem. In overlooking fossil fashion, wilfully or through a lack of proper understanding of the causal relationships between the rapid growth of fossil-fuel-based fibres and fast fashion, these schemes are ignoring the root causes of fashion's problems and as such, their approach only tinkers around the edge of the issues. Some schemes reveal an apparent bias towards fibres such as polyester (Higg MSI) - claiming it to

have a far lower impact than natural fibres while ignoring fossil-fuel extraction - or recommending polycotton blends to reduce carbon footprint (SCAP) despite the issues that this creates for end of life. TMC is notable for its synthetic bias, insisting that natural microfibres are just as harmful as synthetic fibres, despite the scientific research suggesting the contrary. The bias inherent in some of these tools influences brands' decision-making on material mix and doubles down reliance on fossil-fuel-derived fibres in the middle of a climate emergency.

5.8. An invisible problem, ignored

Even though the major multi-stakeholder initiatives (EMF, WRAP, TMC and Textile Exchange) report on the problems of microfibre release (as opposed to certification schemes, which stay silent on the issue), none offers real targets (e.g. phase-out of synthetic fibres) or quantitative measures to reduce the production of materials that shed microfibres. Delaying real action should be a no-go at this stage, given what we know about the current harms. Even if more research is needed in tandem, any credible sustainability initiative should recommend the immediate decrease/phase-out of materials with synthetic fibres on the basis of the precautionary principle and be advocating for policy instruments to complement this. Lacking any vision or meaningful guidance from initiatives, the strategy of many brands is to notionally admit it is a problem, create confusion about the sources and delay any action by asking for additional research on the topic for several more years - all the while ramping up reliance on synthetics.

5.9. Green is the new black

The fashion industry is riddled with greenwashing as it stands, with brands making green claims unchallenged until only very recently. The certification schemes, voluntary initiatives and commitments presented in this report, are a highly sophisticated way for fashion brands to continue greenwashing either their complete lack of action or the baby steps in the right direction that they have taken. A stamp of third-party approval allows companies to fly under the radar of efforts by regulators to crack down on greenwashing. It also allows companies to outsource issues to voluntary schemes and initiatives, rather than to address them seriously at the company level. For example, companies regularly point to their membership of TMC as evidence they are committed and aware of the microfibre issue, yet as we have seen, this body is ineffective, compromised and biased in favour of synthetics. Across the board, these schemes are riddled with flaws; their independence and transparency is compromised by design, their performance is minimal or non-existent and many are worsening the problems they claim to solve.

5.10. Undermining and pre-empting legislation

Our investigation also uncovered brands' use of their membership of these schemes and how they are used deliberately or inadvertently to delay, distract and derail progress - using certification and scheme membership as a smokescreen to conceal a lack of systemic action. Key tactics include plastering their products and marketing with certification labels, using membership of schemes to distract policymakers who might otherwise seek regulatory solutions, pushing technological false solutions promoted by such schemes (e.g. recycling machines), and having a strong presence in the governance of initiatives and schemes with a large influence over their direction. For example, SAC has positioned itself as an independent actor in the secretariat to develop the upcoming PEF regulations, although the Higg Index has been criticised over its bias in favour of synthetics fibres. The majority of schemes we analysed, with the exception of the EU Ecolabel, which is not used by any brands in the research, are complicit brands in greenwashing and misleading customers and policymakers.

5.11. The failure of self-regulation and the role of certification

The decades-long experiment in self-regulation of the fashion industry has run its course and the mounting environmental and social crises precipitated by the fashion industry have only worsened, along with skyrocketing production. What is clear is that certification and multi-stakeholder initiatives have played a large role thus far in this self-regulation and are also part of the problem when it comes to fashion's lack of progress on sustainability. By acting as sustainability placebos, brands, customers and policymakers are led to believe that action is being taken by the false promise of these initiatives - this has resulted in ruling out more systemic measures such as regulation and pushing for greater accountability and transparency.

As long as progress remains voluntary, sustainability in the textiles sector will remain optional, with the actions of a few progressive brands dwarfed by the continued pursuit of growth at any cost by the majority. In its current voluntary form, certification and membership of voluntary initiatives are gilding this runaway train with an eco-glow, a glow that blinds us to the uncomfortable truths and real solutions.

6. Recommendations

Regulation

Regulation must be the way forward. Ambitious national and international regulations would create a level playing field for all companies involved, from sustainability leaders, such as Reformation and Stella McCartney, to laggards, such as Boohoo and Shein.

- **Ambitious regulation must be the only way forward.** It is paramount that both governments and fashion brands stop supporting unambitious schemes and recognise that certification and voluntary commitments are limited in utility and not the correct tools to put the fashion sector on a more sustainable trajectory. Instead of hiding behind voluntary labels, industry leaders must start calling for progressive legislation on climate, circular economy and to prevent greenwashing.
- **Strong regulation on green claims.** A number of government bodies have started or promised to act on regulating green claims. Legislation should not take voluntary initiatives and certifications at face value, but should require that companies justify the claims for each product on the basis of the holistic and comprehensive criteria. The CMA's guidelines on green claims are a good start and must be followed through with enforcement. The Federal Trade Commission should follow suit and update its Green Guides to ensure enforcement. The EC will publish its green claims proposal on 20 July 2022. In this context, we recommend a pre-approval process for green claims and labels, similar to the one applied by the European Food Safety Authority for food health claims. We also recommend the blacklisting of confusing or vague claims such as 'green', 'carbon neutral' and 'ocean friendly'.
- **EU Textile strategy.** The upcoming EU textile strategy is an unprecedented opportunity to start putting the fashion sector on a more sustainable trajectory by introducing mandatory legislation. We recommend the following measures to be introduced:
 - Strong EPR scheme with eco-modulated fees and targets that cover collection, preparation for reuse and closed-loop recycling. For more about EPR and supportive policies, see our policy briefing at (www.changingmarkets.org/fossilfashion).

- Tax on virgin plastic fibres, which will address the prevalence of these materials in the textile sector and their negative environmental impacts. Our analysis shows that cheap synthetics are key enablers of fast fashion and that these fibres and their blends also cause problems at the end-of-life management.
- Strong rules to address microfibre pollution at the product design phase and bans on chemicals of concern.
- Obligation for companies for full supply-chain transparency.

Certification schemes and voluntary initiatives

All except the most ambitious and comprehensive certification schemes should be abolished - this should go hand in hand with greater regulation to address greenwashing across all sectors.

Those schemes with room for improvement must be reformed as a matter of priority with a focus on the below criteria:

- **Full transparency:** Publish details of criteria and reporting processes to members as well as share actual assessment results. This will encourage end-to-end supply-chain transparency and a higher level of due diligence from the stakeholders involved. Take responsibility for rectifying misunderstandings and misconceptions about the standard or scheme. Provide full transparency when communicating missed targets in progress reports and encourage members to publicly publish data, such as their fibre mix and suppliers across all tiers.
- **Independence:** Certifications should remove conflicts of interest and decouple their membership revenue from certification and compliance outcomes. This should also include hiring independent bodies to set standards, conduct assessments and establish a comprehensive verification process.
- **A separation of powers:** Governance of the standard or scheme should be representative of the entire industry ecosystem and strive for impartiality, both structurally and procedurally. Member-

ship of Boards of Directors must include voices from every stage of the supply chain and a wide range of stakeholders, including civil society and academia, and not be dominated by industry voices. Positions of governance should not be bought or offered as part of a membership package, but chosen democratically and according to expertise and merit.

- **Holistic approach:** Embrace a holistic approach with high traceability to cover the whole life cycle of a product. For example, this should include chemical additives as well as material composition. Few schemes monitor every stage of the value chain which often means that brands select a combination of initiatives where gaps may arise. Where a scheme is laser-focused on a particular issue, for example toxic chemicals, the limits of the certification should be made very clear so that wider sustainability claims are not being associated with it. Initiatives should also update their policies and approaches regarding the harm of synthetic microfibres in line with current scientific understanding.
- **Verification:** Require brands and the scheme itself to submit data that have been audited by a third party. This includes conducting re-screening and re-audit activities at predefined, regular intervals.
- **Ambition:** A high level of ambition when it comes to target setting that leaves no room for ambiguity. For these schemes to be transformational, goals must be regularly updated and shared with members to encourage continuous improvement. Schemes should be science-based, reflect regulatory improvements and prevent backsliding. They should set a clear roadmap with distinguished phases to drive progress and make comments on essential areas including limiting over production, durability and end-of-life processes.
- **Prevent false solutions:** Do not encourage or promote false material solutions such as recycled polyester from PET bottles. The organisations should closely monitor how members are communicating matters related to recyclability, compostability and circularity to ensure they are not misleading their customers, especially on end-of-life and downcycling challenges.

Fashion brands and retailers

Clear communication about the benefits of certification schemes that is void of greenwashing. Ensure that green claims related to certifications and the use of logos and badges are truthful and accurate. This can focus on:

- Presenting the full picture when discussing the roadmap and ‘solutions’ used to reach initiatives’ targets. This means ending the promotion of false end-of-pipe solutions that rely heavily on recycled synthetics and feedstock from PET bottles, fishing nets and carpets. Addressing the realities related to the downcycling of storied materials will encourage investment in true circularity.
- Using existing green claims guidance issued by the CMA to assess how certifications are described on customer touch points in-store and online, i.e. website, visual merchandising, points of sale and clothing tags. Brands and retailers should work to improve website merchandising to share all the information about certifications on individual product pages where appropriate to educate the customer and work to verify the claims they make on these pages with a third party.

Leave any industry initiatives that oppose, delay or undermine progressive legislation - including its implementation. To act on this, companies can set internal commitments to reviewing schemes annually to ensure that their objectives are still aligned to the goals of the organisation.

Adopt a holistic approach to certifications to address the gaps they do not cover and be ambitious with goal setting. This means going beyond using membership as a box-ticking exercise and instead present-

ing the full picture when it comes to setting targets in line with a scheme’s expectations. For example, if brands wish to discuss plastic packaging and plastic cosmetic ingredients under the EMF initiatives, they should also address plastic clothes.

BOX 6.1: Key demands on fossil-fuel reliance

We reached out to fashion brands ahead Climate Conference COP26 with demands that we feel are commensurate to the scale of the challenge, namely:

- Complete transparency from fashion brands on their use of fossil fuels by December 2022.
- A 20% reduction set to a 2021 baseline in the use of fossil fuels in materials by 2025 and a 50% reduction by 2030.
- Science-based climate targets to cut all GHG emissions across supply chains by at least 55% by 2030.

Fashion customers

We all have a role to play, as people who buy fashion, to continue to signal our displeasure with the rampant fast-fashion model, but it is not easy to solve this problem as an individual. Indeed, it is a convenient narrative for the worst fast-fashion culprits to blame the consumer and deflect blame by claiming they are only responding to demand. Brands create demand, and spend millions engineering the customer experience to get people to buy more.

Reducing fashion’s impact should not be solely the individual’s responsibility, but rather part of wider system change pioneered by legislators and implemented by companies. For this reason we encourage everyone to be vocal about the need for change and pair this with educational efforts; understanding that certification or membership of a nice-sounding initiative is no guarantee of sustainability; learning to spot and call out greenwashing; and recognising the brands truly taking action on sustainability from those just coming along for the marketing ride.

Individual actions also send a signal to brands and governments, and are part of a wider landscape-level zeitgeist away from fast fashion. For resources and how-to guides on everything from advocacy to darning and repair, see Fashion Revolution’s resources at <https://www.fashionrevolution.org/resources/how-tos/>.

In addition, Changing Markets’ latest project, www.greenwash.com exposes a range of greenwashing tactics used on products, projects and adverts. Our hope is that people can use this resource to inform themselves about what greenwashing looks like in practice and to be better able to challenge it when it arises.

7. References

- 1 Ecolabel Index (n.d.) All ecolabels on textiles. [ONLINE] Available at: <http://www.ecolabelindex.com/ecolabels/?st=category,textiles>
- 2 Changing Markets Foundation (2018) *The false promise of certification*. [ONLINE] Available at: https://changingmarkets.org/wp-content/uploads/2018/05/False-promise_full-report-ENG.pdf
- 3 Brand, U. (2005) Order and regulation: Global governance as a hegemonic discourse of international politics? *Review of International Political Economy*, 12(1): 155–176. Kütting, G. and Lipschutz, R. (eds) (2009) *Power, knowledge and governance in international environmental policy*. London: Routledge.
- 4 Changing Markets Foundation (2018) *The false promise of certification*. [Online] Available at: https://changingmarkets.org/wp-content/uploads/2018/05/False-promise_full-report-ENG.pdf
- 5 MSI Integrity (2020) *Not fit-for-purpose*. [Online] Available at: https://www.msi-integrity.org/wp-content/uploads/2020/07/MSI_Not_Fit_For_Purpose_FORWEBSITE.FINAL_.pdf
- 6 MSI Integrity (2020) *Not fit-for-purpose*. [Online] Available at: https://www.msi-integrity.org/wp-content/uploads/2020/07/MSI_Not_Fit_For_Purpose_FORWEBSITE.FINAL_.pdf
- 7 Changing Markets Foundation (2020) *Talking trash*. [ONLINE] Available at: <https://changingmarkets.org/portfolio/talking-trash/>
- 8 EEB (2021) *Wardrobe change*. [ONLINE] Available at: <https://wardrobechange.eu/wp-content/uploads/2021/06/Environmental-CSOs-Recommendations-for-the-EU-Strategy-for-Sustainable-Textiles-June-2021.pdf>
- 9 Poynton, S. (2015) *Beyond certification*. Sheffield: Green Leaf Publishing.
- 10 Tecnon Orbichem (2021) World Synthetic Fibres Database – Strategic Market Overview
- 11 Changing Markets Foundation (2021) *Fossil fashion: The hidden reliance of fast fashion on fossil fuels*. [ONLINE] Available at: <https://changingmarkets.org/portfolio/fossil-fashion/>
- 12 Ellen MacArthur Foundation (2017) *A new textiles economy report*. [ONLINE] Available at: <https://emf.thirdlight.com/link/2axvc7eob8zx-za4ule/@/preview/1?o>
- 13 Medium (2021) *The secret diary of a sustainable investor - part 3*. [ONLINE] Available at: <https://medium.com/@sosofancy/the-secret-diary-of-a-sustainable-investor-part-3-3c238cb0dcb>

- 14 Poynton, S. (2015) *Beyond certification*. Sheffield: Green Leaf Publishing.
- 15 Retail Gazette (2022) *Regulators to investigate fashion sector on suspicion of greenwashing* [ONLINE] Available at: <https://www.retailgazette.co.uk/blog/2022/01/regulators-to-investigate-fashion-sector-on-suspicion-of-greenwashing/>
- 16 MSI Integrity (2020) *Not fit-for-purpose*. [Online] Available at: https://www.msi-integrity.org/wp-content/uploads/2020/07/MSI_Not_Fit_For_Purpose_FORWEBSITE.FINAL_.pdf
- 17 Changing Markets Foundation (2021) *Fossil fashion: The hidden reliance of fast fashion on fossil fuels*. [ONLINE] Available at: <https://changingmarkets.org/portfolio/fossil-fashion/>
- 18 Tecnon Orbichem (2021) World Synthetic Fibres Database – Strategic Market Overview
- 19 Sustainable Apparel Coalition (2020) *A decade in review*. [ONLINE] Available at: <http://apparelcoalition.org/wp-content/uploads/2021/02/SAC-A-Decade-in-Review.pdf>
- 20 Sustainable Apparel Coalition (2020) *A decade in review*. [ONLINE] Available at: <http://apparelcoalition.org/wp-content/uploads/2021/02/SAC-A-Decade-in-Review.pdf>
- 21 Sustainable Apparel Coalition (2021) *A decade in review*. [ONLINE] Available at: <http://apparelcoalition.org/wp-content/uploads/2021/02/SAC-A-Decade-in-Review.pdf>
- 22 Changing Markets Foundation (2018) *The false promise of certification*. [ONLINE] Available at: https://changingmarkets.org/wp-content/uploads/2018/05/False-promise_full-report-ENG.pdf
- 23 Ecotextile (2020) *Higg connects with open apparel registry*. [ONLINE] Available at: <https://www.ecotextile.com/2020102726916/materials-production-news/higg-connects-with-open-apparel-registry.html>
- 24 Just-Style (2021) *Brands back consumer facing transparency programme*. [ONLINE] Available at: <https://www.just-style.com/news/brands-back-consumer-facing-transparency-programme/>
- 25 Higg (2019) *Higg FEM - how to guide*. [ONLINE] Available at: <http://howtohigg.org/wp-content/uploads/2019/10/Higg-FEM-How-to-Higg-Guide-2019-FINAL.pdf>
- 26 Higg (n.d.) *FEM user selection - FEM brand users*. [ONLINE] Available at: <https://howtohigg.org/fem-user-selection/fem-brand-users-landing/>
- 27 Lollo, N. and O'Rourke, D. (2020) *Measurement without clear incentives to improve: The impacts of the Higg facility environmental module (FEM) on apparel factory practices and performance*. [ONLINE] Available at: <https://osf.io/preprints/socarxiv/g67d8/>
- 28 Ellen MacArthur Foundation (n.d.) *Make fashion circular*. [ONLINE] Available at: <https://www.ellenmacarthurfoundation.org/our-work/activities/make-fashion-circular>
- 29 Ellen MacArthur Foundation (2017) *A new textiles economy*. [ONLINE] Available at: <https://www.ellenmacarthurfoundation.org/publications/a-new-textiles-economy-redesigning-fashions-future>
- 30 Changing Markets Foundation (2021) *Fossil fashion: The hidden reliance on fossil fuels and fashion*. [ONLINE] Available at: http://changingmarkets.org/wp-content/uploads/2021/01/FOSSIL-FASHION_Web-compressed.pdf
- 31 New Plastics Economy (2020) *New plastics economy global commitment signatories*. [ONLINE] Available at: https://www.newplasticseconomy.org/assets/doc/Global-Commitment-Signatories_List_Document-to-download-on-website_Feb-2020-V2.pdf
- 32 Ellen MacArthur Foundation (2021) *The jeans redesign*. [ONLINE] Available at: <https://ellenmacarthurfoundation.org/the-jeans-redesign>
- 33 Primark (2021) *The jeans redesign project*. [ONLINE] Available at: <https://www.primark.com/en/the-edit/women/primark-x-the-jeans-redesign-project/a/f4b8639c-0af7-4698-8b2c-b8dda27796df>
- 34 Primark (n.d.) *Navy Ellen MacArthur Foundation jeans*. [ONLINE] Available at: <https://www.primark.com/en/all-products/womenswear/clothing/all-jeans/navy-denim-turn-up-straight-leg-emf-jeans/p/210108845>
- 35 LinkedIn (2021) *Mohsin Sajid - Primark cares - the jeans redesign*. [ONLINE] Available at: https://www.linkedin.com/posts/mohsinsajid_jeansredesign-jeansredesign-primarkcares-activity-6868515298048393216-01U3/
- 36 Ellen MacArthur Foundation (2021) *Circular design for fashion*. Cowes: EllenMacArthur Foundation Publishing.
- 37 Ellen MacArthur Foundation (2021) *Circular design for fashion*. Cowes: EllenMacArthur Foundation Publishing.
- 38 WRAP (n.d.) *Textiles 2030 - a new ground-breaking, expert-led initiative*. [ONLINE] Available at: <https://wrap.org.uk/taking-action/textiles/initiatives/textiles-2030>
- 39 WRAP (n.d.) *Taking action*. [ONLINE] Available at: <https://wrap.org.uk/taking-action/textiles/initiatives/textiles-2030>
- 40 Ibid.
- 41 Water Footprint Network (2017) *Water footprint assessment of polyester and viscose and comparison to cotton*. [ONLINE] Available at: https://waterfootprint.org/media/downloads/WFA_Polyester_and_Visose_2017.pdf
- 42 WRAP (2019) *SCAP footprint calculator 2.1*. [ONLINE] Available at: <https://archive.wrap.org.uk/sites/files/wrap/SCAP%20footprint%20calculator%20data.pdf>
- 43 Ibid.
- 44 Ibid.
- 45 Lets Recycle (2021) *SCAP 2020 textile waste targets gets missed*. [ONLINE] Available at: <https://www.letsrecycle.com/news/wrap-misses-scap-2020-waste-targets/>
- 46 Cradle to Cradle Products Innovation Institute (2021) *The Cradle to Cradle Certified Product Standard version 4.0 is here*. [ONLINE] Available at: <https://www.c2ccertified.org/news/article/c2ccertified-v4.0-is-here>
- 47 Cradle to Cradle Products Innovation Institute (n.d.) *What is Cradle to Cradle certified?* [ONLINE] Available at: <https://www.c2ccertified.org/get-certified/product-certification>
- 48 Cradle to Cradle Products Innovation Institute (n.d.) *What is Cradle to Cradle certified?* [ONLINE] Available at: <https://www.c2ccertified.org/get-certified/product-certification>, p. 7.
- 49 Ibid., p.13.
- 50 Ibid., p. 25.
- 51 Cradle to Cradle Products Innovation Institute (n.d.) *What is Cradle to Cradle certified?* [ONLINE] Available at: <https://www.c2ccertified.org/get-certified/product-certification>
- 52 Eunomia (2020), *op cit.*, p. 48.
- 53 Bach et al. (2018) Assessing the ability of the Cradle to Cradle Certified™ Products Program to Reliably Determine the Environmental Performance of Products, p. 14. *Sustainability* 10 (5): 1562 [ONLINE] Available at: <https://www.mdpi.com/2071-1050/10/5/1562>
- 54 Llorach-Massana et al. (2015) Are Cradle to Cradle certified products environmentally preferable? Analysis from an LCA approach. *Journal of Cleaner Production* 93: 243-250.
- 55 Cradle to Cradle Products Innovation Institute (n.d.) *What is Cradle to Cradle Certified®?* [ONLINE] Available at: <https://www.c2ccertified.org/get-certified/product-certification>
- 56 Cradle to Cradle Products Innovation Institute (2021) *Cradle to Cradle Certified® version 4.0 product standard*, p. 4. [ONLINE] Available at: https://cdn.c2ccertified.org/resources/certification/standard/STD_C2C_Certified_V4.0_FINAL_031621.pdf
- 57 Ibid.

- 58 Cradle to Cradle Products Innovation Institute (2021) *Cradle to Cradle Certified® version 4.0 product standard*, pp. 11-12. [ONLINE] Available at: https://cdn.c2ccertified.org/resources/certification/standard/STD_C2C_Certified_V4.0_FINAL_031621.pdf
- 59 Cradle to Cradle Products Innovation Institute (2019) *Policy for certification extension within the certification scheme for the Cradle to Cradle Certified™ products program. Version 1.4. January 2019*. [ONLINE] Available at: https://cdn.c2ccertified.org/resources/certification/policy/POL_Extension_v1.4_040520_effective_1_May_2019.pdf
- 60 OEKO-TEX (2019) *Terms of use - Edition 01.2019*. [ONLINE] Available at: <https://www.testex.com/en/downloads/AGB/Terms-of-Use-ToU.pdf>
- 61 OEKO-TEX (2019) *Terms of use - Edition 01.2019*. [ONLINE] Available at: <https://www.testex.com/en/downloads/AGB/Terms-of-Use-ToU.pdf>
- 62 OEKO-TEX (2019) *Terms of use - Edition 01.2019*. [ONLINE] Available at: <https://www.testex.com/en/downloads/AGB/Terms-of-Use-ToU.pdf>
- 63 OEKO-TEX (2019) *Terms of use - Edition 01.2019*. [ONLINE] Available at: <https://www.testex.com/en/downloads/AGB/Terms-of-Use-ToU.pdf>
- 64 OEKO-TEX (2019) *Terms of use - Edition 01.2019*. [ONLINE] Available at: <https://www.testex.com/en/downloads/AGB/Terms-of-Use-ToU.pdf>
- 65 OEKO-TEX (2019) *Terms of use - Edition 01.2019*. [ONLINE] Available at: <https://www.testex.com/en/downloads/AGB/Terms-of-Use-ToU.pdf>
- 66 OEKO-TEX (n.d.) *Withdrawn certificates and labels*. [ONLINE] Available at: <https://www.oeko-tex.com/en/label-check/withdrawn-certificates>
- 67 Rauturier, S. (2017) *Bluesign® standard. Good on you*. [ONLINE] Available at: <https://goodonyou.eco/bluesign-standard/>
- 68 Bluesign (2020) *Bluesign® criteria for brands*. [ONLINE] Available at: https://www.Bluesign.com/downloads/criteria-2020/Bluesign_criteria_for_brands_v3.0_2020-03.pdf
- 69 Stand.Earth (2021) *Fossil free fashion scorecard - executive summary*. [ONLINE] Available at: <https://fashionstand.earth/executive-summary>
- 70 Greenpeace (2018) *Textil-Siegel im Greenpeace-Check*, pp. 3-4. [ONLINE] Available at: <https://www.greenpeace.de/presse/publikationen/textil-siegel-im-greenpeace-check>
- 71 European Commission (n.d.) *EU Ecolabel*. [ONLINE] Available at: <https://ec.europa.eu/environment/ecolabel/>
- 72 European Environmental Bureau (n.d.) *Resource efficiency - EU Ecolabel*. [ONLINE] Available at: <https://eeb.org/work-areas/resource-efficiency/eu-ecolabel/>
- 73 European Commission (n.d.) *Ecolabel facts and figures*. [ONLINE] Available at : <https://ec.europa.eu/environment/ecolabel/facts-and-figures.html>
- 74 Sustainable Apparel Coalition (n.d.) *Our full history*. [ONLINE] Available at: <https://apparelcoalition.org/behind-the-scenes-at-the-sustainable-apparel-coalition/#:~:text=Participants%20included%20Patagonia%2C%20Walmart%2C%20Target,nonprofit%20labor%20rights%20group%20Verite>
- 75 Nike Supply Chain (n.d.) *Certification of materials*. [ONLINE] Available at: <http://nikesupplychain.weebly.com/sustainability-of-materials.html>
- 76 Sustainable Apparel Coalition (2021) *Membership brochure*. [ONLINE] Available at: <http://apparelcoalition.org/wp-content/uploads/2021/03/SAC-Membership-Brochure-2021.pdf>
- 77 Sustainable Apparel Coalition (n.d.) *About us*. [ONLINE] Available at: <https://apparelcoalition.org/board-of-directors/>
- 78 Apparel Impact Institute (n.d.) *About us*. [ONLINE] Available at: <https://apparelimpact.org/about/>
- 79 Sustainable Apparel Coalition (2021) *Press release - Sustainable Apparel Coalition annual meeting 2021*. [ONLINE] Available at: <https://docs.google.com/document/d/1eOtf24xuVyKWGzFmhWXD4uOH23bY3RZOAs9S-KIYKPHU/edit#>
- 80 Poynton, S. (2015) *Beyond certification*. Sheffield: Green Leaf Publishing.
- 81 Cradle to Cradle Products Innovation Institute (n.d.) *About*. [ONLINE] Available at: <https://www.c2ccertified.org/about/about>
- 82 Cradle to Cradle Products Innovation Institute (2021) *Cradle to Cradle Certified® products program fees schedule*. [ONLINE] Available at: https://cdn.c2ccertified.org/resources/certification/policy/POL_C2C_Certified_Fees_Final_effective_1_July_2021.pdf
- 83 Cradle to Cradle Products Innovation Institute (2021) *Cradle to Cradle Certified® products program fees schedule*. [ONLINE] Available at: https://cdn.c2ccertified.org/resources/certification/policy/POL_C2C_Certified_Fees_Final_effective_1_July_2021.pdf
- 84 Fashion Positive Plus (n.d.) *Circular materials*. [ONLINE] Available at: <https://fashionpositive.org/circular-materials>
- 85 Fashion Positive Plus (n.d.) *Circular materials*. [ONLINE] Available at: <https://fashionpositive.org/circular-materials>
- 86 Cradle to Cradle Products Innovation Institute (2018) *Cradle to Cradle Products Innovation Institute and the Ellen MacArthur Foundation add four new safe and circular design methods to circular design guide*. [ONLINE] Available at: <https://www.c2ccertified.org/news/article/cradle-to-cradle-products-innovation-institute-and-the-ellen-macarthur-four>
- 87 Fashion Positive Plus (n.d.) *Circular materials*. [ONLINE] Available at: <https://fashionpositive.org/circular-materials/>
- 88 Fashion Positive (2020) *Circular materials guidelines*. [ONLINE] Available at: <https://fashionpositive.org/wp-content/uploads/2020/10/Circular-Materials-Guidelines-v1.0-Final-08202020.pdf>
- 89 Cradle to Cradle Products Innovation Institute (n.d.) *Board*. [ONLINE] Available at: <https://www.c2ccertified.org/the-team/board>
- 90 Dystar (n.d.) *Bluesign*. [ONLINE] Available at: <https://www.dystar.com/bluesign/>
- 91 SGS (2020) *Integrated annual report 2020*. [ONLINE] Available at: <https://www.sgs.com/-/media/global/documents/financial-documents/financial-reports/2020/sgs-2020-integrated-report.pdf>
- 92 SGS (2020) *Corporate sustainability report*. [ONLINE] Available at: <https://www.sgs.com/-/media/global/documents/brochures/corporate-sustainability/sgs-2020-corporate-sustainability-report.pdf>
- 93 SGS (n.d.) *Board of Directors*. [ONLINE] Available at: <https://www.sgs.com/en/our-company/about-sgs/board-of-directors>
- 94 ZDHC (2019) *ZDHC and Bluesign collaboration*. <https://www.roadmaptozero.com/post/zdhc-and-bluesign-r-collaboration?locale=en>
- 95 ZDHC Knowledge Base (n.d.) *Contribution fees*. [ONLINE] Available at: <https://knowledge-base.roadmaptozero.com/hc/en-gb/articles/360009655338-Contribution-fees-Frequently-asked-questions>
- 96 OEKO-TEX (n.d.) *About us*. [ONLINE] Available at: <https://www.oeko-tex.com/en/about-us>
- 97 OEKO-TEX (2019) *Terms of use (ToU)*. [ONLINE] Available at: https://www.testex.com/uploads/files/downloads/oeko-tex/oeko-tex_terms-of-use_EN.pdf
- 98 OEKO-TEX (n.d.) *About us*. [ONLINE] Available at: <https://www.oeko-tex.com/en/about-us/organisation>

- 99 OEKO-TEX (2019) *ZDHC recognizes ECO PASSPORT by OEKO-TEX® as a level 3 indicator of ZDHC MRSL conformance*. [ONLINE] Available at: <https://www.oeko-tex.com/en/news/press-releases/zdhc-recognizes-eco-passport-by-oeko-tex-as-a-level-3-indicator-of-zdhc-mrsl-conformance>
- 100 Ellen MacArthur Foundation (2017) *A new textiles economy report*. [ONLINE] Available at: <https://emf.thirdlight.com/link/2axvc7eob8zx-za4ule/@/preview/1?o>
- 101 European Commission (2014) *EU Ecolabel work plan for 2011 - 2015 version 1.9 of 30/07/2014*. [ONLINE] Available at: https://ec.europa.eu/environment/ecolabel/about_ecolabel/pdf/work_plan.pdf
- 102 Mowbrow J. (2016) *SAC agrees on Higg Index transparency roadmap to 2020*. *Ecotextile*, 23 June 2016. [ONLINE] Available at: <https://www.ecotextile.com/2016062322199/features/sac-agrees-on-higg-transparency-roadmap-to-2020.html>
- 103 Ibid.
- 104 Slideshare (2018) *SAC Higg communications manual v1 - member version 2*. pp. 5, 6, 8. [ONLINE] Available at: <https://www.slideshare.net/JayakumarGopalakrish/sac-higg-communicationsmanual-v1-member-version2>
- 105 Sustainable Apparel Coalition (n.d.) *SAC agrees on Higg Index transparency roadmap to 2020*. [ONLINE] Available at: <https://apparelcoalition.org/links/sac-agrees-on-higg-index-transparency-roadmap-to-2020/>
- 106 Regarding the Higg Index Roadmap to Transparency, Changing Markets (2018), *op cit.*, p. 66 referred to 'Sustainable Apparel Coalition, n.d.-f. *Higg FEM: Scoring and applicabilities*. [Online] Available at: <https://apparelcoalition.zendesk.com/hc/en-us/articles/115002450511-Higg-FEM-Scoring-and-Applicabilities> [Accessed 15 March 2018]'. Today, neither the URL (cf. Figure 4), nor a web search for its title give any result.
- 107 Sustainable Apparel Coalition (2019) *Higg communications manual*. [ONLINE] Available at: <http://apparelcoalition.org/wp-content/uploads/2019/05/SAC-HiggCommManual.pdf>
- 108 Ibid., p. 9.
- 109 Higg (n.d.) *Login page - restricted access*. [ONLINE] Available at: http://transparency.higg.org/restricted-access/?redirect_to=http%3A%2F%2Ftransparency.higg.org%2F
- 110 Mowbrow J. (2016) *SAC agrees on Higg Index transparency roadmap to 2020*. *Ecotextile*, 23 June 2016. [ONLINE] Available at: <https://www.ecotextile.com/2016062322199/features/sac-agrees-on-higg-transparency-roadmap-to-2020.html>
- 111 Higg (n.d.) *About Higg*. [ONLINE] Available at: <https://higg.com/about/>
- 112 Glover S. (2020) *New Higg tool promises transparency on sustainability*. *Ecotextile*, 23 October 2020. [ONLINE] Available at: <https://www.ecotextile.com/2020101326827/fashion-retail-news/new-higg-tool-promises-transparency-on-sustainability.html>; also: Sourcing Journal (2020). *Higg Co unveils open data portal with public access*. [ONLINE] Available at: <https://sourcingjournal.com/denim/denim-innovations/higg-co-open-data-portal-fashion-transparency-supply-chain-237911/>
- 113 Glover S. (2020) *New Higg tool promises transparency on sustainability*. *Ecotextile*, 23 October 2020. [ONLINE] Available at: <https://www.ecotextile.com/2020101326827/fashion-retail-news/new-higg-tool-promises-transparency-on-sustainability.html>
- 114 Higg (2020) *Finally, a way to validate fashion sustainability claims: New Higg open data portal unveiled at Copenhagen fashion summit*. [ONLINE] Available at: <https://higg.com/wp-content/uploads/2020/10/Higg-Co-Transparency-Press-Release.pdf>
- 115 Higg (n.d.) *Higg open data portal concept*. [ONLINE] Available at: <https://higgco.app.box.com/s/z5gfk67erlh-2g5thxpm9lsyOofsc5mnnv>
- 116 Sustainable Apparel Coalition (n.d.) *Higg Index verification you can trust*, by Betsy Blaisdell, *SAC VP Higg Index*. [ONLINE] Available at: <https://apparelcoalition.org/higg-index-verification-you-can-trust/>
- 117 Sustainable Apparel Coalition (n.d.) *The Higg Index*. [ONLINE] Available at: <https://apparelcoalition.org/the-higg-index/>
- 118 Sustainable Apparel Coalition (2021) *Press release - Sustainable Apparel Coalition and Higg launch new program for publicly sharing data on a product's environmental impact*. [ONLINE] Available at: <https://higg.com/wp-content/uploads/2021/05/Sustainable-Apparel-Coalition-and-Higg-launch-new-program-for-publicly-sharing-data-on-a-products-environmental-impact.pdf>; also: Glover S. (2020) *New Higg tool promises transparency on sustainability*. *Ecotextile*, 23 October 2020. [ONLINE] Available at: <https://www.ecotextile.com/2020101326827/fashion-retail-news/new-higg-tool-promises-transparency-on-sustainability.html>;
- 119 Sustainable Apparel Coalition (n.d.) *FAQs: Higg Index transparency program*. [ONLINE] Available at: <https://apparelcoalition.org/faqs-transparency-program/#1600209804821-c7a6c725-13a1>
- 120 Ibid.
- 121 Sustainable Apparel Coalition (n.d.) *FAQs: Higg Index transparency program*. [ONLINE] Available at: <https://apparelcoalition.org/faqs-transparency-program/#1600209804821-c7a6c725-13a1>
- 122 Ibid.
- 123 Sustainable Apparel Coalition (n.d.) *FAQs: Higg Index transparency program*. [ONLINE] Available at: <https://apparelcoalition.org/faqs-transparency-program/#1600209804821-c7a6c725-13a1>
- 124 Design - longevity (n.d.) *Sustainable Apparel Coalition's Higg Index*. [ONLINE] Available at: <https://designforlongevity.com/articles/sustainable-apparel-coalitions-higg-index>
- 125 Laudes Foundation (2020). *Environmental transformation blocked without transparency and incentives says study from UC Berkeley*. [ONLINE] Available at: <https://www.laudesfoundation.org/latest/news/2020/08/higg>; Lollo, N., & O'Rourke, D. (2020) *Measurement without Clear Incentives to Improve: The Impacts of the Higg Facility Environmental Module (FEM) on Apparel Factory Practices and Performance*. [ONLINE] Available at: https://www.researchgate.net/publication/343413664_Measurement_without_Clear_Incentives_to_Improve_The_Impacts_of_the_Higg_Facility_Environmental_Module_FEM_on_Apparel_Factory_Practices_and_Performance https://www.researchgate.net/publication/343413664_Measurement_without_Clear_Incentives_to_Improve_The_Impacts_of_the_Higg_Facility_Environmental_Module_FEM_on_Apparel_Factory_Practices_and_Performance
- 126 Sustainable Apparel Coalition (n.d.) *FAQs: Higg Index transparency program*. [ONLINE] Available at: <https://apparelcoalition.org/faqs-transparency-program/#1600209804821-c7a6c725-13a>
- 127 Sustainable Apparel Coalition (n.d.) *FAQs: Higg Index transparency program*. [ONLINE] Available at: <https://apparelcoalition.org/faqs-transparency-program/#1600209804821-c7a6c725-13a>
- 128 Ecotextile (2020) *Higg connects with open apparel registry*. [ONLINE] Available at: <https://www.ecotextile.com/2020102726916/materials-production-news/higg-connects-with-open-apparel-registry.html>
- 129 Cision PR Newswire (2021) *Higg launches traceability partner program for supply chain sustainability*. [ONLINE] Available at: <https://www.prnewswire.com/news-releases/higg-launches-traceability-partner-program-for-supply-chain-sustainability-301383436.html>
- 130 FibreTrace (n.d.) *Homepage*. [ONLINE] Available at: <https://www.fibretrace.io/>
- 131 Remington, C. (2021) *Podcast: The Higg MSI and scaling sustainability*. *Ecotextile News*, 17 May 2021. [ONLINE] Available at: <https://www.ecotextile.com/2021051727796/materials-production-news/podcast-the-higg-msi-and-scaling-sustainability.html>
- 132 Higg (n.d.) *FEM - FAQ*. [ONLINE] Available at: <https://howtohigg.org/fem-landing/fem-faq/>
- 133 Ibid.
- 134 Higg (n.d.) *FSLM user section - FAQ*. [ONLINE] Available at: <https://howtohigg.org/fslm-landing/fslm-faq/>
- 135 Higg (n.d.) *Higg product module - FAQ*. [ONLINE] Available at: <https://howtohigg.org/higg-product-module/faq/>
- 136 Eunomia (2020) *The sustainability of oil-based synthetic fibres for clothing*, p. 23-24.

- 137 Cradle to Cradle Products Innovation Institute (2021) *The Cradle to Cradle Certified Product Standard version 4.0 is here*. [ONLINE] Available at: <https://www.c2ccertified.org/news/article/c2ccertified-v4.0-is-here>
- 138 Changing Markets Foundation (2018) *The false promise of certification*. [ONLINE] Available at: https://changingmarkets.org/wp-content/uploads/2018/05/False-promise_full-report-ENG.pdf
- 139 ZDHC (2019) *The evolution of the ZDHC MRSL continues as version 2.0 launches* [ONLINE] Available at: <https://www.roadmaptozero.com/post/the-evolution-of-the-zdhc-mrsl-continues-as-version-2-0-launches?locale=en>
- 140 ZDHC (n.d.) *ZDHC manufacturing restricted substances list. Version 2.0*. [ONLINE] Available at: https://mrsl.roadmaptozero.com/MRSL2_0
- 141 ZDHC (2021) *ZDHC MRSL update principles and procedures. Version 2.0*. [ONLINE] Available at: <https://downloads.roadmaptozero.com/input/ZDHC-MRSL-Principles-and-Procedures>
- 142 ZDHC (2020) *ZDHC MRSL industry standard implementation approach. Version 1.1*. [ONLINE] Available at: <https://downloads.roadmaptozero.com/input/ZDHC-MRSL-Industry-Standard-Implementation-Approach>
- 143 ZDHC (2019) *Annual report 2019*. [ONLINE] Available at: [https://uploads-ssl.webflow.com/5c4065f2d6b53e08a1b03de7/5f59c243f68f8254018eb117_ZDHC Annual Report 2019.pdf](https://uploads-ssl.webflow.com/5c4065f2d6b53e08a1b03de7/5f59c243f68f8254018eb117_ZDHC%20Annual%20Report%202019.pdf); or ZDHC (2018) *Annual report 2018*. [ONLINE] Available at: [https://uploads-ssl.webflow.com/5c4065f2d6b53e08a1b03de7/5e258c38472d383ca4f65e78_ZDHC Annual Report 2018.pdf](https://uploads-ssl.webflow.com/5c4065f2d6b53e08a1b03de7/5e258c38472d383ca4f65e78_ZDHC%20Annual%20Report%202018.pdf)
- 144 ZDHC (2019) *Annual Report report 2019*. [ONLINE] Available at: [https://uploads-ssl.webflow.com/5c4065f2d6b53e08a1b03de7/5f59c243f68f8254018eb117_ZDHC Annual Report 2019.pdf](https://uploads-ssl.webflow.com/5c4065f2d6b53e08a1b03de7/5f59c243f68f8254018eb117_ZDHC%20Annual%20Report%202019.pdf)
- 145 ZDHC (n.d.) *Gateway - log in*. [ONLINE] Available at: <https://www.my-aip.com/ZDHCGateway/Login.aspx>
- 146 ZDHC (n.d.) *Knowledge base, gateway registration - frequently asked questions*. [ONLINE] Available at: <https://knowledge-base.roadmaptozero.com/hc/en-gb/articles/360009442238-Gateway-registration-Frequently-asked-questions>
- 147 ZDHC (2019) *Impact report November 2019*. [ONLINE] Available at: <https://www.roadmaptozero.com/impact-report?locale=en>
- 148 ZDHC (2019) *ZDHC releases public disclosure portal*. [ONLINE] Available at: <https://www.roadmaptozero.com/post/zdhc-releases-public-disclosure-portal>
- 149 *Ibid.*
- 150 ZDHC (n.d.) *Roadmap to zero, public disclosure portal*. [ONLINE] Available at: <https://rtz-website.webflow.io/public-disclosure-portal>
- 151 ZDHC (2019) *ZDHC releases public disclosure portal*. [ONLINE] Available at: <https://www.roadmaptozero.com/post/zdhc-releases-public-disclosure-portal>
- 152 Changing Markets Foundation (2020) *Dirty fashion: Crunch time – where does the industry stand on stamping out dirty viscose?* [ONLINE] Available at: <http://changingmarkets.org/wp-content/uploads/2020/12/CM-WEB-DIRTY-FASHION-CRUNCH-TIME-DEC-2020-1.pdf>
- 153 Stahl (2020) *Stahl achieves highest certification for ZDHC Gateway compliance*. [ONLINE] Available at: <https://www.stahl.com/news/stahl-achieves-highest-certification-for-zdhc-gateway-compliance>; also: Eurofins (2021) *Denykem achieves ZDHC Level 1 conformance after being certified by Eurofins - Chem-MAP*. [ONLINE] Available at: https://www.chem-map.com/chemical_news/denykem-achieves-zdhc-level-1-conformance-after-being-certified-by-eurofins-chem-map/
- 154 ZDHC (2019) *ZDHC wastewater guidelines version 1.1*. [ONLINE] Available at: [https://uploads-ssl.webflow.com/5c4065f2d6b53e08a1b03de7/5db70334bd2f007e2fbc8577_ZDHC_WastewaterGuidelines_V1.1_JUL19_compressed%20\(1\).pdf](https://uploads-ssl.webflow.com/5c4065f2d6b53e08a1b03de7/5db70334bd2f007e2fbc8577_ZDHC_WastewaterGuidelines_V1.1_JUL19_compressed%20(1).pdf)
- 155 ZDHC (2020) *ZDHC impact report*. [ONLINE] Available at: <https://www.roadmaptozero.com/impact-report-2020?locale=en>
- 156 WRAP (2021) *Textiles 2030 circularity roadmap*. [ONLINE] Available at: <https://wrap.org.uk/sites/default/files/2021-04/Textiles%202030%20Circularity%20Pathway.pdf>
- 157 WRAP (2021) *Textiles 2030 circularity roadmap*. [ONLINE] Available at: <https://wrap.org.uk/sites/default/files/2021-04/Textiles%202030%20Circularity%20Roadmap.pdf>
- 158 Eur-Lex (2020) *Commission Decision (EU) 2020/1805 of 27 November 2020 amending Decisions 2014/350/EU and (EU) 2016/1349 extending the period of validity of the ecological criteria for the award of the EU Ecolabel to textile products and footwear and of the related assessment and verification requirements*. [ONLINE] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020D1805&qid=1614070541906>
- 159 European Commission (2020) *Strategic EU Ecolabel work plan 2020– 2024* [ONLINE] Available at: <https://ec.europa.eu/environment/ecolabel/documents/EU%20Ecolabel%20Work%20plan%202020-2024%20Dec%202020.pdf>
- 160 Sustain Europe (n.d.) *The EU Ecolabel as a driver to circular economy*. [ONLINE] Available at: <https://www.sustaineurope.com/the-eu-ecolabel-as-a-driver-to-circular-economy.html>
- 161 Ellen MacArthur Foundation (2017) *A new textiles economy*. [ONLINE] Available at: <https://www.ellenmacarthurfoundation.org/publications/a-new-textiles-economy-redesigning-fashions-future>
- 162 Ellen MacArthur Foundation (2017) *A new textiles economy*. [ONLINE] Available at: <https://www.ellenmacarthurfoundation.org/publications/a-new-textiles-economy-redesigning-fashions-future>
- 163 Ellen MacArthur Foundation (2016) *The new plastics economy: Rethinking the future of plastics*. [ONLINE] Available at: <https://ellenmacarthurfoundation.org/the-new-plastics-economy-rethinking-the-future-of-plastics>
- 164 Ellen MacArthur Foundation (2021) *Circular design for fashion*. Cowes: EllenMacArthur Foundation Publishing
- 165 Textile Exchange (n.d.) *What is chain of custody?* [ONLINE] Available at: <https://textileexchange.org/standards/certification/what-is-chain-of-custody/>
- 166 Textile Exchange (2021) *Textile Exchange preferred fibre and materials market report 2021* [ONLINE] Available at: <https://textileexchange.org/textile-exchange-preferred-fiber-and-materials-market-report-2021/>
- 167 Textile Exchange (2021) *Textile Exchange preferred fibre and materials market report 2021* [ONLINE] Available at: <https://textileexchange.org/textile-exchange-preferred-fiber-and-materials-market-report-2021/>
- 168 Lollo, N. and O'Rourke, D. (2020) *Measurement without clear incentives to improve: The impacts of the Higg facility environmental module (FEM) on apparel factory practices and performance*. [ONLINE] Available at: https://www.researchgate.net/publication/343413664_Measurement_without_Clear_Incentives_to_Improve_The_Impacts_of_the_Higg_Facility_Environmental_Module_FEM_on_Apparel_Factory_Practices_and_Performance
- 169 WRAP (2020) *Sustainable clothing action plan 2020 commitment: Progress 2012 - 2019*. [ONLINE] Available at: <https://wrap.org.uk/sites/default/files/2021-04/Sustainable%20Clothing%20Action%20Plan%202020%20Commitment%20Progress%202012%202019.pdf>
- 170 WRAP (2020) *Sustainable clothing action plan 2020 commitment: Progress 2012 - 2019*. [ONLINE] Available at: <https://wrap.org.uk/sites/default/files/2021-04/Sustainable%20Clothing%20Action%20Plan%202020%20Commitment%20Progress%202012%202019.pdf>
- 171 Just Style (2021) *SCAP 2020 sustainable waste targets fall short*. [ONLINE] Available at: <https://www.just-style.com/news/waste-targets-wrap-sustainable-clothing-action-plan/>
- 172 WRAP (2020) *Sustainable clothing action plan 2020 commitment: Progress 2012 - 2019*. [ONLINE] Available at: <https://wrap.org.uk/sites/default/files/2021-04/Sustainable%20Clothing%20Action%20Plan%202020%20Commitment%20Progress%202012%202019.pdf>

- 173 Sustainable Apparel Coalition (2021) *Press release - The SAC celebrates its first decade of bold progress with release of comprehensive report, outlines ambitious goals for future*. [ONLINE] Available at: <https://apparelcoalition.org/press-releases/sac-celebrates-first-decade-of-bold-progress/>
- 174 Ibid.
- 175 Ibid.
- 176 Ibid.
- 177 Ibid.
- 178 Ibid.
- 179 Apparel Impact Institute (2022) Update: Carbon Leadership Program [ONLINE] <https://apparelimpact.org/apparel-impact-institute-caarbon-leadership-project/>
- 180 OEKO-TEX (2019) *OEKO-TEX® - Term of use (ToU) edition 01.2019*. [ONLINE] Available at: <https://www.testex.com/en/downloads/AGB/Terms-of-Use-ToU.pdf>
- 181 Greenpeace (2018) *Textil-Siegel im Greenpeace-Check, pp. 3-4*. [ONLINE] Available at: <https://www.greenpeace.de/presse/publikationen/textil-siegel-im-greenpeace-check>
- 182 Greenpeace (2018) *Textil-Siegel im Greenpeace-Check, pp. 3-4*. [ONLINE] Available at: <https://www.greenpeace.de/presse/publikationen/textil-siegel-im-greenpeace-check>
- 183 Greenpeace (2016) *Textil-Label unter der Detox-Lupe. Einkaufsratgeber für giftfreie Kleidung. 4e Auflage - Juni 2016, p. 18*. [ONLINE] Available at: <https://www.greenpeace.de/presse/publikationen/textil-label-unter-der-detox-lupe>
- 184 Siegelklarheit (2021) *EU Ecolabel - Textilien*. [ONLINE] Available at: <https://www.siegelklarheit.de/24-eu-ecolabel-textilien>
- 185 Greenpeace (2018) *Textil-Siegel im Greenpeace-Check, 5. Auflage, April 2018*. [ONLINE] Available at: <https://www.greenpeace.de/sites/www.greenpeace.de/files/publications/e01211-greenpeace-chemie-einkaufsratgeber-textil-siegel-2018.pdf>
- 186 Wardrobe Change Coalition (2021) *Recommendations for the EU Strategy for Sustainable Textiles from Environmental Civil Society Organisations*. [ONLINE] Available at: <https://www.rreuse.org/wp-content/uploads/environmental-csos-recommendations-for-the-eu-strategy-for-sustainable-textiles-june-2021.pdf>
- 187 ECOS (2021) *Durable, repairable and mainstream How ecodesign can make our textiles circular*. [ONLINE] Available at: <https://ecostandard.org/wp-content/uploads/2021/04/ECOS-REPORT-HOW-ECODESIGN-CAN-MAKE-OUR-TEXTILES-CIRCULAR.pdf>
- 188 European Commission (n.d.) *Environment - Ecolabel, news*. [ONLINE] Available at: <https://ec.europa.eu/environment/ecolabel/news.html>
- 189 Adidas Group (2011) *Joint Roadmaproadmap: Toward zero discharge of hazardous chemicals. Draft for consultation*. p. 3. [ONLINE] Available at: https://www.adidas-group.com/media/filer_public/2013/07/31/111118_join-troadmap_en.pdf
- 190 ZDHC (2013) *Annual report 2013, p. 22*. [ONLINE] Available at: https://uploads-ssl.webflow.com/5c4065f2d-6b53e08a1b03de7/5db6fb9600dac1845ebdde57_2013_Annual_Report.pdf
- 191 ZDHC (2014) *Annual report 2014, p. 1*. [ONLINE] Available at: https://uploads-ssl.webflow.com/5c4065f2d-6b53e08a1b03de7/5db6fc1a1c57d054a92727ce_2014_Annual_Report.pdf
- 192 ZDHC (2017) *Annual report 2017, p. 10*. [ONLINE] Available at: https://uploads-ssl.webflow.com/5c4065f2d-6b53e08a1b03de7/5db6fe641c57d066ff28877d_ZDHC_Annual_Report_2017.pdf
- 193 ZDHC (2019) *Annual report 2019, p. 22*. [ONLINE] Available at: https://uploads-ssl.webflow.com/5c4065f2d-6b53e08a1b03de7/5f59c243f68f8254018eb117_ZDHC_Annual_Report_2019.pdf
- 194 ZDHC (2019) *Annual report 2019* [ONLINE] Available at: https://uploads-ssl.webflow.com/5c4065f2d6b53e08a1b03de7/5f59c243f68f8254018eb117_ZDHC_Annual_Report_2019.pdf
- 195 ZDHC (n.d.) *Our contributors*. [ONLINE] Available at: <https://www.roadmaptozero.com/allcontributors>
- 196 OEKO-TEX (2019) *OEKO-TEX® STANDARD 100 - questions & answers*. [ONLINE] Available at: https://www.oeko-tex.com/fileadmin/user_upload/Marketing_Materialien/STANDARD_100/FAQs/FAQ_STANDARD_100_EN_ES_01.2019.pdf
- 197 European Commission (n.d.) *Competent bodies*. [ONLINE] Available at: <https://ec.europa.eu/environment/ecolabel/competent-bodies.html>
- 198 European Commission (2015) *EU Ecolabel textile products user manual*. [ONLINE] Available at: <https://pdf-4pro.com/view/eu-ecolabel-textile-products-user-manual-c63a.html>
- 199 European Commission (2020) *Commission Decision (EU) 2020/1805 of 27 November 2020 amending Decisions 2014/350/EU and (EU) 2016/1349 extending the period of validity of the ecological criteria for the award of the EU Ecolabel to textile products and footwear and of the related assessment and verification requirements*. [ONLINE] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020D1805&qid=1614070541906>
- 200 Shop Like You Give a Damn (2021) *Ethical & sustainable certifications, explained*. 13th May, 2021. [ONLINE] Available at: <https://www.shoplikeyougiveadamn.com/blogs/ethical-sustainable-certifications-explained/bl-328>
- 201 bluesign® (n.d.) *FINDER* [ONLINE] Available at: <https://www.bluesign.com/en/business/finder>
- 202 bluesign® (2020) *CRITERIA for production sites. ANNEX: Exclusion criteria*. [ONLINE] Available at: https://www.bluesign.com/downloads/criteria-2020/annex_exclusion_criteria_v1.1_2020-03.pdf
- 203 Sustainable Apparel Coalition (n.d.) *The Higg Index*. [ONLINE] Available at: <https://apparelcoalition.org/the-higg-index/>
- 204 Higg Index (n.d.) *Higg FEM verification program - Overview*. [ONLINE] Available at: <https://howtohigg.org/higg-fem-verification-program/fem-verification-overview/>
- 205 Changing Markets Foundation (2018) *False promise report*. [ONLINE] Available at: https://changingmarkets.org/wp-content/uploads/2018/05/False-promise_full-report-ENG.pdf
- 206 Ellen MacArthur Foundation (2017) *A new textiles economy*. [ONLINE] Available at: <https://ellenmacarthurfoundation.org/a-new-textiles-economy>
- 207 Tecnon Orbichem (2021) *World synthetic fibres. S/Db-CHEM Market Overview*.
- 208 Sustainable Apparel Coalition (n.d.) *Higg product tools*. [ONLINE] Available at: <https://apparelcoalition.org/higg-product-tools/>
- 209 Sustainable Apparel Coalition (n.d.) *Higg product tools*. [ONLINE] Available at: <https://apparelcoalition.org/higg-product-tools/>
- 210 Higg (n.d.) *Higg MSI - Learn more about the Higg MSI*. [ONLINE] Available at: <https://stage.msi.higg.org/page/learn-more>
- 211 Sustainable Apparel Coalition (2020) *Higg materials sustainability index methodology*. [ONLINE] Available at: <https://howtohigg.org/wp-content/uploads/2020/07/Higg-MSI-Methodology-July-31-2020.pdf>
- 212 Eunomia (2020) *The sustainability of oil-based synthetic fibres for clothing*, p. 23-24.
- 213 Sustainable Apparel Coalition (2020) *Higg materials sustainability index methodology*. [ONLINE] Available at: <https://howtohigg.org/wp-content/uploads/2020/07/Higg-MSI-Methodology-July-31-2020.pdf>

- 214 Higg (n.d.) Higg MSI FAQ. [ONLINE] Available at: <https://howtohigg.org/higg-msi/faq/#section3>
- 215 Ecocult (2020) Higg says natural fibers are worse for the environment than synthetics. Is that true?. [ONLINE] Available at: <https://ecocult.com/higg-natural-fibers-climate-synthetics-lca/>
- 216 Fibre2Fashion.com (2020) Problem of bad science in sustainability gets worse. [ONLINE] Available at: <https://www.fibre2fashion.com/industry-article/8830/problem-of-bad-science-in-sustainability-gets-worse>; also: Bates Kassatly, V. (2020) Was it polyester all along? [ONLINE] Available at: <https://www.veronicabateskassatly.com/read/was-it-polyester-all-along>
- 217 Water Footprint Network (2017) Water footprint assessment of polyester and viscose and comparison to cotton. [ONLINE] Available at: https://waterfootprint.org/media/downloads/WFA_Polyester_and_Viscose_2017.pdf
- 218 Changing Markets (2021) Fossil fashion - the hidden reliance of fast fashion on fossil fuels. [ONLINE] Available at: <https://changingmarkets.org/portfolio/fossil-fashion/>
- 219 Eunomia (2020), op cit., p. 23.
- 220 European Commission (n.d.) What environmental impacts does PEF consider? [ONLINE] Available at: <https://ec.europa.eu/environment/eussd/smgp/communication/impact.htm>
- 221 Sustainable Apparel Coalition (2020) Higg materials sustainability index methodology. [ONLINE] Available at: <https://howtohigg.org/wp-content/uploads/2020/07/Higg-MSI-Methodology-July-31-2020.pdf>
- 222 Selman, M. (2010) Eutrophication: Sources and drivers of nutrient pollution. *Renewable Resources Journal*, 26(4): 19-26.
- 223 Sustainable Apparel Coalition (n.d.) Higg product tools. [ONLINE] Available at: <https://apparelcoalition.org/higg-product-tools/>
- 224 Higg (n.d.) Higg product module - FAQ. [ONLINE] Available at: <https://howtohigg.org/higg-product-module/faq/>
- 225 Sustainable Apparel Coalition (n.d.) Higg product module methodology document. [ONLINE] Available at: <https://howtohigg.org/wp-content/uploads/2020/09/Higg-PM-Methodology-Sept-15-2020.pdf>
- 226 Sustainable Apparel Coalition (n.d.) Higg product module methodology document. [ONLINE] Available at: <https://howtohigg.org/wp-content/uploads/2020/09/Higg-PM-Methodology-Sept-15-2020.pdf>
- 227 Sustainable Apparel Coalition (n.d.) Higg product module methodology document. [ONLINE] Available at: <https://howtohigg.org/wp-content/uploads/2020/09/Higg-PM-Methodology-Sept-15-2020.pdf>
- 228 Ibid.
- 229 Ibid.
- 230 Ibid.
- 231 Cradle to Cradle Products Innovation Institute (n.d.) What is Cradle to Cradle certified? [ONLINE] Available at: <https://www.c2ccertified.org/get-certified/product-certification>
- 232 Eunomia (2020), op cit., p. 48.
- 233 Bach, V. et al (2018) Assessing the ability of the Cradle to Cradle Certified Products Program to reliably determine the environmental performance of products. *Sustainability*, 10(5): 14.
- 234 Cradle To Cradle Products Innovation Institute (n.d.) Cradle to Cradle Certified® products registry - vinatur® organic cotton workwear apparel fabrics. [ONLINE] Available at: <https://www.c2ccertified.org/products/scorecard/vinatur-yarns-and-workwear-apparel-fabrics-inogema-gmbh>
- 235 Cradle To Cradle Products Innovation Institute (n.d.) Cradle to Cradle Certified® products registry - circular knit fabrics future. [ONLINE] Available at: <https://www.c2ccertified.org/products/scorecard/sanko-circular-knit-fabrics-future-i-sanko-tekstl-lsanve-tca>
- 236 Cradle To Cradle Products Innovation Institute (2021) Cradle to Cradle Certified version 4.0 product standard. [ONLINE] Available at: https://cdn.c2ccertified.org/resources/STD_C2C_Certified_V4.0_FINAL_101921.pdf
- 237 Ellen MacArthur Foundation (2017) A new textiles economy. [ONLINE] Available at: <https://ellenmacarthur-foundation.org/a-new-textiles-economy>
- 238 Ibid.
- 239 Ellen MacArthur Foundation (2021) The Jeans Redesign guidelines. [ONLINE] Available at: <https://emf.third-light.com/link/az03k410stb7-6azlt5/@/preview/1?o>
- 240 Ibid.
- 241 Ellen MacArthur Foundation (2021) Circular design for fashion. Cowes: EllenMacArthur Foundation Publishing.
- 242 Ibid.
- 243 Textile Exchange (2020) Preferred fiber & materials market report 2020 [ONLINE] Available at: https://textileexchange.org/wp-content/uploads/2020/06/Textile-Exchange_PREFERRED-Fiber-Material-Market-Report_2020.pdf
- 244 WRAP (n.d.) Valuing our clothes: The cost of UK fashion. [ONLINE] Available at: <https://wrap.org.uk/resources/report/valuing-our-clothes-cost-uk-fashion>
- 245 WRAP (2019) SCAP footprint calculator: Technical report. [ONLINE] Available at: <https://archive.wrap.org.uk/content/scap-footprint-calculator-technical-report>
- 246 WRAP (2019) SCAP footprint calculator: Technical report. [ONLINE] Available at: <https://archive.wrap.org.uk/content/scap-footprint-calculator-technical-report>
- 247 WRAP (2021) Textiles 2030 circularity pathway. [ONLINE] Available at: <https://wrap.org.uk/sites/default/files/2021-04/Textiles%202030%20Circularity%20Pathway.pdf>
- 248 WRAP (2019) Textile-derived microfibre release: Investigating the current evidence base. [ONLINE] Available at: https://archive.wrap.org.uk/sites/files/wrap/Evidence%20of%20Microfibres_Full%20Report.pdf
- 249 WRAP (2019) Textile-derived microfibre release: Investigating the current evidence base. [ONLINE] Available at: https://archive.wrap.org.uk/sites/files/wrap/Evidence%20of%20Microfibres_Full%20Report.pdf
- 250 OEKO-TEX (n.d.) Standard 100 by OEKO-TEX. [ONLINE] Available at: <https://www.oeko-tex.com/en/our-standards/standard-100-by-oeko-tex>
- 251 OEKO-TEX (n.d.) STeP by OEKO-TEX. [ONLINE] Available at: <https://www.oeko-tex.com/en/our-standards/step-by-oeko-tex>
- 252 The Fashion Law (2021) Everlane's Sustainability Claims Come Under Ad Watchdog's Microscope [ONLINE] Available at: <https://www.thefashionlaw.com/everlane-sustainability-claims-come-under-advertising-watchdogs-microscope/>
- 253 Ross, P., et al (2021) Pervasive distribution of polyester fibres in the Arctic Ocean is driven by Atlantic inputs. *Nature Communications*, 12(1): 106. [ONLINE] Available at: <https://www.nature.com/articles/s41467-020-20347-1>
- Also: Tunahan Kaya, A., . and Yurtsever, M. (2018) Ubiquitous exposure to microfiber pollution in the air. *European Physical Journal Plus*, 133(11). [ONLINE] Available at: https://www.researchgate.net/publication/329274019_Ubiquitous_exposure_to_microfiber_pollution_in_the_air
- Also: Kimo (2021) KIMO launches report on microplastic pollution from textiles. [ONLINE] Available at: <https://www.kimointernational.org/news/kimo-report-on-microplastic-pollution-from-textiles/>

- 254 Royer, S. J., Wiggin, K., Kogler, M. and Deheyne, D. (2021) Degradation of synthetic and wood-based cellulose fabrics in the marine environment: Comparative assessment of field, aquarium, and bioreactor experiments. *Science of the Total Environment*, 791: 148060.
- 255 Suran, M., (2018) A planet too rich in fibre. [ONLINE] Available at: <https://www.embopress.org/doi/full/10.15252/embr.201846701>
- Also; Prüst, M., Meijer, J., & Westerink, R. H. S. (2020) The plastic brain: neurotoxicity of micro- and nano-plastics. *Particle and Fibre Toxicology*, 17(1): 24.17(24) [ONLINE] Available at: <https://particleandfibretoxicology.biomedcentral.com/articles/10.1186/s12989-020-00358-y>
- 256 Browne, M. A., Ros, M. and Johnston, E. L. (2020) Pore-size and polymer affect the ability of filters for washing-machines to reduce domestic emissions of fibres to sewage. *PloS ONE*, 15(6), e0234248.
- 257 The Microfibre Consortium (2021) Our plan for co-producing a cross-industry roadmap. [ONLINE] Available at: <https://www.microfibreconsortium.com/roadmap>
- 258 The Microfibre Consortium (2021) Work. [ONLINE] Available at: <https://www.microfibreconsortium.com/work>
- 259 Suston Magazine (2019) Where did the microfibres go? [ONLINE] Available at: <https://sustonmagazine.com/2019/11/05/the-microfibre-consortium/>
- 260 The Microfibre Consortium (n.d.) The Microfibre Consortium 2030 commitment. [ONLINE] Available at: <https://www.microfibreconsortium.com/2030>
- 261 Indeed, very little of the organisation's 'significant archives' are open to public scrutiny
- 262 The Microfibre Consortium (2021) Membership benefits. [ONLINE] Available at: https://static1.squarespace.com/static/5aaba1998f513028aeec604c/t/6113a623c4ea72172c1dc79d/1628677667891/TMC_Membership+Benefits+Crib_March+2021.pdf
- 263 Changing Markets Foundation (2021) Synthetics anonymous - fashion brands' addiction to fossil fuels. [ONLINE] Available at: http://changingmarkets.org/wp-content/uploads/2021/07/SyntheticsAnonymous_Final-Web.pdf
- 264 The Microfibre Consortium (n.d.) The microfibre roadmap. [ONLINE] Available at: <https://www.microfibreconsortium.com/roadmap>
- 265 Suston Magazine (2019) Where did the microfibres go? [ONLINE] Available at: <https://sustonmagazine.com/2019/11/05/the-microfibre-consortium/>
- 266 Ecotextile (2021) Undermining synthetic fibres takes us nowhere. [ONLINE] Available at: <https://www.ecotextile.com/2021051927812/features/undermining-synthetic-fibres-takes-us-nowhere.html>
- 267 The Microfibre Consortium (n.d.) Team. [ONLINE] Available at: <https://www.microfibreconsortium.com/team>
- 268 Royer, S. J., Wiggin, K., Kogler, M. and Deheyne, D. D. (2021) Degradation of synthetic and wood-based cellulose fabrics in the marine environment: Comparative assessment of field, aquarium, and bioreactor experiments. *Science of the Total Environment*, 791: 148060.
- 269 Henry, B, Laitala, K. and Grimstaf Klepp, I. (2019) Microfibres from apparel and home textiles: Prospects for including microplastics in environmental sustainability assessment. *Science of the Total Environment*, 652: 83-494.
- 270 Zambrano, M. C. et al (2019) Microfibers generated from the laundering of cotton, rayon and polyester based fabrics and their aquatic biodegradation. *Marine Pollution Bulletin*, 142: 394-407.
- 271 Danopoulos, E., Twiddy, M., West, R. and Rotchell, J. M. (2022) A rapid review and meta-regression analyses of the toxicological impacts of microplastic exposure in human cells. *Journal of Hazardous Materials*, 427: 127861.
- 272 ZDHC (2021) The ZDHC Foundation joins The Microfibre Consortium as its research member. [ONLINE] Available at: <https://www.roadmaptozero.com/post/the-zdhc-foundation-joins-the-microfibre-consortium-as-its-research-member?locale=en>
- 273 The Microfibre Consortium (n.d.) About. [ONLINE] Available at: <https://www.microfibreconsortium.com/about>
- 274 The Nature Conservancy & Bain & Capital (n.d.) Toward eliminating pre-consumer emissions of microplastics from the textile industry, p. 4 (Figure 1), p. 8 (Figure 3). [ONLINE] Available at: https://www.nature.org/content/dam/tnc/nature/en/documents/210322TNCBain_Pre-ConsumerMicrofiberEmissionsv6.pdf
- 275 O'Brien et al (2020), op cit.
- 276 European Outdoor Group & Outdoor Industry Association (n.d.) Microfibre shedding - topic FAQ. [ONLINE] Available at: <https://static1.squarespace.com/static/5aaba1998f513028aeec604c/t/5db83b049c1c7a6e-4cd66432/1572354825000/Microfiber+Shedding+FAQ+FINAL.pdf>
- 277 Ethical Consumer (2021) What is fashion and why is it a problem? [ONLINE] Available at: <https://www.ethicalconsumer.org/fashion-clothing/what-fast-fashion-why-it-problem> Kate Fletcher (2019) Earth logic. [ONLINE] Available at: <https://katefletcher.com/wp-content/uploads/2019/10/Earth-Logic-plan-FINAL.pdf>
- 278 Kate Fletcher (2019) Earth logic. [ONLINE] Available at: <https://katefletcher.com/wp-content/uploads/2019/10/Earth-Logic-plan-FINAL.pdf>
- 279 WRAP (2020) Changing our clothes - why the clothing sector should adopt new business models. [ONLINE] Available at: <https://wrap.org.uk/sites/default/files/2020-07/WRAP-changing-our-clothes-why-the-clothing-sector-should-adopt-new-business-models.pdf>
- 280 Ellen MacArthur Foundation (2017) A new textiles economy: Redesigning fashion's future. [ONLINE] Available at: <https://www.ellenmacarthurfoundation.org/publications/a-new-textiles-economy-redesigning-fashion-future>
- 281 Textile Exchange (n.d.) 2025 Recycled polyester challenge [ONLINE] Available at: <https://textileexchange.org/2025-recycled-polyester-challenge/>
- 282 H&M Group (2019) Sustainability performance report 2019. [ONLINE] Available at: https://sustainabilityreport.hmggroup.com/wp-content/uploads/2020/10/Sustainability_Performance_Report_2019.pdf
- 283 The Microfibre Consortium (n.d.) Tools. [ONLINE] Available at: <https://www.microfibreconsortium.com/tools>
- 284 Retail Gazette (2020) Boohoo accused of slavery practices in Leicester Factory. [ONLINE] Available at: <https://www.retailgazette.co.uk/blog/2020/07/boohoo-accused-of-slavery-practices-in-leicester-factory/>
- 285 UK Parliament (2021) Environmental Audit Committee written response to Boohoo Group. [ONLINE] Available at: <https://committees.parliament.uk/publications/4939/documents/49396/default/>
- 286 Primark (2018) Environmental Audit Committee submission. [ONLINE] Available at: <https://primark.a.bigcontent.io/v1/static/Environmental-Audit-Committee-submission-12-10-18>
- 287 UK Parliament (2020) Marks & Spencer written evidence. [ONLINE] Available at: <https://committees.parliament.uk/writtenevidence/15111/pdf/>
- 288 Vogue Business (2021) The ugly side of fashion's take back programmes. [ONLINE] Available at: <https://www.voguebusiness.com/sustainability/the-ugly-side-of-fashion-take-back-programmes>
- 289 Apparel Insider (2021) Danger ahead - storm clouds gather for greenwashing brands. [ONLINE] Available at: <https://redlionchambers.co.uk/wp-content/uploads/2021/06/Apparel-Insider-ISSUE-N19.pdf>
- 290 C&A (2018) Circular fashion products. [ONLINE] Available at: <https://sustainability.c-and-a.com/uk/en/sustainability-report/2018/sustainable-products/circular-fashion/circular-fashion-products/>
- 291 C&A (2016) Chemicals - aiming for safe chemistry and zero discharge. [ONLINE] Available at: <https://sustainability.c-and-a.com/uk/en/sustainability-report/2016/sustainable-supply/clean-environment/chemicals/>
- 292 C&A (n.d.) Circular fashion. [ONLINE] Available at: <https://www.c-and-a.com/eu/en/shop/circular-fashion>
- 293 Next (2021) Corporate responsibility report. [ONLINE] Available at: <https://www.nextplc.co.uk/-/media/Files/N/Next-PLC-V2/documents/cr-reports/next-cr-report-2021.pdf>

- 294 Primark (2018) Environmental performance report 2018. [ONLINE] Available at: <https://primark.a.bigcontent.io/v1/static/Primark-Detox-Environmental-Performance-Report-2018>
- 295 European Commission (n.d.) Product specific digital toolkits. [ONLINE] Available at: https://ec.europa.eu/environment/ecolabel/digital_toolkit.html
- 296 Just-Style (2021) VF Corp and Inditex back new recycled polyester pledge. [ONLINE] Available at: <https://www.just-style.com/news/vf-corp-and-inditex-back-new-recycled-polyester-pledge/%20Recycled>
- 297 Malik Chua, J. (2020) H&M brings garment-to-garment recycling to the people. Sourcing Journal, 8 October 2020. [ONLINE] Available at: <https://sourcingjournal.com/topics/raw-materials/hm-hkrita-novetex-loop-garment-recycling-236888/>
- 298 Youtube (2021) Business Insider - how H&M's recycling machines make new clothes from used apparel. [ONLINE] Available at: <https://www.youtube.com/watch?v=obO1PKfXGpQ&t=369s>
- 299 Malik Chua, J. (2020) H&M's green machine: A recycling solution?, Vogue Business, 19 November 2020. [ONLINE] Available at: <https://www.voguebusiness.com/sustainability/handms-green-machine-a-recycling-solution>
- 300 H&M Group (2021) What's the buzz about Higg Index? Creating consumer-facing transparency. [ONLINE] Available at: <https://hmggroup.com/news/the-higg-index-sustainability-profiles-a-common-language-for-collective-action/>
- 301 H&M (n.d.) Dress product page. [ONLINE] Available at: https://www2.hm.com/en_gb/product-page.1015987001.html
- 302 Primark (2021) *Primark launches cradle to cradle certified gold jeans - the most sustainably made denim jeans yet.* [ONLINE] Available at: <https://www.primark.com/en/primark-cares/newsroom/primark-launches-cradle-to-cradle-certified-gold-jeans---the-most-sustainably-made-denim-jeans-yet/a/85df1143-91d3-4ac5-b5ca-5c7633c29461>
- 303 Lancashire Telegraph (2021) *Boohoo: Over 80 percent of Burnley firm's use new plastics, says RSA report*, 3 July 2021. [ONLINE] Available at: <https://www.lancashiretelegraph.co.uk/news/19415525.boohoo-80-per-cent-burnley-firms-clothes-use-new-plastics-says-rsa-report/>
- 304 Eileen Fisher (2020) *2020 benefit corporation report.* [ONLINE] Available at: https://www.eileenfisher.com/ns/images/behind_the_label/benefit-corp-report-2020-FINAL-rc.pdf
- 305 Next (n.d.) *Responsible sourcing.* [ONLINE] Available at: <https://www.nextplc.co.uk/corporate-responsibility/responsible-sourcing>
- 306 H&M Group (2018) *Animal welfare and material ethics policy.* [ONLINE] Available at: <https://about.hm.com/content/dam/hmggroup/groupsite/documents/masterlanguage/CSR/Policies/HM%20Group%20Animal%20Welfare%20and%20Material%20Ethics%20policy%20-%20April%202019.pdf>
- 307 Changing Markets Foundation (2021) *Synthetics anonymous - fashion brand's addiction to fossil fibres.* [ONLINE] Available at: http://changingmarkets.org/wp-content/uploads/2021/07/SyntheticsAnonymous_Final-Web.pdf
- 308 H&M Group (2018) *Sustainability report 2018.* [ONLINE] Available at: https://about.hm.com/content/dam/hmggroup/groupsite/documents/masterlanguage/CSR/reports/2018_Sustainability_report/HM_Group_SustainabilityReport_2018_%20FullReport.pdf
- 309 Apparel Impact Institute (n.d.) *About us.* [ONLINE] Available at: <https://apparelimpact.org/about/>
- 310 Kering (n.d.) *The fashion pact.* [ONLINE] Available at: <https://thefashionpact.org/>
- 311 Sustainable Apparel Coalition (n.d.) *About PEF.* [ONLINE] Available at: <https://apparelcoalition.org/about-pef/>
- 312 Sustainable Apparel Coalition (n.d.) *About PEF.* [ONLINE] Available at: <https://apparelcoalition.org/about-pef/>

