

# **TEX-DAN Strategy for improving circularity in the textile and fashion value chains in the Danube Region**

Output 1.1

Elaborated by RAPIV

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## 1. Executive summary

The textile and fashion (T&F) sector remains one of the most traditional and economically significant industries in the Danube Region, characterised by a diverse mix of small and medium-sized enterprises, global suppliers, niche designers, retailers, and manufacturing clusters. The region is home to strong industrial capacities in fibre production, garment manufacturing, technical textiles, and design, and it maintains important cultural heritage linked to craftsmanship, textile traditions, and local materials such as wool, hemp, and linen. Despite its potential, the sector faces increasing pressure to modernise, reduce environmental impacts, and align with the European Union's growing regulatory requirements for sustainability and circularity.

In recent years, the sector has experienced major structural and market challenges: competition from fast fashion, declining profit margins, shortages of skilled labour, rising production costs, and the urgent need to comply with new EU policies, including separate waste collection, Extended Producer Responsibility (EPR), and the emerging Ecodesign for Sustainable Products Regulation (ESPR). At the same time, consumers across the region, although increasingly aware of sustainability, continue to purchase low-cost, short-lived products, creating large volumes of textile waste and reinforcing linear consumption patterns.

Across the Danube Region, these pressures are compounded by systemic barriers: outdated machinery and technological gaps, limited availability of recycled materials, weak collection and recycling infrastructure, uneven policy enforcement, insufficient financial support for SMEs, fragmented supply chains, and low consumer awareness. Many businesses lack the capacity to innovate or transition to circular models; policymakers struggle with the complexity of new regulatory requirements; and educational systems have not yet fully integrated circularity into their curricula.

In this context, the need for a coordinated and forward-looking strategy becomes clear. The TEX-DAN Strategy addresses this gap by providing a shared macro-regional framework that supports the transition toward a more circular, competitive, and sustainable textile and fashion ecosystem in the Danube Region. It responds both to the challenges facing individual countries and to the opportunities for collaboration across borders, ensuring that progress toward circularity is aligned, coherent, and mutually reinforcing.

The TEX-DAN Strategy represents a shared vision for guiding the circular transformation of the textile and fashion value chains across the Danube Region. It serves as a regional framework for connecting innovation, policy, financing, skills development, infrastructure, and standards in a coherent way. By fostering collaboration among public institutions, businesses, and knowledge actors, the Strategy helps the region meet EU ambitions on circularity, strengthen competitiveness, lower environmental pressures, and anticipate upcoming regulatory changes.

Fully aligned with the EU Strategy for the Danube Region (EUSDR), the TEX-DAN Strategy supports the objectives of Priority Areas 6 (Environment), 7 (Knowledge Society), 8 (Competitiveness), and 9 (People and Skills). Through this alignment, the Strategy translates broad policy commitments into practical actions tailored to the economic and social realities of Danube countries. It builds on an integrated process that combined analysis, experimentation, stakeholder input, and knowledge sharing. This collaborative approach ensured that the resulting framework is both evidence-based and rooted in regional practice.

The process began with an in-depth assessment of the textile and fashion landscape across the Danube Region. Partners explored regulatory systems, market dynamics, infrastructure gaps, and the specific needs of small and medium-sized enterprises. The analysis revealed key challenges such as limited innovation capacity, fragmented recycling systems, and low consumer awareness. These insights led to the identification of seven common areas for joint intervention.

To complement analysis with practice, pilot activities were carried out using a Living-Lab approach. These real-life tests provided a valuable understanding of how circular approaches can be integrated into business settings, highlighting obstacles and opportunities related to digitalisation, renewable energy, and resource recovery. Feedback from these pilots guided the shaping of strategic measures and ensured their relevance for SMEs.

A regional mapping of 118 good practices further enriched the Strategy. The examples showcased innovations in circular materials, reuse and repair initiatives, local value chains, digital tools, and educational programs. Together, they proved that progress towards circularity is already underway and can be expanded across the region.

National stakeholder workshops in all participating countries played an important role in adapting the Strategy to local conditions. The discussions emphasised the need for better policy alignment, accessible financing, partnerships, and continuous knowledge exchange. This co-creation process ensured that the Strategy reflects shared ownership across borders.

This Strategy aims to create a coherent framework and a vision for the transition of the textiles sector whereby:

**By 2030, micro-, small and medium-sized enterprises in the textile and fashion sector in the Danube Region will be more coordinated, capable, and circular, with more durable and resource-efficient products, greater use of recycled and local materials, and transparent supply chains. Consumers will benefit from higher quality, better information, and expanding reuse and repair options, while stronger transnational cooperation, aligned policies, and growing circular practices will support the sector's competitiveness, resilience, and reduced environmental impact.**

To achieve this, the Strategy introduces seven Strategic Objectives (SO1–SO7), each addressing one of the core challenges to circular transformation:

**SO1 – Foster innovation and technological transition:** Strengthen research, digitalisation, renewable energy use, and innovation hubs.

**SO2 – Empower consumers and raise awareness:** Promote transparency, education, and informed consumption.

**SO3 – Strengthen policy and regulatory frameworks:** Improve policy alignment, extended producer responsibility, and sustainable branding.

**SO4 – Enhance finance and incentives:** Expand access to funding, blended finance, and SME internationalisation.

**SO5 – Build capacity and share knowledge:** Develop skills, institutional capacity, and cluster cooperation.

**SO6 – Develop circular infrastructure and regional value chains:** Support investments in collection, sorting, recycling, and local material use.

**SO7 – Establish standards, certification, and new business models:** Advance sustainability standards, certification schemes, and service-based models.

On the one hand, the implementation of the Strategy will be carried out through regional action plans that translate its objectives into specific actions, responsibilities, and timelines adapted to local contexts. On the other hand, the partnership elaborates and adopts a Danube-region level Joint Action Plan, as well. The newly established Danube Circular Textile Cluster will support continued cooperation, knowledge exchange, and long-term coordination beyond the project timeframe, ensuring that the Strategy becomes a living instrument for systemic change in the textile and fashion sector of the Danube Region.

## 2. Foundation of the TEX-DAN Strategy: Key findings

The TEX-DAN Strategy is grounded in a comprehensive and multi-layered methodology that integrates analytical research, practical experimentation, stakeholder engagement, and cross-regional knowledge exchange. The Strategy has been developed through a sequence of activities that gradually built the evidence base, identified common priorities, validated proposed interventions, and ensured regional relevance. This chapter describes the methodological steps and explains how each contributed to shaping the Strategic Objectives and Measures.

### 2.1 Defining of joint intervention areas

The first building block of the TEX-DAN Strategy was the analysis conducted by the project partners examined the legal frameworks, regulatory environments, behavioural aspects, and structural conditions shaping the textile and fashion value chains in each participating country. It identified a wide range of structural and behavioural challenges across the Danube Region that hinder the transition to a circular textile and fashion value chain.

Across most countries in the Danube Region, there is a **significant mismatch between EU-level ambitions for circularity and national-level implementation capacity**. While legislative frameworks exist in many countries, enforcement is uneven, and infrastructure for separate textile waste collection and recycling remains underdeveloped. Financial limitations and a lack of dedicated support programs compound the difficulties for textile and fashion SMEs.

Based on the analysis the following **challenges and barriers** faced by textile and fashion SMEs were identified:

- **Textile producers** face acute **financial constraints**, limited access to modern technology, and operate with outdated production equipment. Many SMEs lack the capacity to invest in innovation or adapt to digital and circular production due to survival-mode operations. Moreover, there is a **shortage of qualified workforce** and limited access to recycled materials. Producers are also hindered by poor collaboration opportunities and missing value chain integration at the local level. However, many identify potential in green branding, workwear, and local material use as drivers for future innovation.
- **Textile retailers and wholesalers** confront **growing pressure from fast fashion imports, low consumer awareness, and a fragmented supply chain**. The shift toward sustainable products is constrained by affordability of consumers to buy them, weak consumer demand for eco-products, and underdeveloped circular

logistics (e.g., for take-back schemes). Online platforms are increasingly seen as a space to promote transparency and sustainable products, yet the **lack of incentives and circular infrastructure** remains a key barrier.

- **Fashion designers** express strong **motivation for sustainability and creativity**, often embracing circular principles in their work. They are frequently early adopters of eco-design practices and contribute to brand differentiation. However, they face **challenges in accessing sustainable affordable materials**, securing funding, and finding supportive production partners. Designers also note **limited consumer understanding** of sustainability, the risks of green washing, and difficulties in scaling sustainable fashion beyond niche markets.

The identified **cross-cutting barriers and gaps** could be summarized:

- **Low consumer awareness** remains one of the most persistent barriers across all stakeholder groups. The fast fashion model continues to dominate, while few mechanisms are in place to educate consumers or reward responsible purchasing.
- **Skills and knowledge gaps** in circularity exist both within companies and among policymakers. Lack of technical understanding, business model innovation, and circular design capacity were frequently cited.
- **Infrastructure for recycling and reuse** is highly uneven across the region, often lacking critical facilities for sorting, repurposing, or remanufacturing.
- **Policy implementation gaps** are significant, particularly related to Extended Producer Responsibility (EPR), textile waste regulation, and green public procurement.
- **Access to finance and incentives** is insufficient to drive change at scale. Few countries have sector-specific funding, and general support is often limited, inconsistent, or difficult to access for SMEs.

Besides the identified challenges, needs and gaps, some motivational factors and opportunities could be noted. The following **motivating factors** have emerged:

- Rising **global awareness of sustainability**, particularly among younger generations;
- Increasing demand for **transparency, traceability, and ethical branding**;
- National and EU-level pressure to **introduce separate textile waste collection by 2025**, creating urgency and momentum;
- A growing interest in **local and traditional materials** (e.g., hemp, wool) that align with circular and regional identity;
- Strong innovation potential in **eco-design, digitalization, and product-as-a-service models**.

These common insights formed the basis of the **seven joint intervention areas**, which guide the strategy's structure:

1. Innovation and technology adoption



2. Consumer education and awareness raising
3. Policy support
4. Financial and investment support
5. Capacity building and knowledge sharing
6. Market and infrastructure development
7. Standards and certification

The strategy integrates these findings and positions them as strategic directions to address region-wide and country-specific needs, ensuring a comprehensive and actionable framework for circular transformation in the textile and fashion value chain.

## 2.2 Practical validation of circular approaches through pilot activities

As a continuation of the analytical foundation established through the identification of joint intervention areas, the TEX-DAN Strategy also drew on practical insights generated through pilot activities implemented by project partners. These pilots represented an important methodological step, complementing the theoretical assessments with real-world experimentation applying the Living Lab Model. The pilots provided valuable additional evidence on how circular solutions function in practice and which conditions enable or hinder their adoption in different national contexts.

Implemented across several countries, the pilot activities allowed companies and stakeholders to test specific circular approaches, ranging from new digital tools and traceability mechanisms to repair and reuse processes, recycled material integration, or organisational adaptations. Through this hands-on experimentation, partners could observe the operational challenges SMEs face when adopting circular practices, including resource constraints, technological integration issues, the need for new competencies, and internal readiness for organisational change. At the same time, the pilots demonstrated the potential of even small-scale interventions to improve sustainability performance and create momentum for further circularisation.

The accompanying exchanges among partners facilitated reflection on transferability, feasibility, and lessons learned, helping to contextualise the pilots within broader regional realities. These insights contributed to refining several strategic measures, particularly those related to technological adoption, finance, capacity-building, and infrastructure development.

## 2.3 Mapping and analysis of good practices across the Danube region

The TEX-DAN partnership identified and documented a total of **118 good practices** across the 10 participating countries of the Danube Region. Each partner applied a harmonised reporting template to ensure comparability across regions, documenting context, key

results, and transferability potential. The practices demonstrate both **technological innovation** through new materials, recycling methods, and production processes, and **business model innovation**, including reuse, repair, redesign, rental, and circular design services. Many of the cases combine both technological and organisational innovation, illustrating the systemic nature of circularity in textile and fashion value chains. These practices were identified in order to:

- **Capture and systematize existing experience** from companies already implementing elements of circular economy in the textile and fashion value chain;
- **Provide evidence-based input** for defining realistic and transferable **strategic objectives and measures** for improving circularity across the region;
- **Identify transferable models** that can inspire replication, upscaling, or policy support in other countries; and
- **Create a shared knowledge base** that connects technology development, business innovation, and policy learning among Danube Region stakeholders.

The mapping thus aimed not only to showcase good practices, but to ground the Strategy in real, operational experience and to bridge the gap between policy ambitions and practical implementation.

The analysis of all collected good practices revealed a number of recurring innovation patterns and development trends that are shaping the transition toward a circular textile and fashion industry across the Danube Region.

A first trend observed across multiple countries is the strong focus on **circular material innovation**. Numerous industrial actors are developing new technologies for fiber recovery, recycling, and the use of bio-based or biodegradable materials. Companies such as *Lenzing*, *Andritz*, *AustroCel (Austria)*, *Inplet pletiva and Beti (Slovenia)*, and *Chemosvit Fibrochem (Slovakia)* exemplify this shift, investing in advanced chemical and mechanical recycling methods, fiber regeneration technologies, and the production of sustainable cellulose- and polymer-based fibers with reduced environmental footprints. These innovations showcase the industrial backbone of circularity in the region, creating the technical foundations for secondary raw material use in textile manufacturing.

Equally significant is the growing proliferation of **repair, reuse, and upcycling models**, often driven by SMEs, social enterprises, and creative entrepreneurs. Examples such as *Visible Mending (Austria)*, *REVIVE Apparel (Bulgaria)*, *TAO and Endlos Fesch (Austria)*, *Destilator and Knof (Slovenia)*, and *REDU and HUNA Repair (Romania)* highlight the economic and environmental potential of business models that extend product lifecycles. These initiatives prove that circularity at the consumer and SME level is both financially viable and culturally relevant, helping to reshape consumer attitudes toward clothing value and longevity.

A third, complementary development is the **integration of local value chains**, where circularity becomes a collaborative ecosystem effort. Practices such as *Tex2Mat and ReSTex (Austria)*, and *DISKO5 (Slovenia)* illustrate how multi-stakeholder cooperation, linking producers, recyclers, designers, municipalities, and research organisations can close

material loops at the local or regional scale. Such cooperation enhances resource efficiency, reduces logistics costs, and reinforces territorial economic cohesion.

In parallel, the uptake of **digitalisation and product traceability tools** is gaining momentum across the sector. Practices like *Katty Fashion* in Romania and *Salesianer Miettex* in Austria integrate digital solutions such as 3D modelling, RFID tracking, and data-based production monitoring. Other examples such as *Vagant Studio (Croatia)* demonstrate the potential of digital design in sustainable product development. Together, these practices improve transparency, traceability, and supply chain management, while laying the groundwork for future instruments such as digital product passports and eco-data integration.

Another important dimension is **social and educational innovation**, which accompanies technological change and underpins behavioural transformation. Examples such as *EcoSchool (Serbia)*, *Knof Circular Lab (Slovenia)*, *TexCycle (Bulgaria)*, and *Réthy Fashion Recycling Academy (Hungary)* combine entrepreneurial activity with education, awareness-raising, and social inclusion. These initiatives help citizens, students, and workers understand and apply circular principles, develop repair and reuse skills, and foster community engagement in sustainable consumption. They underline that education and behavioural change are indispensable to achieving a long-term shift toward circularity.

Equally noteworthy is the **integration of local materials and heritage** within new sustainable production and design approaches. Practices from *Romania (Poartă-mă cu flori, HUNA Natural Leather)*, *Croatia (Sabant, Galeb, Humana Nova)*, and *Slovakia (Luna World, Nosene, WAKIVAKY)* demonstrate how traditional materials such as hemp, wool, linen, and natural leather are being reintroduced or repurposed through modern design and manufacturing processes. This approach does not only preserve regional craftsmanship and identity but also contributes to shorter supply chains, lower carbon footprints, and locally resilient value creation.

Finally, **standards and certification for market credibility** are becoming a key driver of competitiveness in the regional textile industry. Companies such as *Lenzing (Austria)*, *Inplet pletiva and Beti (Slovenia)*, *AustroCel (Austria)*, and *Doni Style (Bulgaria)* have adopted internationally recognised certifications including GRS, OEKO-TEX®, FSC, and ISO. These frameworks enhance product transparency, ensure compliance with environmental and social standards, and build consumer and investor confidence in sustainable textile products. The adoption of third-party certification also supports access to green procurement and international sustainable fashion markets.

Collection of good practices is a key methodological step in developing the TEX-DAN Strategy. **The analysis of the collected good practices directly contributed to formulation of the Strategic Objectives (SO1–SO7) of the TEX-DAN Strategy.** Each objective is grounded in proven examples from the partner countries, demonstrating feasible, scalable, and transferable approaches to achieving circularity within the textile and fashion value chains of the Danube Region.

## 2.4 Stakeholders engagement

The final methodological cornerstone was the organisation of national stakeholder workshops in all partner countries. These workshops held across all participating Danube Region countries played a central role in shaping and validating the TEX-DAN Strategy. Bringing together SMEs, producers, designers, clusters, policymakers, academia, NGOs, and public authorities, the workshops provided first-hand insights into national realities, sector-specific needs, and systemic barriers to circularity. Participants assessed the relevance and feasibility of the proposed strategic objectives and measures, identified gaps, and offered concrete recommendations, such as the need for stronger SME networking mechanisms, integration of fairs and matchmaking events, improved education and skills programmes, better governance and administrative alignment, and enhanced financial and policy support. They also helped refine measures related to innovation, awareness, infrastructure, standards, and certification, ensuring they reflect realistic capacities and national legislative contexts. By incorporating these diverse perspectives, the workshops ensured that the TEX-DAN Strategy is not only evidence-based and regionally coherent but also practical, stakeholder-owned, and aligned with the specific conditions and priorities of each country in the Danube Region.

## 3. Legal framework and alignment with EUSDR

The legal foundation for the TEX-DAN Strategy is built upon the evolving European Union policy framework for sustainable and circular textiles, which sets the direction for all participating countries in the Danube Region.

At EU level, the European Green Deal, the EU Circular Economy Action Plan (2020), and the EU Strategy for Sustainable and Circular Textiles (2022) provide the overarching legislative and strategic guidance. These frameworks aim to transform the textile and fashion (T&F) industry into a durable, recyclable, and low-impact sector by 2030, ensuring that all textile products placed on the EU market are designed for longevity, repair, and recyclability.

Key legislative acts underpinning this transformation include:

- The Waste Framework Directive (2008/98/EC), establishing the requirement for mandatory separate collection of textile waste by 2025;
- The forthcoming Ecodesign for Sustainable Products Regulation (ESPR), setting design and durability standards;
- The Corporate Sustainability Reporting Directive (CSRD), increasing transparency and accountability across value chains;
- The EU Textile Labelling Regulation, which supports consumer information and traceability; and

- National Circular Economy and Waste Management Strategies that transpose these directives into national contexts.

Across the Danube Region, EU Member States (Austria, Slovenia, Slovakia, Czech Republic, Hungary, Croatia, Bulgaria, and Romania) are already integrating these frameworks, while candidate and neighbouring countries (Serbia, Republic of Srpska/BiH, and Moldova) are progressively aligning with the EU acquis.

The Analysis of the policy framework and supporting initiatives performed by each partner's countries highlights that while national legislation exists in all partner countries, implementation and enforcement vary significantly. Common gaps include the lack of Extended Producer Responsibility (EPR) for textiles, limited eco-design and repair incentives, and insufficient recycling infrastructure. Nevertheless, national commitments are converging around shared EU objectives, with all partners recognising circular textiles as a key area for achieving waste reduction, industrial modernisation, and green growth. The TEX-DAN Strategy builds on this convergence, supporting policy coherence and capacity development to operationalise circular economy principles across the Danube Region.

The 2025 EUSDR Process Evaluation Report emphasises that projects like TEX-DAN are essential instruments for embedding macro-regional priorities into practical actions, aligning research, policy, and business cooperation across borders. TEX-DAN fits this model precisely: it translates the EUSDR's policy ambitions into a sector-specific, multi-country strategy supported by capacity building, innovation pilots, and policy recommendations.

The **EU Strategy for the Danube Region (EUSDR)** provides the **macro-regional cooperation framework** linking 14 countries through four main pillars and 12 Priority Areas (PAs). The TEX-DAN Strategy contributes directly to 4 of the EUSDR Priority Areas:

- **PA6 – Environment:** advancing waste prevention, resource efficiency, and circular material use in the T&F industry;
- **PA7 – Knowledge Society:** fostering research, digitalisation, and innovation in sustainable materials and circular design;
- **PA8 – Competitiveness of Enterprises:** supporting SMEs and industrial modernisation through adoption of circular technologies and business models;
- **PA9 – People and Skills:** developing training, reskilling, and education programmes to prepare the workforce for green and circular transitions.

Each of the seven Strategic Objectives (SO1-SO7) defined in the TEX-DAN Strategy contributes to one or more EUSDR Priority Areas, making TEX-DAN an integral contributor to the EUSDR Action Plan's environmental, economic, and social goals, ensuring that the project strengthens macro-regional integration and coherence between environmental, economic, and social policies.

The legal and macro-regional context provides both the framework and the momentum for TEX-DAN to advance circular transformation in the textile and fashion sector of the Danube Region. By aligning with EU legislation, national circular-economy policies, and

the objectives of the EU Strategy for the Danube Region, the TEX-DAN Strategy links policy priorities with concrete actions. It translates the ambitions of the EU Green Deal and the Circular Economy Action Plan into coordinated regional measures that enhance innovation, competitiveness, and sustainability. Therefore, it could be concluded that TEX-DAN serves as a practical bridge between policy and implementation - connecting technology, governance, finance, and education, to ensure that circularity becomes an integrated, cross-border process contributing to a greener, more resilient, and inclusive Danube Region. This contribution could be presented in a structured way in the matrix of TEX-DAN Strategy objectives and EUSDR Priority Areas, presented in Annex 1.

## 4. Vision

**By 2030, micro-, small and medium-sized enterprises in the textile and fashion sector in the Danube Region will be more coordinated, capable, and circular, with more durable and resource-efficient products, greater use of recycled and local materials, and transparent supply chains. Consumers will benefit from higher quality, better information, and expanding reuse and repair options, while stronger transnational cooperation, aligned policies, and growing circular practices will support the sector's competitiveness, resilience, and reduced environmental impact.**

## 5. Strategic objectives and measures

The strategic objectives and measures are based on the previously identified intervention areas, the experience from piloting and the collected good practices and include the following items.

### SO.1: Foster innovation and technological transition

Support the uptake of advanced technologies, circular materials, and green energy solutions particularly in the case of micro-, small and medium-sized enterprises to accelerate circular production in the textile and fashion sector.

SO.1 includes the following measures:

- 1.1. Promote adoption of Industry 4.0 technologies, including digital design, automation, and recycling innovations, across textile and fashion enterprises with targeted support for SMEs facing limited technological readiness.



- 1.2 Support research and development in circular materials, fibre-to-fibre recycling, and resource-efficient processes including joint collaboration models between enterprises and research.
- 1.3 Promote integration of renewable energy systems across all stages of the textile and fashion value chain.
- 1.4 Support establishment of innovation hubs and testing laboratories dedicated to circular textile solutions and technological experimentation.
- 1.5 Strengthen structured cooperation between academia, research organisations, and industry to enhance regional innovation capacity in the textile and fashion sector.

The measures under SO1 directly respond to the technological, financial, and organisational challenges identified in the analytical phase, particularly the lack of modern equipment, limited access to recycled materials, low innovation capacity, and weak collaboration across the value chain. Promoting the adoption of **Industry 4.0 technologies** will address the widespread technological gap by supporting SMEs in digitalising design and production processes, improving traceability, automation, and resource efficiency. This will help manufacturers overcome survival-mode operations, reduce production costs, and increase their ability to adopt circular practices which is one of the most frequently reported needs across the region. Strengthening **research and development potential for circular materials and processes** will tackle the severe shortage of recycled and bio-based inputs by accelerating the development of fibre-to-fibre recycling technologies, sustainable materials, and innovative processing techniques. This will support designers and producers who have expressed strong motivation to work with sustainable materials but currently face limited availability, high costs, and dependency on external suppliers. Expanding the **integration of renewable energy systems** across the textile and fashion value chain will help mitigate the high energy costs and environmental impacts repeatedly raised by SMEs, while contributing to broader national and EU climate goals and enabling firms to operate more sustainably. Supporting the establishment of **circular innovation hubs and testing laboratories** will address the absence of dedicated innovation infrastructure in many parts of the Danube Region. These centres will provide shared spaces for experimentation, testing, and collaboration, reducing innovation risks for SMEs and strengthening cooperation between academia, industry, designers, and technology providers. By facilitating value-chain integration and knowledge exchange, they will directly respond to the fragmentation and lack of collaborative structures identified in multiple countries. Together, these measures form a coherent response to the region's innovation challenges and will enable the technological transformation required for a competitive and circular textile and fashion ecosystem.

## SO.2 Empower consumers and raise public awareness

Shift consumer behaviour and societal practices toward sustainable and circular fashion through education, transparency, and accessible information.

SO.2 includes the following measures:

- 2.1 Launch coordinated Danube region-wide awareness campaigns on fast fashion impacts and the benefits of sustainable and circular fashion.
- 2.2 Promote transparency and traceability across textile supply chains to counter greenwashing and support informed consumer choices.
- 2.3 Support integration of circular economy and sustainability principles in educational programmes at all levels.
- 2.4 Promote consumer understanding and uptake of eco-labels and sustainability certifications.

The measures under SO2 will address the widespread lack of consumer awareness, the dominance of fast fashion, and the limited understanding of sustainability and certifications across the Danube Region. Implementing **Danube-wide awareness raising campaigns** will increase public knowledge about the impacts of fast fashion and stimulate demand for sustainable alternatives. Strengthening **transparency and traceability in supply chains** will reduce greenwashing and give consumers access to reliable information, helping them make informed choices. Supporting the **integration of circularity into education programmes** will build long-term awareness and skills among young people, contributing to a cultural shift toward responsible consumption. Finally, promoting **eco-labels and certification understanding** will help consumers recognise credible sustainability claims in a crowded and often confusing market. All defined measures will create the behavioural and informational foundation on the side of consumers needed to support the transition to circular textile and fashion systems.

## SO.3 Strengthen policy and regulatory frameworks

Align and reinforce legislative instruments to accelerate circular economy adoption in the textile and fashion sector.

SO.3 includes the following measures:

- 3.1 Support the elaboration, introduction, implementation and harmonisation of Extended Producer Responsibility (EPR) schemes for textiles.
- 3.2 Initiate introduction of circular criteria in national and regional public procurement policies.



- 3.3 Develop legal definitions, mandates, and procedures for textile waste separation, reuse, and recycling.
- 3.4 Integrate enforcement mechanisms ensuring compliance with circularity and sustainability standards.
- 3.5 Support development of national and regional branding initiatives for sustainable textile products.
- 3.6 Initiate harmonisation of branding and sustainability labelling practices across the Danube Region.
- 3.7 Introduce tax reliefs for textile products that meet sustainability, durability, and circularity requirements.
- 3.8 Initiate policy dialogue on the compulsory use of recycled textile products in related value chains (e. g. construction, car manufacturing, etc.).
- 3.9 Strengthen monitoring and enforcement systems to ensure proper implementation of circular textile regulations.

The measures under SO3 will address the significant policy and enforcement gaps identified across the Danube Region, where fragmented regulations, uneven implementation of EU requirements, and the absence of harmonised standards hinder circularity. Strengthening **EPR implementation** will create clear responsibilities for textile waste management and stimulate investment in reuse and recycling - responding to the current lack of infrastructure and weak waste separation systems. Introducing **circular criteria in public procurement** will generate stable demand for sustainable textiles and demonstrate public-sector leadership in circular transitions.

Developing **legal definitions and procedures** for textile waste, reuse, and recycling will provide clarity for businesses and authorities, reducing administrative ambiguity that currently slows progress. Embedding **enforcement mechanisms** will help address the frequent lack of compliance and inconsistent monitoring identified in national analyses. Supporting **national branding for sustainable textiles** and promoting **harmonised sustainability labelling across the region** will counter market fragmentation and greenwashing, helping consumers and buyers recognise credible circular products. Finally, introducing **tax reliefs for sustainable and durable textiles** will encourage circular design and responsible production practices.

#### SO.4 Enhancing finance and incentives for circular business models

Provide targeted financial mechanisms and incentives to accelerate SME transition to circular business models.

SO.4 includes the following measures:

- 4.1 Establish and/ or provide support in accessing blended finance programmes supporting adoption of green, digital, and circular textile technologies.
- 4.2 Promote impact investment targeting sustainable and circular textile enterprises.
- 4.3 Support formation of public-private partnerships and funding consortia for circular innovation.
- 4.4 Initiate policy dialogue on fiscal measures supporting circularity.
- 4.5 Create and/ or provide support in accessing financial instruments supporting scale-up, export readiness, and internationalisation of circular SMEs.
- 4.6 Develop dedicated financial pathways tailored to the needs of micro-enterprises, social enterprises, and textile and fashion enterprises operating in rural or remote areas to support their transition to circular business models.
- 4.7 Simplify access to funding through streamlined, SME-friendly procedures.

The measures under SO4 will respond directly to one of the most persistent barriers identified in the Danube Region: the **lack of accessible finance** for SMEs to invest in circular technologies, business models, and infrastructure. Development and/ or supporting access to **blended finance programmes** will help SMEs overcome high upfront investment costs for digitalisation, renewable energy, and recycling technologies. These barriers were frequently noted during workshops and pilots. Promoting **impact investment** will attract capital to sustainable enterprises and stimulate market-driven innovation. Facilitating **public-private partnerships and funding consortia** will help pool resources, share risks, and accelerate the scale-up of promising circular initiatives.

Initiating dialogue on **fiscal measures supporting circularity** will prepare the ground for more favourable tax environments that reward reuse, repair, and the use of recycled materials. Finally, providing support in accessing **financial instruments for scale-up and internationalisation** will strengthen the competitiveness of circular SMEs and help them enter new markets.

## SO.5 Build capacity and share knowledge across the value chain

Develop human capital and foster transnational cooperation for circular transformation.

SO.5 includes the following measures:

- 5.1 Development and delivering of skills and reskilling programs for workers and entrepreneurs.

- 5.2 Strengthen capacity of policymakers, authorities, and support organisations in circular economy frameworks and governance.
- 5.3 Support SME networking, partnerships, collaboration and knowledge exchange through the Danube Circular Textile Cluster.
- 5.4 Promote cooperation between academia, industry, SMEs, and design professionals.
- 5.5 Support networking through Danube region-wide matchmaking catalogues and SME participation in fairs, exhibitions, and B2B events.

The measures under SO5 directly address the widespread **skills shortages, knowledge gaps, and weak cooperation structures** identified across the Danube Region. Developing and delivering **skills and reskilling programmes** will help workers, entrepreneurs, and designers acquire the competencies needed for circular production, repair, eco-design, and digitalisation. These are areas where companies frequently reported insufficient expertise. Strengthening the **capacity of policymakers and support organisations** will improve understanding of circular economy frameworks and enhance the ability of public bodies to implement and enforce relevant policies, addressing the governance challenges highlighted in partner analyses.

Supporting **SME networking and partnerships through the Danube Circular Textile Cluster** will respond to the lack of value-chain integration and limited collaboration opportunities that hinder innovation and scaling. Promoting **cooperation between academia, industry, SMEs, and design professionals** will stimulate knowledge transfer, joint problem-solving, and co-creation of circular solutions. Facilitating **matchmaking, fairs, exhibitions, and B2B events** will create practical opportunities for SMEs to connect, access markets, and form partnerships. These needs were repeatedly emphasised during stakeholder workshops.

## SO.6 Develop circular infrastructure and regional value chains

Strengthen the physical and organizational infrastructure necessary for a circular textile economy.

SO.6 includes the following measures:

- 6.1 Invest in textile waste collection, sorting, and recycling infrastructure, including regional recycling centres.
- 6.2 Improve traceability and digital product passport systems along the textile value chain.
- 6.3 Promote use of local, low-impact, and traditional materials (e.g., wool, hemp, linen).

- 6.4 Initiate development of hubs for repair, reuse, and remanufacturing services.

The measures under SO.6 respond directly to some of the most critical structural barriers identified in the Danube Region: the **lack of textile waste collection and sorting infrastructure**, the **absence of regional recycling facilities**, the **fragmentation of supply chains**, and the **underutilisation of local materials**. Investing in **collection, sorting, and recycling infrastructure** will address the current bottleneck that prevents large-scale textile valorisation and limits the availability of secondary raw materials. This will create the physical foundation for circularity and support compliance with the EU requirement for separate textile waste collection.

Improving **traceability and digital product passport systems** will enhance supply-chain transparency, reduce information gaps, and support both consumers and businesses in making sustainable decisions - an issue strongly highlighted in stakeholder workshops. Promoting the **use of local, low-impact materials** such as wool, hemp, and linen will strengthen regional value chains, reduce dependency on imported fibres, and support cultural and traditional know-how identified as an asset in several partner countries. Finally, initiating the development of **repair, reuse, and remanufacturing hubs** will expand practical circular services, extend product lifecycles, and support SMEs in adopting new business models. Together, these measures will build the infrastructure and regional connections necessary for a functioning circular textile economy across the Danube Region.

## SO.7 Establish standards, certification, and new business models

Create trust, comparability, and incentives for circular products and services.

SO.7 includes the following measures:

- 7.1 Develop harmonised sustainability, durability, and recyclability standards for textiles.
- 7.2 Promote accessibility and affordability of certification schemes across the Danube Region.
- 7.3 Encourage adoption of service-based business models (leasing, subscription, and repair) to extend product life.
- 7.4 Promote design-for-disassembly principles and standards enabling material recovery and high-quality recycling.

The measures under SO.7 address the lack of harmonised standards, inconsistent certification practices, and limited adoption of innovative business models which are barriers repeatedly identified across partner countries. Developing **harmonised sustainability, durability, and recyclability standards** will create clarity for producers,

consumers, and regulators, reducing market fragmentation and ensuring that textile products meet minimum circularity requirements across the region. Promoting **accessible and affordable certification schemes** will support SMEs, which often face high costs and administrative burdens when pursuing recognised labels, and will help counter greenwashing by strengthening credibility and comparability.

Encouraging **service-based business models**, such as leasing, repair, subscription, and rental, will extend product lifecycles and reduce waste, addressing the behavioural and infrastructural gaps identified in the strategy's analytical phase. Promoting **design-for-disassembly principles** will ensure that products placed on the market are easier to repair, reuse, or recycle, improving material recovery rates and supporting the development of high-quality secondary raw materials.

## 6. National perspective and Action plans for implementation

Effective implementation of the TEX-DAN Strategy requires each participating country to translate strategic objectives into operational Regional action plans. The Strategy establishes a macro-regional framework and shared priorities. However, difference in EU-membership status, the diversity of economic structures, institutional capacities, and stages of circular transition across the Danube Region necessitates that partners follow differentiated implementation pathways that reflect their specific national contexts and capabilities. Notwithstanding this, the partnership develops a Joint action plan, as well that will include such actions that are relevant for more territories in the Danube Region and are best tackled at macro-regional level.

The TEX-DAN analysis identified structural challenges commonly present throughout the Danube Region. These include fragmented recycling infrastructure, limited consumer awareness, technological gaps, and inconsistent policy enforcement. At the same time, there is considerable variation in institutional maturity and sectoral capacity among partner countries. Some countries possess robust industrial and technological capabilities. Others show developing ecosystems in repair, reuse, and social innovation. Several countries are still at early stages in building textile waste systems and standardisation. National factors such as administrative capacity, policy frameworks, market size, and the presence of a traditional textile sector will influence the timing and process of the circular transition.

This diversity requires implementation flexibility. Regional action plans will align with TEX-DAN's strategic objectives but will also allow for adaptation and prioritisation according to national circumstances and resource availability.

Each partner country will develop an action plan that translates TEX-DAN Strategy objectives into concrete measures. These plans will assign institutional responsibilities, quantify resource requirements, and establish indicative timelines. Action plans will serve as operational guides for project partners but also for concerned public authorities, industry organisations, clusters, and enterprises. Their structure will clarify the connection between broad strategic direction and practical implementation steps.

Implementation will require coordinated action among different institutional actors. National and municipal authorities, waste management bodies, educational institutions, business development agencies, and private sector stakeholders will all play important roles. Collaboration across sectors is essential to ensure coherence between infrastructure investments, training, regulatory reform, and incentives for market development.

Upon adoption, partners will begin implementing actions within their national and regional contexts, working closely with responsible public bodies and relevant stakeholders. The Danube Circular Textile Cluster, established through TEX-DAN, will play a key role in supporting cooperation, knowledge exchange, and dissemination of results during the implementation phase and beyond the project's duration.

## 7. Resources

**TEX-DAN D1.3.1 Joint Report.** (2024). *Legal and regulatory analysis, behavioural insights, and identification of joint intervention areas.* TEX-DAN Project Consortium.

**TEX-DAN National Workshop Reports.** (2025). *Reports from national stakeholder workshops.* TEX-DAN Project Consortium.

**TEX-DAN D2.2.3 Pilot Implementation Report.** (2025). *Findings from piloting circular solutions in participating countries.* TEX-DAN Project Consortium.

**TEX-DAN D2.3.1 & D2.3.2 Peer Review Reports.** (2025). *Transnational peer reviews of pilot actions and lessons learned.* TEX-DAN Project Consortium.

**TEX-DAN Good Practices Compendium.** (2024). *Collection of good practices documenting circular technologies and business models across the Danube Region.* TEX-DAN Project Consortium.

**European Commission.** (2022). *EU Strategy for Sustainable and Circular Textiles.* Brussels: European Commission.

**European Commission.** (2020). *Circular Economy Action Plan: A New Circular Economy Action Plan for a Cleaner and More Competitive Europe*. Brussels: European Commission.

**European Commission.** (2023). *Ecodesign for Sustainable Products Regulation (ESPR)*. Brussels: European Commission.

**European Parliament & Council.** (2008). *Directive 2008/98/EC on Waste (Waste Framework Directive)*. Official Journal of the European Union.

**European Parliament & Council.** (2022). *Corporate Sustainability Reporting Directive (CSRD)*. Official Journal of the European Union.

**European Commission.** (2011, as amended). *EU Textile Labelling Regulation*. Brussels: European Commission.

**European Commission.** (2023–2024). *Digital Product Passport Framework for Textiles*. Brussels: European Commission.

**European Commission.** (2019). *The European Green Deal*. Brussels: European Commission.

**European Commission.** (2021). *EU Industrial Strategy Update*. Brussels: European Commission.

**European Commission.** (2020). *EU Strategy for the Danube Region (EUSDR) – Action Plan*. Brussels: European Commission.

**EUSDR.** (2025). *EUSDR Process Evaluation Report*. Brussels: European Commission.

**EUSDR Priority Area Coordination (PA6, PA7, PA8, PA9).** (2010–2025). *Guidance papers and strategic documents*. European Commission.

**UNECE.** (2021). *Sustainability and Circularity in the Textile Value Chain: Global Frameworks and Approaches*. United Nations Economic Commission for Europe.

**OECD.** (2020–2023). *Studies on circular economy transitions and insights on the textile sector*. Organisation for Economic Co-operation and Development.

**EURATEX.** (2022–2024). *Position papers and reports on circular textiles, competitiveness, and sustainability*. European Apparel and Textile Confederation.

**Textile Exchange.** (2022–2024). *Global Fibre Impact Reports and sustainability insights*. Textile Exchange.

**European Environment Agency (EEA).** (2021–2024). *Reports on textile waste, circularity performance, and environmental impact of textile consumption in Europe.*



## 8. Annexes

### Annex 1: Matrix for contribution of the TEX-DAN Strategy to EUSDR priority areas

Strategic objectives	Main contribution	Alignment with EUSDR PAs
<b>SO1 - Foster innovation and technological transition</b>	Promotes technological modernisation and circular manufacturing through digital, mechanical, and chemical recycling processes. Encourages R&D cooperation across borders.	<b>PA7</b> – supports applied research and innovation; <b>PA8</b> – boosts SME technological capacity and industrial transformation
<b>SO2 - Empower consumers and raise public awareness</b>	Builds awareness about sustainable fashion, responsible consumption, and repair culture through campaigns and engagement programmes	<b>PA6</b> – contributes to waste prevention via behavioural change; <b>PA9</b> – educates citizens and consumers
<b>SO3 - Strengthen policy and regulatory frameworks</b>	Strengthens circular economy governance through harmonisation of EPR schemes, eco-design legislation, and green public procurement standards	<b>PA6</b> – aligns national policies with EU environmental goals; <b>PA8</b> – fosters regulatory environments conducive to sustainable enterprise growth.
<b>SO4 - Enhancing finance and incentives for circular business models</b>	Mobilises financial instruments and investment incentives for SMEs and public entities adopting circular practices. Encourages green finance partnerships.	<b>PA8</b> – improves SME access to finance and innovation funding; <b>PA7</b> – supports research-commercialisation interface
<b>SO5 - Build capacity and share knowledge across the value chain</b>	Enhances education, vocational training, and skill-building in circular design, waste management, and repair techniques.	<b>PA7</b> – develops education and training ecosystems; <b>PA9</b> – supports lifelong learning and workforce transition.
<b>SO6 - Develop circular infrastructure and regional value chains</b>	Supports the establishment of collection, sorting, and recycling facilities, as well as regional supply chains for circular materials.	<b>PA6</b> – advances waste reduction and resource efficiency; <b>PA8</b> – develops industrial ecosystems and new markets.
<b>SO7 - Establish standards, certification, and new business models</b>	Promotes uptake of sustainability certifications (GRS, OEKO-TEX, ISO, EU Ecolabel, etc.) and harmonisation of standards across the region.	<b>PA6</b> – ensures compliance with environmental performance standards; <b>PA8</b> – enhances product credibility and market access