

Threads That Bind



**Transforming the fashion supply chain
through transparency and traceability**

Responsible Retail

accenture
THE DOCK

More than 150 billion garments are manufactured worldwide each year,¹ often ending up far across the globe from where they were created.

Before reaching the consumer, they pass through countless other hands—from growers, processors, mills and finished goods manufacturers, to distributors, warehouses and retail shops.

They are sold, worn, washed, repaired, donated—and most end as waste. The scale of this problem becomes apparent when you consider that the annual global spend on fashion equates to the GDP of the world's 126 poorest countries.²

The carbon footprint of any garment's journey, the

environmental impact of its creation, and the pay and conditions within the factory where it was assembled have created a perfect storm of unsustainability—and all this from an industry that consumes more energy than aviation and shipping combined.³

Accenture's apparel industry research into how technology can be leveraged to transform transparency and traceability across the value chain, in support of fashion as a sustainable industry, has revealed progress in several areas.

Consumer awareness and communication are improving, standardizing bodies are aiming to bring clarity and guidance, brands have begun experimenting with new materials, and suppliers are improving their production practices.

But, given the complexity and scale of the production process, these incremental steps do not go far enough.



Sustainable products are the new normal. All products should be sustainable.

- Global Retailer



We have to think bigger

And we have to be realistic about how to do that.

If we are to transform the industry for the better, by promoting sustainable and ethical practices in apparel manufacturing by improving transparency and traceability, we need strategic thinking, visibility, trust, guidance and clear communication at a systemic level.

In this era of responsible retail, sustainability is certainly high on the CEO agenda, with **48% of CEOs** implementing sustainability within their operations in 2019.⁴

To be successful, organizations need a holistic approach driven from the top that brings together strategy, design and execution, plus a genuine desire to collaborate with other parties across the supply chain and an understanding that sustainability requires realignment as a pre-competitive consideration.

About the research

In 2019, research was conducted into the apparel industry:



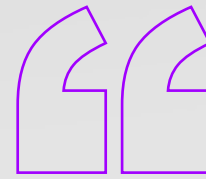
The 21 companies taking part consisted of brands, retailers, manufacturers, suppliers, assurance providers, and advisory and standards bodies with a combined global revenue of **>US\$140 billion.**

Technology as an enabler of change

Technology is often seen as a panacea for all industrial issues, and it certainly helps, but our research highlights a recognition among suppliers, manufacturers and brands that technology alone cannot solve key issues relating to sustainability and transparency.

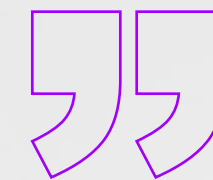
While it may mitigate some pitfalls across the full life cycle of a garment, concerns will remain around trust and industry alignment, as well as the motivation to adopt sustainable and transparent practices.

If we are to forge genuine, systemic change, a broader program of pre-competitive collaboration is required, where different parties agree on transformation—and technology is simply the enabler to make it happen.



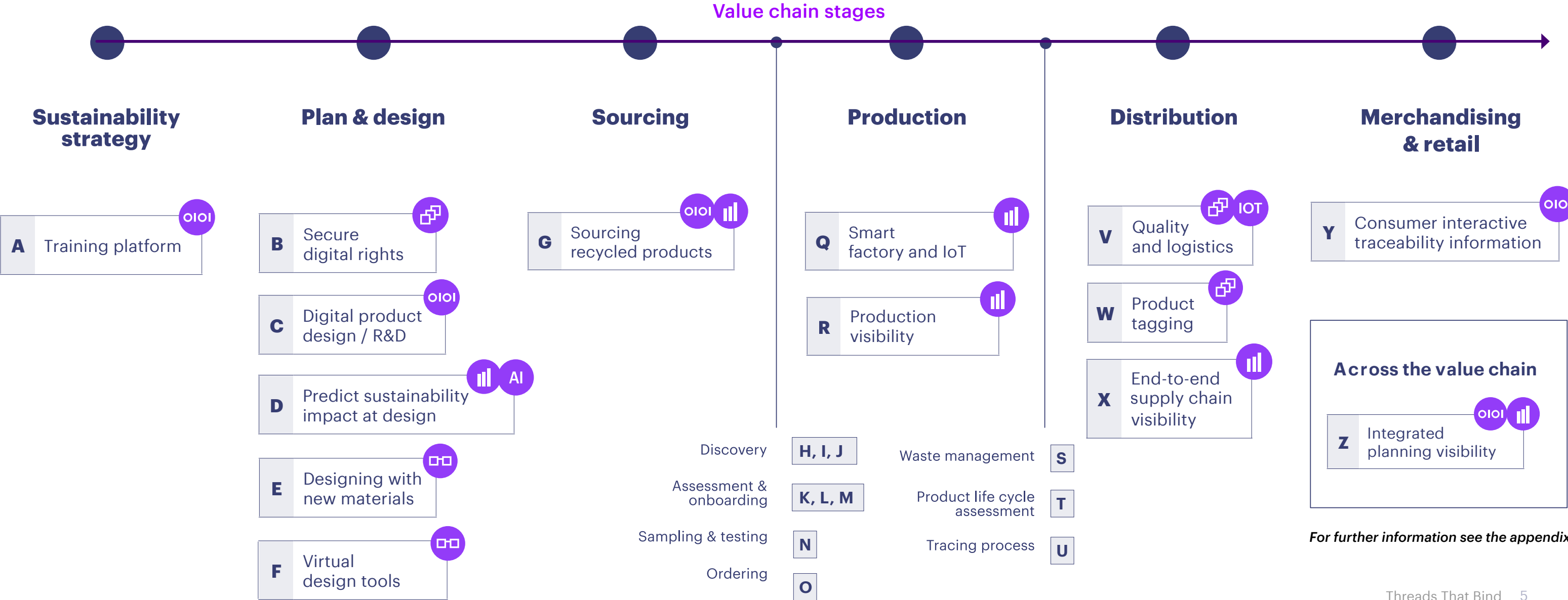
Blockchain and other technologies are just an enabler, they don't solve human challenges at the front. The main challenges in the supply chain are social, and environmental.

- Global Retailer



Technology opportunities across the apparel value chain

-  AI
-  Analytics
-  AR/VR
-  Blockchain
-  Data platform
-  Digital
-  Digital marketplace
-  IOT
-  Workflow tool



Improving the value chain for responsible growth

To promote responsible growth for the whole industry we need to focus on our north star vision of a fully traceable and transparent value chain.

Informed by our primary research, we have defined **six recommendations** that are all inextricably linked to one another. They reflect the complex, interwoven and interdependent network of the apparel industry ecosystem.



01 Strategic thinking

02 Delivering value

03 Fashioning friendships

04 Cut from the same cloth

05 Audits

06 Out of style

01 Strategic thinking

Make sustainability systemic



Brands must align any sustainability strategy with their existing purpose, measured against business growth or renewal, and translate it into actionable guidelines for their internal design, materials, sourcing, supply chain and CSR teams, as well as suppliers.

Essentially this makes sustainability an equivalent factor to cost, lead time and quality. Suppliers must also formulate a sustainability strategy and be open to sharing their initiatives with brands so collective ROI can be measured.

Companies need to put sustainability goals on a par with shareholder value, and respect all their stakeholders, including customers, employees, suppliers, communities and shareholders—as outlined by the Business Roundtable.⁵

Several established brands are ahead of the curve. Patagonia has been heralded as a Certified B Corporation for taking responsibility

for its entire supply chain and working to protect the environment.⁶ And Marks & Spencer is aiming to become a zero-waste business and has committed to ensuring that, by 2025, its 50 key raw materials (80% of its volume) will come from a sustainable source.⁷

By better navigating sustainability, business leaders can turn costs and risks into business opportunities. Many of the retailers in our research claimed that consumers are not willing to pay more for sustainable goods, but this is at odds with a huge growth in sustainable goods—Harvard Business Review reported that 50% of recent US consumer packaged goods growth came from sustainability-marketed goods, a rate 5.6x faster than conventional counterparts.⁸

According to our research, the main reason that brands dislike sustainability and transparency in the apparel supply chain is the desire for businesses to protect themselves from unknown bad practices being exposed.

This is not a risk they can continue to ignore. With social media, people can spread information quickly about unfavorable conditions and processes, which can erode market trust. Recent research from Accenture shows that:

54% of companies surveyed experienced a loss of trust, which corresponded with a

\$180bn loss in revenue.⁹

Transparency benchmarks are also now being used as a key investor metric. To avoid environmental and social governance-related risks, investors are looking for evidence that a company is effectively identifying risks in its own operations, with value placed on whether companies are using effective, transparent value chains.



Consumers get to know what happens in factories earlier than the brands do. Movements in social media create a lot of pressure to be more sustainable and ethical.



- Retail Industry Expert



02 Delivering value

Making economic sense



Brands need to be aware of the consequences of their choices on the business ecosystem, such as how poor planning could result in the use of non-approved sub-contractors.

Suppliers need to understand how to reduce their negative impact on the ecosystem to maintain and grow their businesses long term.

Retailers are increasingly striving to become responsible businesses, so it's important for leaders to consider the consequences, both intentional and unintentional, of their decisions.



Can fast fashion be sustainable?

If clothing takes too long to hit the shop floor, retailers run the risk of missing their fashion window. Retailers are now exploring new inventory models that enable them to ship small batches of experimental fashion, before quickly ramping up production if they prove popular.¹⁰

Unintended consequences of this model can result in manufacturers competing for work based purely on price and lead time, and pressures to deliver may lead to sub-contracting, and asking staff to work overtime or multiple shifts.

Manufacturers are in a position of vulnerability, feeling there is no protection for their businesses and

no loyalty from their customers, while retailers struggle with the whims of a fast-changing consumer.

The cost of storing outdated inventory and discounting is significant.¹¹

In 2018, H&M accumulated \$4.3bn worth of unsold inventory, while Burberry announced that it would stop its practice of burning unsold goods, after destroying \$37m-worth of inventory in 2017.¹²

Downstream technologies are essential here—advanced AI could better predict demand and reduce excess stock. It's also crucial that retailers maintain an awareness of the consequences of their agility-driven choices on the ecosystem and their own businesses.



“

We ask vendors what their capacity is, but they sometimes take on more than they can produce. ”

- Global Retailer

03 Fashioning friendships

The spirit of collaboration



Brands and suppliers must invest in strategic cross-tier relationships in the extended supply chain and commit to greater transparency in order to build trust and develop more open communication.

There is widespread acceptance that change is necessary—and collaboration across the value chain is the only way its systemic problems can be resolved. The good news is that there is evidence of a strong sense of collaboration and a willingness to improve the industry.

Water is a good example of this. Poor water quality in a region negatively impacts the longevity of equipment and the quality of products being manufactured. The examples of the Aral Sea drying up¹³ and the Australian cotton crop halving in one year show the consequences of overconsumption.¹⁴

Industry bodies and technology platforms are linking global partners in a more cooperative way.

The Roundtable on Sustainable Palm Oil (RSPO), with its 4,000 members working to make sustainability the norm, shows this collaborative spirit¹⁵ and the Sustainable Apparel Coalition (SAC) is making similar headway.¹⁶

But in many cases, these collaborations are juxtaposed with the desire of brands to close ranks and protect themselves, and suppliers using opacity to maintain competitive advantage.

There are also many practical barriers in place, such as inefficient processes, language and communication barriers, long bespoke documentation, paper-based transactions and duplicated audits.

From our research, the difficulties in accessing information about products, people and processes were heard loud and clear.

However, there is evidence of change. According to Fashion Revolution, in 2019:

35%

of brands are now publishing their Tier 1 supplier lists (more than twice the 2017 figure)

19%

are publishing their Tier 2

5%

are publishing their raw material suppliers.¹⁷

Our research indicates that future success in this area will depend on mutual respect and trust between parties with shared transparency across the supply chain.

The following actions will go some way to achieve this:

- Incentivize better relationships through community initiatives around education, grants and fair trade
- Improve payment terms and access to financial and other services as a response to full transparency
- Initiate collaborative planning and the use of value-added services from these partners

While it cannot solve the problem on its own, technology can enable collaboration by making data available, facilitating communication, automating processes, sharing ideas seamlessly, expediting onboarding, providing planning visibility, and increasing access to funding.

“

The textile industry thrives on ambiguity, tricks and games. People will not share info for free, and they will be concerned about sharing information about their cost.”

- Supplier



04 Cut from the same cloth

Intra-industry alignment

[Redacted]

Brands and suppliers must work together to synchronize the industry towards common standards.

The creation of a garment is a global event, crossing countries and language barriers. If codes of conduct, process steps, and guidelines were standardized, every player in the ecosystem would understand the rules of engagement, no matter where they are in the global supply chain.


But it's challenging for retailers to keep up with intricate and changing sustainability requirements demanded by regulators, consumers and NGOs. They often develop their own policies and standards, which only add to the complexity and variability.

To drive change, industry participants need to understand that sustainability requires alignment as a pre-competitive consideration.

Industry bodies are already trying to tackle these issues, with initiatives such as Better Work¹⁸, the Social and Labor Convergence Program (SLCP)¹⁹, and the Higg Index, developed by the Sustainable Apparel Coalition (SAC), which has been widely adopted.²⁰

Our research identified more than 40 certifications that could be applied to apparel across environmental and social factors, with a huge crossover between each. But even when standards and requirements are clear, there is often little guidance on how to achieve them.

This is a complex and challenging area with a clear need for technology and platform solutions to work alongside new standards, to enable better sharing of results, efficient communication and streamlined updates.

 **We don't know what it means, for example, to say 'this item is recyclable'. We don't know what documents we have to collect.** 

- Global Retailer

 **Each brand goes to suppliers with different expectations, systems and requirements.** 

- Global Retailer

05 Audits

Exhaustive or exhausting?



Brands must work to standardize audit requirements to reduce duplicate audits and excessive supplier expense, and to share the audit burden.

Suppliers must review their policies around external visibility of their audit results.

The complexity of requirements around sustainability, combined with the risk of brand damage, have led to a complicated, siloed audit landscape.

Scheduled or unscheduled audits are conducted by certification bodies, brands or brand-appointed assurance companies, but due to a lack of standardization, each has its own requirements.

A supplier may have multiple audits in the same week, sometimes with the same



It would be beneficial if multiple parties could agree upon audit data, format and trusted source for feedback... allowing for a more structured, standardized means for sharing audit data.

- Global Retailer



auditor, to meet almost identical requirements for different brands. The SLCP estimates that 75% of audits carried out within shared facilities are duplicated.²¹

Suppliers are often obliged to pay for audits and the Ethical Trading Initiative reports that companies typically devote up to 80% of their ethical sourcing budget to auditing alone.

Data recorded during social and environmental audits is subjective, fragmented, and often captured inconsistently in manual formats.

Audit costs and the proficiency of the auditor can also impact the accuracy of data generated. Some companies are using mobile apps to record findings, but the same issues still apply.

Initiatives such as the SLCP, Higg Index, Better Work, Sedex and Fair Factories Clearinghouse all promote the consolidation and sharing of the audit burden – but greater efforts need to be made to ensure audit consistency, in both content and medium, to maximize the value and uses of captured data.



06 Out of style

Dated data and processes



To gain the most value from data and its insights, brands and suppliers must improve process inefficiencies by upgrading legacy systems.

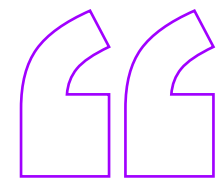
The apparel industry produces masses of data, but it is often in impractical, outdated formats that are hard to mine for insights.

Creating value means capturing the right data, at the right time, with appropriate controls and measures to ensure its validity, and using technology to unlock opportunities.

By combining qualitative assessment with quantitative data capture and analysis, the industry has an opportunity to use this data intelligently and make real progress.

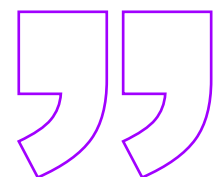
The intrinsically complex nature of the global apparel supply chain involves many independent organizations and stakeholders.

Most retailers don't have visibility beyond tier 1 or 2 in their supply chain and sustainability data is often buried in unstructured formats and unconnected folders. One solution is to centralize the responsibility for these accessibility issues by creating a role that oversees the cohesion and coherence of captured data.



Legacy systems are not capable of managing new requirements for traceability.

– Retailer



Pre-existing retailers' systems are not capable of managing new sustainability and traceability requirements, while suppliers are unable to meet required lead times for sourcing sustainable goods.

Practices and systems need to be updated through collaboration, training and digital enablement, to ensure that sustainability requirements are being met across the board.

Summary

A traceable, transparent value chain is a significant challenge for any apparel manufacturer. But there has never been more international momentum behind sustainable initiatives, and their economic value is now more clearly understood.

Our research has detailed the technology opportunities and the industry is ready to change.

Now it's up to companies to cut from a different cloth.

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About this executive summary

This summary draws on a more detailed report, that maps technology opportunities in this sphere to each part of the supply chain and to the insights outlined here.

Along with our colleagues in Supply Chain & Operations, Retail Strategy, Retail Consulting and Capability Network, a team at The Dock are now exploring the feasibility of these technological opportunities for upstream traceability.

[To learn more, get in touch with the team](#)



About The Dock

The Dock is Accenture's flagship R&D and Global Innovation Center based in Dublin, Ireland where design, business and technology come together under one roof.

The Dock is home to a diverse team of 300 creative problem-solvers made up of highly talented experts in design, engineering, artificial intelligence and IoT.

The multi-disciplinary team at The Dock research, incubate, prototype and pilot digital and emerging technologies together with clients and partners to pioneer new ways to fulfil human needs using emerging technology.

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Technology opportunities across the apparel value chain

Appendix

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[A – M]

A	Training platform	Platforms and tools that digitize and share training and information across the globe, in accessible and digestible ways, can enhance understanding of requirements, uptake and adherence to policies, and alignment between participants.
B	Secure digital rights	Blockchain technology could be applied to address challenges with ownership and fraudulent use of design IP, by creating tamper-evident records of IP, access, and ownership.
C	Digital product design / R&D	Design tools allowing real-time sharing of digital design/fit assets between retailers and manufacturers, as well as rapid sampling using innovative technologies (e.g., 3-D printing).
D	Predict sustainability impact at design	Design tool that predicts the environmental impact of a product, based on the provision of design decisions on materials, colours and finishes, as well as sourcing locations. This can be combined with AI guidance and feedback to support design and sourcing teams.
E	Designing with new materials	Use AR/VR technology to provide designers with access to sustainable materials, helping them to understand the look and feel and to promote the incorporation of sustainability into their designs.
F	Virtual design tools	Use Digital Product Creation technologies to provide designers with tools to visualize garments to a higher fidelity earlier, to eliminate early physical sample iterations.
G	Sourcing recycled products	Platforms and tools to monitor supply availability of recycled and recyclable materials to inform planning and sourcing; connecting collection schemes and recycling facilities to design and sourcing teams; and providing analysis and benchmarking on circularity.
H	Supplier master data	Platform that allows companies to maintain and control access to their information in a single place. Through a series of APIs, it can connect to, and keep up to date with, multiple marketplaces or sourcing channels.
I	Fraud prediction	Analytics plug-in to keep risk assessment informed of potential fraud, by: scanning and matching names and addresses of facilities to clean up data records; identifying the likelihood of duplication; and maintaining links between businesses trading under different name or tax number.
J	Supplier ratings	Platform where factories and suppliers are rated/reviewed by their customers, assurance agencies and even staff based on economic, social and environmental performance.
K	Digital audit	Data platform which consolidates sustainability information through a combination of connected devices and sensor in-factory audits, and voice of the worker, to provide ongoing monitoring and insight to factories and their customers.
L	Certificate management	A platform that hosts and validates certifications of suppliers, which have been attested by the awarding and accreditation bodies, and can provide visibility and reassurance to the validity of credentials.
M	Auditor identification	Blockchain for Digital Identity can be used to ensure that the individuals carrying out the audits are verified, traceable and linked to audit results.

Appendix

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[N – Z]

N	QA results platform	Enhanced laboratory test results data platform, powered by blockchain to provide evidence of tampering, share results, and control access in a secure way.
O	Invoicing and payment	Smart contracts that trigger invoice payment under agreed terms and conditions could alleviate a number of pain points around late payments and negotiations.
P	Traceability platform incentives	Platforms that connect upstream suppliers to brands and retailers through traceability solutions can create opportunities to provide access to financing, investment, and information that is otherwise unattainable, whilst fulfilling requirements for transparency and ensuring sustainability.
Q	Smart factory and IIoT	The introduction of IIoT to create smart factories in garment manufacture can generate savings for suppliers, speed to market, as well as provide insight and monitoring on sustainability and product footprints to retailers and the wider industry.
R	Production visibility	End-to-end lead time visibility and inventory status for products and inventory locations, enabled by analytics and interactive dashboards
S	Waste monitoring	A solution to monitor and control the proper disposal of effluent and sludge using blockchain to track transfer of ownership, individuals involved, and facility credentials; along with sensors and tools to test, monitor, and store data in a secure way.
T	Environmental footprint calculation	Use analytics and AI to carry out the environmental life-cycle assessment for a specific product.
U	Predict upstream traceability	Use analytics to predict the upstream business relationships in a given supply chain, and connect these relationships with product data to predict traceability information.
V	Quality and logistics	Link and store quality test data along the supply chain with data captured from connected devices in transit (monitoring conditions such as sunlight, moisture and temperature) to understand liability for issues with quality.
W	Product tagging	Linking physical to digital for traceability through the supply chain with a combination of RFID tags, RFID threads, QR codes and AI photo analysis, according to the state and risk at various points.
X	End-to-end supply chain visibility	End-to-end lead time visibility and inventory status for products and inventory locations, enabled by analytics and interactive dashboards
Y	Consumer interactive traceability information	Interactive dashboards using real traceability and sustainability data to supply consumers with in-store or online information and data.
Z	Integrated planning visibility	Integrated planning visibility between retailers, mills, and other tiers of the supply chain, using real-time data from design stage to allow optimum quantity of raw materials to be purchased in advance.