EUROPEAN CULTURAL
AND CREATIVE INDUSTRIES
INNOVATION POLICY PLATFORM

Digital Product Passport: Unlocking Circularity in Fashion & CCIs

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POLICY RECOMMENDATIONS
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Key Recommendations

The policy lab discussions highlighted the need for a coordinated and innovation-driven approach to Digital Product Passport (DPP) deployment in the fashion and textiles ecosystem. While the DPP offers significant opportunities for transparency, circularity and competitiveness, structural barriers, particularly for SMEs, risk slowing adoption and undermining impact. The recommendations therefore focus on enabling a fair rollout, strengthening regulatory clarity, investing in secure and interoperable infrastructure, supporting behavioural change, and building the skills and innovation capacity required for systemic transition.

A mandatory yet phased DPP adoption strategy is essential to prevent market distortion and ensure that SMEs, representing 99.9% of Europe's textile sector, are not left behind. To address fragmentation and uncertainty across supply chains, **harmonised EU-level rules on data requirements, supervisory responsibilities, governance, ownership,** and anti-tampering mechanisms must be established. A unified framework would align the DPP with the Ecodesign for Sustainable Products Regulation (ESPR) and Extended Producer Responsibility (EPR), enabling companies to navigate overlapping obligations and ensuring consistency in a globalised production landscape. **Deployment of the DPP requires a** secure and centralised digital infrastructure, complemented by certified private-sector tools. Investment in cybersecurity, IP protection and interoperability is essential to build trust, particularly among SMEs and innovative designers who face higher risks of intellectual property exposure. Strengthening digital infrastructure will also support data quality, a prerequisite for credible recycling, repair and reuse systems. **Given the central role of citizens in driving circularity, consumer-facing engagement must be significantly strengthened.** Public awareness campaigns, implemented at multiple levels through schools, institutions and retail settings, are needed to build understanding of the DPP and encourage behavioural change. Because sustainability information is often confusing or inaccessible, communication must be tailored, practical and interactive, responding to diverse consumer profiles while making circular behaviours more intuitive. **Addressing the substantial skills gap across the textile value chain is equally critical.** Designers, engineers, producers and creative professionals require upskilling in digital literacy, circular design principles, material science, and data handling. **New hybrid professional roles, such as DPP specialists or ecodesign advisors,** could play an essential part in supporting companies during and after the transition. Investment in education reform, vocational training and CCI-specific capacity-building will therefore be essential. Finally, the **DPP rollout should be supported by targeted** investment in experimentation, innovation and SME- oriented support, bridging the gap between laboratory advances, regulatory expectations and real- world operationalisation. To accelerate uptake, future EU funding programmes, particularly under the European Partnership for Textiles of the Future, could prioritise:

- Interoperable DPP infrastructure, including EU-wide data taxonomies, API layers, automated SME tools and cross-border DPP–EPR pilots.
- SME translation mechanisms, such as regional innovation hubs, voucher schemes, and procurement instruments supporting repair, take-back and reuse services.
- Skills development initiatives, including hybrid designer–engineer curricula, technician training for sorting and recycling, and digital literacy programmes for CCIs.
- End-to-end demonstrators, validating the DPP across full value chains and linking it to durability, recyclability, fee modulation and business model innovation.
- Governance and standardisation projects, including DPP sandboxes, SSbD material criteria, interoperability pilots with non-EU systems, and tools against tampering or greenwashing.

1 Introduction

As one of the most resource-intensive and polluting industries, textiles have been prioritised in EU policy for greening and digitalisation[1]. The sector is now at a turning point, with digital tools like the **Digital Product Passport (DPP)** positioned as key enablers for circularity, transparency, and innovation. The adoption of the DPP requires technological and business-model innovation in the textile and fashion sector. This document, developed through an *ekip* Policy Lab in October 2025, spells out recommendations for EU-level policy makers how to use tools of research and innovation policy in advancing the adoption of the DPP in the textile sector, thus seeking to improve competitiveness and sustainability of the sector.

The following chapters present: the definition and scope (Chapter 2); the main challenges to inclusivity in the video game sector (Chapter 3); and the current policy and research and innovation landscape, including relevant strategies, measures, projects and networks, as well as related policy recommendations (Chapter 4). The document concludes with a set of actionable policy recommendations (Chapter 5).

This note examines the interplay of digital product passport in fashion industry, focusing on the challenges, opportunities, and policy responses currently shaping the field across Europe. It forms part of the *ekip* project, an initiative that brings open innovation principles to policy-making for the Cultural and Creative Industries (CCIs). *ekip* supports the development of collaborative innovation policies that help CCIs not only grow but also contribute meaningfully to wider societal goals, including the Green Deal, digital transformation, and inclusion. Through a strong, diverse, and pan-European network, *ekip* promotes shared learning, collaboration, and evidence-based policy design.[2]

2 Policy problem

Textiles rank among the top product groups for environmental pressure, with the majority of their climate impact occurring during production[3]. At the same time, the industry's fragmented and global value chains make it difficult to track environmental and social impacts. The DPP introduced under the Ecodesign for Sustainable Products Regulation (ESPR)[4], aims to address these challenges by providing reliable, standardised product information across the value chain. The European Strategy for Sustainable and Circular Textiles[5], the Transition Pathway for textiles[6] and the upcoming delegated act on textiles place the industry at the forefront of the EU's green transition. Yet, fashion also offers a unique opportunity: to reshape cultural narratives around sustainable lifestyles and responsible consumption.

Over the past year, the European Union's industrial policy has undergone a notable shift in direction, placing stronger emphasis on competitiveness, strategic autonomy, and resilience. This reorientation was marked by the publication of the 2024 Draghi Report[7], which called for bold structural reforms to close the innovation gap, reduce strategic dependencies, and accelerate the decarbonisation of the European economy. In response, the European Commission launched the Competitiveness Compass[8] in early 2025, outlining a forward-looking strategy based on three key pillars: innovation, decarbonisation, and economic security.

Within this evolving policy framework, the textile ecosystem emerges as a critical sector, not only because of its environmental footprint and globalised supply chains, but also due to its potential to contribute to Europe's competitiveness. In a consumer-facing sector such as fashion, where branding, values, and culture play a central role, sustainability is not just a technical challenge, it is a driver of competitiveness.

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[1] D'Adamo, I., Fratocchi, L., Grosso, C., & Tavana, M. (2025). An Integrated Business Strategy for the Twin Transition: Leveraging Digital Product Passports and Circular Economy Models. Business Strategy and the Environment.
[2] https://ekipengine.eu/
[3] European Environment Agency (2020). Textiles and the environment: the role of design in Europe's circular economy, Available at: https://www.eea.europa.eu/publications/textiles-and-the-environment-the
[4] Regulation establishing a framework for the setting of ecodesign requirements for sustainable products. EU2024/1781.
[5] European Commission (2022). Communication on the EU strategy for sustainable and Circular textiles. Available at: https://environment.ec.europa.eu/publications/textiles-strategy_en
[6] European Commission (2023). Transition pathway for the Textiles ecosystem. Available at: https://op.europa.eu/en/publication-detail/-/publication/6392f189-0416-11ee-87ec-01aa75ed71a1
[7] European Commission (2024). The future of European competitiveness. Available at: https://commission.europa.eu/document/download/97e481fd-2dc3-412d-be4c- f152a8232961_en?filename=The%20future%20of%20European%20competitiveness%20_%20A%20competitiveness%20strategy%20 for%20Europe.pdf
[8] European Commission (2025). Communication on a competitiveness compass for the EU. COM(2025) 30 final. Available at: https://commission.europa.eu/topics/eu-competitiveness/competitiveness-compass_en?

2.1 Definition and scope

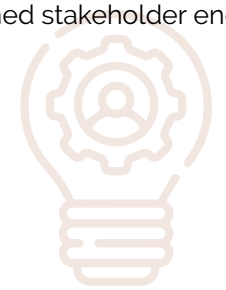
The concept of **"Fashion Transition: Eco-design for Circularity"** is emerging as a critical strategic framework for reshaping the fashion and textile industries in response to pressing environmental, social, and economic challenges[9]. More than just a technical or regulatory adjustment, this transition should be understood as a complex innovation process that requires collaborative, cross-sectoral, and participatory approaches[10] Through the mobilisation of Creative and Cultural Industries (CCIs) and a strong ecosystemic perspective, this transition aims to reconfigure the entire value chain around principles of sustainability, inclusivity, and resilience[11]

- **Circularity** is defined as the degree to which, when a product reaches the end of its life, its materials can be productively used again and again, thereby creating further value[12].
- **Ecodesign** is meant as the integration of environmental sustainability considerations into the characteristics of a product and the processes taking place throughout the product's value chain[13].

This encompasses the production of durable, repairable, recyclable products, ideally manufactured from recycled or renewable materials, and free from hazardous substances. Such a reorientation not only addresses environmental degradation but also challenges extractive economic models and encourages circularity, transparency, and social responsibility.

- **The Digital Product Passport (DPP)** is an electronic record that serves as a unique identity profile for a product, its components, and materials. It stores key data, such as technical specifications, material origins, repair history, recycling options, and environmental impacts, aimed at improving sustainability, enabling circular use, and ensuring regulatory compliance. Accessible to consumers, manufacturers, and authorities, the DPP provides transparent, standardised information tailored to the specific product type.

The European Commission's **EU Strategy for Sustainable and Circular Textiles**[14] provides a policy foundation for this shift, setting out a 2030 vision for a resilient, climate-neutral textile ecosystem grounded in circular practices and fair labour conditions. Yet the transition toward eco-design cannot be accomplished through technological change or regulatory compliance alone. Instead, it necessitates an ecosystemic transformation involving a diverse set of actors, governments, businesses, research institutions, civil society, and creative sectors, who collaboratively design and implement new models of production and consumption[15]. This quadruple helix configuration, inspired by innovation models from the cultural and creative industries, fosters inclusive innovation, enables mutual learning, and prioritises early and sustained stakeholder engagement[16].



> *"Roll it out fairly: Make the DPP mandatory but phased, so SMEs don't get crushed."*

[9] D'Itria, E. (2025). Fashion Design Circularity. Reimagining development models to transform the system. Mandragora Firenze. Bertola, P., & Colombi, C. (2024). Can fashion be sustainable? Trajectories of change in organizational, products and processes, and socio-cultural contexts. Sustainability: Science, Practice and Policy, 20(1), 2312682; Karaosman, H., & Marshall, D. (2023). Impact pathways: just transition in fashion operations and supply chain management. International Journal of Operations & Production Management, 43(13), 226-237; Buchel, S., Hebinck, A., Lavanga, M., & Loorbach, D. (2022). Disrupting the status quo: a sustainability transitions analysis of the fashion system. Sustainability: Science, Practice and Policy, 18(1), 231-246.

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[12] Regulation (EU) 2024/1781 establishing a framework for the setting of ecodesign requirements for sustainable products

[13] Regulation (EU) 2024/1781 establishing a framework for the setting of ecodesign requirements for sustainable products

[14] European Commission (2022). Communication on the EU strategy for sustainable and Circular textiles. Available at: https://environment.ec.europa.eu/publications/textiles-strategy_en

[15] Zhu, S., & Liu, X. (2025). The Ecodesign Transformation of Smart Clothing: Towards a Systemic and Coupled Social–Ecological– Technological System Perspective. Sustainability, 17(5), 2102; Battistoni, C., & Barbero, S. (2020). Design of an ecosystem to foster systemic eco-innovation: Systemic design for autopoietic local economies. FormAkademisk, 13(2).

[16] D'Itria, E., & Colombi, C. (2023). Fostering Fashion Ecosystems: A Quadruple Helix-Based Model for European Sustainable Innovation. Systems, 11(9), 478.

2.2 Background and history

The fashion industry is a core component of the EU textile ecosystem, encompassing the production of intermediate and finished goods, as well as their distribution via wholesalers, agents, and retailers. Recognised as one of the European Commission's fourteen strategic industrial ecosystems, the textile sector plays a vital role in the EU's economic recovery and green and digital transitions[17]. In 2021, the EU textile industry employed approximately 1.3 million people, with 99% of companies being SMEs, of which the vast majority are micro-enterprises[18]. Despite its fragmented structure, the sector remains a leader in innovation, with over 4,000 patent families filed in fashion-related technologies between 2015 and 2019, particularly in textile treatment and flexible materials[19]. The ecosystem generated a turnover of €147 billion in 2021, split between textiles and man-made fibres (56%) and clothing (44%), with Italy and Germany together accounting for over half of EU production[20]. While the sector experienced a sharp contraction in 2020 due to the COVID-19 pandemic, it has shown signs of recovery, driven in part by a surge in e-commerce. Around 40% of total turnover is now export-driven. The EU also holds a significant position in the global leather industry, particularly in Southern Europe, where small, artisanal tanneries supply high-quality leather goods to the fashion sector.

Building on the policy context outlined above, it is essential to understand the broader environmental and systemic challenges and transfromations the textile and fashion industry is facing, which continue to drive the need for regulatory intervention and sustainable transformation.

The textile sector poses significant environmental challenges, being one of the most resource- intensive industries in terms of land, water use, and greenhouse gas emissions[21]. Around 80% of its climate impact occurs during production, driven by energy use, chemical inputs, and raw material extraction such as cotton and petroleum-based fibres[22].

The growing dominance of fast fashion has exacerbated overproduction and waste, with the majority of garments discarded within a year and less than 1% of textiles recycled into new clothing[23]. Synthetic fibres, which make up the bulk of global fibre production, contribute to fossil fuel dependence and microplastic pollution, with substantial amounts entering marine ecosystems annually. The sector remains largely linear, with short product lifespans, limited recycling, and high volumes of post-consumer waste ending up in landfills or incinerated[24].

Technical barriers related to recycling and waste management remain acute. The lack of effective collection, sorting, and recycling infrastructures, particularly for post-consumer textiles, is one of the most widely recognised systemic failures[25]. Furthermore, the complex composition of textiles, including multi- fibre blends and chemical treatments, presents significant challenges for recycling technologies[26]. These issues are exacerbated by low volumes of high-quality feedstock and high processing costs, which reduce the economic viability of recycled fibres[27].

Another critical bottleneck lies at the design phase. Despite growing awareness, design for circularity is still the exception rather than the norm[28] . Incentives to use mono-materials, detachable components, or modular design systems remain limited, while the industry continues to be dominated by fast-fashion logics that prioritise low-cost, disposable garments.[29]

> *"Skill up the sector: Train designers, technicians, and new hybrid roles so the whole value chain can work with the DPP."*

[17] European Commission (2023). Transition pathway for the Textiles ecosystem. Available at: https://op.europa.eu/en/publication- detail/-/publication/6392f189-0416-11ee-87ec-01aa75ed71a1
[18] Euratex, 2022, Facts & Key Figures 2022 of the European textile and clothing industry. Available at: https://euratex.eu/wp- content/uploads/EURATEX_Facts-Key_Figures_2022rev-1.pdf
[19] European Commission: Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Data on the EU textile ecosystem and its competitiveness – Final report, Publications Office of the European Union, 2021. Availabe at: https://data.europa.eu/doi/10.2873/23948
[20] Euratex, Economic Update: Textile and clothing industry evolution in the 1st quarter 2023 and short-term prospects. Available at: https://euratex.eu/economic-update/
[21] European Environment Agency, 2020, Textiles and the environment: the role of design in Europe's circular economy., Available at: https://www.eea.europa.eu/publications/textiles-and-the-environment-the
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[23] JRC (2021) Circular Economy perspectives in the EU textiles sector. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC125110
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[27] Leal Filho, W., Ellams, D., Han, S., Tyler, D., Boiten, V. J., Paço, A., ... & Balogun, A. L. (2019). A review of the socio-economic advantages of textile recycling. Journal of cleaner production, 218, 10-20
[28] D'Itria, E. (2025). Fashion Design Circularity. Reimagining development models to transform the system. Mandragora Firenze.
[29] D'Itria, E., & Vacca, F. (2024). Shaping sustainable solutions in fashion through design-led strategies, approaches, and practices. Discover Sustainability, 5(1), 409.

Growing concerns about sustainability in the textile sector have become increasingly central to consumer behaviour, reflecting a broader demand for ethical, transparent, and environmentally responsible practices. A key factor driving this shift is the lack of transparency in global supply chains, which prevents consumers from making informed decisions about the social and environmental impact of their clothing, particularly within fast fashion, where production is often outsourced to countries with weaker labour protections and substandard working conditions. Surveys show rising awareness and concern: a 2020 Fashion Revolution study revealed that 45% of respondents prioritise clothing made without child labour, while 22% emphasise the importance of safe working conditions[30]. The 2022 Eurobarometer found that over 80% of EU consumers feel they lack adequate information about the sustainability and ethics behind the garments they buy[31]. Similarly, 60% of French consumers indicated they would boycott brands that do not pay fair wages[32], and a 2024 Fairtrade Luxembourg and Caritas study found that nearly half of respondents consider current sustainability information insufficient[33]. Spanish consumers echo these concerns, with 60% citing transparency as a barrier to sustainable consumption and 42% expressing a preference for locally made clothing, avoiding items produced in regions with exploitative labour practices[34].

However, despite growing awareness, social and behavioural factors still hinder progress: many consumers remain hesitant to embrace reuse, repair, or sharing models due to aesthetic preferences, convenience, or price sensitivity[35]. On the organisational side, resistance to change, lack of strategic foresight, and fragmented innovation approaches further limit the adoption of circular business models such as product-service systems and rental platforms[36].. Together, these factors reveal a complex interplay between consumer demand, behavioural norms, and systemic barriers that continue to challenge the shift towards a more sustainable fashion industry.

The transition to a circular and sustainable fashion system is now a key priority of European industrial policy, as outlined in the EU Strategy for Sustainable and Circular Textiles. The recently adopted Ecodesign for Sustainable Products Regulation (EU) 2024/1781 (ESPR), in force since July 2024, plays a central role in this shift by establishing a framework for setting ecodesign requirements on product performance and sustainability-related information. A Delegated Act specific to textiles will define requirements for aspects such as durability, recyclability, and recycled content, with textile apparel identified by the Joint Research Centre as a likely priority group.

The ESPR also introduces a Digital Product Passport (DPP), which will enable the sharing of detailed sustainability and circularity information across the value chain, including with consumers. The requirements set under the DPP will necessarily influence how far manufacturers and retailers in the textile sector will be required to provide digital information, and could lead to increased voluntary digitalisation of product information, also for textile products not within the scope of the ESPR DA (e.g. non-apparel textile and non-textile apparel products), due to economies of scale and increased consumer).

In this context, **Extended Producer Responsibility (EPR)** has emerged as a potentially powerful mechanism to support circularity. EPR shifts the responsibility for the end-of-life impact of products to producers, requiring them to finance or organise collection, sorting, reuse, and recycling. In theory, it also incentivises eco-design by introducing cost modulation based on the environmental performance of products[37]. However, in the textile sector, EPR frameworks are still underdeveloped or inconsistently applied across Member States[38]. Many existing EPR schemes lack clear operational standards, effective cost redistribution mechanisms, and enforcement capacities. This inconsistency undermines their effectiveness and creates uncertainty for producers, particularly SMEs that may lack the capacity to track their obligations or participate in collective compliance schemes. Furthermore, EPR systems often fail to provide adequate support for upstream innovation, focusing instead on waste management at the end of the chain. A shift is needed to ensure that EPR frameworks are integrated with broader design and production policies and made accessible to enterprises of all sizes[39].

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[31] European Commission, 2021, Preparatory study to gather evidene on ways to empower consumers to play an active role in the green transition. Available at: https://-commission.europa.eu/system/files/2022-03/5_1_186786_prep_stu_prop_em_co_en.pdf
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2.3 Trends

The fashion and textile industry is undergoing a profound transformation driven by environmental concerns, resource scarcity, and evolving consumer expectations. Across the globe, startups are pioneering innovative solutions that reflect several powerful industry trends, from circular business models to bio-based materials and sustainable production practices. Below is a thematic grouping of startups illustrating these pivotal trends shaping the future of fashion and textile, based on emerging European start-ups in the textile ecosystem:

- **Circular fashion platforms, extending garment lifecycles:** one of the strongest trends is the shift from ownership to access, with digital platforms enabling consumers to rent, swap, or resell garments. This model significantly reduces waste by keeping clothes in use longer and decreasing demand for new production. Companies such as Veras[40], exemplify this shift by creating marketplaces and rental services that promote clothing reuse. Platforms targeting niche markets, like My Dressoir[41] (designer outfit rental) and Red Orka[42] (babywear subscription), address specific consumer needs while reinforcing circular consumption habits

- **Innovative sustainable materials and upcycling:** the environmental footprint of conventional textile materials has pushed startups to develop bio-based, recycled, and upcycled alternatives. This trend represents the industry's move toward circular raw materials and closed-loop production. ReBlend[43] and LATtrims[44] focus on fabric and trim production from 100% recycled inputs. Others, such as Zeefier[45] and Caffeink[46], innovate by using natural dyes extracted from seaweed and coffee waste, showcasing circularity beyond textiles into chemical and water savings.

- **Organic and sustainable apparel brands**: consumers increasingly demand transparency and ecological responsibility from clothing brands. This has given rise to companies specialising in organic fibres (like organic cotton and bamboo) and ethical production. Brands such as Goat[47], and Bamboom[48] illustrate this trend by offering garments crafted from certified organic materials combined with zero-waste and sustainable manufacturing processes. This segment reflects the growing consumer preference for "clean" and socially responsible fashion.

- **Circular and eco-friendly footwear:** Sustainable footwear is another growing frontier, combining innovative materials with circular design principles. Startups like Vaer[49] create shoes from recycled and organic materials, addressing a traditionally hard-to-recycle category. Their approach embodies the trend toward closing the loop on footwear waste while meeting consumer demand for stylish yet responsible products.

- **Textile waste management and recycling technologies:** addressing the massive volume of textile waste is critical for achieving circularity. Technologies and platforms that facilitate sorting, recycling, and repurposing of textile waste play a crucial role. Startups such as Plasticpreneur[50], Sideflow[51], demonstrate this, offering scalable solutions to convert waste into new materials or products, including upcycled textiles and repurposed home goods, aligning with the circular industry's goals of zero waste.

- **One of the most significant areas of progress lies in digital traceability and transparency platforms.** Tools such as Fluxy.One[52] provide European SMEs with software solutions to create and manage Digital Product Passports, a vital mechanism for tracking the lifecycle of products and verifying the origin and sustainability of materials. Complementing this, ForSURE[53] offers tailored software that supports Extended Producer Responsibility compliance, helping retailers to take accountability not only for the products they sell but also for their environmental impact beyond the point of purchase. Blockchain-based solutions, exemplified by Taqanu's[54] digital identity platform, further enhance transparency by creating secure and immutable records that validate brand and product authenticity. In parallel, companies like Astramind[55] deploy artificial intelligence and cloud computing to manage and safeguard supply chain data with a focus on privacy and security, while Logica[56] utilises machine learning to optimise textile and mechanical workflows. Together, these digital infrastructures combat the risks of greenwashing and fragmented data, helping to build trust across the value chain.

- **The consumer experience is also undergoing a digital transformation, with AI-powered platforms** fostering greater awareness and encouraging more conscious consumption habits..

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[40] https://verasvintage.dk
[41] https://fundsup.co/my-dressoir-rent-clothes-instead-of-buying/ 42 https://www.vevolution.com/organisations/red-orka
[43] https://reblend.nl
[44] https://www.lattrims.com
[45] https://zeefier.eu
[46] https://caffeinc.nl
[47] https://www.goatorganicapparel.com 48 https://bamboom.it
[49] https://vaerupcycled.com
[50] https://www.plasticpreneur.com
[51] https://sideflow.fi
[52] https://fluxy.one
[53] https://for-sure.net
[54] https://taqanu.com
[55] https://www.astramind.ai
[56] https://www.logicainnovation.com/en/

Personalitia[57], for instance, offers an online portal that guides shoppers towards mindful brand and clothing choices, promoting a deeper connection with sustainable fashion. Tribe[58] employs artificial intelligence to personalise and enhance customer interactions in eyewear retail. Meanwhile, Rhytmo[59] takes innovation a step further by transforming music into physical sensations via haptic clothing, creating an emotional and immersive link between technology and wearable fashion. These technologies not only educate consumers but also help shift the industry narrative towards valuing emotional attachment, repairability, and longevity.

- **Additive manufacturing and 3D printing** are revolutionising production models by enabling on-demand and low-waste manufacturing. Companies such as Extrudr[60], Apium Additive Technologies[61], and Felfil[62] focus on producing sustainable bio-based and industrial-grade 3D printing filaments, supporting the circular economy.

The convergence of fashion with IoT and wearable technology is creating new dimensions of consumer interaction and product innovation. Companies like ElektroCouture[63] specialise in connected footwear and smart clothing, developing bespoke electronic wearable technologies. These innovations offer enhanced interactivity and personalisation, transforming garments into dynamic products that collect data and respond to the wearer's needs. Tailoor[64] delivers omnichannel sales platforms that help businesses expand their reach.

Emerging signals from social media conversations among European cultural and creative industries practitioners in the fashion and design sectors suggest that the transition towards eco-design and circularity is entering a new phase, driven by technological innovation and accompanied by a cultural, systemic, and emotional nature. Four conversations stand out:

- **From circular solutions to systemic shifts:** Although practices such as second-hand fashion and circular models are gaining visibility, they are increasingly considered as insufficient if not accompanied by a deeper transformation in the logic of production and consumption. The most engaged voices call for tackling overproduction, exploitative supply chains, and disposability. Movements such as repair cafés and campaigns promoting garment longevity suggest a shift toward slower, more relational approaches to fashion. In this context, calls for Extended Producer Responsibility (EPR) are gaining traction as part of a wider push to hold brands accountable not only for their products' design but also for their afterlife.
- **Transparency and trust in the textile supply chain:** Transparency is emerging as a baseline expectation across the textile and fashion sectors, but significant gaps remain. Despite brand narratives around sustainability, many practices remain opaque or unverifiable. Greenwashing, vague labels, and the lack of standardised metrics undermine trust, especially when recycled content remains limited (mono-material products contribute only 4–5% to recycled feedstock, and multi-material textiles pose major recycling barriers). These challenges highlight the urgent need for better infrastructure for waste valorisation and traceability throughout the value chain.
- **Consumer educating for conscious consumption:** While awareness of environmental and ethical issues is rising, especially among younger generations such as Gen Z, this shift often clashes with the enduring appeal of ultrafast fashion. Many practitioners emphasise that awareness is not enough: it must be coupled with structural change in pricing models, accessibility, and perceptions of value. The fashion-textile nexus plays a central role here, as textile care and emotional attachment can reframe consumer behaviour. Grassroots initiatives are using public mending events, repair culture, and community engagement to turn sustainability into a cultural and political act.
- **Digital traceability as a driver for change:** As digital solutions such as Digital Product Passports (DPPs) gain relevance, businesses are facing major transformations that demand not only technological upgrades but also alignment with evolving regulatory frameworks. While some pioneering brands are embracing these tools to embed traceability and narratives into their products, widespread adoption remains uneven and challenging to implement. Most companies still operate within fragmented data systems and lack the infrastructure needed for robust digital traceability, both requiring long-term investments to ensure accountability and sustainability at scale.

[57] https://personalitia.com
[58] https://www.tribeapp.com
[59] https://www.rhytmo.com
[60] https://www.extrudr.com/en/gb/
[61] https://apiumtec.com/en/home-3d-printing-from-apium-addtive-technologies-gmbh
[62] https://felfil.com/?v=058f38ac9331
[63] https://elektrocouture.com
[64] https://tailoor.com

Based on these conversations, a powerful cultural shift is emerging: **the Enoughness Era**: This trend points to a broader re-evaluation of consumption, where emotional value, authenticity, and long-term impact take precedence over novelty, relentless growth, and abundance. From the "No Buy Challenge" on TikTok to anti-consumerist campaigns by fashion and skincare brands, the movement reframes sufficiency as a desirable norm. It pushes brands to shift away from hyper-aspirational marketing and toward messages of repairability, transparency, and intentional design, values that are particularly resonant in the fashion and textile sectors. This transformation signals not just a change in consumer preferences, but a deeper reorientation of fashion's role in the economy and in everyday life.

2.4 Challenges and opportunities

The fashion industry presents both significant challenges and opportunities for advancing the Digital Product Passport (DPP) as a tool to support the green and digital transformation of the ecosystem.

This section examines the key trends currently shaping the industry and explores how the DPP can unlock value, while also highlighting the barriers to its effective implementation.

Using the *ekip* Building Blocks for Open Innovation methodology, we identify core policy challenges and structure the discussion around three overarching problem statements, each reflecting critical tensions at the intersection of competitiveness and sustainability. These serve as a foundation for designing targeted and actionable policy responses.

2.4.1 Opportunities of Digital Product Passport

The Digital Product Passport (DPP) presents opportunities for the fashion and cultural and creative industries (CCIs), offering both strategic and operational benefits. As the sector navigates regulatory pressures, digital transformation, and shifting consumer expectations, the DPP emerges as a powerful tool to align innovation with sustainability, competitiveness, and transparency.

One of the **DPP's core functions is to inform consumers at the point of purchase,** online or in-store, enabling more informed and responsible decisions. By offering clear, accessible data on product origin, material composition, environmental impact, care instructions, and end-of-life options, the DPP helps consumers better understand the lifecycle of their garments and accessories. This level of transparency directly addresses widespread consumer concerns over unethical practices, greenwashing, and unclear sustainability claims. For high-value or luxury items, the DPP also facilitates authentication, providing assurance against counterfeits and maintaining product value in second-hand markets. By allowing consumers to track their product's repair, resale or rental history, the DPP can enhance product longevity and encourages circular consumption behaviours.[65]

As an example, Prada views the DPP not just as a compliance tool, but as a way to deepen brand storytelling and personalisation. By embedding complete traceability into products, such as in its "Eternal Gold" fine jewellery line (developed with Aura Blockchain), Prada combines luxury craftsmanship with verifiable sourcing, including certified lab-grown diamonds. This aligns with the DPP's aim of providing customers with transparent, trustworthy product histories.[66]

The DPP will also provide a centralised, interoperable system for aggregating and sharing data across the supply chain, from raw material sourcing to post-consumer recovery. This could allow companies to access reliable, real-time data on their supply networks, improving risk assessment, resource planning, and sustainability performance. For fashion brands and CCIs, this digital traceability has the potential to improve internal decision-making across departments such as design, quality control, and customer service. It strengthens accountability and enables companies to justify claims made to regulators and consumers alike. It also supports better-informed employees who can act as trust-building agents through direct interactions with customers. Importantly, DPP facilitates sustainable sourcing by allowing companies to track the origin and quantity of materials used, encouraging the shift to lower-impact alternatives (e.g., recycled or organic fibres). These traceability capabilities are essential for companies aiming to comply with environmental disclosure regulations, benefit from eco-modulated fees under Extended Producer Responsibility (EPR), or pursue voluntary certifications.

[65] European Parliament (2024) Digital Product Passport for the textile sector. Available at: https://www.europarl.europa.eu/RegData/etudes/-STUD/2024/757808/EPRS_STU(2024)757808_EN.pdf

[66] https://auraconsortium.com/highlights

A key advantage of the DPP is its ability to support the transition to circularity by removing current data-related barriers to reuse, repair, resale, and recycling. By recording product-specific information, such as design specifications, material breakdowns, and care instructions and needs, the DPP facilitates maintenance services and the identification of appropriate recycling or disposal options. Circular business models, such as rental, resale, and product-as-a-service, can use DPP data to track product use and performance over time, collecting valuable information on wear, repairs, and ownership transfers. This also opens avenues for innovation in customer engagement, such as offering personalised repair services or incentivised return schemes based on DPP-tracked behaviour. One of the key opportunities mentioned by stakeholders during the policy lab help in October is that the DPP offers a major opportunity to enhance sustainable competitiveness, particularly for small and medium-sized enterprises. By providing transparent and verifiable sustainability information, the DPP enables SMEs to demonstrate responsible practices and build consumer trust. This visibility can help level the playing field between smaller producers and multinational corporations. The DPP also facilitates the emergence of new business models grounded in circularity, traceability, and long-term product value. Over time, it may drive a re-industrialisation of certain parts of the European value chain, strengthening regional resilience and reducing reliance on long-distance supply routes.

Additionally, participants mentioned that the **DPP may catalyse positive social and behavioural change among consumers and citizens.** By enabling new types of information, such as repair guidance, disposal options or resale value, the DPP can support more circular consumption patterns and encourage longer product lifetimes. Community-based learning, peer-to-peer communication, and the sharing of user stories can make sustainability relatable and engaging. Trust, increasingly viewed as a form of "new luxury", could reshape the fashion market and reward companies that commit to transparency.

> ***"Build the backbone: Invest in secure, interoperable digital infrastructure so everyone trusts the system, designers, recyclers, SMEs, all of them."***

The DPP creates a feedback loop between production and post-sale use, enabling companies to use real-world data to refine product design. For example, if certain components are found to wear out prematurely, brands can adjust their material or structural choices in future collections. Similarly, if products show longevity and are repeatedly resold, this might justify investment in resale platforms or services, aligning business growth with reduced resource consumption. Moreover, by supporting lifecycle assessment and other performance indicators, the DPP can help brands embed ecodesign principles into product development. This is especially relevant as EU regulations increasingly mandate durable, repairable, and recyclable design. For example, Aura Blockchain's[67] platform links each product to a secure, unique digital identity, ensuring authenticity and traceability from origin to consumer. With over 50 million items already registered, Aura's system offers a "single source of truth" for product data, an essential building block for DPP implementation. The platform is designed for interoperability, enabling all supply chain stakeholders to share and access verified information over the product's entire lifecycle. To strengthen product tracking and streamline operations, Decathlon has rolled out RFID technology on a global scale. The initiative equips almost 50,000 locations, including manufacturing sites, distribution centres, and retail outlets, with custom-designed RFID readers developed in-house[68]. During the policy lab it was also mentioned the creation of material databases, automated DPP generation tools and intelligent traceability systems can transform design processes and enable deeper knowledge sharing across the sector. There is also an opportunity for the EU to strengthen its digital sovereignty by developing European technological solutions that reduce dependence on global technology corporation.

At the same time, **brands can leverage DPP-enabled transparency to differentiate themselves in a competitive marketplace.** For businesses committed to ethical values, the DPP can offer a platform to communicate these to consumers in a credible, data-backed manners, strengthening brand loyalty and trust. The combination of verifiable sustainability information and enhanced storytelling can foster a richer, more values-driven customer experience.

[67] https://auraconsortium.com
[68] https://sustainability.decathlon.com/product-traceability-and-rfid-technology-at-decathlon

Traditionally, traceability in the textile sector has ended at the point of sale. The DPP extends this timeline by enabling the tracking of a product throughout its use and eventual disposal.[69] Post-sale engagement becomes a data-rich opportunity: brands can better understand consumer usage patterns, tailor marketing strategies, and improve aftercare services. This allows a shift from transactional to relational business models, aligning long-term brand value with customer satisfaction and product longevity. For example, Rossignol[70] has been working toward DPP compliance by improving visibility across its operations. Through its partnership with Fairly Made[71], the brand has nearly tripled supply chain traceability for its Fall/Winter 2025 collection, enabling greater control over sourcing and production. A new global QR code system, available in multiple languages, is part of this shift, making it easier for customers to access transparent product information directly, a key component of future DPP requirements. Another opportunity mentioned during the policy lab is that Improvements in infrastructure and data architecture may unlock entirely new circular opportunities. If the DPP functions as a resource library that tracks materials and their potential future applications, companies will gain unprecedented insight into product lifecycles. This will enable better decision-making and support experiments with feedback loops, remanufacturing, reuse and other circular practices. Enhanced data availability will hold suppliers accountable and create incentives for transparency.

The fashion and creative sectors are undergoing rapid digital transformation, and the DPP is both a product and driver of this evolution. Through technologies such as RFID, QR codes, and NFC, the DPP enables seamless integration between physical products and digital ecosystems. While large brands already use such tools, the DPP offers SMEs an opportunity to participate more fully in digital ecosystems, provided adequate support is in place to address cost, infrastructure, and skills barriers.

For creative SMEs in particular, the DPP can enable broader participation in international markets and provide a platform for showcasing innovation in design, storytelling, and sustainability. This democratisation of access to digital tools can strengthen SME competitiveness, provided investment in training and infrastructure keeps pace.

From a system perspective, the DPP plays a critical role in improving product end-of-life outcomes. It allows producers and recyclers to identify material composition, presence of hazardous substances, and recycling compatibility, significantly enhancing the efficiency of collection, sorting, and material recovery processes. If integrated with recycling centres and EPR systems, DPPs can provide real-time data on recycling rates and product lifespans, enabling more precise and performance-based fee modulation. This would incentivise companies to improve recyclability at the design stage, closing the loop on material use.

2.4.2 Challenges of the Digital Product Passport

The transition to a **circular and sustainable fashion system** is now at the centre of European industrial policy, as highlighted in the **EU Strategy for Sustainable and Circular Textiles.** Yet, the process of implementation reveals a number of **interconnected challenges**, economic, technical, infrastructural, and socio-cultural, that disproportionately affect **small and medium-sized enterprises (SMEs)** and **demand ecosystemic, collaborative responses**[72].

Despite the promise of the Digital Product Passport (DPP) introduced under the Ecodesign for Sustainable Products Regulation (ESPR), a number of complex policy challenges risk undermining its effectiveness and equity across the textile sector. While the DPP sits at the intersection of **competitiveness and sustainability**, it introduces substantial complexity for businesses, particularly for SMEs[73].

As shown in several research on textile labelling, many companies express concern over the **costs of integration**, the **data requirements**, and the potential impact on competitiveness. Implementing the DPP requires substantial investments in digital infrastructure, compliance systems, and data management capabilities, investments many SMEs, particularly in the fashion sector's low-margin environment, may struggle to afford. This could exacerbate existing inequalities and threaten the competitiveness of smaller actors[74], especially in design-led and creative industries that are key to driving sustainable innovation. Given that approximately 99.9% of companies in the European textile ecosystem are SMEs, with around 80% classified as micro-enterprises, this represents a crucial factor that must not be overlooked when designing policies, strategies, or support mechanisms for the sector.[75]

[69] European Parliament (2024) Digital Product Passport for the textile sector. Available at: https://www.europarl.europa.eu/RegData/etudes/-STUD/2024/757808/EPRS_STU(2024)757808_EN.pdf

[70] https://www.rossignol.com/us-en/fairly-made.html

[71] https://www.fairlymade.com

[72] D'Itria, E. (2025). Fashion Design Circularity. Reimagining development models to transform the system. Mandragora Firenze. Palombi, G., Schiaroli, V., Fraccascia, L., & Nonino, F. (2024). Identifying barriers and good practices for implementing circular economy principles in small and medium enterprises. Business Strategy and the Environment, 33(7), 6773-6794; Häring, K., Pimentel, C., & Teixeira, L. (2023). Industry 4.0 implementation in small-and medium-sized enterprises: recommendations extracted from a systematic literature review with a focus on maturity models. Logistics, 7(4), 99.

[73] Lehtisalo, E. (2023). Digital product passport for textile and fashion enterprises: Opportunities and challenges.

[74] Carvalho, C., Silva, C. J., & Abreu, M. J. (2025). Circular Economy: Literature Review on the Implementation of the Digital Product Passport (DPP) in the Textile Industry. Sustainability (2071-1050), 17(5); Palmquist, E., & Yaghi Fehratovic, H. (2024). Towards a traceable and circular textile value chain: Necessities to meet the digital product passport (DPP

[75] Euratex, 2024, key facts and figures. Available at: https://euratex.eu/wp-content/uploads/EURATEX-Facts-Key-Figures- 2024.pdf;Economic Update: Textile and clothing industry evolution in the 1st quarter 2023 and short-term prospects. Available at: https://euratex.eu/economic-update/

Moreover, **the fragmentation of global supply chains remains a fundamental barrier to consistent and transparent circular practices.** According to several scholars, the sector is characterised by long, dispersed supply chains that lack harmonised data protocols, making implementation of traceability tools like DPP difficult across multiple tiers[76]. The absence of harmonised data protocols, limited interoperability, and low data availability beyond direct suppliers make DPP implementation challenging and risk producing incomplete or unreliable information. **This complexity is further intensified by regional asymmetries in infrastructure and technological readiness**[77]. Additionally, many suppliers located outside the EU do not have the digital maturity or infrastructure needed to collect and manage the data required by the DPP.

The erosion of local manufacturing capacities in many European regions also constrains the potential for circular innovation. The relocation of production to third countries has weakened regional control over value chains, limiting **access to sustainable and traceable production,** while reducing autonomy in developing localised circular ecosystems[78]. This affects not only logistics and scalability but also **socio-economic resilience,** especially in areas historically dependent on textile manufacturing[79].

Crucially, **SMEs and actors within the creative and cultural industries (CCIs)** face a structural disadvantage in navigating these shifts. While they are often the source of innovation, craftsmanship, and cultural value, they frequently lack the **financial, technical, and regulatory support** to adopt circular models or engage with data-intensive mechanisms like the DPP or EPR. This misalignment risks sidelining the very sectors that could offer the most transformative, localised, and socially embedded responses to sustainability challenges. As emerged in the policy lab, many stakeholders have noted that regulatory and governance challenges arise from a fragmented and evolving legislative landscape. The European Commission is currently developing the DPP framework alongside ecodesign requirements and extended producer responsibility (EPR), yet the lack of clarity around data obligations, governance structures, and supervisory mechanisms creates uncertainty for companies of all sizes. The fashion supply chain is structurally more complex than other regulated sectors, such as household appliances, making the ambition of achieving "energy label-level clarity" difficult to realise. SMEs express concern that they lack the resources to interpret and implement new regulatory demands, and that the DPP risks being shaped from a Eurocentric perspective despite the deeply globalised nature of textile production. Questions about standardisation, the prevention of tampered or counterfeit DPPs, and the creation of verifiable monitoring systems remain unresolved.

In parallel, **weak domestic recycling systems and significant data gaps around textile waste management and material flows challenge the credibility of circularity claims embedded in DPP data.** In the absence of robust systems for collection, sorting, and high-quality fibre-to-fibre recycling, information on product recyclability remains largely theoretical. Without strong infrastructure to support end-of-life processes, the DPP's potential as a driver of circularity is significantly reduced. Additionally, **the technological and research landscape around DPP development is marked by uncertainty regarding metrics, interoperability and global alignment**. During the policy lab several stakeholders mentioned that the industry is hesitant to invest before regulatory clarity emerges, delaying progress on tools and methodologies. The criteria for ecodesign, including durability, recyclability and chemical impacts, remain in flux, making measurement difficult. Furthermore, debates continue regarding the sustainability of materials such as polyester, whose long lifespan complicates simplistic sustainability claims. Traceability remains a substantial barrier: many brands, especially SMEs, cannot access reliable upstream information, and other global regions such as China and the United Kingdom are developing their own DPP systems, raising concerns about future interoperability and market access.

Moreover, **Infrastructure and data architecture challenges highlight the need for secure, trustworthy and unified systems**. Key questions remain regarding the ownership and governance of DPP platforms: whether a centralised EU system should be developed or whether multiple private platforms will coexist. Brands worry about sharing sensitive information that could compromise intellectual property or enable design replication. Larger companies possess complex digital infrastructures, whilst SMEs often rely on decentralised or analogue systems, making data consolidation difficult. Without robust, interoperable, and secure infrastructure, the effectiveness of the DPP remains uncertain.

[76] Burini, G., Xu, J., & Giardi, V. (2025). Short Supply Chains and the Fashion-Textile Industry. In EurOMA 2025 Milan (pp. 1-10); Garcia- Torres, S., Rey-Garcia, M., Sáenz, J., & Seuring, S. (2022). Traceability and transparency for sustainable fashion-apparel supply chains. Journal of Fashion Marketing and Management: An International Journal, 26(2), 344-364

[77] Xu, J., Karaosman, H., & Wang, Y. (2025). Debunking the digital product passport saga in fashion: Who is doing what, why, how and for whom?. In EurOMA 2025 Milan (pp. 1-10).

[78] Antonioli, D., Chioatto, E., & Mazzanti, M. (2022). Innovations and the circular economy: a national and regional perspective. Insights into Regional Development, 4(1), 57-70

[79] Sinatra, F., & Marinelli, C. (2024, July). Reshoring in Fashion: Overview of Current Trends and Motivation to Production and Re- localisation in the T&A Sector. In International Conference on Computational Science and Its Applications (pp. 286-299). Cham: Springer Nature Switzerland.

Additionally, the integration of circular design principles remains limited across the sector. While the DPP depends on upstream data and design choices, such as the use of mono-materials, modular construction, or durability features, these practices are not yet mainstream. As a result, implementing the DPP becomes not only more complex but less meaningful, as the data may not correspond to truly circular products.

A further structural issue is the disconnect between policy instruments, particularly between the DPP and Extended Producer Responsibility (EPR) schemes. EPR has the potential to use DPP data to modulate eco-modulated fees or incentivise circular design, yet this synergy remains underdeveloped. Current EPR frameworks rarely incorporate detailed product-level data, missing a vital opportunity to align regulatory mechanisms in support of circularity.

Consumer engagement and digital literacy also present critical barriers. Although the DPP is designed to empower consumers with sustainability data, its success hinges on effective communication and accessibility. Many consumers remain unaware of such tools or lack the confidence to interpret and act on product-level environmental data. Without strong public awareness campaigns and user-friendly interfaces, the DPP risks being perceived as a bureaucratic measure rather than a catalyst for behavioural change.

Finally, innovation barriers for SMEs and cultural and creative industries (CCIs) further threaten an inclusive transition. These sectors are often at the forefront of sustainable design, yet they face structural disadvantages, short production cycles, limited access to finance, and low digital readiness, that make it difficult to participate in the data-heavy, compliance-driven DPP framework. Supporting these actors is essential to ensure that sustainability policy does not stifle the very creativity and experimentation needed to reshape the fashion system.

During the policy lab, **skills and education gaps were also mentioned as substantial barrier to DPP adoption.** The sector suffers from a shortage of educators and trainers capable of teaching sustainable design, digital skills, or systems thinking. Designers often lack technical knowledge about materials, while engineers lack understanding of the creative and cultural dimensions of fashion. Consumers also require support to interpret DPP information meaningfully. A comprehensive skills agenda is therefore essential across industry, education systems, and public awareness initiatives.

Funding and investment challenges threaten to slow down the transition towards circularity. SMEs face significant cost burdens in preparing for the DPP, which risks creating inequalities between large and small companies. The development of new sustainable business models requires financial incentives and risk-sharing mechanisms, yet current funding structures often prioritise easily measurable impacts, disadvantaging social or qualitative sustainability outcomes. Without dedicated financial instruments, experimentation, innovation, and capacity-building may remain inaccessible to many stakeholders.

From our policy corner, additional challenges have also been highlighted:

Lack of traceability in global production systems: the opacity of global supply chains remains one of the most critical structural barriers to circular fashion. In many cases, production occurs in regulatory blind spots, making it impossible to verify sourcing, labour conditions, or material flows, elements essential to both ethical and circular systems.

- Garments are often produced through untraceable or informal supply chains.
- Transparency is unattainable where oversight is lacking.
- Circularity cannot be verified without system-wide traceability.

Investment in traceability infrastructure is essential to ensure accountability, visibility, and compliance across the entire fashion value chain.

Resistance to structural change and cultural barriers: the transition to circular fashion faces significant resistance due not only to economic concerns and fears of disrupting established business models but also because of entrenched cultural barriers within the industry. These cultural factors contribute to reluctance in adopting new practices, preserving linear models, and slowing systemic transformation.

> *"Make citizens care: Turn the DPP into something people understand and use - clear, visual, behaviour-friendly communication."*

- Many stakeholders delay adoption until legally mandated or financially viable.
- Structural transformation is perceived as economically challenging or risky.
- Cultural norms and entrenched mindsets favour maintaining the status quo and hinder innovation.
- Resistance is reinforced by limited awareness or scepticism about circular approaches.

Targeted policies, incentives, and cultural change initiatives are needed to reduce risks, shift mindsets, and encourage commitment to circular models.

Ambiguity and fragmentation around transparency: while "transparency" is central to circularity, its meaning varies widely across sectors and stakeholders. The absence of shared definitions and operational frameworks leads to confusion, inconsistency, and diluted impact.

- Transparency is used inconsistently, with no shared standards.
- Lack of coherence fosters mistrust and hinders collaboration.
- Fragmentation enables superficial compliance without systemic change.

A unified vocabulary and operational framework are necessary to ensure credible, aligned, and effective transparency practices.

Lack of perceived urgency or strategic priority: in some parts of the industry, circularity is still seen as optional or marginal. Without clear incentives, competitive pressure, or public demand, strategic engagement remains low.

- Many stakeholders do not perceive circularity as urgent.14
- Investment and innovation lag where the business case is unclear.

Policy levers, awareness campaigns, and strategic alignment are needed to elevate circularity as a core priority across the sector.

Marginalisation of second-hand and vintage sectors in circular narratives: circular fashion discourse often prioritises recycling and end-of-life technologies, overlooking the crucial role of second-hand, vintage, and reuse-based models in extending product life cycles. These sectors embody circularity through practices of longevity, care, and cultural value, but remain excluded from institutional strategies and innovation agendas.

- Dominant circularity frameworks focus on recycling rather than longevity.
- Second-hand and vintage actors are underrepresented in policy and industry initiatives.
- Their practical expertise in reuse, repair, and cultural preservation is undervalued.

A shift is needed to integrate second-hand and vintage economies into mainstream circular strategies, acknowledging their systemic contribution to fashion longevity.

To summarise the text above, an overview of the main policy challenges related to fashion and digital product passport is outlined in Table 1 below. The table will be complemented with the inputs of the policy lab.

Table 1: Policy challenges related to fashion and uptake of the Digital Product Passport

Building blocks	Description of dimensions	Relation to Digital Product Passport
Sustainable competitiveness	• Collaboration, networking & cross- • New business models • Support to start-up & SMEs (including IPR, internationalisation) • Innovation culture & mindset	• Need for new circular business models (e.g. rental, reuse) • Barriers for SMEs and CCIs including low digital readiness and short production cycles; • Limited collaboration between creative industries and manufacturing; • Low innovation uptake in traditional firms
Regulation & governance	• Regulatory barriers to transition governance model (e.g. partnerships) • Directionality, vision & coordination of ecosystems (incl. multi-level & multi-actor coordination for co-creation & co-design of strategy) • Standardisation • Policy experimentation and reflexivity (including technology foresight)	• Fragmented supply chains limit traceability; • Lack of harmonised standards and data protocols for DPP; • Weak coordination between DPP and EPR; • Regulatory asymmetries between EU and third countries; • Need for multi-level governance for ESPR implementation
Social dimension	• Social implication of transition (e.g. digitalisation impacting jobs) • Human-centricity of innovation & ethical development • Involvement of end-users • Connection to Just Transition	• Fast fashion production models drive social exploitation; digitalisation risks widening inequalities
R&I, techniques & technological solutions	• New products, Tools, methods, processes • Interdisciplinary & trans- cross disciplinary • Valorisation of R&I results & uptake of technologies	• Limited adoption of circular design; • Need for fibre-to-fibre recycling innovation; • Limited uptake of DPP technologies among SMEs; • Lack of integration between R&I outcomes and real-world application

Infrastructures	• Availability & access to specific infrastructures • (Technical) services and support (tools, methods, space etc.)	• Technological gaps between EU and non-EU suppliers hinder DPP data flow; • Limited access to digital tools and infrastructure in low- capacity regions; • Underdeveloped textile waste management infrastructure in EU
Skills	• Adequacy of skills in the workforce • Adequacy of curricula and upskilling offer • Soft skills & cultural mindset	• Skills gap in digital, environmental, and circular design competencies; • Need for reskilling and upskilling of workers across the value chain;
Investment & funding	• Access to funding & financing • Innovation procurement	• SMEs face high cost of DPP implementation; • Limited access to funding for digital transition and circular business models; • Lack of innovation procurement mechanisms supporting sustainable fashion solutions

Source: Technopolis group, Polimi elaboration

3 Policy vision

3.1 Objectives

The growing prominence of the Digital Product Passport (DPP) marks a critical window of opportunity for Europe to advance sustainable and circular textiles while strengthening its global leadership in responsible value chains. The DPP concept has the potential to fundamentally reshape how products are documented, communicated and experienced, transforming storytelling and brand narratives, deepening consumer engagement, and enabling unprecedented cross-industry collaboration. By embedding transparent, interoperable data on material composition, environmental impact and lifecycle performance, the DPP can serve as both a regulatory tool and a catalyst for innovation.

However, its adoption still faces significant challenges. These include ensuring economic viability for diverse market actors, particularly small and medium-sized enterprises; safeguarding competitiveness while introducing new compliance requirements; and achieving genuine transparency across complex, often global value chains without compromising commercially sensitive information. Technical interoperability, data governance and the alignment of digital infrastructures across Member States also remain unresolved.

The European Union has already begun addressing these gaps through targeted legislation, including the Eco-design for Sustainable Products Regulation and forthcoming sectoral rules for textiles, as well as through strategic funding instruments under Horizon Europe and related programmes. The European Partnership for Textiles, along with dedicated calls for innovation in traceability, recycling, and sustainable design, provides a framework for both regulatory and market-driven uptake of DPP systems. Together, these policy levers aim to accelerate the deployment of Digital Product Passports in a way that promotes innovation, enhances consumer trust, and supports Europe's transition towards a resilient, circular textile economy.

3.2 Stakeholder needs

The successful implementation of the Digital Product Passport (DPP) and the broader transition to a circular and sustainable textile ecosystem hinges on addressing the varied and interconnected needs of stakeholders across the entire value chain, ranging from fibre producers and textile manufacturers to brands, retailers, consumers, recyclers, and regulators. Each actor requires tailored support mechanisms to effectively engage with transparency and traceability initiatives embedded within the DPP framework[80].

Fibre producers and manufacturers demand harmonised data protocols and interoperable digital infrastructures to ensure accurate tracking of raw materials and production processes[81]. This transparency is crucial for meeting stringent environmental and social standards while maintaining industrial competitiveness[82]. The fragmented nature of global supply chains, combined with varying levels of technological readiness, particularly in regions with diminished local manufacturing capacity, complicates this need for seamless data exchange and highlights the necessity for capacity-building and infrastructural investments[83]

SMEs and actors within the Creative and Cultural Industries (CCIs) face specific challenges related to resource constraints, digital literacy, and regulatory compliance[84] . These stakeholders require affordable, user-friendly digital tools and targeted policy support to avoid marginalisation in an increasingly data- driven market environment[85]. Their active inclusion is vital, as SMEs and CCIs are often the drivers of innovation, craftsmanship, and socio-cultural value within the sector.

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[85] Naranjo, I., Torre, R. D. L., & Boza, A. (2025). Sustainable Decision-Making in SMEs of the Textile Industry: Integrating Methodologies, Practices, and Barriers. Business Strategy and the Environment.

Brand owners and retailers prioritise reliable and verifiable product information to substantiate sustainability claims and build consumer trust. The DPP can fulfil this role by enabling "true traceability" across the supply chain, thereby supporting compliance with evolving EU regulatory frameworks and consumer expectations[86]. However, such transparency requires robust governance and data management practices to mitigate risks related to data fragmentation and potential greenwashing.

Consumers increasingly demand accessible, trustworthy information on product durability, repairability, recyclability, and ethical production[87]. For the DPP to be effective in empowering consumers, it must be designed with user-centric interfaces and clear communication strategies that overcome existing socio- cultural barriers such as low awareness and resistance to circular consumption models.

Recyclers and waste management operators rely on comprehensive product data to improve sorting efficiency and maximise the economic viability of recycled textiles. The DPP's potential to provide standardised, granular information on material composition and hazardous substances can enhance recycling processes and support the development of secondary raw material markets[88].

Nevertheless, these stakeholders operate within a landscape marked by systemic challenges: fragmented supply chains impede data flow; regional disparities in digital and physical infrastructure create uneven adoption; the decline of local manufacturing diminishes control over supply chain transparency; and socio-cultural factors inhibit shifts towards circular consumption and production[89]. Addressing these complex, multi-level needs demand collaborative innovation ecosystems that bring together industry, academia, civil society, and public authorities to co-create inclusive solutions and shared accountability frameworks.

To summarise the main needs, the table below present an overview per stakeholder type.

Table 2: Overview of stakeholders needs

Stakeholder	Needs
Fibre producers and raw material suppliers	• standardised and interoperable data-sharing systems to track origin, sustainability certifications, and chemical use. • digital tools that integrate smoothly with existing production workflows without excessive complexity. • transparency to meet regulatory compliance and consumer expectations on traceability and environmental impact.
Textile and garment manufacturers	• comprehensive product lifecycle data to enable accurate reporting and compliance with DPP requirements. • support for technological upgrading, especially digital infrastructure, to capture and share product information effectively. • incentives and clear guidelines to design products aligned with circularity, including modularity and recyclability.
Small and medium-sized enterprises (SMEs) and creative/cultural industries (CCIs)	• accessible, affordable digital platforms tailored to their capacities to avoid exclusion from DPP-related innovation. • capacity-building programs to enhance digital literacy and data management skills. • regulatory clarity and simplified compliance mechanisms to reduce administrative burdens. • financial and operational support to invest in circular business models and innovation.
Brand owners and retailers	• verified, trustworthy product data to substantiate sustainability claims and meet consumer demand for transparency. • harmonised data standards to ensure consistency and comparability across products and suppliers. • tools to communicate circular attributes effectively to consumers through labelling and marketing.
Consumers	• clear, accessible information on product sustainability, durability, repairability, and end- of-life options via user-friendly digital interfaces. • education and awareness campaigns to overcome behavioural resistance to circular consumption models. • assurance of data reliability and privacy to build trust in digital transparency initiatives.
Recyclers and waste management operators	• detailed, standardised data on material composition, recyclability, and hazardous substances to improve sorting and processing efficiency. • integration of DPP data with existing collection and recycling infrastructure to optimise circular flows. • collaboration with producers and regulators to align data reporting with practical recycling capabilities.
Technology providers and innovators	• clear technical standards and regulatory guidelines to develop compatible DPP solutions. • collaboration with industry players to tailor tools to sector-specific needs and scale deployment. • support for research and development to address data security, interoperability, and usability challenges.

Source: Technopolis group and Polimi elaboration

[85] Naranjo, I., Torre, R. D. L., & Boza, A. (2025). Sustainable Decision-Making in SMEs of the Textile Industry: Integrating Methodologies, Practices, and Barriers. Business Strategy and the Environment.
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4 Policy and project mapping

4.1 Current policy strategies and measures

Several large-scale, EU-funded projects are at the forefront of this transition, focusing on recycling, bio-based materials, smart textiles, and circular value chains. The following selection highlights key projects that are reshaping the industry.

At the heart of this transformation is **the European Partnership for Textiles of the Future**[90], formally launched through the signing of a Memorandum of Understanding between the European Commission and the Textile European Technology Platform (Textile ETP)[91]. Central to the Horizon Europe Strategic Plan 2025–2027, the partnership addresses the twin green and digital transitions while contributing to a more resilient, competitive, inclusive, and democratic Europe. The first funding opportunities under this initiative will be introduced in the Horizon Europe Work Programme 2025.

Textile ETP has developed **the Strategic Research and Innovation Agenda (SRIA)**[92], published in July 2024, which sets out the vision, objectives, and research priorities for the partnership. Drawing on contributions from experts across the European textile ecosystem, the SRIA addresses the major challenges posed by sustainability imperatives, upcoming regulatory requirements, and shifting global market trends, while leveraging key enabling technologies

The SRIA defines three main priority areas:

- **Sustainable materials and clean processes:** advancing bio-based, recyclable, and low-impact textiles while innovating in clean manufacturing.
- **Digital supply chains and new business models:** enabling traceability, transparency, and new service-oriented approaches to textile production and consumption.
- **Advanced manufacturing and high-performance textiles:** deploying state-of-the-art production technologies to create functional, durable, and value-added fabrics.

These priorities will shape the dedicated calls for proposals under Cluster 4 of the Horizon Europe programme between 2025 and 2027. In its initial phase (2025–2027), at least €60 million will be allocated by public and private stakeholders to core research and innovation actions. This investment will be supplemented by additional EU, national, and regional funding, alongside private capital. The focus will be on projects at higher Technology Readiness Levels (TRL), accelerating the transition from laboratory breakthroughs to industrial-scale deployment. Activities will include demonstration and pilot projects, the establishment of new manufacturing facilities, early market replication, and the creation of start-ups.

4.2 Existing projects and networks

Even before this partnership's formal launch, groundwork for the sector's transformation had been laid by a remarkable portfolio of EU-funded projects.

A core hub for many of these activities is **ECOSYSTEX**[93], the European Community of Practice for a Sustainable Textile Ecosystem, which began in early 2023 and has quickly expanded into a platform connecting dozens of EU-funded projects. The portfolio now spans demonstrators of textile-to-textile recycling, pilots for bio-based and local production, digital traceability pilots that seed the Digital Product Passport (DPP) concept, and capacity-building initiatives that fold skills and curricula into the green and digital transition.

At the systems level, multiple Horizon Europe projects **demonstrate end-to-end solutions for closing textile loops:**

- **SCIRT (System Circularity and Innovative Recycling of Textiles)**[94] explicitly aims to demonstrate a full textile-to-textile recycling system for discarded clothing, addressing natural, synthetic fibres and blends and the supply-demand gap for recycled fibres created by mandatory separate collection rules.
- **CISUTAC**[95] pursues complementary pilots across reuse, repair and recycling, tackling the bottlenecks that prevent loop closure at scale, and aims to develop inclusive value chains for commonly used fibre types (polyester, cotton and blends).

Several initiatives are targeting the technical challenge of mixed materials and blended fibres.

- **PESCO-UP**[96] develops economically viable processes to upcycle mixed polyester/cotton waste into high-quality cotton and polyester outputs, explicitly positioned to capture the expected increases in collected textiles once member states implement separate textile collection.
- **SOLSTICE**[97] addresses sorting innovations (including spectroscopy-enabled sorting) to improve feedstock purity for chemical and mechanical recycling, and the project frames its interventions within a 5R strategy (Refuse/Reduce, Reuse, Repair, Repurpose, Recycle).

[90] https://www.textile-platform.eu/textiles-of-the-future/#sria
[91] https://www.textile-platform.eu
[92] https://www.textile-platform.eu/textiles-of-the-future/#sria
[93] https://www.ecosystex.eu/
[94] https://scirt.eu/
[95] https://www.cisutac.eu/about
[96] https://www.pesco-up.eu/
[97] https://www.solstice-project.eu/

- Bio-based materials, localised production and micro factories: The **HEREWEAR**[98] project exemplifies a cluster of work on bio-based feedstocks and regionalised manufacturing. HEREWEAR took a systems approach to develop cellulose and bio-polyester solutions from non- food feedstocks such as seaweed, manure and straw, and trialled networked micro factories and semi-industrial piloting for fibre and yarn production. The intent is to prove locally-anchored value chains that reduce transport, enable regional circularity, and integrate finishing and functionalisation methods tuned to bio-based materials. These activities respond to a strand of policy interest that seeks less globalised, more resilient supply chains as part of a green transition.

- Meanwhile, the drive towards smart textiles is reshaping the intersection between fashion, technology, and health. From 2024 to 2027, **the Towards an Ecosystem of User-Centric Devices and Services project**[99] is developing European-made smart textiles and wearable sensors with AI-powered real-time monitoring for sport and healthcare applications, strengthening Europe's role in the high-tech wearable market.

- **The Sustainable, Biobased and Bio-Inspired Materials for Smart Technical Textiles project**[100] (2024–2028) is creating fabrics capable of harvesting energy and adapting to environmental conditions, designed under the Safe and Sustainable by Design framework. A related initiative, launched in 2022, focuses on large-scale production of bio-based footwear, packaging, and textiles, ensuring full circularity and reducing reliance on fossil-based resources.

Traceability is now a recurring operational objective across projects:

- **SOLSTICE**[101] and a number of Circular Cities and Regions initiatives are developing textile profiles and traceability systems that feed or prototype an industry Digital Product Passport, embedding material composition, processing history and sometimes life-cycle data.

- **ECOSYSTEX**[102] and affiliated project clusters are actively mapping and aligning data approaches across consortia to maximise interoperability. The emerging pattern is practical pilots of DPP components (material fingerprinting, blockchain-enabled labels, digital twins with LCA inputs) rather than one monolithic DPP, with a clear emphasis on ensuring the passport supports recycling, repair and second-hand market.

- **HEREWEAR**[103] uses blockchain-enabled labelling and digital twins linked to life cycle assessment data, enabling product-level transparency from production to end-of-life. These digital systems are not standalone; rather, they are integrated into broader circularity strategies, ensuring that the passport concept directly supports repair, reuse and recycling by providing reliable and interoperable product data.

- **Circula-TEX**[104] investigates the weaknesses of the current system across technological, environmental, economic, legal and social dimensions, with particular attention to how Extended Producer Responsibility (EPR) schemes are implemented. An innovative labelling system, aligned with the Digital Product Passport concept and the Eco-design for Sustainable Products Regulation, will be developed to provide consumers, collectors and recyclers with essential product information. This traceability will support greater reuse and uptake of secondary materials.

- **TRUSTex**[105] positions textile Extended Producer Responsibility (EPR) schemes as a central mechanism for embedding circular business models in the European Union and reinforcing Europe's leadership in sustainable textiles. Drawing on the expertise of industrial partners and retail specialists, the project tests strategies and develops recommendations to assess EPR feasibility, identify operational weaknesses, and propose targeted solutions. It adopts a comprehensive approach across the key EPR activities, collection, sorting, reuse and recycling, while also addressing upstream measures that influence EPR success, such as eco- design for new fibres and the application of Design for Disassembly principles. A key innovation within TRUSTex is the development of digital solutions aligned with forthcoming Digital Product Passport and labelling regulations, enabling efficient garment identification and traceability throughout the value chain. Stakeholder engagement is embedded throughout the project, ensuring that recommendations are practical, industry-aligned, and capable of securing compliance.

- Whie, **IRISS**[106] organises the Safe and Sustainable by Design (SSbD) community and promotes lifecycle thinking for materials and processes, which is critical when scaling up recycling or introducing novel bio-based fibres. SSbD activity aims to ensure that innovations do not trade one environmental or health problem for another, by embedding safety, circularity and climate considerations into early material choices and process design. This cluster links directly to regulatory trajectories and to the policy instruments that will govern chemicals in textiles and sustainability claim.

[98] https://herewear.eu/
[99] https://cordis.europa.eu/project/id/101130495 100 https://cordis.europa.eu/project/id/101129911 101 https://www.solstice-project.eu/
[102] https://www.ecosystex.eu/

[103] https://herewear.eu/
[104] https://www.circulatexeu.com
[105] https://trustexproject.eu
[106] https://iriss-ssbd.eu

5 Policy recommendations

Taking stock of the discussion during the policy lab and further feedback during the community review stage[107], the following recommendations were crafted to address the challenges and opportunities.

A mandatory yet phased approach to DPP adoption is essential to ensure fairness and prevent market distortion. The DPP will ultimately be required for all textile apparel products but implementation should begin with a basic version that SMEs can adopt without prohibitive cost or complexity. This approach would prevent large companies from gaining unearned legitimacy through superficial compliance while sustainable SMEs fall behind due to resource constraints.

- Sustainable competitiveness in fashion is challenged by high DPP costs and fragmented supply chains, but the DPP also offers strong opportunities for SMEs and circular business models. Many small and micro-enterprises lack the resources and digital readiness to implement DPP requirements, risking further marginalisation in a sector already dominated by large brands. At the same time, the DPP can help SMEs prove their sustainability performance, participate in circular models such as resale, repair, and rental, and gain visibility in international markets. The DPP can therefore give leverage and innovation potential to SMEs.

Consistent definitions of required data, supervisory responsibilities, clarity on who will own the data and anti-tampering measures should be established at EU level to reduce uncertainty and build trust across the value chain.

- The DPP could become a unifying framework for eco-regulation and extended producer responsibility. Companies face overlapping and evolving rules under ESPR, EPR and other regulations, with no fully harmonised standards for data, supervision, or alignment with third- country suppliers. This uncertainty discourages investment and risks creating inconsistent or unreliable DPPs, especially where global supply chains lack harmonised protocols.

A centralised and secure digital infrastructure is needed to maintain data integrity, protect intellectual property and facilitate interoperability.

A centralised EU platform, complemented by certified private tools, could guarantee consistency while allowing companies flexibility in implementation. Ensuring strong cybersecurity and IP protection will be crucial for industry buy-in.

- Research, innovation and infrastructure are constrained by opaque value chains and uneven digital capacity, while DPP-enabled traceability and data platforms could unlock new circular opportunities. Many suppliers, especially outside the EU, lack the infrastructure and protocols to provide reliable data, and domestic recycling systems remain underdeveloped, limiting the real- world impact of circular design claims. Yet interoperable platforms, material databases and secure digital identities can become a "single source of truth" for product data and a resource library for remanufacturing, reuse and recycling.

- In order to promote the proper recovery of end-of-life textiles, it is essential that the DPP is easily 'readable' not only by consumers, but above all by the tools currently used in the post-collection textile sorting and selection process (manual in most cases, aided by technologies such as AI, NIR spectroscopy, and others in some cases).

Consumer-facing engagement must be strengthened through targeted education and communication strategies. Awareness campaigns should operate at multiple levels, from primary schools to public institutions and retail touchpoints, using accessible language, storytelling and interactive formats to build understanding of the DPP. These campaigns should consider varied consumer profiles and ensure that the passport supports informed and realistic choices.

- While facing low consumer awareness and digital literacy, the DPP can drive behavioural change and build trust if communicated well. Consumers often find sustainability information confusing, lack confidence in interpreting environmental data, and may not see circularity as an urgent priority. However, DPP-enabled repair guidance, resale value information, and end-of-life instructions can support more circular behaviour and make transparency a form of "new luxury" that rewards responsible brands.

Education and skills development should be prioritised across the textile and fashion ecosystem. Curricula in design, engineering and vocational training need to incorporate sustainability principles, material science and digital literacy. Curricula in management, economics, laws, and more in general social sciences, should incorporate sustainability principles and material literacy. New professional roles, such as ecodesign advisors or DPP experts, could be envisioned to support industry adoption.

- Skills gaps across the value chain pose a serious barrier to DPP adoption, but they also open space for new hybrid professions and educational pathways. Designers, engineers, managers and workers often lack the necessary mix of digital, environmental and circular-design competences, and there are too few educators able to teach these areas in an integrated manner. Creative SMEs and CCIs, while rich in innovation potential, are particularly exposed to this deficit

[107] See the Methodological Note in Annex for the process

Investment in experimentation, innovation and SME support must accompany the regulatory rollout of the DPP. Direct funding for pilot projects, laboratories, material testing and new circular business models will accelerate learning and support the transition from voluntary experimentation to systemic industry-wide practice. Linking CCI policy with innovation policy would recognise fashion as a significant cultural and economic sector requiring coordinated support for the rollout of the DPP..

Future funding could prioritise investments that close the critical gaps between laboratory innovation, real-world deployment, and regulatory requirements, particularly those arising from the Digital Product Passport. While existing EU projects are advancing recycling, bio-based materials, smart textiles and digital traceability, the next phase of funding must accelerate industrial readiness, strengthen cross-actor coordination, and support SMEs in adopting digital product passports and increasing interoperability across systems.

The following areas represent the most urgent and strategic investment domains:

A. Investment is needed to move from small pilots to an EU-wide, interoperable, secure system aligned with regulatory requirements. Existing projects test isolated DPP components, but the system remains fragmented. A coordinated EU wide and owned backbone is essential for adoption, enforcement and credibility. More specifically, investments could be channelled into:

- A European DPP interoperability layer (APIs, shared data dictionaries, standardised taxonomies) that links projects like HEREWEAR, SOLSTICE, TRUSTex.
- Support small pilots that can start prototyping solutions within the value chain.
- SME-ready tools for automated DPP generation (via PLM integration, labelling machines, blockchain/NFC/RFID templates).
- Cybersecure architectures for IP-safe data sharing (e.g., confidential computing, granular access rights).
- Cross-border pilots testing DPP-EPR integration (collection, sorting, recycling, fee modulation).

B. Ecosystem support could be strengthened by setting up Regional Textile Innovation Support Hubs offering shared labs for materials testing and digital prototyping, legal/regulatory guidance for ESS, EPR and DPP, business model coaching for circular services. Additional regional funds could be also activated linking textile and fashion to re-industrialisation and support for re- localisation of manufacturing activities to be then able to build reuse, repair, local material sources etc.

C. Funding could also be channelled to support SME adoption of digital tools, including the digital product passport. Example of projects that could be funded are:

- Voucher schemes for micro-enterprises to adopt DPP technologies and digital traceability tools.
- Innovation procurement schemes for SMEs developing repair, reuse and take-back services.

D. Funding could also focus in closing the skills gap across design, production, data, and sustainability. For example:

- Joint designer–engineer, economist hybrid curricula on circular design, textile chemistry, digital twins and DPP interoperability.
- Vocational training for technicians in sorting, recycling, material identification and repair in view of how to leverage DPP tools and incorporate such tools into the existing infrastructure, but also reskilling training in order to address gaps and mismatch in work force skills.
- Digital literacy programmes for creative SMEs and CCI actors, including material literacy at different level of education from primary schools onwards.

E. Next investments round could prioritise real-world, multi-actor demonstrators that show the system working end-to-end and allow for cross-sector experimentation. A full system/value chain pilot to validate the regulatory design and operational feasibility could be deployed to also increase confidence in the feasibility of such tool.

- Cross-sectoral demonstrators linking manufacturers, retailers, collectors, sorters, recyclers using DPP as the common data spine.
- Pilots connecting EPR eco-modulation to real DPP data (durability scores, recyclability metrics, repair histories).
- Business model testbeds for scaling rental, resell, repair, refurbishment and product-as- a-service models.
- Integration of DPP into smart textile ecosystems (wearables, adaptive textiles) to track performance and usage.

F. Lastly, **funding could support the policy and governance layers needed to ensure long-term coherence between DPP and other pieces of legislation and DPP requirements.** Without strong standards, governance and enforcement, the DPP risks becoming ineffective and inconsistent across Member States. Examples of projects that could be funded:

- Multi-stakeholder "DPP governance sandboxes" to test roles, responsibilities and verification mechanisms.
- Standardisation projects supporting material taxonomies, durability metrics, repairability indexes and Safe and Sustainable by Design (SSbD) criteria.
- Comparative pilots exploring interoperability with non-EU DPP systems (UK, USA, China). o Tools and methodologies to detect and prevent greenwashing or DPP tampering.

Methodological note

The policy recommendations were co-created using the ekip Policy Lab methodology.108 The methodology designed for the development of policy recommendations as part of a Policy Lab is divided in two consecutive steps:

1) Scoping and identification of the problem: the first step is the identification of the problem and its scoping. The topic is identified and scoped via desk research, interviews with stakeholders and the input from the different consortium partners.

As part of the Policy Lab preparatory work, a scoping document is shared with the participants to prepare them ahead of the day and to ensure a common understanding among participants. The scoping documents for this policy are available at https://ekipengine.eu/policies/fashion-transition-eco-design-for-circularity/

2) Policy formulation as part of the Policy Lab: The Policy Lab is a moment of co-creation with the participating stakeholders. The goal of the policy formulation session is to develop, refine and propose together with the participants different policies for the challenges at hand.

Agenda of the Policy Lab

Time: 10:00 – 16:00, October 29, 2025

Location: **Department of Design | School of Design | Politecnico di Milano - Via Candiani, 72 | Milano | Building B3 - Workshop Space 4 (second floor)**

Organisers: *ekip* - European Cultural and Creative Industries Innovation Policy Platform, Polimi and Technopolis Group

09:30-10:00	*Registration and welcome coffee*	*Ground Floor (B3 Entrance) + Workshop Space 2*
10:00-10:15	*Opening words* *Introduction Session* *Valentina Auricchio, Politecnico di Milano* *Lennart Stoy and Laura Galante, Technopolis Group Introduction to ekip - European Cultural and Creative Industries Innovation Policy Platform and purpose of the workshop*	*Workshop Space 4*
10:15-10:50	*Setting the scene* *How have circularity and sustainability impacted the fashion industry? What are the key challenges and opportunities for the fashion industry from a circularity standpoint?* *From Materials to Mindsets: Building a Regenerative and Collaborative Circular Fashion System* *Giusy Bettoni, founder of C.L.A.S.S., in conversation with Tommaso Landi, Sustainability Coordinator at C.P. Company, explores the intersection of innovation, materials, and production processes in fashion. The dialogue highlights how sustainable material development and circular production methods can drive the industry toward regeneration and collaborative, circular systems.*	*Workshop Space 4*

	Giusy Bettoni, Founder & CEO, C.L.A.S.S.	
	With 30+ years in textiles, Giusy Bettoni combines technical expertise with branding and communication. In 2007, she founded C.L.A.S.S. to embed sustainability into fashion through innovative materials and responsible processes. Today, C.L.A.S.S. is a key platform for brands, designers, and students driving smart, sustainable fashion. More at: www.classecohub.org	*Workshop Space 4*
	Tommaso Landi, Sustainability Coordinator, C.p. Company	
	As Sustainability Coordinator at C.P. Company, Tommaso Landi promotes responsibility as a daily practice connecting people, materials and industrial vision. With past experience at Paul & Shark, Loro Piana, Tesla and Deloitte, he combines method, creativity and awareness to drive meaningful change.	
10:50-11:30	*From Traceability to Circularity: Piloting the Digital Product Passport*	
10:50–11:05	*Olivier Tillement - SOLSTICE Workshop*	
	Space 4 Olivier Tillement from SOLSTICE project which is pioneering textile profiles and traceability systems that act as prototypes for an industry-wide Digital Product Passport (DPP). Their work embeds material composition, processing history, and lifecycle data, offering practical pathways for how future passports can enable transparency and accountability across textile value chains	*Workshop Space 4*
11:05 – 11:20	*"When a garment speaks"*	
	DPP as a growth engine for Fashion SMEs & micro companies	
	Lars Mattiasson – Future by Lund	
	Lars Mattiasson is CEO and co-founder of the xPlot platform in Sweden, activating and elevating startups from the Creative Industries. Through the Multicircular Resilient and Sustainable Manufacturing project he will demonstrate how the DPP can increase traceability and enable verification of materials and components to increase the lifecycle of product and generate new business.	
11:20 – 11:30	*Q&A*	
11:30–11:45	***Coffee break***	***Workshop Space 4***
11:45–12:30	*Session 1: Mapping challenges and opportunities*	*Workshop Space 4*
	Working groups set up (assigning people to WG focusing on one topic) balanced teams	
	The audience will be divided in smaller groups to discuss on	
	a selection of building blocks to work on. Based on the challenge and opportunities identified in the scoping paper, each group will be discussing and prioritising the topics.	

12:30–13:30	***Lunch***	***Workshop Space 2***
13:30-14:15	*Session 2: Exploring solutions and directions for action* *Working groups set up same teams of session 1* *Building on the shared map, participants will identify possible response strategies and directions for action. They will revisit the most critical challenges, refining their scope, root causes,* *and potential areas for intervention. The goal is to shift from problem-focused thinking to systemic insights, using an approach grounded in openness, regeneration, and collaboration.*	*Workshop Space 4*
14:15–14:30	***Coffee break***	***Workshop Space 4***
14:30–15:15	*Session 3: Developing recommendations* *Working groups set up same team of session 1* *In this final working session, groups will present their key insights and preliminary proposals. The proposed actions will then be discussed, voted on, and prioritised to identify the most relevant and impactful next steps.*	*Workshop Space 4*
15:15- 16:00	*Collective Wrap-Up and Next Steps* *Plenary session* *In this final plenary, groups will present their key insights and preliminary proposals. The proposed actions will then be discussed, voted on, and prioritised to identify the most relevant and impactful next steps.* *Closing remarks will highlight the main takeaways and outline the upcoming phases of the Policy Lab process, including potential integration of the outputs into broader policy dialogues and pilot actions.* *Chiara Colombi, Politecnico di Milano* *Laura Galante, Technopolis Group*	*Workshop Space 4*
16:30–18:00	*Networking with start-ups* *As we move towards the close of the day, this session offers a lighter moment for networking between participants, ekip partners, and start-ups that showcase the kind of innovation we have been advocating throughout the event.*	*Workshop Space 2*
18:00–19:30	*Policy Dialogue (policy makers local and authorities)* *Participants are invited to the policy dialogue*	*Room B2.0.1*

Participant list

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GIUSY BETTONI	*C.L.A.S.S.*
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SARA ONGARO	*Renoon*
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JELENA ANDJELOVSKI	*New Moment New Ideas*
TAMARA SAVIC	*NEW MOMENT*
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