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You must attach this form to your work.

<b>Surname</b> Soni	<b>First Name</b> Kashvi
<b>Unit Title</b> Degree Project	<b>Unit Code</b> EBSC6021
<b>Project/Component/Essay/Dissertation Title</b> FashionCheck: AI Enabled Trend-to-Compliance Pre-Validation Platform	
<b>Course</b> BSc.Fashion Business & Management	<b>Unit Leader</b> Celina Schlieckmann
<b>Year of Study (e.g. 1<sup>st</sup>/2<sup>nd</sup> etc.)</b> 3 <sup>rd</sup>	<b>Submission Date</b> 13 <sup>th</sup> May 2026

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# FashionCheck

AI Enabled Trend-to-Compliance

Pre-Validation Platform

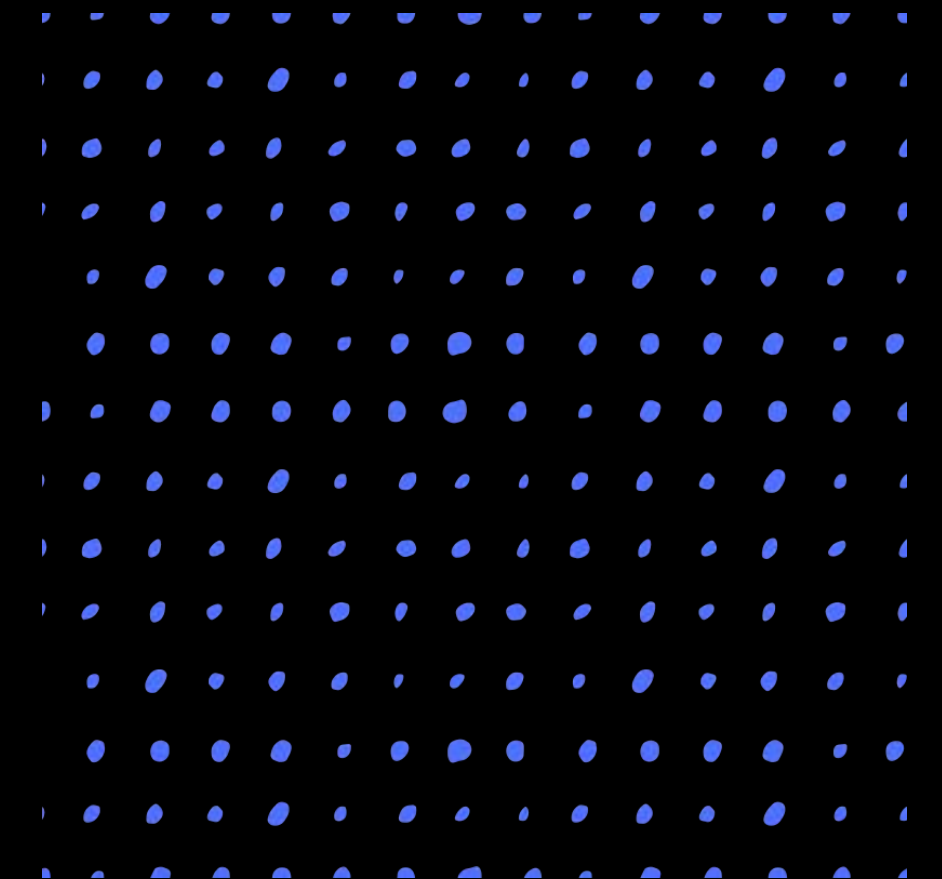
UK Fashion SMEs

Sustainability

Regulatory Compliance

AI Decision Support

<https://fashioncheck.streamlit.app>



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# 01

## MAIN PROJECT DELIVERABLES AND SUPPORTING EVIDENCE

# 1.1 INTRODUCTION AND POSITIONING STATEMENT

The Fashion industry is undergoing a structural transformation driven by two simultaneous and as yet largely disconnected forces. First, artificial intelligence is reshaping how brands anticipate consumer demand. **AI powered trend forecasting tools now scan millions of social media images daily**, tracking over thousands fashion attributes and forecasting style adoption curves at a level of granularity no human team can match (Savolainen, 2023). Artificial intelligence is therefore positioned in this project not as a creative generator, but as an **analytical and decision-support tool**, particularly in interpreting patterns and supporting early-stage product decisions. As highlighted by Laura Senior Colour & Trend Editor at Unique Style Platform (Aldous, 2026), AI remains significantly stronger in analysing historical and existing data than in interpreting emerging cultural shifts, reinforcing the continued importance of human judgement in early-stage decision-making.

Second, a tightening regulatory environment led by structured auditable evidence (Weber, 2025).

For the majority of UK fashion SMEs, however, these forces exist in separate operational stages. Trend intelligence informs early creative decisions, while **sustainability and compliance checks are conducted later, often after significant investments have already been made.**



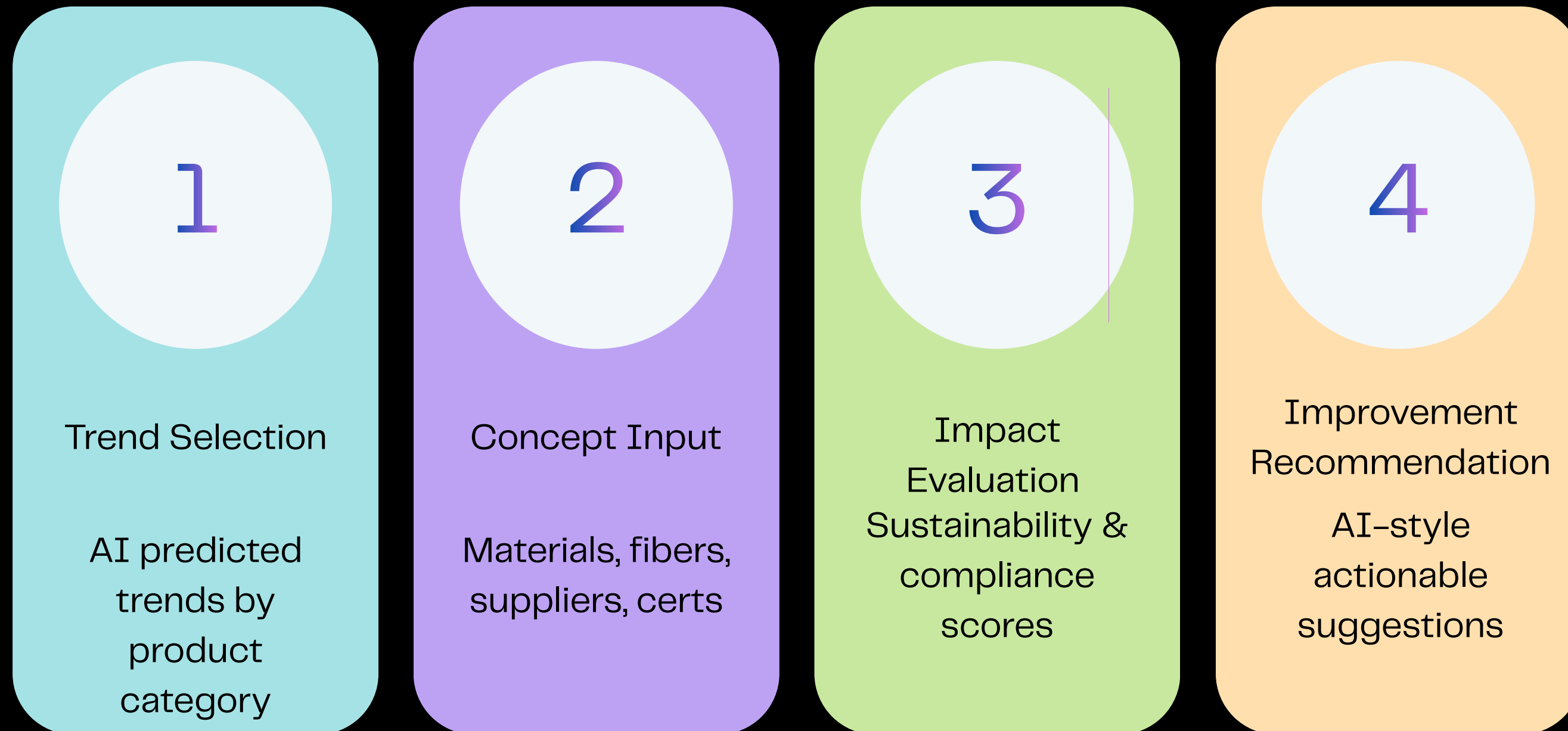
Fig. 1.



Fig. 2.

This project proposes an AI-enabled Trend-to-Compliance Pre-Validation Platform a conceptual digital tool that connects trend forecasting with sustainability scoring and compliance readiness at the earliest stage of product development. (see Appendix 3 for system architecture)

## Trend-to-Compliance Pre-validation Platform: User Journey



The Trend-to-Compliance Pre-Validation Platform: four-step user journey from trend selection to improvement recommendations

# 1.2 THE OPPORTUNITY IDENTIFIED

The structural gap this platform addresses has been building for several years. AI driven trend forecasting has moved from experimental to mainstream: companies like Heuritech uses computer vision and massive image dataset to forecast the adaptation of colours, silhouettes, prints, and fabrication with high accuracy, helping brands reduce overstock and align with production with emerging consumer preference (Savolainen, 2023; Dhiwar, 2024). Research across the sector confirms that AI's predictive capabilities are increasingly integrated into demand planning, assortment management and range development (Ramos et al., 2023; Sorgato, 2020; Rathore, 2017). Yet **most of these AI systems focus entirely on what will sell, not on how it can be produced responsibly.** As Wilson and Bowles (2024) note, AI trend forecasting raises significant ethical questions among them, the risk that the velocity of AI-driven trend generation accelerates overproduction without embedding sustainability logic at the point of concept creation. At the same time, the regulatory environment has tightened considerably.

The EU Strategy for Sustainable and Circular Textiles and the Ecodesign for Sustainable Products Regulation (ESPR) are driving a structural shift in how products must be designed, documented and disclosed (Weber, 2025). Digital Product Passports (DPPs) are being positioned as a mandatory component of this architecture, requiring brands to record material sourcing, carbon footprint and recycling guidance at the product level from the earliest stages of development (Thorngren, 2025). In the UK, the Competition and Markets Authority's Green Claims Code and 2024 fashion-sector guidance make clear that **environmental claims must be substantiated by clear, accurate evidence** a requirement that effectively pushes SMEs towards more structured environmental data even before DPP mandates are active (Fashion retail: consumer law when making green claims, 2024).

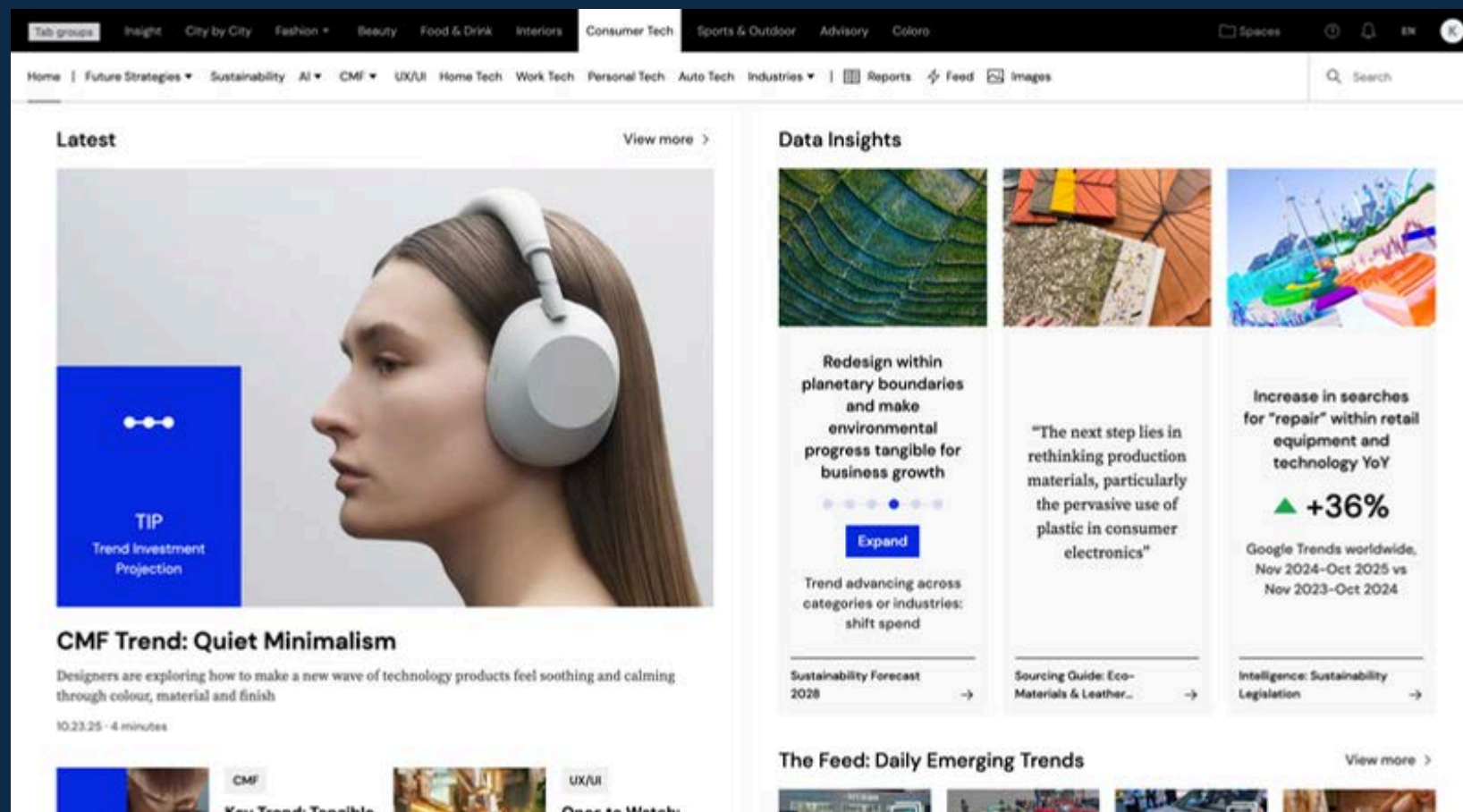


Fig. 3.



Fig. 4

# Competitor Positioning Matrix

The gap addressed by this platform is structural. AI forecasting tools predict demand but do not assess feasibility in terms of sustainability or compliance. Meanwhile, regulatory requirements such as ESPR and Digital Product Passports demand increasing levels of traceability and environmental accountability.

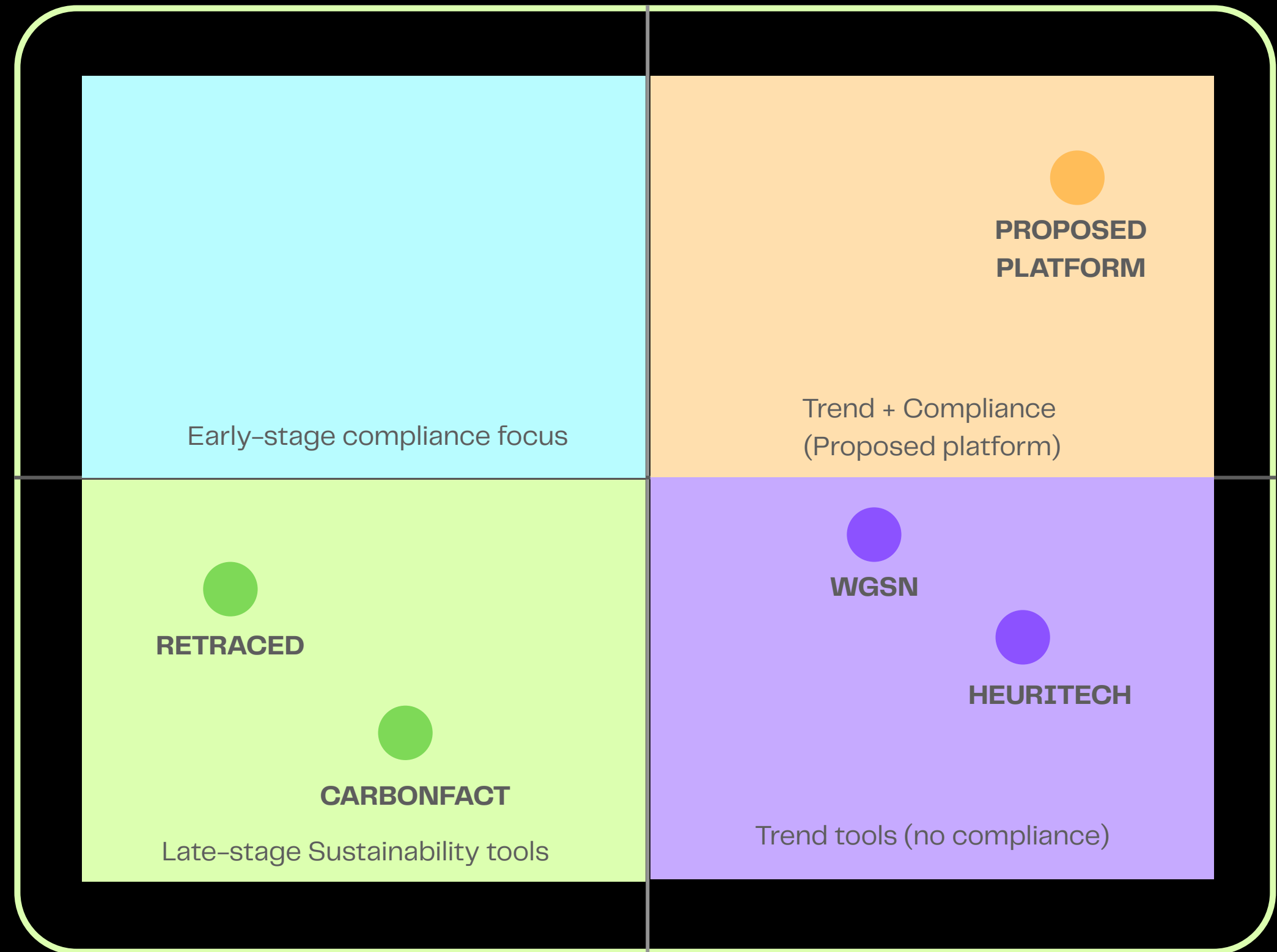
(see Appendix 1 for PESTEL analysis)

(see Appendix 2 for SWOT analysis)

As noted by Laura, “brands that cannot sustain a dedicated trend team subscribe to a service to access that intelligence... this is essentially the same logic applied to compliance” (Aldous, 2026), reinforcing that the platform’s value proposition is grounded in an existing commercial model.

Existing solutions operate either at the beginning (trend tools) or end (traceability tools) of the product lifecycle. The platform fills the gap between these stages.

Sustainability & compliance integration ->



Trend Forecasting Capabilities ->

Competitor positioning matrix: the proposed platform occupies the uncontested upper-right quadrant combining trend forecasting with sustainability and compliance integration

# 1.3 BACKGROUND RESEARCH AND EVIDENCE BASE

## 1.3.1 REGULATORY AND POLICY CONTEXT

The Ecodesign for Sustainable Products Regulation (ESPR) came into force in 2024, replacing the earlier Ecodesign Directive and extending eco-design requirements to cover durability, recyclability, reparability and carbon footprint disclosure across almost all physical product categories, with textiles explicitly in scope (Weber, 2025). The EU Strategy for Sustainable and Circular Textiles sets ambitious 2030 targets: textiles placed on the EU market should be durable, repairable, recyclable and largely based on recycled fibres (Eu, s.d.; ETC/CE, 2022). For UK brands wanting to retain EU market access post-Brexit, these requirements mean product design choices must increasingly anticipate EU expectations on recyclability, durability and content disclosure.



Fig. 5

Regulatory frameworks and certification systems are not static. The ESPR evolves through delegated acts approximately every 2–3 years, while certification systems such as OEKO-TEX and GRS are updated annually or biannually. This reinforces the need for adaptive systems capable of integrating changing regulatory requirements rather than relying on fixed compliance models. Digital Product Passports are a mandatory component of this new regulatory architecture, designed to carry machine-readable product-level data from material sourcing and carbon footprint to recycling instructions and to act as auditable compliance records throughout the supply chain (Thorngren, 2025). As Thorngren (2025) demonstrates, DPPs are actively reshaping how brands and retailers approach circular strategies, because the data required for a DPP must, in principle, be assembled from the earliest design decisions. This makes pre-validation confirming that a concept can generate the right data a logical precursor to DPP compliance. (see Appendix 4 for regulatory framework mapping)

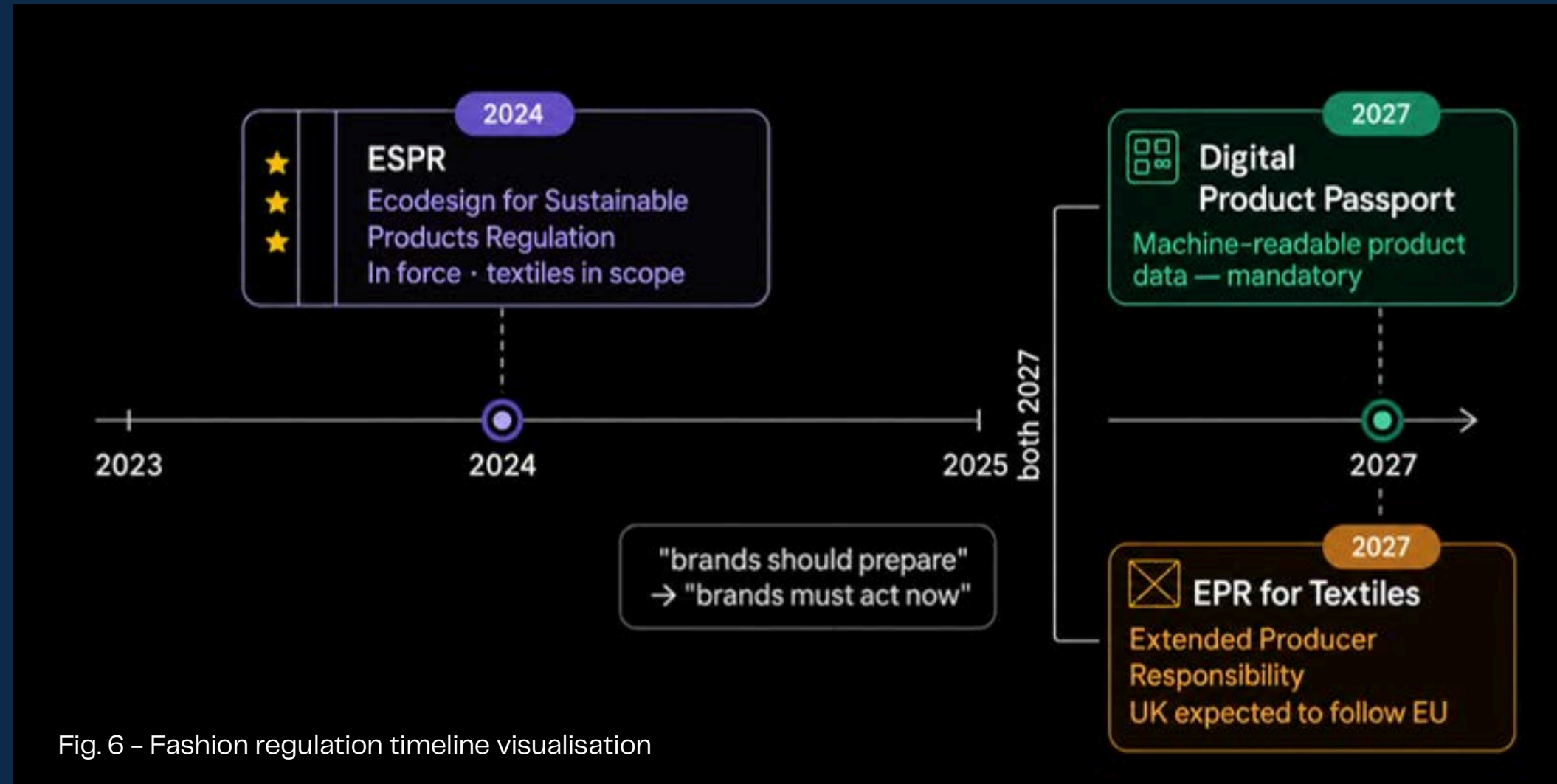


Fig. 6 – Fashion regulation timeline visualisation

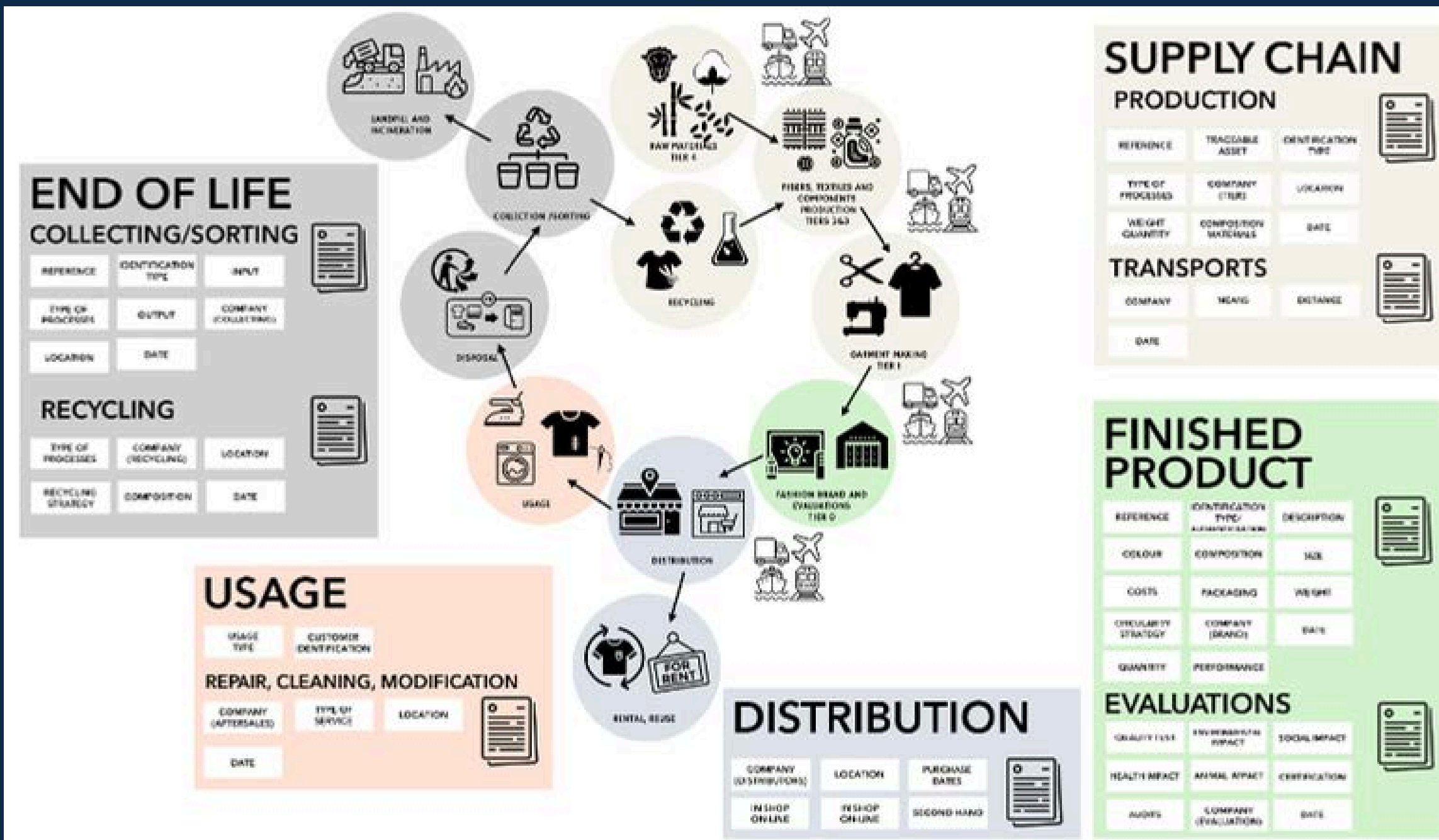


Fig. 7: Proposed model of DPP for Textile (Jérémy Legardeur, 2024)

In the UK, the CMA's 2024 guidance is rooted in investigations into ASOS, Boohoo and George at Asda, stressing that brands must hold evidence that is clear, accurate and not exaggerated (Fashion retail: consumer law when making green claims, 2024). The Effie Kesidou (2025) analysis of eco-credential standards in the UK textile sector further confirms that while UK brands face a complex and fragmented regulatory landscape post-Brexit, voluntary certification schemes and emerging mandatory standards are converging, making structured compliance documentation increasingly non-negotiable.

## 1.3.2 MARKET AND SECTOR INSIGHTS

The environmental case for action is stark. The ETC/CE (2022) report for the European Environment Agency documents that the EU textile sector generates approximately 12.6 million tonnes of textile waste annually, with fibre-to-fibre recycling rates remaining extremely low and **design decisions accounting for the majority of a product's eventual environmental impact**. The European Parliament similarly notes that textile consumption has the fourth-highest impact on climate and environment after housing, transport and food (Fast fashion: EU laws for sustainable textile consumption, s.d.). Approximately five million tonnes of clothing are discarded annually in the EU alone, and only around one per cent of textiles are recycled into new clothing (Eu, s.d.).

From a business perspective, evidence consistently shows that **smaller brands struggle most**. The Centre for Sustainable Fashion et al. (2019) mapping report identifies sustainable fashion as a genuine market opportunity for SMEs, but documents that structural barriers cost of certification, limited access to green supply chains, complexity of regulation prevent most small brands from capturing it. Khan (2024) provides detailed analysis of barriers to adopting sustainable manufacturing practices in ready-made garment enterprises, finding that resource constraints, supplier fragmentation and the absence of accessible decision-support tools are among the most critical barriers.

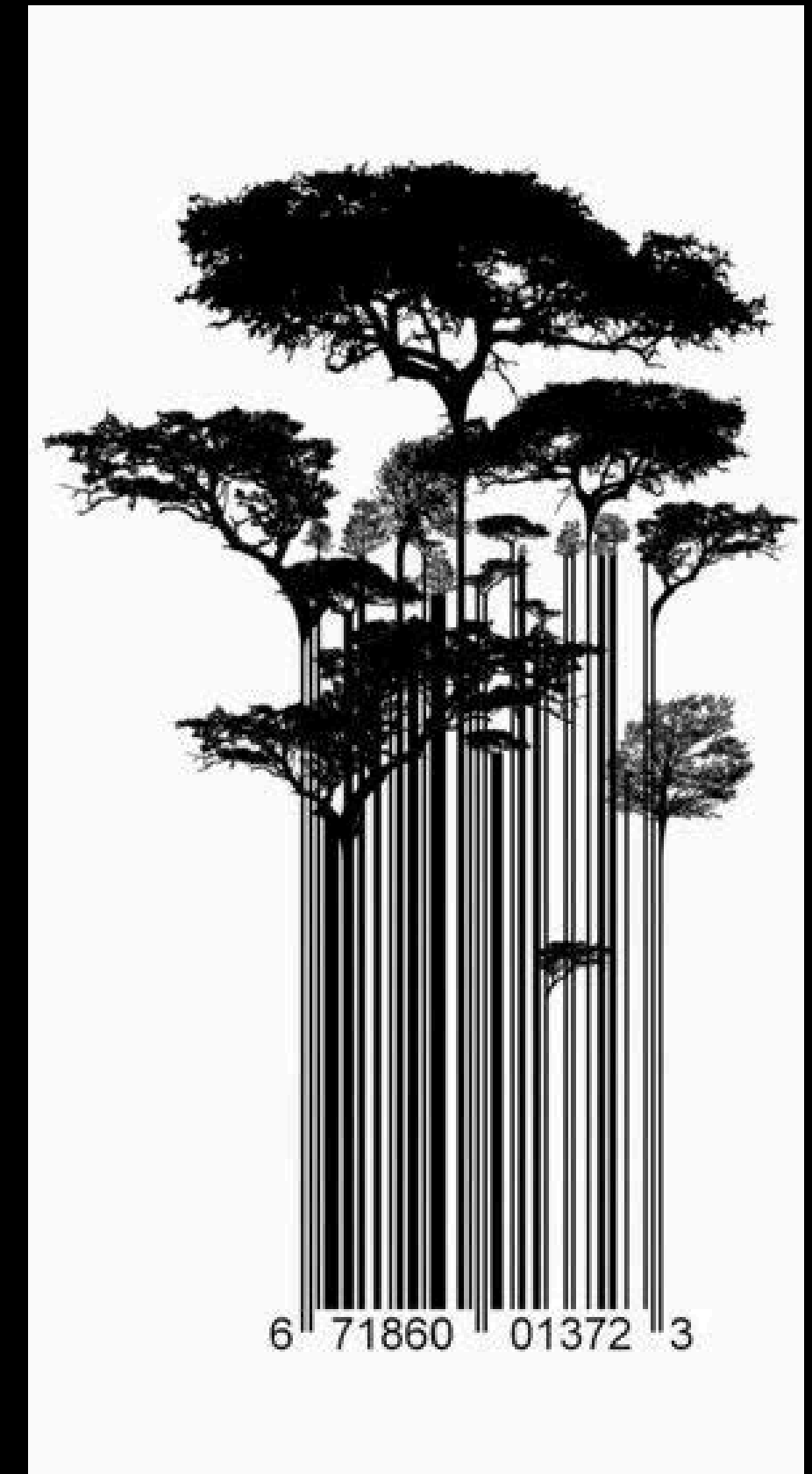


Fig. 8

Alaghbari et al.(2023) extends this analysis to supply chain management, demonstrating that embedding environmental sustainability practices in fashion supply chains requires structured frameworks that translate regulatory complexity into actionable operational guidance.

The Reefke, Ahmed and Sundaram (2014) Sustainable Supply Chain Management Maturity Model offers a useful conceptual framework here: it positions supply chain sustainability adoption along a maturity curve, and most UK fashion SMEs sit at the lowest maturity levels characterised by reactive rather than proactive environmental management.

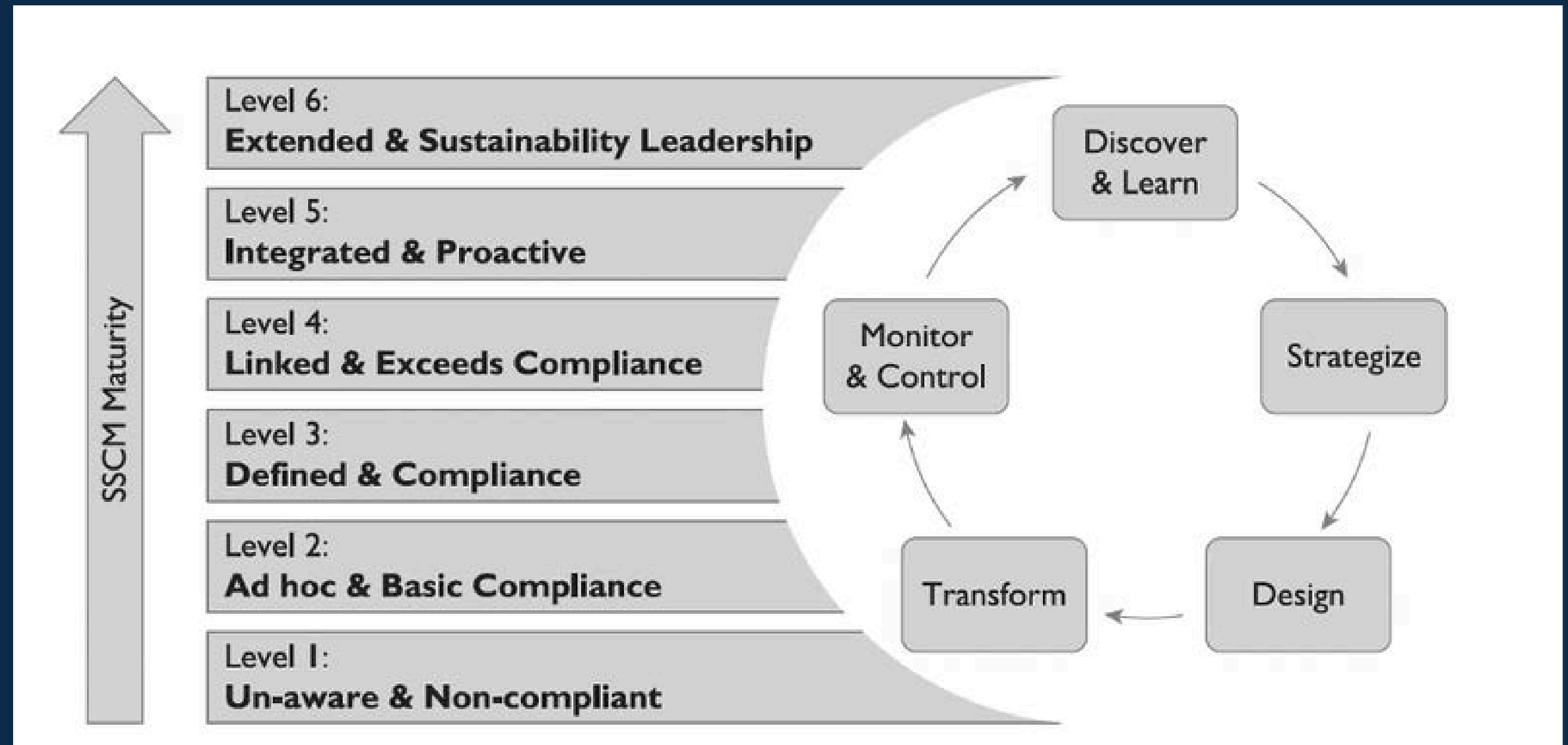


Fig 9 Sustainable Supply Chain Management Maturity Model (Reefke et al., 2014)

## 1.3.3 AI, TREND FORECASTING AND DATA-DRIVEN FASHION

AI-driven trend forecasting has become mainstream across the fashion sector. Savolainen (2023) provides a comprehensive analysis of AI demand and trend forecasting methods in fashion, confirming that **machine learning models particularly those using computer vision and social listening significantly outperform traditional methods in predicting style adoption curves.** Ramos et al. (2023) review AI and sustainability

applications in fashion from 2010 to 2022, finding that while AI is increasingly applied to demand forecasting and supply chain optimisation, **its application to sustainability impact assessment remains limited and largely disconnected from front-end design tools.** Dhiwar (2024) similarly documents how AI is reshaping design, production, consumer experience and sustainability in fashion, but notes that the **integration of these domains into a single workflow remains a significant challenge, particularly for resource-constrained SMEs.**



Fig 10 Heuritech using AI neural network illustration

Rathore (2017) argues that AI, sustainability and machine learning are converging forces that will reshape fashion marketing and product development, but that the ethical and operational challenges of this convergence including the risk of accelerating unsustainable trend cycles require deliberate design choices. AI is widely used in fashion forecasting but remains limited in integrating sustainability considerations. As Laura highlighted, **AI performs strongly in analysing past patterns but lacks the ability to interpret new cultural or geopolitical shifts**, reinforcing the need for human interpretation alongside AI outputs (Aldous, 2026). (see [Appendix 8 for full interview transcript](#)).

Bowles and Wilson (2024), identify key anticipated ethical issues including the potential for AI to exacerbate overproduction, concentrate market power in favour of large brands with data advantages, and generate trends that are commercially optimised but environmentally harmful. The proposed platform directly responds to this critique by reframing AI trend forecasting as a responsible design tool one that connects commercial trend prediction with sustainability and compliance evaluation rather than treating them as separate processes. Massenkoff and McCrory (2026) provide broader context on AI's labour market impacts, which is relevant to the fashion SME context: as AI automates more tasks in trend analysis and demand forecasting, the competitive advantage for smaller brands will increasingly come from tools that translate AI outputs into operationally actionable guidance.

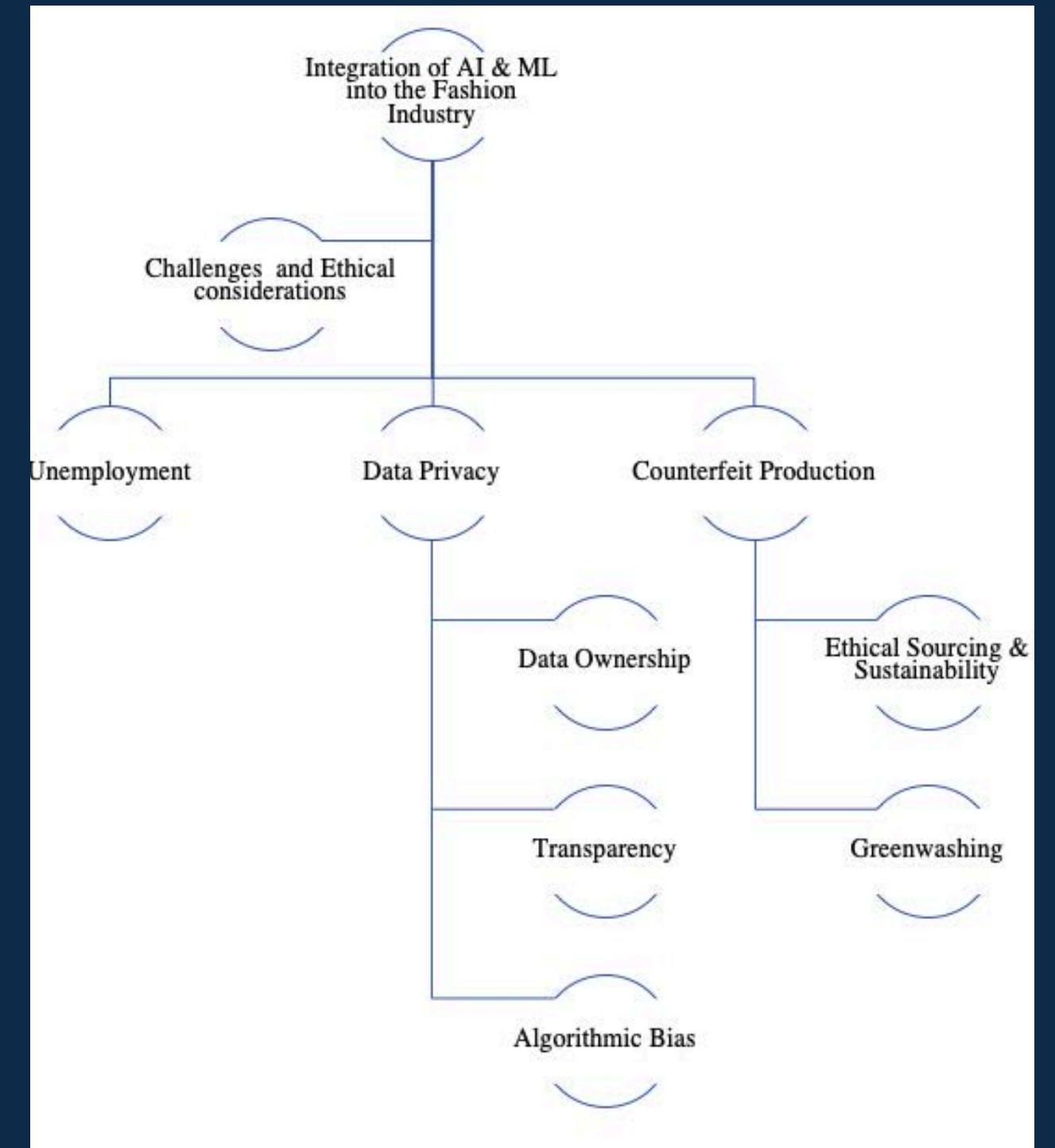


Fig 11: Challenges associated with AI & ML integration (Dhiwar, 2024)

## 1.3.4 KEY INSIGHTS

### FIVE ANALYTICAL INSIGHTS DRIVE THE PLATFORM DESIGN.

Together these insights justify focusing the project on a concept-stage, advice-oriented pre-validation platform that blends AI-informed trend forecasting, simplified LCA logic, regulatory heuristics and an explainable user experience.

01

Trend forecasting is powerful but incomplete: AI trend engines offer robust, data-driven views of emerging styles and can significantly reduce overstock (Savolainen, 2023), but they do not automatically answer whether a specific trend can be produced in a low-impact, regulation-ready way by a specific SME.

02

Sustainability and compliance work best when they move upstream: design decisions lock in the majority of a product's eventual environmental impact (ETC/CE, 2022), and DPPs are designed to embed impact data from the earliest stages, not as an afterthought (Thorngren, 2025).

03

SMEs face specific structural barriers: resource constraints, fragmented supply chains and limited regulatory literacy are well-documented obstacles (Khan, 2024; Centre for Sustainable Fashion et al., 2019; Alaghbari et al., 2023).

04

AI in fashion raises ethical obligations that existing tools do not address: Bowles and Wilson (2024) argue that AI trend tools must be designed with sustainability accountability built in, not bolted on.

05

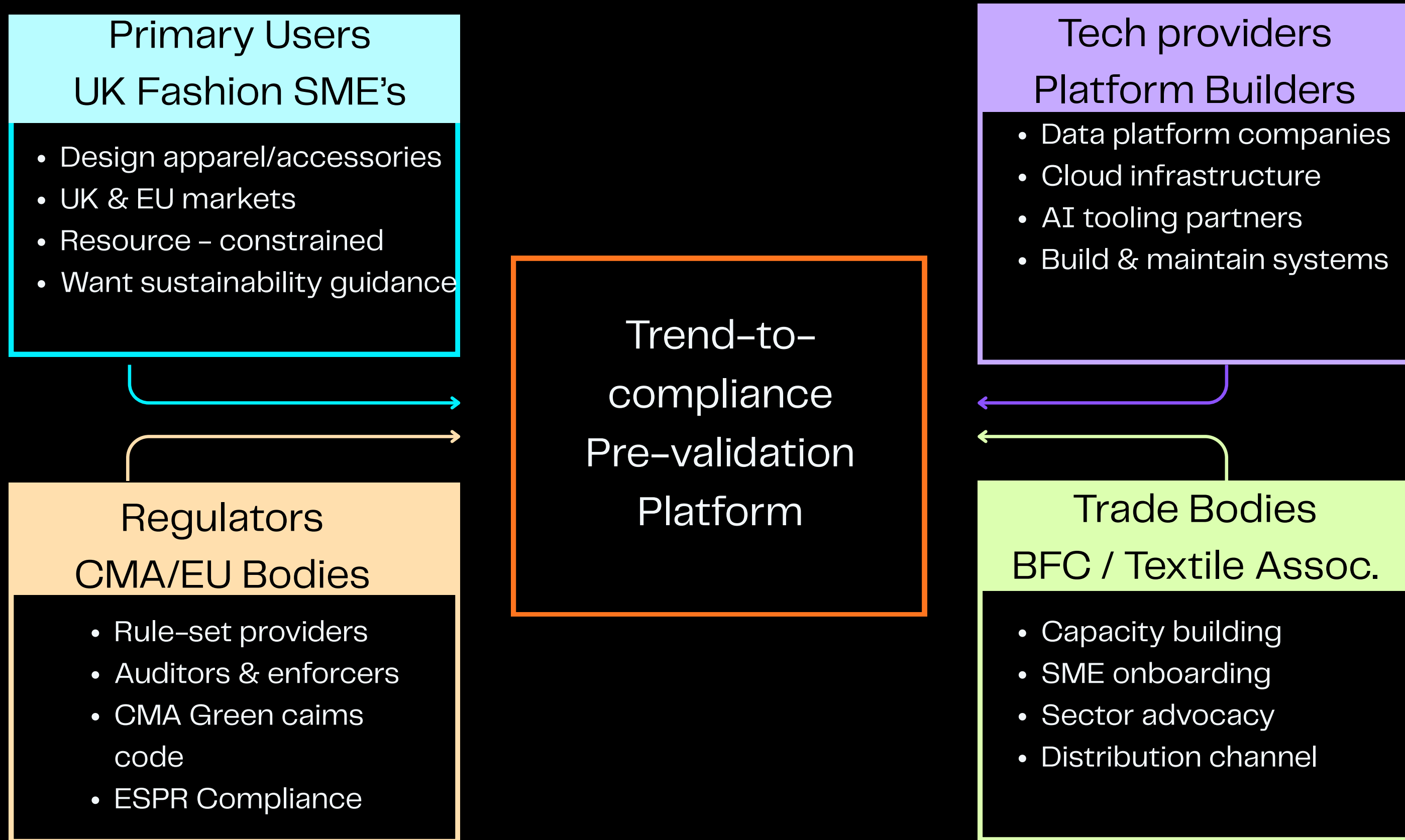
**A design gap exists in the market:** no current tool at an accessible price point combines trend intelligence with concept-stage sustainability scoring and compliance readiness for UK fashion SMEs.

# 1.4 THE PLATFORM: SYSTEM DESIGN AND ARCHITECTURE

## 1.4.1 SYSTEM OVERVIEW AND STAKEHOLDER ARCHITECTURE

The Trend-to-Compliance Pre-Validation Platform is designed as a lightweight web-based dashboard experience with five core functional modules: Trend Selection, Concept Input, Impact Evaluation, Compliance Check, and Improvement Recommendations. The platform is positioned as a co-pilot **empowering rather than policing** reflecting the principle, consistent with the Centre for Sustainable Fashion et al. (2019) recommendation, that **SME-facing sustainability tools must feel supportive, practical and affordable rather than burdensome**. The platform involves four distinct stakeholder groups. Primary users are UK fashion SMEs brands that design and produce apparel or accessories for UK and EU customers, who want to be sustainable but lack in-house legal, data and LCA expertise. Secondary users include UK trade bodies such as the British Fashion Council and government agencies who could use aggregate platform outputs to understand sector-level compliance readiness. Technology providers are positioned as build and maintenance partners. Regulators, including the CMA, serve as rule-set providers and auditors, ensuring the scoring framework remains grounded in actual regulatory texts. (see [Appendix 3 for system architecture and data flow](#))

# Stakeholder Architecture

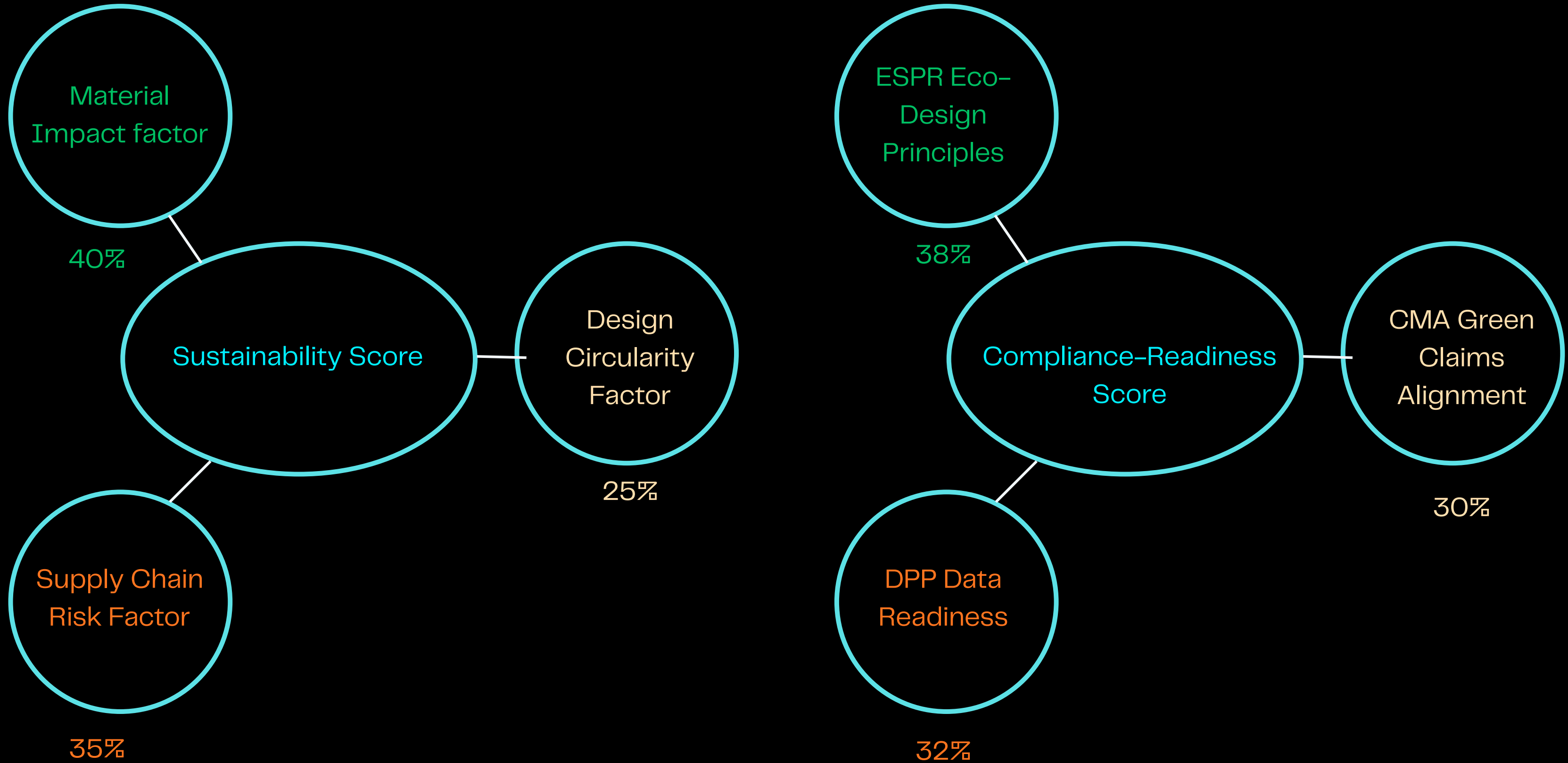


Stakeholder architecture: four key groups and their relationships with the platform

## 1.4.3 SCORING FRAMEWORK

The scoring engine produces two linked outputs: a Sustainability Score and a Compliance–Readiness Score. The Sustainability Score is calculated as a weighted combination of a Material Impact Factor (drawn from simplified LCA proxy values for common fibre types and fabric constructions, weighted at 40%), a Supply Chain Risk Factor (reflecting supplier location, certification status and traceability depth, weighted at 35%), and a Design Circularity Factor (assessing mono–material use and recyclability of construction, weighted at 25%). These weightings reflect the finding of ETC/CE (2022) that **material choices and design decisions account for the largest share of a textile product's environmental impact**. The Compliance–Readiness Score reflects alignment with three regulatory frameworks: ESPR eco–design principles (38%), DPP data readiness as defined by Thorngren (2025) (32%), and CMA green claims guidance (30%). This regulatory triangulation ensures the scoring framework is grounded in the specific legal texts most material to UK fashion SMEs operating in UK and EU markets (Weber, 2025; Effie Kesidou, 2025)

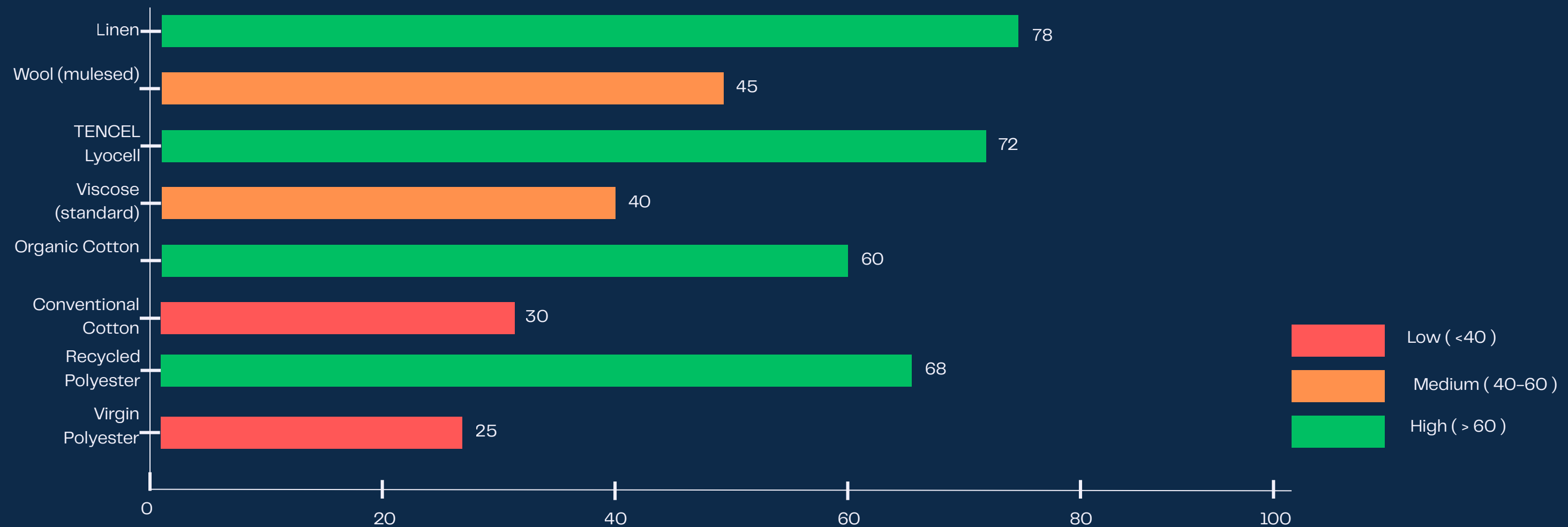
# Platform Scoring Framework



Platform scoring framework: component weightings for the Sustainability Score (left) and Compliance-Readiness Score (right)

The material scoring component draws on published LCA benchmarks comparing the environmental profiles of common fibres, consistent with the methodology recommended by Alaghbari et al.(2023) for embedding environmental sustainability practices into fashion supply chain decision-making.

### Indicative Material Sustainability Scores (Simplified LCA-Informed Heuristics)

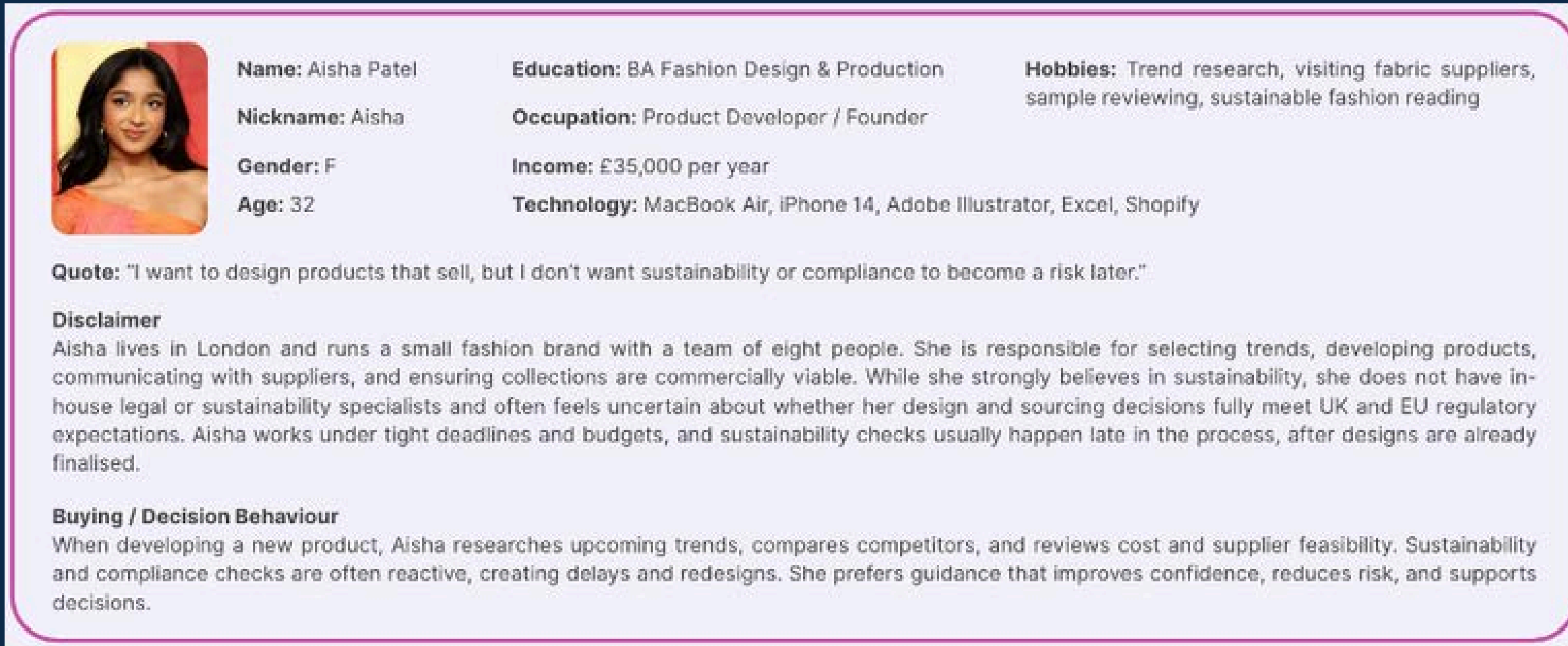


Indicative material sustainability scores (simplified LCA-informed heuristics) used as inputs to the platform scoring engine


# 1.4.2 TARGET USER PERSONA

The platform is designed around a primary user persona Aisha Patel developed through synthesis of practitioner research, brand ethnography and published SME data (Centre for Sustainable Fashion et al., 2019; Khan, 2024). Aisha is a 32-year-old product developer and co-founder of a London-based fashion SME employing eight people. She has a BA in Fashion Design and Production, earns approximately £35,000 per year, and uses Adobe Illustrator, Excel and Shopify. She strongly believes in sustainability but has no in-house legal or sustainability specialists, and sustainability checks routinely happen after design decisions are finalised a pattern consistent with Khan's (2024) findings on barriers to sustainable manufacturing adoption in SME garment enterprises.

Her defining frustration: 'I want to design products that sell, but I do not want sustainability or compliance to become a risk later.' (see Appendix 10 for full Streamlit prototype walkthrough)



The user persona card for Aisha Patel is presented in a light blue rounded rectangle. It features a profile picture of Aisha on the left. To the right of the photo, her personal details are listed in a structured format. Below this, there is a quote, a disclaimer, and a section on buying/decision behaviour.

	<b>Name:</b> Aisha Patel	<b>Education:</b> BA Fashion Design & Production	<b>Hobbies:</b> Trend research, visiting fabric suppliers, sample reviewing, sustainable fashion reading
	<b>Nickname:</b> Aisha	<b>Occupation:</b> Product Developer / Founder	
	<b>Gender:</b> F	<b>Income:</b> £35,000 per year	
	<b>Age:</b> 32	<b>Technology:</b> MacBook Air, iPhone 14, Adobe Illustrator, Excel, Shopify	

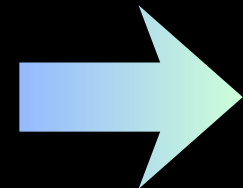
**Quote:** "I want to design products that sell, but I don't want sustainability or compliance to become a risk later."

**Disclaimer**  
Aisha lives in London and runs a small fashion brand with a team of eight people. She is responsible for selecting trends, developing products, communicating with suppliers, and ensuring collections are commercially viable. While she strongly believes in sustainability, she does not have in-house legal or sustainability specialists and often feels uncertain about whether her design and sourcing decisions fully meet UK and EU regulatory expectations. Aisha works under tight deadlines and budgets, and sustainability checks usually happen late in the process, after designs are already finalised.

**Buying / Decision Behaviour**  
When developing a new product, Aisha researches upcoming trends, compares competitors, and reviews cost and supplier feasibility. Sustainability and compliance checks are often reactive, creating delays and redesigns. She prefers guidance that improves confidence, reduces risk, and supports decisions.

Fig. 12: User persona: Aisha Patel, primary platform user (Soni, 2025)

# 1.4.4 PROTOTYPE DEMONSTRATION: AISHA'S JOURNEY



**From idea to impact.**

**Validated early.  
Designed better.**

**Save Time**

Validate early,  
reduce rework.

**Reduce risk**

Stay compliant,  
avoid penalties.

**Improve impact**

Build better products,  
for people & planet

**Drive value**

Make smarter decisions  
that helps you grow

26

## Your end-to-end pre-validation journey

1

### Trend Forecasting & Inspiration

Explore AI-powered trend forecasts, colours, fabrics & silhouettes tailored to your brand and market.

2

### Product Concept & Material Input

Add your product details & build your fibre composition with guided inputs & real-time validation

3

### Supplier, Certification & Compliance

Select supplier region, add certifications and answer compliance readiness questions

4

### Scoring & Results

Get your Sustainability Score, Compliance Score and Overall Score with a detailed breakdown

5

### AI Suggestions & Partners

Receive AI-powered improvement suggestions, cost insights, regulation and partner recommendations

**Start**

-  Dashboard
-  Trend Forecasting
-  Product Pre-Validation
-  Scoring & Results
-  AI Suggestions
-  Partner Recommendations
-  History

Need Help

Ask me anything!

# 1 Trend Forecasting

AI - powered trend intelligence, decoded for your next collection

SS27 OUTERWEAR TRENDS

## Tech-Utility Revival

Functional design meets elevated aesthetics, Utility silhouettes evolve with sustainable innovation.

Confidence Score 

92%

### Key Attributes

- Oversized silhouettes
- Technical Fabrics
- Earth Neutrals
- Utility Pockets



Next

2

# Product Pre-Validation

*Input your concept details and supply chain information*

## Product Basics

Product Name

Hooded Jacket

Product category

Outerwear

## Fibre Composition

Total must be 100%

Fibre

% Share

Recycled Polyester

85%

Deadstock / Upcycled

15%

Select fibre

0

## Supplier & Certifications

Supplier Region

UK/ Local Manufacturer

Certifications Held

OEKO - TEX Standard

+ Add Another

10/10

## Supplier Score

Excellent

UK based - Certified Supplier - Highest credibility tier

Next



Dashboard



Trend Forecasting



Product Pre-Validation



Scoring & Results



AI Suggestions



Partner

Recommendations



History

Need Help

Ask me anything!

3

# Compliance Readiness

Answer a few question to assess your compliance readiness



Is this product designed to be durable & repairable?

Yes

No



Do you have supply chain data available?

Yes

No



Are sustainability claims substantiated with evidence?

Yes

No



Can the product be recycled at end of life?

Yes

No



Dashboard



Trend Forecasting



Product Pre-Validation



Scoring & Results



AI Suggestions



Partner  
Recommendations



History


Need Help


Ask me anything!

Next

# 4 Scoring & Results

Your sustainability & compliance scores

 Sustainability Score  
**62.9 / 100**

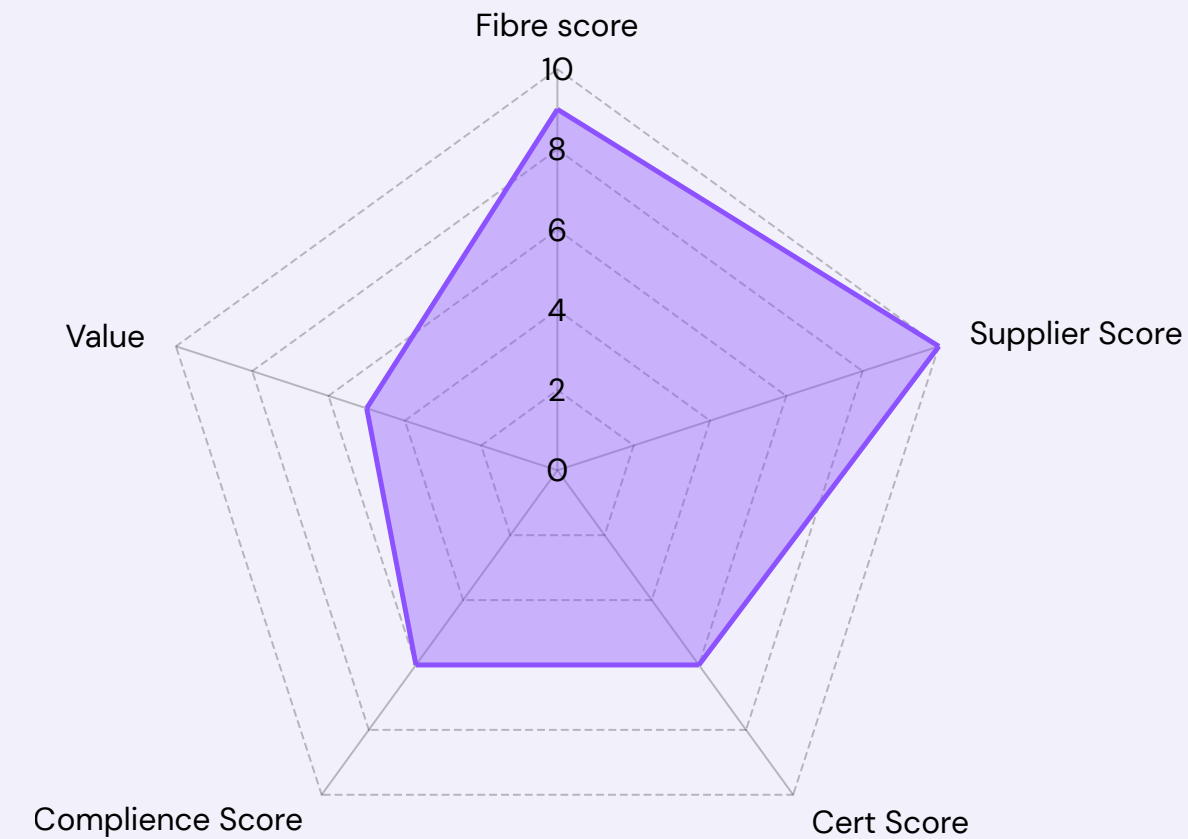
 Compliance Score  
**80.0 / 100**

**Overall Score**  
**80.0 / 100**  
**APPROVED**  
Proceed to sampling

## Score Breakdown

[View Methodology](#)








-  **Fibre Score**  
Strong recycled & deadstock combination  
83%
-  **Supplier Score**  
UK manufacturer, Certified  
100%
-  **Certificate Score**  
OEKO - TEX Standard 100 (basic level)  
20%
-  **Complexity Score**  
Mixed Materials  
40%



[Download Report](#)

[Generate AI Suggestion](#)



-  Dashboard
-  Trend Forecasting
-  Product Pre-Validation
-  **Scoring & Results**
-  AI Suggestions
-  Partner Recommendations
-  History

**Need Help**  
Ask me anything!

## 5 AI Suggestions

Actionable improvements to boost your scores





Suggestion 1

Suggestion 2

Suggestion 3

### Carbon Footprint & Climate Impact High Impact

Recycled polyester still carries a significant processing carbon footprint. Deadstock materials lack verified low-carbon credentials.

 <b>Alternative</b>	Switch to Eastman Naia™ renew (60% sustainable wood pulp, 40% recycled waste) or Polartec Power Fill recycled insulation with verified carbon-reduced processing
 <b>Certification Upgrade</b>	<b>Cradle to Cradle Certified™</b> Covers carbon footprint, renewable energy use, and material health across the full product lifecycle
 <b>Regulation</b>	<b>UK Green Taxonomy</b> Requirements for climate disclosures (mandatory for larger companies by 2025, likely extending to SMEs by 2027)
 <b>Cost Impact</b>	<b>15-25%</b> Material costs will increase but offset by premium positioning and future carbon tax avoidance.

Next



Dashboard



Trend Forecasting



Product Pre-Validation



Scoring & Results



AI Suggestions



Partner  
Recommendations



History

Need Help

Ask me anything!



Dashboard



Trend Forecasting



Product Pre-Validation



Scoring & Results



AI Suggestions



Partner Recommendations



History

Need Help

Ask me anything!

# 6 Partner Recommendations

Connect with the right experts to bring your vision to life

## Recommended Partner Types



### Circular Economy Specialists

Take-back recycling & circular strategy

e.g. Reverse Resources or The Renewal Workshop



### Sustainable Material Innovators

Low-impact, bio-based & recycled materials

e.g. Worn Again Technologies or regional textile recyclers



### Certification Bodies

SME-friendly audit & certification support

e.g. Control Union, Soil Association

Without addressing carbon footprint transparency, you'll face increasing cost pressures from carbon border adjustments and lose competitive advantage to brands with verified low-carbon credentials.

Implement these recommendations and re-run assessment

**Start New Assessment**

Make smarter choices. Create positive impact.

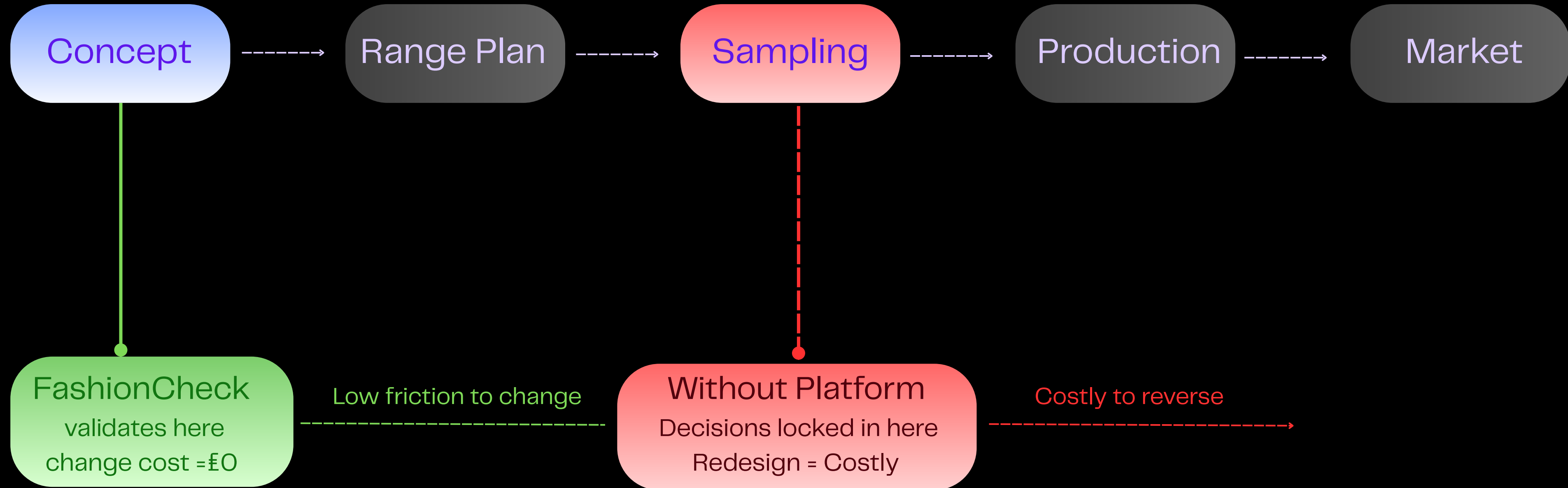


# 1.5 EVALUATION AND CRITICAL ANALYSIS

## 1.5.1 STRENGTHS OF THE PLATFORM

1. The platform's primary strength is the timeliness of its intervention. By embedding sustainability and compliance logic at the concept stage, the system addresses environmental impact at the moment when change costs least before sampling, before supplier commitments and before any public claims have been made. Laura emphasised that **“the number one motivator for most businesses is money,”** highlighting the importance of framing sustainability as a financial decision rather than a purely ethical one. This upstream positioning is explicitly endorsed by the EU textiles strategy (ETC/CE, 2022) and is directly consistent with the DPP architecture's requirement for structured environmental data from the earliest design decisions (Thorngren, 2025).
2. Rather than simply scoring products (as many existing carbon calculators do), the system generates specific, actionable improvement suggestions matched to SME resource levels consistent with the Reefke, Ahmed and Sundaram (2023) recommendation that sustainability tools for SMEs must provide decision support, not just measurement.
3. The platform directly responds to the ethical critique of AI trend forecasting raised by Bowles and Wilson (2024), who argue that AI tools accelerating trend cycles without embedding sustainability accountability contribute to overproduction. By making sustainability evaluation inseparable from trend selection, the platform reframes AI as a responsible design co-pilot rather than a commercial acceleration engine.

Earlier intervention = lower cost of change



## 1.5.2 LIMITATIONS OF THE PLATFORM

The most significant limitation is the data quality constraint: real brand supply-chain data is commercially sensitive and difficult to obtain. The prototype uses synthetic but realistic data informed by LCA literature, which is appropriate at degree-project level but would require robust data partnerships and verified supplier databases for commercial deployment. The scoring framework, despite being grounded in actual regulatory texts (ESPR, DPP requirements, CMA guidance), is necessarily simplified: EU and UK regulation is detailed, evolving and jurisdiction-specific, and as Weber (2025) documents, the divergence between EU and UK sustainability law post-Brexit creates additional complexity for any tool claiming regulatory alignment. **The platform cannot substitute for qualified legal or sustainability counsel,** and all outputs are explicitly presented as indicative.

A further challenge concerns AI transparency. Bowles and Wilson (2024) identify explainability as a core ethical requirement for AI systems used in commercial decision-making, and the platform addresses this through short text annotations identifying which material choice or supplier decision drives each score. However, this remains an area requiring further user testing and iterative refinement. Massenkoff and McCrory (2026) also highlight that AI-based tools can have unequal distributional effects across the labour market in the fashion context, tools that automate compliance analysis could reduce demand for specialist sustainability consultants, which raises questions about who benefits from this kind of automation that the platform does not yet address. (see [Appendix 10 for prototype constraints and system assumptions](#))

## FashionCheck Covers

- Simplified sustainability scoring
- Compliance readiness indicators
- AI improvement recommendations
- Concept stage decision support indicative – not a legal audit

Visible,  
accessible

## What the platform does not replace

- Full product level LCA (ISO 14040/404)
- Qualified legal compliance council
- Verified supply-chain data
- ESPR/DPP formal documentation
- UK-EU post-Brexit divergence analysis deep expertise requiring specialists

Submerged,  
specialist only

## 1.5.3 MARKET VIABILITY AND FUTURE POTENTIAL

The platform has meaningful market potential. Centre for Sustainable Fashion (2019) mapping report explicitly identifies **the SME segment as underserved and motivated**, and recommends the development of affordable, accessible tools that translate sustainability knowledge into operational guidance which is precisely what this platform attempts. A go-to-market strategy built around partnership with UK trade bodies and endorsement by the CMA or DESNZ as a recommended pre-validation step would leverage institutional credibility and signal regulatory alignment. A freemium model basic scoring free, detailed recommendations and DPP-compatible outputs at a subscription tier would align with SME budget realities.

Looking further ahead, the platform's architecture could integrate live supplier certification databases, real-time ESPR regulatory feeds and a DPP-compatible export function as envisaged by Thorngren (2025). The Reefke, Ahmed and Sundaram (2014) maturity model suggests a natural upgrade path: **brands at the lowest maturity level** (reactive compliance) **could use the platform to move towards proactive sustainability management**, and eventually towards full supply chain transparency. The core insight driving this project that **AI trend intelligence and sustainability accountability should be integrated from the first creative decision** will only become more relevant as the AI Index Report 2025 (Maslej et al., 2025) confirms that AI capabilities continue to advance and as GenAI further accelerates product development cycles (International Data Corporation, 2025)

Total UK fashion market

10,000+ fashion brands

**£87B**

Total annual market value

UK Fashion  
SME segment

< 250 employees  
limited resources

**99%**

Of fashion businesses are SMEs

Underserved SMEs  
No compliance tools

trend + compliance siloed  
gap exists

**Majority**

no in-house compliance team

**Fashion  
Check**

# 1.6 COMMERCIAL STRATEGY AND MARKET IMPLEMENTATION

## 1.6.1 THE MARKETING MIX – THE 7 P'S

P	Strategy
<b>Product</b>	SaaS platform combining trend forecasting, sustainability scoring, and compliance checks at concept stage.
<b>Price</b>	Freemium model: Free (basic), Pro (£149–£199/mo), Advanced (£299–£399/mo). Custom quote for Enterprise/White-label
<b>Promotion</b>	B2B focus via LinkedIn, trade bodies, and case studies. Positioned as a “compliance co-pilot.”
<b>Place</b>	Web-based SaaS platform; distributed via direct access and industry partnerships.
<b>People</b>	SME founders and product developers; supported by tech, sustainability, and customer success teams.
<b>Process</b>	Guided workflow: input → scoring → recommendations → iteration. Fast, simple, transparent.
<b>Physical Evidence</b>	Clean UI, visual dashboards, and shareable reports reinforcing credibility and usability.

## 1.6.2 FINANCIAL AND COMMERCIAL MODEL

The commercial viability of the Trend-to-Compliance Pre-Validation Platform is structured using the Business Model Canvas framework, with the full visual model presented in the appendix 5. The platform targets UK fashion SMEs, particularly small brands and independent product developers who face increasing sustainability and compliance pressures but lack in-house expertise and resources. Its core value lies in **enabling early-stage decision-making by integrating trend intelligence with sustainability scoring and compliance readiness, thereby reducing costly redesigns, regulatory risks, and operational uncertainty.**

Revenue is generated through a tiered SaaS subscription model, designed to align with SME affordability while capturing value through recurring usage across product development cycles. The platform leverages key resources including a rule-based and AI-supported scoring engine, sustainability datasets, and regulatory frameworks such as ESPR, DPP, and CMA guidance. Strategic partnerships with trend forecasting providers, certification bodies, and circular economy innovators enhance both data access and market credibility.

The cost structure reflects a scalable digital model, with initial investment concentrated in platform development, data integration, and talent, while marginal costs remain low due to cloud-based infrastructure. Overall, the model is underpinned by strong external demand drivers, particularly **tightening regulation and increasing industry pressure for sustainable product development, positioning the platform as both a risk-reduction and value-creation tool for SMEs.** (see Appendix 5 for Business Model Canvas)



Fig. 13

# 02

## RESEARCH AND DEVELOPMENT LOG

# 2.1 RESEARCH APPROACH AND METHODS

The research underpinning this project was conducted through a combination of secondary desk research and two distinct streams of primary research, supported by contextual inquiry. Secondary research formed the backbone of the evidence base: I systematically reviewed regulatory documents (the ESPR text, the EU Textiles Strategy, the CMA's 2024 Green Claims guidance for fashion retail), market and industry reports (Centre for Sustainable Fashion (2019) SME mapping report, the ETC/CE (2022) textiles and environment report, the AI Index Report 2025), and academic sources on AI in fashion forecasting (Savolainen, 2023; Ramos et al., 2023; Wilson and Bowles, 2024; Dhiwar, 2024; Rathore, 2017), sustainable supply chain management (Aziz Khan et al., 2024; Alaghbari et al., 2023; Reefke et al 2014), regulatory analysis (Weber, 2025; Effie Kesidou, 2025) and Digital Product Passports (Thorngren, 2025). **I maintained a source matrix tracking each reference's relevance, authority, recency and methodological approach.**



Fig. 14

Primary research was conducted through two methods. The first was a semi-structured interview with Laura, Trend Editor at Unique Style Platform (USP), conducted in March 2026. USP is a UK-based trend intelligence and forecasting agency serving fashion brands across subscription and bespoke consultancy tiers. The interview was conducted as a collaborative thinking session, exploring Laura's industry-facing perspective on the platform concept, the financial dimension of compliance for SMEs, and the limitations of AI in generative trend forecasting.

Laura drew a direct parallel between the platform's value proposition and USP's own subscription model both democratise specialist knowledge for brands that cannot afford in-house expertise. Her most significant design contributions were the suggestion of a tiered recommendation system (categorising improvements by cost and impact rather than presenting compliance as a binary pass/fail) and a caution about the irreplaceable role of human cultural instinct in early-stage trend forecasting a limitation directly reflected in the platform's 'AI-assisted, human-interpreted' positioning (see [Appendix 8](#) for full reflective summary).



Fig. 15

The second primary research method was attendance at two consecutive Mintel Industry Talks: one on 30 January 2025 and a following one on 4 February 2026, both delivered by Associate Director Tamara Sender Ceron and Associate Principal Dan Takacs . **Attending both talks created a unique opportunity to track how the industry's narrative, data and regulatory urgency evolved across a single year.** The 2026 session confirmed the shift from 'brands should prepare' to '**brands must act now**' on digital product passports and EPR for textiles, with a specific 2027 implementation deadline. Dan Takacs (Mintel Trends Team) introduced a four-factor framework for distinguishing enduring trends from fads a conceptual model flagged for potential integration into the platform's trend module and raised a critical caution about AI hallucination that reinforced the platform's transparency and explainability design choices. The Mintel data also confirmed the persistent say-do gap in consumer sustainability behaviour (54-point gap between intention and action) and the structural vulnerability of SMEs relative to large retailers investing in AI and compliance infrastructure. Both sets of primary research notes are included in Appendix 10 and form a verified part of the degree project evidence base. (see [Appendix 9 for full reflective summary](#)).

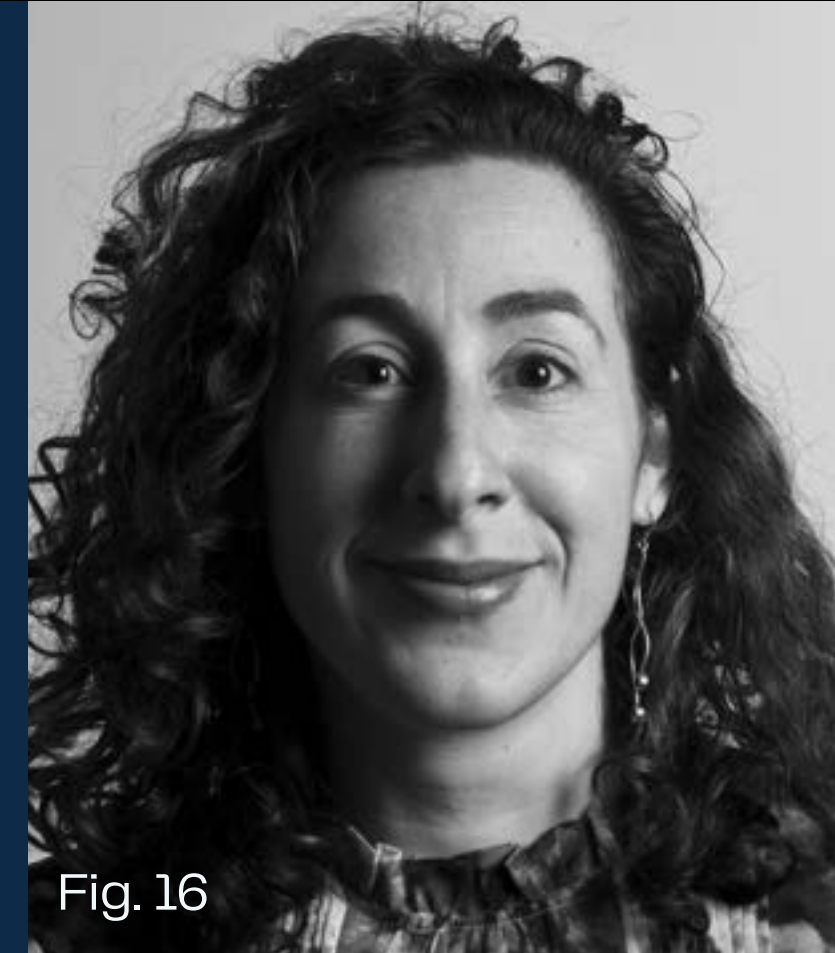


Fig. 16



Fig. 17

A third stream of primary research emerged organically during the testing phase. A peer fashion student independently used the platform while developing her own graduate collection, inputting her fabric compositions and receiving AI-driven recommendations. She documented the experience in her own degree project submission, noting it directly influenced her sourcing decisions specifically replacing virgin wool with recycled wool. This constitutes independent real-world user validation: **a documented instance of the platform producing outputs a genuine end-user trusted enough to act on.** Together, these three research streams produced a richer and more industry-grounded evidence base than secondary research alone would have provided.

## Deliverable Development

The screenshot displays the 'Generate AI suggestions' section of the FashionCheck tool. It lists three suggestions:

- SUGGESTION 1: Virgin wool content**
  - Problem: The 30% virgin wool creates significant environmental impact through land use, water consumption, and methane emissions from sheep farming.
  - Alternative: Switch to 40% recycled wool + 20% virgin RWS wool blend, sourcing from companies like Fudger's EcoWool or Recover Textile Systems.
  - Certification: Cradle to Cradle Certified – covers material health, renewable energy use, water stewardship, social fairness, and material reutilization.
  - Regulation: EU Strategy for Sustainable Textiles (2026) targets for reduced virgin material use.
  - Cost impact: Recycled wool typically costs 10-20% more than virgin but reduces overall fiber impact significantly.
- SUGGESTION 2: Supply chain transparency gaps**
  - Problem: Even with good supplier region scores, deeper tier visibility (fabric mills, yarn spinners) likely remains limited affecting true impact assessment.
  - Alternative: Implement blockchain tracking system like TextileGenesis or partner with Ortain for fiber origin verification.
  - Certification: Oeko-Tex STeP – covers sustainable textile production across the entire supply chain including chemical management and social criteria.
  - Regulation: EU Digital Product Passport requirements under ESPR (phased implementation 2026-2030).
  - Cost impact: Supply chain mapping and verification systems add £2-5 per garment but future-proof compliance.
- SUGGESTION 3: Recycled polyester microfibre shedding**
  - Problem: The 20% recycled polyester, while better than virgin, still contributes to microplastic pollution during washing.
  - Alternative: Replace with recycled cotton blend or bio-based Sorona polymer from DuPont, or use encapsulated polyester fibers from Polygiene.
  - Certification: GREENGUARD Gold – ensures low chemical emissions and contribution to healthier indoor air quality.
  - Regulation: EU Microplastics Restriction under REACH (implementation expected 2025-2027).
  - Cost impact: Bio-based alternatives cost 20-30% more than recycled polyester but eliminate microfibre concerns.

**Recommended partner types:** Circular textile innovators (like Worn Again Technologies), certified fabric mills with deep supply chain visibility, take-back program operators for end-of-life garment collection.

**Risk of proceeding unchanged:** Continuing with current virgin wool-heavy composition may face increasing regulatory restrictions and consumer pushback as circular economy requirements tighten.

One of the students at my university developed an AI tool called FashionCheck, designed to assess the sustainability of garment concepts against UK and EU sustainability and compliance standards before sampling. For EMBERE, I used this tool by inputting the fabric compositions I was considering for my pieces. It generated sustainability scores and provided AI-driven recommendations for improvement. One key suggestion was to replace virgin wool with recycled wool to enhance sustainability, which I then incorporated into my fabric sourcing decisions.

104

Fig. 18 – Screenshot of peer user validation (Grealish, 2026)

# 2.2 DEVELOPMENT OF THE PROTOTYPE: FROM INSIGHT TO SOLUTION

The FashionCheck was built in three stages. First, the scoring logic was designed and validated before any interface was built. Every score in the system is grounded in real evidence Life Cycle Assessment data on material impact, and the actual text of UK and EU regulations including the Ecodesign for Sustainable Products Regulation and the UK green claims code.

The most significant design decision came from testing: the original prototype used open-ended sliders that users could set to any value and they consistently gave themselves high scores regardless of their product's actual quality. Every slider was replaced with structured, factual inputs: fibre type dropdowns with pre-assigned environmental scores, named supplier region options, a certifications checklist, and four yes-or-no compliance questions tied to specific regulations. This made scoring objective it cannot be gamed.

Second, an AI suggestions layer was added using Claude, an AI system developed by Anthropic. When a product is submitted, FashionCheck sends its full details to Claude, which returns specific recommendations: named alternative materials, certifications to pursue, regulatory deadlines, and cost estimates. Six rounds of refinement were needed before outputs reached meaningful specificity. Third, the platform was deployed permanently via GitHub to a free hosting service, making it accessible to any user at [fashioncheck.streamlit.app](https://fashioncheck.streamlit.app) without installation or login. (refer to [appendix 7 for Design Pivots, Iterative Testing and AI Integration](#))

→ FashionCheck

AI Pre-Validation Platform for UK Fashion SMEs

Anthropic API Key [input field]

About this tool

FashionCheck scores your product concept against UK and EU sustainability and compliance standards before you commit to sampling.

Built for UK fashion SMEs · Degree project · Kashvi Soni

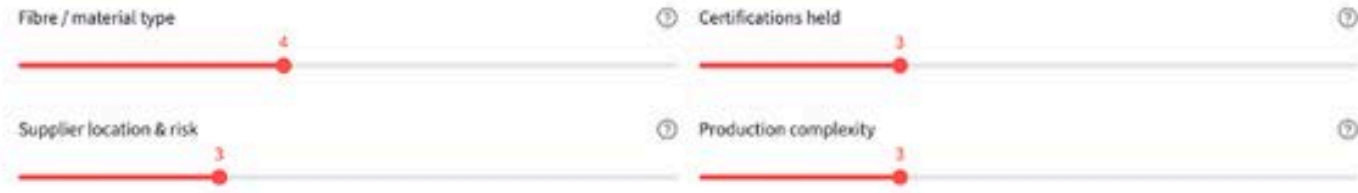
# Product Pre-Validation

Enter your product concept below. Adjust each factor to reflect your current design and sourcing decisions.

Product name: Polyester Sequin Party Dress

## Sustainability factors

Rate each factor from 0 (worst) to 10 (best)



## Compliance factors

Rate your readiness against UK and EU regulations



## Your scores

Sustainability score: **33.0 / 100**      Compliance score: **20.0 / 100**      Overall average: **26.5 / 100**

**X FLAGGED — significant issues**

## AI improvement suggestions

Generate AI suggestions

▼ SUGGESTION 1: ESPR ecodesign alignment  
**Problem:** Your polyester sequin dress will likely fail EU ecodesign requirements for durability, repairability, and material disclosure that become

→ FashionCheck

AI Pre-Validation Platform for UK Fashion SMEs

Anthropic API Key [input field]

About this tool

FashionCheck scores your product concept against UK and EU sustainability and compliance standards before you commit to sampling.

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→ FashionCheck

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Anthropic API Key [input field]

About this tool

FashionCheck scores your product concept against UK and EU sustainability and compliance standards before you commit to sampling.

Built for UK fashion SMEs · Degree project · Kashvi Soni

▼ SUGGESTION 1: ESPR ecodesign alignment  
**Problem:** Your polyester sequin dress will likely fail EU ecodesign requirements for durability, repairability, and material disclosure that become mandatory for textiles.  
**Alternative:** Switch to recycled polyester base with detachable/replaceable sequin panels using snap or magnetic fastening systems  
**Certification:** Cradle to Cradle Certified — covers material health, renewable energy use, water stewardship, and product circularity  
**Regulation:** EU Ecodesign for Sustainable Products Regulation (ESPR) — textile requirements expected 2026-2027  
**Cost impact:** Expect 15-25% material cost increase but potential premium pricing opportunities of 30-50%.

▼ SUGGESTION 2: End-of-life recyclability  
**Problem:** Sequins permanently attached to polyester create a mixed-material nightmare that makes the entire garment non-recyclable.  
**Alternative:** Use Paillette sequins made from recycled PET or bio-based materials with water-soluble adhesive for easy separation  
**Certification:** Global Recycled Standard (GRS) — verifies recycled content and tracks supply chain from source to final product  
**Regulation:** UK Extended Producer Responsibility for textiles — consultation ongoing, implementation likely 2025-2026  
**Cost impact:** Recyclable sequins cost 40-60% more initially but avoid future EPR fees and disposal costs.

▼ SUGGESTION 3: DPP data readiness  
**Problem:** You currently lack the supply chain traceability data required for Digital Product Passports that will be mandatory for textiles entering EU markets.  
**Alternative:** Implement blockchain-based traceability system like TextileGenesis or partner with suppliers already using Higg Index platforms

▼ SUGGESTION 3: DPP data readiness  
**Problem:** You currently lack the supply chain traceability data required for Digital Product Passports that will be mandatory for textiles entering EU markets.  
**Alternative:** Implement blockchain-based traceability system like TextileGenesis or partner with suppliers already using Higg Index platforms  
**Certification:** OEKO-TEX Made in Green — provides supply chain transparency with social and environmental data tracking  
**Regulation:** EU Digital Product Passport under ESPR — mandatory for textiles by 2027-2028  
**Cost impact:** Digital tracking systems cost £2,000-5,000 setup plus £0.50-1.50 per garment for data management.

**Recommended partner types**  
Circular fashion technology companies (like Infinited Fiber or Renewcell), OEKO-TEX certified fabric mills with traceability systems, sustainable trim suppliers specializing in detachable embellishments

**Risk of proceeding unchanged**  
Without changes, your dresses will be barred from EU markets by 2027 and face significant UK EPR costs, effectively killing export opportunities and domestic profitability.

# 2.3 ALTERNATIVE IDEAS EXPLORED AND DECISIONS MADE

Several alternative directions were considered and set aside. An early version of the concept focused on building a full DPP generation tool. This was set aside because the DPP regulatory standard is still evolving as Thorngren (2025) documents, the ecosystem of DPP standards and implementation frameworks is in active development and because the platform's highest-value intervention is earlier-stage decision support, not documentation production. A second alternative was a B2G tool a compliance reporting dashboard for regulators rather than SMEs. This was set aside because the user research, consistent with Centre for Sustainable Fashion (2019) findings, pointed consistently to the SME as the actor most in need of affordable, accessible support.

The decision to use synthetic rather than real brand data is important to acknowledge. Real supply-chain data from UK fashion SMEs is commercially sensitive. By using synthetic but realistic data clearly labelled as such throughout the project demonstrates the system's logic without misrepresenting its current data capabilities. This limitation is consistent with the approach taken in other concept-stage platform research in this space (Thorngren, 2025; Alaghbari et al., 2023).



Fig. 19

# 03

## CRITICAL SELF- REFLECTION ON PERSONAL AND PROFESSIONAL DEVELOPMENT

This project has been the most challenging and most rewarding work of my degree. Using Kolb's experiential learning model as a framework for reflection, I can identify four cycles of experience, observation, conceptualisation and active experimentation that have pushed my thinking, research practice and professional self-understanding significantly.

The experience of bridging regulatory law, data architecture and user experience design in a single coherent concept forced me to develop a way of working I had not previously practised what I would describe as **cross-domain synthesis**. Reading and interpreting sources as different as Weber's (2025) comparative legal analysis, the ETC/CE (2022) environmental report, and Bowles and Wilson's (2024) ethical critique of AI forecasting in a single week required a kind of intellectual agility that stretched beyond my fashion business training. In particular, translating the ESPR and CMA texts into simplified, interpretable scoring rules was genuinely difficult: I had to make judgments about which regulatory provisions were most material, how they could be rendered as heuristics without misrepresenting their intent, and how to communicate this clearly to a non-specialist user like Aisha. The iterative process of developing the scoring framework drawing simultaneously on Thorngren (2025) for DPP data requirements, ETC/CE (2022) for environmental impact weighting, and Effie Kesidou (2025) for UK-specific eco-credential complexity taught me to triangulate across source types with much greater rigour than in previous work.

My experience as a Research and Trend Strategy Intern at USP also played a key role in shaping this project. I worked on aggregating multi-source research, identifying behavioural patterns, and supporting trend forecasting outputs. This highlighted that trend forecasting is fundamentally a synthesis process, which directly informed the platform's design as a decision-support system rather than a data display tool.

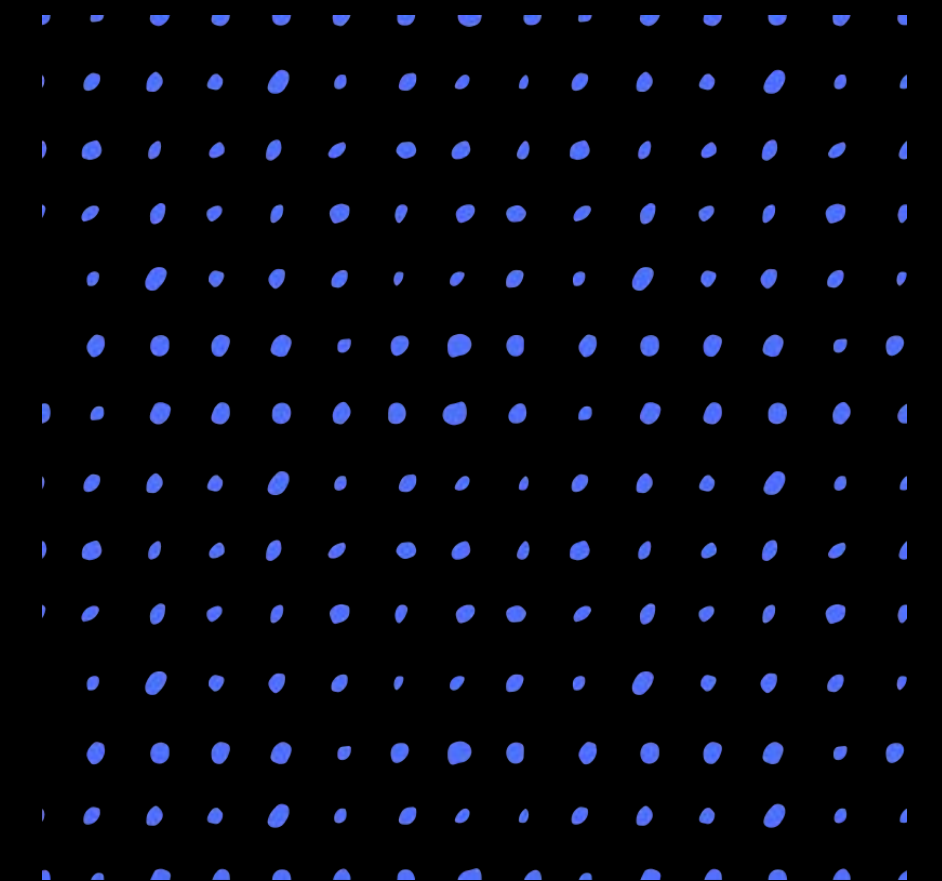
The most significant professional development has been learning to operate at the intersection of design thinking and business strategy. The platform **concept required me to think simultaneously as a user experience designer** (what does Aisha need to feel supported rather than overwhelmed?), **a business analyst** (what is the viable revenue model?), and **a policy analyst** (which regulatory frameworks matter most?).

I did not fully synthesise these three perspectives until the prototype development phase, when the diagrams and wireframes forced every earlier decision to become concrete and consistent. Supervision feedback particularly the observation that explainability needed to be built directly into the scoring interface, consistent with Bowles and Wilson's (2024) transparency principle materially improved the project at a late stage, which reinforced for me the value of formative critique.

Looking forward, this project has clarified and sharpened my professional ambition. I want to work in product development and product innovation within fashion organisations, in roles where design decisions are shaped by feasibility, sustainability and compliance constraints. The work I have done here mirrors the real responsibilities of product developers who must assess whether a concept can realistically move forward before sampling. The system blueprint and prototype demonstrate job-relevant skills: early-stage product evaluation, cross-functional coordination with sustainability and sourcing thinking, and data-informed decision-making that supports responsible and commercially viable creative development. I intend to use this project as a portfolio piece and to continue developing the platform concept after graduation potentially as a startup responding directly to the SME need documented by Centre for Sustainable Fashion (2019) and the AI-enabled opportunity confirmed by Maslej et al. (2025) and International Data Corporation (2025).

This project also required reflection on its ethical, commercial, and practical limitations. The prototype relies on simplified scoring logic and proxy data, meaning it cannot yet match the precision of full LCA or legal compliance audits, raising questions around scalability and real-world implementation. The use of synthetic data, while suitable for demonstrating system logic, would need replacement with verified datasets to ensure credibility. Ethically, the integration of AI highlights risks around transparency, bias, and over-reliance on automated outputs, reinforcing the need for an 'AI-assisted, human-interpreted' approach. Commercially, **adoption depends on SMEs perceiving clear financial value, reflecting the ongoing tension between sustainability and cost.**

**THANK YOU**



# 04

# APPENDICES

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# APPENDIX 1: PESTEL ANALYSIS

## Political

- EU ESPR tightening eco-design requirements across all textile products
- UK CMA Green Claim Code enforcing evidence-based environmental claims
- Post-Brexit regulatory divergence creating dual compliance for UK SME.
- Growing gov. interest in DPP as supply chain transparency mechanism

## Economic

- Compliance and data-collection impose real costs falling hardest on SMEs
- Volatile demand and margin pressure limit investment in sustainability today
- Most of LCA consultancy inaccessibility for most brands under £3M turnover
- Pre-validation tools can reduce costly late-stage redesigns and sampling

## Social

- Two thirds of consumers now consider sustainability when buying fashion
- Growing reputational risk from greenwashing allegations and media scrutiny.
- Gen-Z and millennial consumers driving demand for traceable verified claims

## Technological

- AI trend forecasting tools now mainstream in large brands
- DPP ready traceability platform maturing as accessible cloud service
- machine learning models significantly outperforming traditional trend method
- GEN AI expected to further accelerate product development cycles by 2027

## Environmental

- EU textiles generate 12.6m tonnes of waste annually: only 1% recycled
- Textile consumption has the 4<sup>th</sup> highest climate impact of all industries
- Textile purchases in EU generated 355 KG CO2 per person in 2022
- Design decisions lock in 70-80% of a products eventual environmental impact

## Legal

- ESPR mandatory for textiles by 2027: UK equivalent under development
- CMA 2024 guidance specifically targeting fashion retail green claims
- DPP legal framework: structured product level data to become mandatory

This PESTEL analysis maps the macro-environmental factors shaping the context for the AI-Enabled Trend-to-Compliance Pre-Validation Platform. It was developed during the research lock-in phase (January 2026) and informed the platform's regulatory scope, market positioning and design constraints.

The PESTEL analysis reveals that the platform exists at the intersection of several converging macro forces. Politically and legally, the dual pressure of the EU ESPR and the UK CMA's Green Claims Code creates a regulatory environment in which SMEs face mounting compliance obligations from two directions simultaneously a challenge that Weber (2025) characterises as one of the defining structural difficulties for UK fashion brands post-Brexit. The Mintel Industry Talk (February 2026) confirmed this urgency: EPR for textiles and digital product passports were named as reaching mandatory implementation around 2027, shifting the narrative from 'brands should prepare' to 'brands must act now'.

Technologically, the maturation of AI trend forecasting tools and DPP-ready traceability platforms as accessible cloud services signals that the technical infrastructure for the proposed platform already exists. The AI Index Report 2025 (Maslej et al., 2025) and International Data Corporation (2025) both confirm that AI capabilities are advancing rapidly a point reinforced by Laura (USP Trend Editor, personal interview, 2026), who observed that AI has moved from a forecasting novelty to an operational tool within the trend intelligence industry, while cautioning that its generative limitations remain significant. Environmentally, the scale of the textile waste crisis documented by ETC/CE (2022) underlines the urgency of upstream intervention.

# APPENDIX 2: SWOT ANALYSIS

## Strenghts

- Early-stage integrated decision-making: sustainability and compliance logic is embedded at the concept stage, the highest-leverage
- Actionable and SME-focused: platform provides practical improvement recommendations rather than complex reports addressing documented.
- Fills a clear market gap: no existing tool at an accessible price point combines trend intelligence with concept stage compliance scoring

## Oppportunity

- Increasing regulatory pressure: UK green claims code enforcement and EU ESPR increase demand for pre-market compliance tools
- DPP requirements emphasise structured product data generated early in the lifecycle
- AI index 2025 confirms AI capabilities advancing rapidly: GenAI predicted to reshape product development workflows by 2027.

## Weaknesses

- Simplified scoring logic: use of indicative data instead of full LCA reflects known trade-offs between usability and precision
- Prototype level validation: degree-project prototype cannot offer legal binding compliance verification
- Synthetic data dependency: real SME supply-chain data is commercially sensitive and difficult to obtain at this stage

## Threats

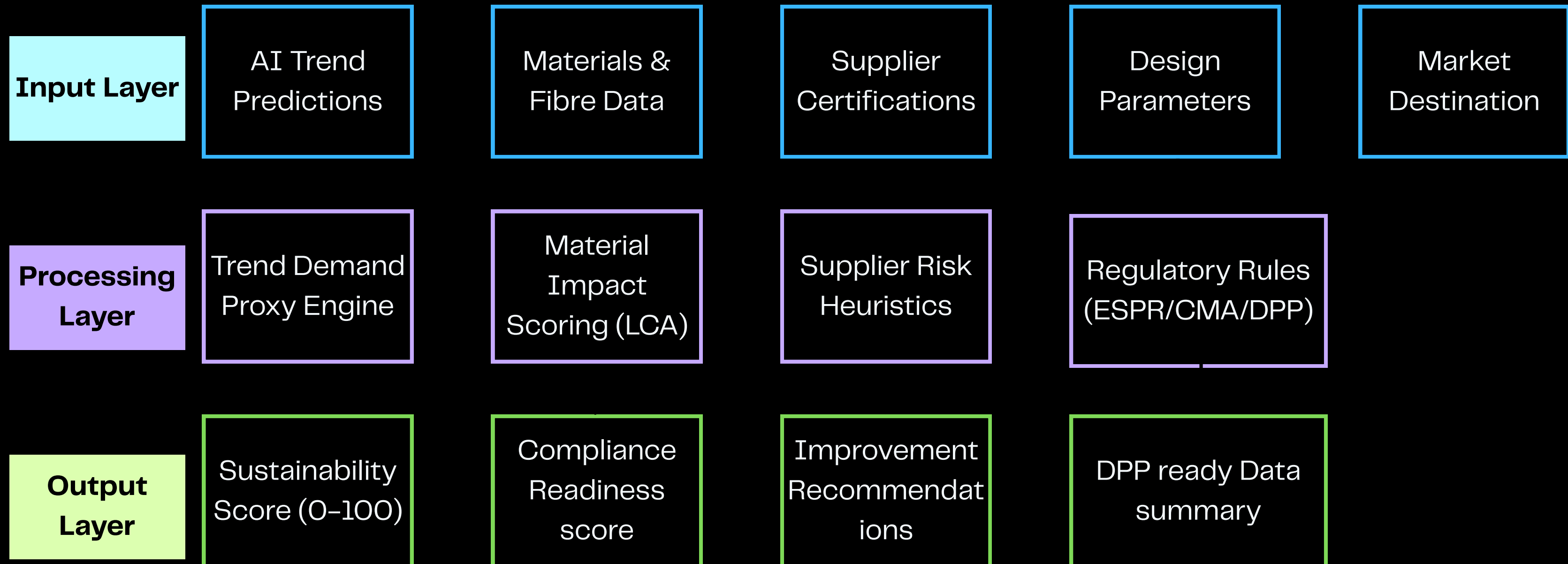
- Rapid regulatory change: sustainability regulation is evolving quickly creating uncertainty for simplified scoring frameworks
- SME adoption resistance: research shows SMEs may resist compliance tools unless clear commercial value is demonstrated early
- Large platform competition: well funded incumbents (WGSN, carbonbact) could add concept stage compliance feature, reducing platform's unique selling point.

This SWOT analysis evaluates the strategic position of the proposed platform within the current market and regulatory context. It was completed in February 2026 and directly informed the platform's design decisions, go-to-market approach and risk mitigation strategy. Appendix 2: SWOT Analysis strategic position of the Trend-to-Compliance Pre-Validation Platform

The SWOT analysis confirms that the platform's core strength early-stage integrated decision-making is directly aligned with the most significant market opportunity: tightening regulatory expectations around environmental claims and product data transparency. Laura's interview (USP, 2026) validated this from a practitioner perspective, noting that the democratisation of compliance knowledge mirrors the very principle at the heart of what subscription-based trend agencies already do for brands that cannot afford in-house trend teams.

The Mintel data (2026) reinforces both the Opportunity and Threat quadrants: the 2027 DPP deadline creates a time-sensitive opportunity window, while the confirmed say-do gap (82% of Gen Z express sustainability concern; 54-point gap between intention and action) confirms that brands cannot rely on consumer demand alone to drive compliance investment legislative pressure and accessible tools must work together. The most significant Weakness simplified scoring logic is mitigated by the platform's transparent communication of its indicative status and the explainability features built into the interface, consistent with Dan Tucker's (Mintel, 2026) caution about AI outputs appearing authoritative while containing errors.

# APPENDIX 3: PLATFORM SYSTEM DATA FLOW DIAGRAM



**SME User (Aisha)**  
Reviews scores, reads recommendation, adapts concept

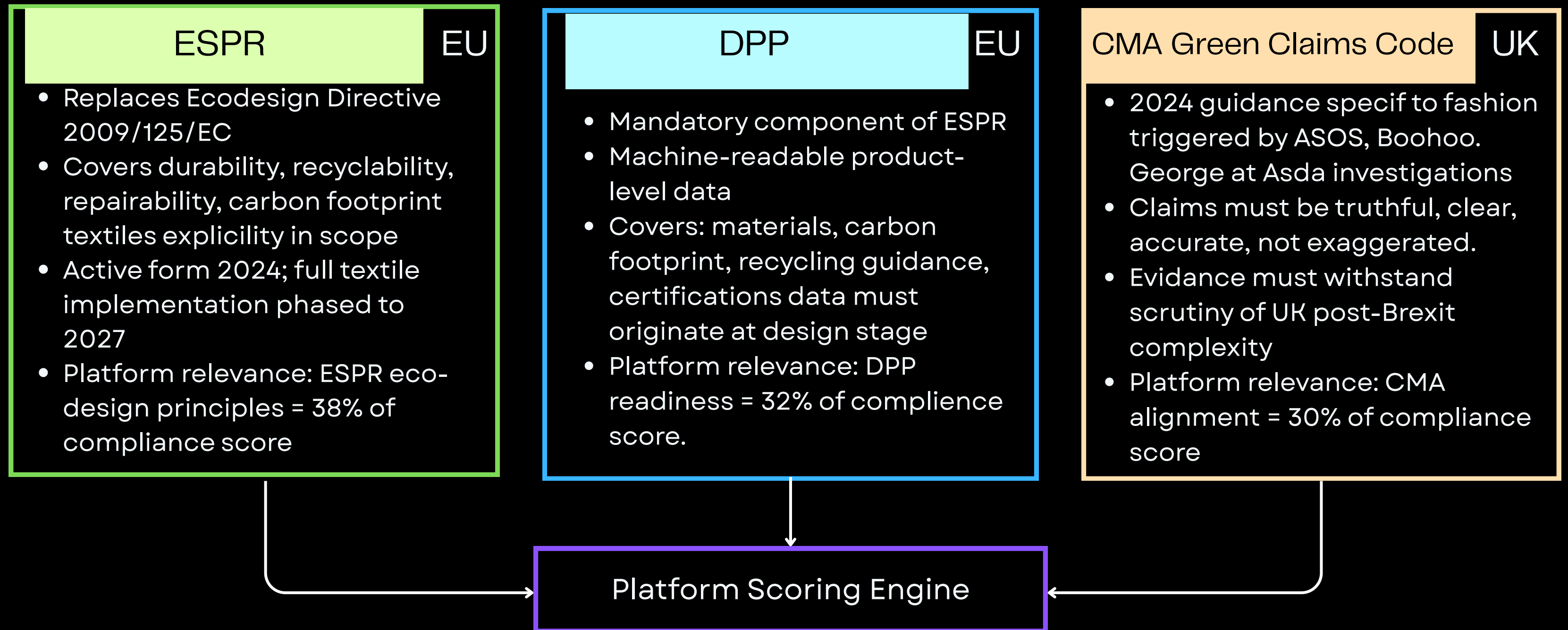
This diagram maps the end-to-end data architecture of the Trend-to-Compliance Pre-Validation Platform, showing how inputs from the SME user flow through the processing layer to produce the platform's outputs

The data flow diagram reveals the platform's three-layer architecture. The input layer collects five data types from the SME user: AI trend predictions, material and fibre data, supplier certifications, design parameters, and market destination. The processing layer contains four sub-modules operating in parallel: a Trend-Demand Proxy Engine; a Material Impact Scoring module using simplified LCA proxy values; a Supplier Risk Heuristics module; and a Regulatory Rules Engine checking alignment against ESPR, DPP and CMA frameworks. The output layer delivers four results: a Sustainability Score (0-100), a Compliance-Readiness Score with flag status, Improvement Recommendations, and a DPP-Ready Data Summary.

Laura's interview (USP, 2026) directly informed the output architecture. Her suggestion of a tiered recommendation system offering both a premium full-compliance route and a more accessible incremental improvement path is reflected in the Improvement Recommendations module, which categorises suggestions by implementation complexity and estimated cost impact. The bidirectional arrow between the SME user and the output layer reflects the platform's iterative design: users can act on recommendations, update their concept inputs, and re-run the scoring engine.

# APPENDIX 4: REGULATORY FRAMEWORK MAP

Key UK & EU regulations informing the platform scoring framework



This diagram maps the three regulatory frameworks that together define the platform's Compliance-Readiness Score, and their respective weightings. It was developed in February 2026 during the scoring framework specification phase.

The Intel Industry Talk (February 2026) explicitly named EPR and digital product passports as the regulatory developments brands must prepare for by 2027 directly validating the weighting assigned to DPP readiness within the compliance score. Weber (2025) and Effie Kesidou (2025) provide the legal analysis underpinning the simplified rule sets used in the scoring engine.

Regulatory Framework	Key Requirements (Platform-Relevant Summary)
ESPR (EU) – 38% of Compliance Score	Durability, recyclability, repairability requirements; carbon footprint disclosure; material content transparency; textiles in scope from 2024 with full implementation phased to 2027
Digital Product Passport (EU) – 32%	Machine-readable product-level data required from design stage; covers materials, origin, certifications, carbon footprint, recycling instructions; auditable compliance record throughout supply chain
CMA Green Claims Code (UK) – 30%	Claims must be truthful, clear, accurate, not exaggerated; brands must hold substantiating evidence before making claims; 2024 guidance specifically targets fashion retail following ASOS, Boohoo, George at Asda investigations

# APPENDIX 5: BUSINESS MODEL CANVAS

## Key Partners

- British Fashion Council (Distribution channel)
- UK trade bodies & Textile associations
- Cloud & AI platform providers (AWS, Azure)
- Regulatory advisors (CMA, DESNZ alignment)
- LCA data providers (verified material database)

## Key Activities

- Maintain & update regulatory rule sets (ESPR, CMA, DPP)
- Develop AI trend scoring engine and data pipelines
- User testing & platform iterative improvement

## Key Resources

- Regulatory expertise (UK + EU Law)
- UCA and material impact database
- AI/ML development capability

## Value Proposition

- Only tool connecting AI trend forecasting with concept stage sustainability scoring and compliance readiness for UK SMEs
- Actionable improvement suggestions - not just scores
- Co-pilot philosophy: empowering, not pushing

## Channels

- British fashion council (member communications)
- Direct digital marketing to UK fashion SMEs
- Trade shows: Pure London, Scotland's Trade fair

## Customer Segment

- Primary: UK Fashion SMEs designing apparel/accessories for UK + EU markets
- Secondary: Consumers gaining verified claims: regulators gaining standardised data

## Cost Structure

- Platform development & hosting (cloud infrastructure, AI model maintenance, regulatory update management)
- Regulatory and LCA content: expert curation of ESPR, DPP and CMA rules set; materials impact database licensing

## Revenue Structure

- Free: Basic trend forecasting & sustainability score to attract SME user to demonstrate value
- Subscription (£149 monthly): full compliance scoring, DPP compatible data export, regulatory update alerts
- Enterprise/Trade body: White lable access to trade bodies to offer member SMEs

## Customer Relationship

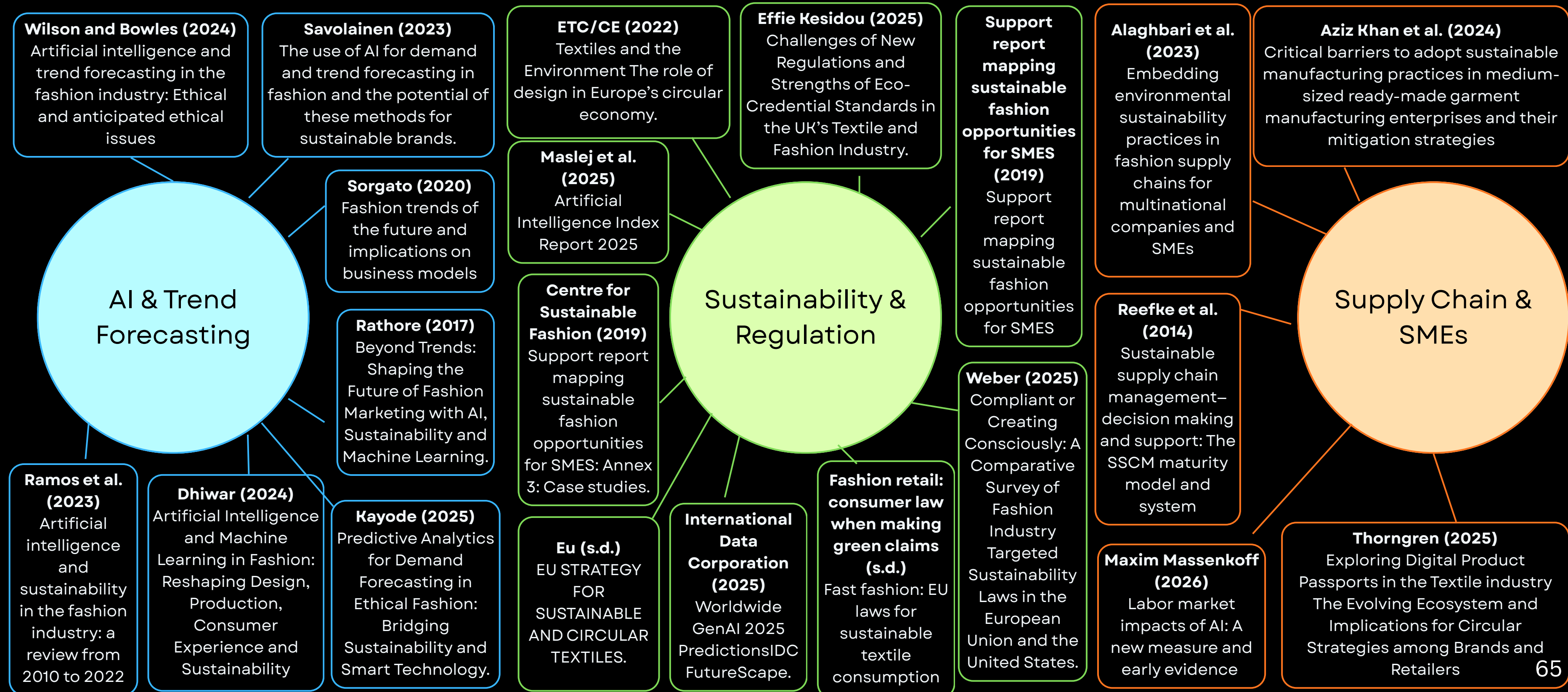
- Self-serve web platform
- Onboarding support via trade body partners
- In-app explainability and help documentation
- Email updates on regulatory changes

This Business Model Canvas maps the proposed commercial model for the platform. It demonstrates the platform's potential viability as a startup or social enterprise beyond the degree project, and was developed in April 2026 during the evaluation and refinement phase.

The freemium revenue model (basic scoring free; full compliance scoring and DPP-compatible data export at £299–3999/month) is designed to eliminate barriers to initial adoption. Laura's observation (Aldous, 2026) that the number one motivator for most SMEs is money and that compliance must therefore be framed as a financial opportunity rather than a burden directly shaped the platform's value proposition language and pricing rationale. Her suggestion of a tiered recommendation system (premium full-compliance route alongside an accessible incremental improvement path) is reflected in the subscription tier structure.

Laura also referenced USP's own two-tier model a generalised subscription website and a bespoke consultancy service as a structural template for the platform's design. The BMC's distinction between the standard SaaS subscription and the enterprise white-label tier for trade bodies mirrors this structure, acknowledging that personalisation at scale requires a different commercial model to broad-access tools.

# APPENDIX 6: RESEARCH SOURCES MAP



This diagram organises the project's key academic and practitioner sources into three thematic clusters, demonstrating the breadth of the research base and the cross-disciplinary synthesis required.

The three thematic clusters reflect the core intellectual territories the project bridges. The AI and Trend Forecasting cluster is anchored by Savolainen (2023) and Bowles and Wilson (n.d.), and is enriched by the primary research from the USP interview: Laura's analysis of where AI adds genuine value in trend forecasting (historical pattern recognition, colour cycle prediction) and where it falls short (generative early-stage forecasting, macro-geopolitical disruption, cultural bias in training data) provides a practitioner-grounded test of the academic literature's claims.

The Sustainability and Regulation cluster is validated by the Mintel primary research: both industry talks confirm the trajectory described by Weber (2025), ETC/CE (2022) and Thorngren (n.d.), with the February 2026 session providing the specific 2027 DPP deadline and EPR mandate that make the platform's development timeline both timely and urgent. The Supply Chain and SMEs cluster is directly enriched by the Mintel data on SME vulnerability (market polarisation between large retailers with AI and compliance infrastructure and SMEs without) and Laura's observation that the accessibility gap in compliance mirrors the same accessibility gap in trend intelligence that subscription-based trend agencies already address.

# APPENDIX 7: DESIGN PIVOTS, ITERATIVE TESTING AND AI INTEGRATION

## PIVOT 1: FROM SELF-ASSESSED SLIDERS TO OBJECTIVE STRUCTURED INPUTS

The first working prototype presented users with eight 0–10 sliders one for each scoring factor. During validation testing against a synthetic dataset of 20 fictional product concepts, a fundamental flaw emerged: users consistently selected high values regardless of their actual product quality. A brand concept built on 100% virgin polyester with no certifications would be rated 7 or 8 out of 10 simply because nothing in the interface prevented it. The scores became meaningless.

The resolution was to remove all self-assessed inputs and replace them with factual, structured alternatives. Fibre type became a dropdown menu with pre-assigned scores grounded in Life Cycle Assessment data organic cotton is always a 9, acrylic is always a 1, regardless of how the user feels about their choice. Certifications became a multi-select checklist with cumulative scoring. The four compliance factors became binary yes/no questions tied explicitly to named regulations. Production complexity was removed as a user input entirely and instead auto-assigned by product category a tote bag is always simpler than a tailored blazer, and the user should not decide that for themselves.

This pivot is documented here because it represents the most consequential intellectual contribution of the build process: the recognition that a self-assessment tool is only as honest as its users, and that meaningful compliance support requires objective inputs the system controls.

## PIVOT 2: FROM A SUPPLIER SLIDER TO A NAMED REGIONAL DROPDOWN

A secondary pivot identified during user interface testing concerned the supplier region input. The initial design used a 0–10 slider with anchor labels (10 = UK/local, 7 = EU, 4 = South Asia audited, 1 = high risk). Testing revealed that mid-range values were entirely ambiguous: a score of 5 or 6 communicated nothing meaningful about where a product was actually being made. Users had no way to know whether their situation mapped to a 5 or a 6, and the guidance anchors at whole numbers did not cover the realistic range of supplier contexts.

The slider was replaced with a named dropdown presenting six clearly described real-world options UK/local, EU/EEA, Turkey or North Africa, South Asia with audit, South Asia without audit, and high-risk region with no data. Each option maps to a pre-assigned score behind the scenes. The user makes a factual selection; the system determines the score. This change also improved the AI suggestions output, as the prompt now contains a named region rather than an abstract number.

## PIVOT 3: SIX ITERATIONS OF AI PROMPT REFINEMENT

Integrating the Anthropic Claude API as the suggestions engine required substantially more refinement than anticipated. The first prompt iteration produced outputs of the form 'consider using more sustainable materials' accurate but useless to an SME founder who needs to know which material, from which supplier, at what cost, and by which regulatory deadline.

Six successive iterations of the prompt were required to reach the level of specificity that makes the suggestions genuinely actionable. Key changes across these iterations included: requiring the model to name specific materials (e.g. Repreve recycled polyester, TENCEL Lyocell from Lenzing) rather than material categories; requiring the model to name specific certifications with a brief description of what each covers; adding a requirement to identify the exact regulation and deadline relevant to each weak factor; adding a cost impact field requiring an honest estimate rather than a generic note; and adding a partner types field naming real categories of organisations the brand could work with. 68

The final prompt also specifies the tone explicitly supportive and practical, not academic or punitive which reflects Laura's observation (USP interview,2026) that SME founders need guidance that helps them act, not language that makes compliance feel inaccessible.

The decision to use Claude rather than build a custom model was deliberate and is documented here as a design choice rather than a limitation. The project's intellectual contribution is the scoring framework and input architecture the AI layer demonstrates how that framework can be made actionable for a non-expert user. Building a bespoke language model would have displaced that contribution with a different one. Using Claude allows the platform to demonstrate AI-assisted decision support at a level of quality that a custom model could not have reached within the constraints of this project.

# SYNTHETIC DATASET VALIDATION – SUMMARY RESULTS

The scoring engine was validated against 20 fictional product concepts before the interface was built. The table below summarises results by tier. All 20 products scored within their expected range.

The code: Testing Synthetic Product Dataset →

Fig. 20 – Testing Synthetic Product Dataset from Colab

```
results = []

for product in products:
    s_score = calculate_sustainability_score(
        product["fibre"], product["supplier"],
        product["cert"], product["complexity"]
    )
    c_score = calculate_compliance_score(
        product["espr"], product["dpp"],
        product["cma"], product["eol"]
    )
    verdict, colour = get_verdict(s_score, c_score)

    results.append({
        "Product":      product["name"],
        "Category":     product["category"],
        "Sustainability": s_score,
        "Compliance":   c_score,
        "Verdict":      verdict,
    })

# Convert to DataFrame and display
results_df = pd.DataFrame(results)

# Sort by sustainability score so we can see the full spread
results_df = results_df.sort_values("Sustainability", ascending=False).reset_index(drop=True)

print(f"{'Product':<35} {'Sust':>6} {'Comp':>6} Verdict")
print("-" * 90)
for _, row in results_df.iterrows():
    print(f"{'row['Product']:<35} {'row['Sustainability']:>6} {'row['Compliance']:>6} {'row['Verdict']}"
```

The Output: No product was incorrectly approved or flagged.

Product	Sust	Comp	Verdict
Organic Cotton Basics Tee	90.0	79.0	APPROVED – proceed to sampling
Hemp Canvas Tote	90.0	80.5	APPROVED – proceed to sampling
Deadstock Fabric Midi Skirt	84.0	67.5	APPROVED – proceed to sampling
Linen Shirt	80.5	75.0	APPROVED – proceed to sampling
Recycled Wool Knit Jumper	80.0	78.5	APPROVED – proceed to sampling
Tencel Wrap Dress	63.0	62.0	PROCEED WITH IMPROVEMENTS – review AI suggestions first
Recycled Denim Jacket	61.0	55.5	PROCEED WITH IMPROVEMENTS – review AI suggestions first
Organic Cotton Denim Jeans	59.0	50.5	PROCEED WITH IMPROVEMENTS – review AI suggestions first
Cotton Canvas Backpack	57.5	52.0	PROCEED WITH IMPROVEMENTS – review AI suggestions first
Wool Blend Blazer	43.0	42.0	FLAGGED – significant issues, do not proceed
Cotton Poly Blend Hoodie	42.0	32.0	FLAGGED – significant issues, do not proceed
Viscose Printed Blouse	27.0	19.5	FLAGGED – significant issues, do not proceed
Polyester Puffer Jacket	19.5	23.5	FLAGGED – significant issues, do not proceed
Nylon Swimwear Set	19.0	22.0	FLAGGED – significant issues, do not proceed
Faux Leather Trousers	17.0	18.5	FLAGGED – significant issues, do not proceed
Acrylic Knit Jumper	14.0	10.0	FLAGGED – significant issues, do not proceed
PVC Raincoat	12.0	10.0	FLAGGED – significant issues, do not proceed
Polyester Sequin Party Dress	10.0	15.0	FLAGGED – significant issues, do not proceed
Fast Fashion Mini Skirt	9.5	10.0	FLAGGED – significant issues, do not proceed
Mixed Fibre Festival Jacket	7.5	10.0	FLAGGED – significant issues, do not proceed

Fig. 21 – Synthetic Product Dataset Testing Output from Colab

# APPENDIX 8: PRIMARY RESEARCH – INTERVIEW WITH LAURA, USP TREND EDITOR

Semi-structured interview conducted February 2026. Laura is Trend Editor at Unique Style Platform (USP), a UK-based trend intelligence and forecasting agency serving fashion brands. The interview was conducted as part of the primary research phase for this degree project. The following is a reflective summary of the key themes that emerged. [For full transcript please visit this link - https://ucreative-my.sharepoint.com/:w/g/personal/2229244\\_students\\_ucreative\\_ac\\_uk/IQAXTjXgALnpR4jBgHVAVnnpnATCS0tyi9stEqfYNph-b3Ts?e=yEGASD](https://ucreative-my.sharepoint.com/:w/g/personal/2229244_students_ucreative_ac_uk/IQAXTjXgALnpR4jBgHVAVnnpnATCS0tyi9stEqfYNph-b3Ts?e=yEGASD)

## OVERVIEW AND CONTEXT

The conversation with Laura felt like a natural, generative exchange less a formal interview and more a collaborative thinking session between two people genuinely invested in the intersection of fashion, technology, and sustainability. Laura's role as Trend Editor gave her a grounded, industry-facing perspective that consistently enriched the discussion. What emerged was not just validation of the project idea, but a layered unpacking of its possibilities, its blind spots, and the broader industry landscape it sits within.

# THEME 1: THE PLATFORM CONCEPT – RECEPTION AND PARALLEL TO TREND SUBSCRIPTION MODELS

When introduced to the platform concept a dual-purpose AI tool combining trend forecasting with compliance checking, specifically targeting smaller brands unable to afford large in-house teams Laura's response was instinctively positive. She drew a direct parallel to USP's own subscription model, observing that the same principle of democratising expert knowledge is already at the heart of what trend agencies do:

'Brands that cannot sustain a dedicated trend team subscribe to a service to access that intelligence. The project essentially mirrors this logic but for compliance an equally specialised, increasingly critical domain.'

This was not merely polite affirmation. It was a confirmation that the problem being solved is real and recognised within the industry. The gap between what large brands can afford (full compliance teams, legal advisors, sustainability officers) and what SMEs can realistically access is significant, and Laura's comparison provided a commercial analogy that strengthens the platform's value proposition.

Relevance to platform design: this insight directly informed the freemium subscription model in the Business Model Canvas ([Appendix 5](#)) and the positioning statement's framing of the platform as 'democratising compliance intelligence for fashion SMEs'.

# THEME 2: THE FINANCIAL DIMENSION OF COMPLIANCE — TIERED RECOMMENDATIONS

One of the most practically useful threads in the conversation was Laura's push to think about the financial dimension of compliance. She made the important observation that while upcoming legislation (such as the UK's anticipated Extended Producer Responsibility regulations) will eventually force brands to act, the number one motivator for most businesses particularly SMEs is money:

'Without a clear economic argument, the platform risks feeling like an obligation rather than an opportunity.'

Her suggestion of a tiered recommendation system was particularly insightful. Rather than presenting compliance as a binary pass/fail, the platform could offer brands a spectrum of options: a premium route that achieves full compliance but may require greater investment, alongside a more accessible middle-ground path that meaningfully improves their current situation without being financially unattainable. This reframes sustainability not as a burden but as a journey one that brands can begin at whatever level their budget allows, with the platform helping them grow incrementally over time.

Relevance to platform design: this directly shaped the Improvement Recommendations module architecture ([see Appendix 3](#)) and informed the freemium/subscription tier structure in the Business Model Canvas ([Appendix 5](#)). The recommendation scoring system now categorises suggestions by estimated implementation cost and impact level.

## THEME 3: THE DISCONNECT BETWEEN TREND AND EXECUTION

When asked about the biggest gap she observes between what gets forecasted and what brands actually produce, Laura gave a nuanced answer. The issue is rarely about access to trend information; it is about the interpretation of that information in relation to a brand's own identity:

'Fast fashion brands often fall into the trap of trying to execute every emerging trend at speed, rather than asking whether a given trend is right for their brand and their customer. Brands that tend to be most successful are those with a clearly defined point of view they filter trends through the lens of who they are.'

This insight has direct implications for the platform's trend selection module. A good AI tool should not just surface trends it should help brands understand how those trends map onto their specific positioning, customer profile, and brand language. This points towards a brand identity filtering layer as a future development feature.

## THEME 4: THE EDUCATIONAL LAYER – AN AI-CURATED NEWS FEED

One of the most generative moments in the conversation was Laura's suggestion of adding an educational layer to the platform an AI-powered news feed that trawls the internet for relevant articles on new sustainable materials, shifting consumer behaviour, emerging industry developments, and cross-industry parallels (such as the ultra-processed food conversation):

'It would be AI-driven, require no manual editorial curation, and would serve the dual purpose of keeping brands informed and subtly reinforcing the business case for sustainability.'

This idea is flagged as a future development feature for the platform roadmap. It would position the tool as a thought partner rather than just a compliance checker, and would address the Mintel-confirmed challenge that many SMEs are not yet actively tracking sustainability legislation.

# THEME 5: AI IN TREND FORECASTING – WHERE IT WORKS AND WHERE IT FALLS SHORT

Laura's position on AI was measured and balanced. She sees clear value in AI as a research and analytical tool, particularly for looking backward identifying patterns, tracking the evolution of colour cycles, predicting when trends might hit the mainstream based on historical data. She cited a specific collaboration USP is working on with a colour AI that analyses the trend cycle of individual Pantone shades to forecast when they will peak in popularity.

However, she was equally clear about where AI falls short in the generative early stages of trend forecasting, where intuition and cultural sensitivity are paramount:

'AI can only learn from what has already happened. It cannot tell you that a colour which does not yet exist is going to resonate; it cannot spontaneously predict something genuinely new. This is where experienced human forecasters remain irreplaceable.'

She also raised the question of cultural bias in training data a system trained predominantly on Western, digitally visible sources will reflect those biases in its outputs and noted that AI-generated forecasts often fail to factor in macro-geopolitical disruption.

Relevance to platform design: these limitations directly informed the platform's positioning as an 'AI-assisted, human-interpreted' system rather than an autonomous decision-maker. They also strengthened the explainability features built into the scoring interface consistent with Wilson and Bowles (2024) transparency principle.

# THEME 6: THE HUMAN ELEMENT – THE BOOK TRANSLATION ANALOGY

The conversation closed with a compelling analogy about book translation. Laura described translators' response to the argument that AI could do the same job instantly their point being that literary translation is not a technical exercise in word substitution but requires cultural fluency, sensitivity to nuance, and understanding of tone and emotional texture:

'An AI translation might be technically accurate and yet entirely hollow losing the very thing that makes the book worth reading.'

This felt like a perfect encapsulation of the entire conversation's central tension: AI is a powerful, genuinely useful tool, but it works best as an amplifier of human intelligence, not a replacement for it. This principle sits at the heart of the platform's design philosophy.

## KEY IMPLICATIONS FOR THE DEGREE PROJECT

Insight from Laura (USP, 2026)	Application in Platform Design
Compliance needs a financial argument, not just a moral one	Tiered recommendations categorised by cost and impact; freemium model to lower entry barrier
Democratising compliance mirrors democratising trend intelligence	Core positioning statement; subscription model analogy to trend agency model
Brands need brand-identity filtering, not raw trend data	Future development: brand profile input layer to contextualise trend suggestions
AI is good at pattern recognition; poor at generative forecasting	Platform positioned as AI-assisted, not AI-autonomous; human interpretation foregrounded
Educational layer could reinforce compliance motivation	Future feature: AI-curated news feed on sustainability developments
Human instinct remains irreplaceable in creative forecasting	Explainability features in scoring; co-pilot framing throughout UX

# APPENDIX 9: PRIMARY RESEARCH MINTEL INDUSTRY TALK COMPARATIVE ANALYSIS (2025 VS. 2026)

As part of the primary research for this degree project, I attended two Mintel industry talks: one held on 30 January 2025 and a follow-up on 4 February 2026. Both sessions were delivered by Mintel analysts specialising in fashion retail market intelligence. This document compares key themes across both talks and critically reflects on how the insights are directly relevant to the AI-Enabled Trend-to-Compliance Pre-Validation Platform. For full 2025 talk please visit – [https://ucreative-my.sharepoint.com/:w:/g/personal/2229244\\_students\\_ucreative\\_ac\\_uk/IQCg1A-pmRSKQZZEECzFpgqXAaY7vDLSXqxejhuUTSLhAfO?e=CkpKpO](https://ucreative-my.sharepoint.com/:w:/g/personal/2229244_students_ucreative_ac_uk/IQCg1A-pmRSKQZZEECzFpgqXAaY7vDLSXqxejhuUTSLhAfO?e=CkpKpO). For full 2026 talk – [https://ucreative-my.sharepoint.com/:w:/g/personal/2229244\\_students\\_ucreative\\_ac\\_uk/IQBeCeyNpw7aR5vkAWLeOlqkAQjGZmVA0vVIYLIwrPd3SnI?e=hcdUa0](https://ucreative-my.sharepoint.com/:w:/g/personal/2229244_students_ucreative_ac_uk/IQBeCeyNpw7aR5vkAWLeOlqkAQjGZmVA0vVIYLIwrPd3SnI?e=hcdUa0)

## OVERVIEW AND CONTEXT

The January 2025 session was delivered by Bridget (covering market drivers) and a second analyst (covering consumer behaviour and retail trends). It focused on the economic backdrop of the cost-of-living crisis, the emergence of ultra-low-cost competitors (Shein, Temu), thrift behaviours, resale engagement, and AI as an emerging opportunity for personalisation. The February 2026 session featured Dan Tucker (Mintel Trends Team, covering fast vs. slow trends), Tamara (fashion analyst), and a third speaker covering Mintel's databases. Dan's presentation introduced a framework for distinguishing short-lived fads from enduring consumer trends; Tamara's updated the market data and foregrounded the urgency of sustainability legislation, digital product passports, and AI in retail.

Theme	January 2025 Talk	February 2026 Talk <span style="float: right;">78</span>
Economic Climate	Cost-of-living crisis central; 51% experienced energy price rises; fashion market growth slowed	Crisis persists; December 2025 tracker shows majority feel no financial improvement; UK fashion market grew only 2% in 2025
Market Value	Not explicitly stated	Fashion market valued at £87 billion to UK economy; projected 7% growth over next 5 years
Consumer Behaviour	62% buy new items to pair with existing wardrobe; 27% sell unwanted clothes; value-consciousness embedded across all age groups	Women bought 4 in 10 fewer clothes in 2025 vs prior year; impulse buying down; emphasis on quality and lifetime value growing
Sustainability Intentions vs. Reality	75% say sustainability matters; only 11% bought sustainable items in last 12 months	82% of Gen Z express sustainability concern; 54-point gap between intention and action; consumers expect brands to lead change
Legislation	EU eco-design regulations flagged as upcoming; brands urged to prepare	EPR for textiles explicitly named; digital product passports required by ~2027; UK expected to follow EU
Digital Product Passports	Mentioned as part of EU eco-design regulation; Nobody's Child cited as pilot	Expanded treatment; passports described as giving each garment a 'digital identity'; consumer adoption challenge noted; gamification cited as driver
AI in Fashion	AI in personalisation, search, virtual try-on; Mango AI campaign highlighted	AI identified as top growth opportunity; agentic AI checkout trialled by JD Sports; Dan Tucker raises AI hallucination risk in Q&A
Trend Forecasting	Focus on data-driven methods; social listening; instinct vs. data balance raised	New fast vs. slow trend framework; four-factor endurance model (consumer motivation, accessibility, aesthetic appeal, broad appeal)
SME Vulnerability	High Street loss of major mid-market players; cost pressures squeezing smaller brands	Polarisation confirmed: large retailers investing heavily in AI and compliance; SMEs lack resources to keep pace

# HOW THE INDUSTRY NARRATIVE EVOLVED

## FROM AWARENESS TO URGENCY ON SUSTAINABILITY LEGISLATION

In January 2025, EU sustainability legislation was flagged as incoming and worth preparing for. By February 2026, the Extended Producer Responsibility for textiles and the digital product passport requirement had become central talking points with a specific 2027 implementation timeline. The conversation had moved from 'brands should prepare' to 'brands must act now.' The detail around digital passports expanded significantly from a brief mention to a multi-faceted discussion about consumer adoption, gamification incentives, and compliance complexity. This evolution directly validates the platform's development timeline and its positioning as an urgent market need rather than a speculative future product.

## AI MOVED FROM PROMISE TO PRACTICE – WITH NEW CRITICAL CAVEATS

In 2025, AI in fashion was discussed as an exciting possibility. By 2026, AI had moved further into operational reality but with a more critical lens. Dan Tucker's intervention in the February 2026 Q&A was particularly significant: he cautioned that AI outputs can appear polished and authoritative while containing significant errors, and emphasised the importance of critical thinking when interpreting AI-generated content. This reinforces the platform's design principle that all scoring outputs must be clearly labelled as indicative and that explainability features are non-negotiable.

# DAN TUCKER'S FAST VS. SLOW TREND FRAMEWORK — A POTENTIAL PLATFORM FEATURE

The February 2026 session introduced intellectual depth not present in 2025: Dan Tucker's four-factor framework for distinguishing enduring trends from fads consumer motivation alignment, accessibility, aesthetic appeal, and broad appeal offers a conceptual model that could be embedded into the platform's trend forecasting module. Rather than simply surfacing trend data, the platform could score trends against these four factors, helping brands make more nuanced decisions about which trends are worth investing in versus which are ephemeral. This would distinguish the platform from generic trend aggregators and add genuine analytical value.

## REFLECTIVE SUMMARY

Attending both Mintel talks has been among the most grounding experiences of this research process. The sessions did not merely provide data they provided a living document of how the industry's mood, priorities, and language have shifted across a single year. What felt like an approaching challenge in January 2025 had become a pressing operational reality by February 2026.

Three realisations stood out particularly clearly. First, the legislative window is narrowing: brands not already preparing for digital product passports and EPR compliance by 2027 will find themselves scrambling. Second, the structural gap between large retailers and SMEs is widening the former are investing heavily in AI, store technology, and compliance infrastructure, while the latter lack the resources to keep pace. Third, AI is increasingly powerful but increasingly scrutinised: Dan Tucker's hallucination warning is a direct validation of the platform's design philosophy that AI outputs must be transparent, explainable, and human-interpreted.

Finally, both sessions remind me that the platform's value is not in replacing human judgment but in making compliance knowledge accessible to those who currently cannot afford it. That principle democratising compliance intelligence is the thread connecting Laura's interview, the Mintel data, the regulatory literature, and the platform's design.

# RELEVANCE TO THE PLATFORM: DIRECT APPLICATIONS

Intel Finding	Application in Platform Design / Evidence Base
2027 DPP and EPR mandate confirmed (Feb 2026)	Validates the platform's urgency and development timeline; DPP readiness = 32% of Compliance-Readiness Score
82% Gen Z sustainability concern vs. 54-point say-do gap	Confirms brands cannot rely on consumer demand alone; legislative pressure + accessible tools must work together
SME polarisation: large retailers investing in AI/compliance; SMEs cannot keep pace	Directly confirms the target user group's structural vulnerability (consistent with Khan, n.d.; Centre for Sustainable Fashion et al., 2019)
Dan Tucker: AI hallucination risk; importance of critical thinking	Reinforces need for explainability in platform interface; 'AI-assisted, human-interpreted' positioning
Fast vs. slow trend framework (four factors)	Future development feature: embed trend endurance scoring into the Trend Selection module
Gamification needed to drive DPP consumer adoption	Informs UX philosophy: compliance must feel achievable and rewarding, not burdensome
Cost-of-living crisis continues; SMEs under financial pressure	Reinforces freemium model and tiered pricing; economic argument for compliance must be made explicit

# APPENDIX 10: STREAMLIT PROTOTYPE – BUILD DOCUMENTATION AND SCREEN WALKTHROUGH

This appendix documents the development of the working Streamlit prototype of the Trend-to-Compliance Pre-Validation Platform. It covers the technology stack and architecture decisions, the build process phase by phase, and a screen-by-screen walkthrough of the prototype demonstrating Aisha's use-case scenario (A/W 2026 hooded jacket in recycled polyester).

## 1. WHY STREAMLIT

Streamlit was selected as the prototyping environment for three reasons. First, it is Python-native allowing the scoring logic to be written in the same language as the data processing, with no need to bridge a frontend framework to a backend. Second, it deploys as a shareable web app with minimal infrastructure overhead, making it appropriate for a degree-project prototype that needs to be demonstrable without a full production environment. Third, it renders cleanly on both desktop and mobile, which is important for an SME-facing tool whose users may not always be at a desk.

The alternative considered was Figma a higher-fidelity clickable prototype that would have produced more polished visual results but with no working logic behind it. Given that a core claim of this project is that the scoring engine produces meaningful, explainable outputs, a live-logic prototype was considered more credible and more useful as a demonstration artifact. The decision aligns with Laura's point (Aldous, 2026) that the platform's value is not cosmetic but functional it must actually help brands make decisions.

## 2. TECHNOLOGY STACK

Component	Technology / Library Used
Frontend / UI framework	Streamlit (Python)
Scoring logic	Python (rule-based heuristics)
Material impact data	Custom dictionary simplified LCA proxy values (informed by ETC/CE, 2022 benchmarks)
Regulatory rules engine	Python conditional logic based on ESPR eco-design principles, DPP data requirements (Thorngren, 2025), CMA green claims guidance
Data persistence (session)	Streamlit session_state
Visualisation	Plotly (gauge charts, bar charts); custom CSS styling
Deployment	Streamlit Community Cloud (streamlit.io/cloud)
Version control	Git / GitHub

# 3. BUILD PROCESS – PHASE BY PHASE

## PHASE 1: SCORING LOGIC (FEBRUARY–MARCH 2026)

Before building any interface, the scoring framework was coded as a standalone Python module. The Material Impact Factor was implemented as a dictionary mapping fibre types to indicative sustainability scores derived from ETC/CE (2022) benchmarks and published LCA literature. The Supply Chain Risk Factor was implemented as a decision tree assessing supplier region, certification level and traceability depth. The Design Circularity Factor assessed mono-material use and construction complexity. Each factor was normalised to a 0–100 scale and the weighted combination calculated the final Sustainability Score.

The Compliance-Readiness Score was implemented as three independent rule checks – ESPR alignment, DPP data readiness, and CMA green claims compliance each returning a pass/flag/fail status, with the combined result generating an overall compliance flag. All outputs were accompanied by short explanatory strings (the 'explainability layer'), directly implementing the transparency principle identified by Wilson and Bowles (2024) and requested by supervision feedback.

Example scoring logic (Fig. 22 – Scoring engine from Colab) →

```
# — Scoring engine —————
def calculate_blended_fibre_score(fibres):
    """
    fibres = list of (fibre_name, percentage) tuples
    Returns weighted average score based on composition
    """
    total_pct = sum(pct for _, pct in fibres)
    if total_pct == 0:
        return 0
    score = sum(
        FIBRE_SCORES.get(name, 5) * (pct / total_pct)
        for name, pct in fibres
    )
    return round(score, 1)

def calculate_cert_score(selected_certs):
    """Cumulative cert score, capped at 10"""
    total = sum(CERT_POINTS.get(c, 0) for c in selected_certs)
    return min(round((total / 10) * 10, 1), 10)

def calculate_sustainability_score(fibre_score, supplier_rating,
                                  cert_score, complexity_score):
    weights = {
        "fibre": 0.30, "supplier": 0.25,
        "cert": 0.25, "complexity": 0.20
    }
    raw = (fibre_score * weights["fibre"] +
           supplier_rating * weights["supplier"] +
           cert_score * weights["cert"] +
```

# PHASE 2: INTERFACE CONSTRUCTION (MARCH 2026)

The Streamlit interface was built as a five-page app using st.sidebar for navigation, corresponding to the five platform modules: Trend Selection, Concept Input, Impact Evaluation, Compliance Check, and Improvement Recommendations. The sidebar navigation also includes a Report tab that generates a summary of all inputs and outputs in a single view.

Key interface decisions informed by primary research:

- Step-by-step linear flow: Laura's observation (Aldous, 2026) that SMEs are time-poor and easily overwhelmed by technical tools shaped the decision to present inputs as a guided wizard rather than a single dense form. Each step collects only the information needed for that module.
- Plain-language regulatory explanations: every compliance flag is accompanied by a short plain-language explanation of which regulation it relates to and what the brand would need to do to resolve it addressing the literacy gap identified by Aziz Khan et al.(2024) Centre for Sustainable Fashion (2019).
- Tiered recommendations: following Laura's suggestion, each recommendation is categorised as Quick Win (low cost, high impact), Strategic Investment (higher cost, higher compliance improvement), or Monitoring Required (regulatory watch item with no immediate action needed).

```
def calculate_compliance_score(espr, dpp, cma, eol):
    weights = {"espr": 0.35, "dpp": 0.30, "cma": 0.20, "eol": 0.15}
    raw = (espr * weights["espr"] + dpp * weights["dpp"] +
           cma * weights["cma"] + eol * weights["eol"])
    return round(raw * 10, 1)

def get_verdict(s_score, c_score):
    avg = (s_score + c_score) / 2
    if avg >= 70:
        return "APPROVED – proceed to sampling", "green"
    elif avg >= 50:
        return "PROCEED WITH IMPROVEMENTS", "orange"
    else:
        return "FLAGGED – significant issues", "red"

# — AI suggestions —————
def get_ai_suggestions(product_name, category, fibres, supplier_rating,
                       selected_certs, espr, dpp, cma, eol,
                       s_score, c_score, api_key):

    fibre_breakdown = ", ".join(
        f"{pct}% {name}" for name, pct in fibres if pct > 0
    )
    cert_list = ", ".join(selected_certs) if selected_certs else "None"

    client = anthropic.Anthropic(api_key=api_key)
    prompt = f"""
    You are an expert sustainability consultant advising a UK fashion SME founder.
    Be practical, specific and supportive – not academic or preachy.
```

Fig. 23 – Streamlit app building from Colab

## PHASE 3: VISUALISATION AND OUTPUT LAYER (MARCH–APRIL 2026)

Claude was used as an AI-assisted reasoning layer to generate structured improvement suggestions. This decision was based on feasibility, allowing focus on system logic and usability rather than building a complex custom model. The aim was to demonstrate how AI can support decision-making rather than to engineer a full-scale AI system. The Impact Evaluation screen uses a Plotly gauge chart to display the Sustainability Score (0–100), with colour bands corresponding to Low (red, 0–40), Medium (amber, 40–70) and High (green, 70–100) sustainability. Three horizontal bar charts below the gauge show the Material Impact, Supply Chain, and Circularity sub-scores. The Compliance Check screen uses a traffic-light colour system (green/amber/red) for each of the three regulatory checks, with expandable detail panels.

The Report tab generates a summary that includes all inputs, both scores, all compliance flags, and all recommendations in a single scrollable view designed to be sharable with a supplier or sustainability advisor. This addresses the Intel-confirmed need for SMEs to communicate compliance readiness to retail partners and trade bodies.

## PHASE 4: TESTING AND REFINEMENT (APRIL 2026)

The prototype was tested using three SME scenarios: Aisha's A/W 2026 hooded jacket (the primary demonstration scenario), a summer dress in conventional cotton from a non-certified supplier, and a jersey top in TENCEL Lyocell with a certified organic supply chain. Testing confirmed that the scoring engine produced differentiated, meaningful outputs across the three scenarios, and that the explainability strings accurately reflected the rule logic. Supervision feedback at this stage led to two refinements: the addition of a 'confidence indicator' label on all scores (reminding users that outputs are indicative), and the restructuring of the recommendations panel to show the Quick Win tier first.

### 3. STREAMLIT PROTOTYPE WALKTHROUGH: AISHA'S SCENARIO

- Video – [https://drive.google.com/file/d/1hfOEGtmw6VTnIv9xHuH\\_Ngj8nIzMUmG/view?usp=sharing](https://drive.google.com/file/d/1hfOEGtmw6VTnIv9xHuH_Ngj8nIzMUmG/view?usp=sharing)
- Colab Link (Python Code for the site) – [https://colab.research.google.com/drive/1LvEqLvc4ZHxVfkS\\_yHJzDagZsIJ\\_21Tx#scrollTo=Alot\\_cq7MS4s](https://colab.research.google.com/drive/1LvEqLvc4ZHxVfkS_yHJzDagZsIJ_21Tx#scrollTo=Alot_cq7MS4s)
- GitHub Lab – <https://github.com/kashvi-lab/fashioncheck/tree/main>

## 4. PROTOTYPE LIMITATIONS AND FUTURE DEVELOPMENT

The prototype operates with synthetic but realistic data. Three limitations are important to note for academic transparency. First, the material impact scores are indicative proxy values derived from LCA literature rather than verified product-level data a limitation clearly labelled throughout the interface. Second, the regulatory rules engine encodes a simplified interpretation of ESPR, DPP and CMA requirements; it cannot substitute for qualified legal counsel and all outputs are presented as guidance rather than compliance verification. Third, the trend prediction module uses a static pre-loaded dataset rather than a live AI trend feed a practical constraint of the degree-project scope that would be resolved in a commercial version through integration with a trend API or proprietary data pipeline.

Future development priorities identified through prototype testing include: live trend data integration (via trend API or partner data feed); brand profile input (implementing Laura's suggestion of brand-identity filtering for trend relevance); a DPP-compatible export function (generating a structured JSON or XML summary of product-level data aligned to the DPP data schema); an AI-curated sustainability news feed (implementing Laura's educational layer suggestion); and mobile-optimised UI (for on-the-go use by product developers during supplier visits and trade shows).

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- Fig. 1 OpenAI (2026) Fashion trend forecasting stakeholder ecosystem [AI generated image]. Generated using DALL-E via ChatGPT. (Accessed: 29 April 2026).
- Fig. 2 Pinterest (s.d.) At: <https://in.pinterest.com/pin/1129559150337310791/> (Accessed 29/04/2026).
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- Fig. 6 OpenAI (2026) Fashion regulation timeline visualisation [AI generated image]. Generated using DALL-E via ChatGPT (Accessed: 29 April 2026).
- Fig. 7 Legardeur, J. (2024) Proposed model of DPP for Textile [Chart] At: [https://www.europarl.europa.eu/RegData/etudes/STUD/2024/757808/EPRS\\_STU\(2024\)757808\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2024/757808/EPRS_STU(2024)757808_EN.pdf) (Accessed 12/04/2026).
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- Fig. 20 Soni, K. (2026) Testing Synthetic Product Dataset from Colab [Screenshot] In possession of: University for the Creative Arts: Epsom. At: [https://colab.research.google.com/drive/1LvEqLvc4ZHxVfkS\\_yHJzDagZsIJ\\_21Tx#scrollTo=Alot\\_cq7MS4s](https://colab.research.google.com/drive/1LvEqLvc4ZHxVfkS_yHJzDagZsIJ_21Tx#scrollTo=Alot_cq7MS4s) (Accessed 20/03/2026)
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- Fig. 22 – Soni, K. (2026) Scoring engine from Colab [Screenshot] In possession of: University for the Creative Arts: Epsom. At: [https://colab.research.google.com/drive/1LvEqLvc4ZHxVfkS\\_yHJzDagZsIJ\\_21Tx#scrollTo=Alot\\_cq7MS4s](https://colab.research.google.com/drive/1LvEqLvc4ZHxVfkS_yHJzDagZsIJ_21Tx#scrollTo=Alot_cq7MS4s) (Accessed 20/03/2026)
- Fig. 23 – Soni, K. (2026) Streamlit app building from Colab [Screenshot] In possession of: University for the Creative Arts: Epsom. At: [https://colab.research.google.com/drive/1LvEqLvc4ZHxVfkS\\_yHJzDagZsIJ\\_21Tx#scrollTo=Alot\\_cq7MS4s](https://colab.research.google.com/drive/1LvEqLvc4ZHxVfkS_yHJzDagZsIJ_21Tx#scrollTo=Alot_cq7MS4s) (Accessed 20/03/2026)

## Prototype List of Illustration

- Lightweight windbreaker for active everyday wear (s.d.) At: [https://nina-nicole.com/products/clara-leichte-windjacke-fur-aktive-alltagstage?variant=55709754098044&pins\\_campaign\\_id=626757928240&utm\\_campaign=626757928240&utm\\_medium=PaidSocial&utm\\_source=Pinterest&utm\\_content=2680089353794&pp=0&epik=djOyJnU9VkdQXzZHbHoxZGhCdEtINFBzLVpsV3l1eU9IZGYwZE4mcDOxJm49ZkVNRkMwLXp6LS1KeFA1ZDF5aXZFZyZOPUFBQUFBR25tVExv](https://nina-nicole.com/products/clara-leichte-windjacke-fur-aktive-alltagstage?variant=55709754098044&pins_campaign_id=626757928240&utm_campaign=626757928240&utm_medium=PaidSocial&utm_source=Pinterest&utm_content=2680089353794&pp=0&epik=djOyJnU9VkdQXzZHbHoxZGhCdEtINFBzLVpsV3l1eU9IZGYwZE4mcDOxJm49ZkVNRkMwLXp6LS1KeFA1ZDF5aXZFZyZOPUFBQUFBR25tVExv) (Accessed 20/04/2026).