A Bioeconomy Innovation Strategy for the European Fibres, Textiles, and Apparel Industry

Purpose of the Initiative

This initiative aims to develop an Innovation Strategy for the development and adoption of Bioeconomy Innovation in the European Fibers, Textiles, and Apparel Industry across four strategic building blocks in direct alignment with the **EU Strategy for Sustainable and Circular Textiles** and the newly adopted **EU Bioeconomy Strategy**.

The Strategy will provide a structured approach to accelerate the transition from a fossil-based, linear material system toward renewable, circular, and low-carbon value chains for textile materials and products manufactured and consumed in Europe. It will support European industry, policymakers, and innovation actors in launching collaborative research programmes, coordinating innovation and demonstration projects, scaling sustainable fibre solutions, and strengthening Europe's strategic autonomy in critical textile materials.

The initiative seeks to give the European bioeconomy textile innovation ecosystem a **strong collective voice and ensure that EU industrial, research, and innovation programmes effectively support bio-based textile solutions**. Through the Circular & Biobased Textiles Innovation Hub, it will create a structured **collaboration space for industry, research organisations, clusters, and public stakeholders to identify innovation opportunities, build partnerships, and initiate joint projects.** Ultimately, the Strategy aims to position Europe as a global lead market and innovation hub for sustainable textile materials and related biobased solutions.

Why Now?

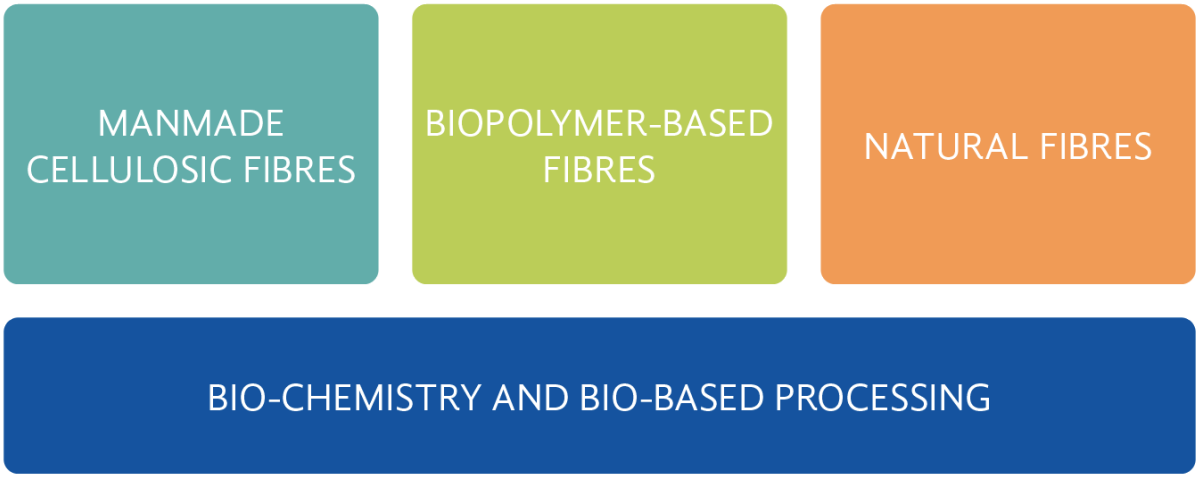
The timing of this initiative is driven by the recently published **EU Bioeconomy Strategy** (November 2025) and the ongoing shift from voluntary sustainability commitments to binding regulatory policy frameworks. Through instruments such as the **Ecodesign for Sustainable Products Regulation** (ESPR), the EU is creating strong market pull for bio-based and low-carbon textile materials. In parallel, the **EU Biotech Acts** aim to streamline the authorisation processes for bio-manufacturing facilities, addressing the regulatory bottlenecks that have historically slowed the deployment of industrial biotechnology.

At the same time, global fibre consumption continues to rise, driven by population growth, expanding middle classes, and the increasing use of textiles in technical applications. Without timely intervention, this growth will be met primarily by fossil-based synthetics, jeopardising climate targets and increasing strategic dependencies on concentrated production regions. The **bioeconomy offers a scalable pathway to close the "fibre gap"** using renewable feedstocks and advanced bioprocessing technologies. Acting now is critical to overcome investment bottlenecks, accelerate industrial deployment, and ensure Europe captures industrial, environmental, and strategic value from the next generation of textile materials.

Without coordination, the bioeconomy textile sector risks remaining fragmented, sub-scale and underrepresented in EU policies and programmes, while European manufacturing capacities, specialised skills, know-how are disappearing at a fast pace. **This initiative responds to that urgency by creating a shared Strategy to act collectively and proactively.**

Four Strategic Building Blocks

The Strategy will focus on four strategic building blocks. Each building block looks at the different market applications, its unique requirements, opportunities, and research priorities.



Sustainable Manmade Cellulosic Fibres

Man-made cellulosic fibres (MMCF) made from wood pulp or other cellulosic material sources including agricultural and post-consumer waste has great potential to scale and substitute fossil-based materials across a broad range of textile end applications. Europe possesses abundant feedstock from sustainable forestry and agriculture which can be supplemented with suitable cellulose-rich local waste streams. Industrial processing is well-established and European industry holds global leadership positions. Through further focus on resource-efficiency, closed-loop processing and employment of processing routes in lesser need of hazardous chemistry, MMCF's sustainability profile can be further improved.

Biosynthetics and novel Biopolymer-based Fibres

Replacing fossil-based feedstocks by biobased ones for the production of conventional synthetic fibres such as polyester, polyamides (nylon), polyacrylics, elastane or polypropylene has the double advantage of swapping fossil for biobased resources while maintaining fibre processing and functional properties that are well-established with industry and end users. Key innovation challenges to overcome or processing efficiency and feedstock costs. For niche applications novel biopolymers such as PLA, PHA, PEF or protein-based fibres have potential based on very specific functional properties such as controlled biodegradability.

Sustainably sources and functionally improved Natural Fibres

Natural fibres such as cotton, wool, flax, hemp, silk and others used to dominate textile end markets before the rise of fossil-based synthetics. While their growth has been constrained by various economic, functional and environmental factors, they still play key roles in different end markets especially clothing and home textiles. Improvement in agricultural practices as well as innovation in processing and functionalisation along the value chain still hold significant promise

to re-expand global market share of a wide range of such fibres, many of which are available locally in Europe or can be sourced from strategically aligned producing regions.

Bio-chemistry and Bio-based Processing

By some estimates, the textile industry uses over 1000 distinct chemical substances for processing and functionalisation purposes of materials and products along the full manufacturing value chain. A large percentage of them are fossil-derived and many are known or suspected to be hazardous for humans and the environment. Replacing problematic chemicals with less hazardous biobased solutions and processing routes can significantly reduce pollution, improve functional properties and minimise extraction of fossil fuels or minerals.

Objectives and Expected Outcomes

The initiative is designed to deliver concrete value for participants while contributing to Europe's broader strategic goals. Its objectives include:

- **Position textiles as a high-potential value chain in EU bioeconomy policy:** Ensure that the textile, apparel, and fibre sector is explicitly recognised in the EU Bioeconomy Strategy as a priority application area for bio-based innovation and industrial transformation.
- **Strengthen bio-based materials as a strategic pillar alongside recycling:** Establish bio-based fibre solutions as a complementary pathway to fibre-to-fibre recycling, reinforcing a dual-track transition toward circular and renewable material systems for the textile industry.
- **Engage cross-sector value chains:** Create relevance and alignment for companies and associations across bioeconomy-related sectors, including forestry, agriculture, pulp and paper, chemical and biotechnology industries, enabling new partnerships and integrated value chains.
- **Inform and support policymaking:** Share this Strategy directly with EU policymakers involved in shaping and implementing the Bioeconomy Strategy, providing evidence-based insights and sector-specific strategic recommendations.
- **Increase visibility and market momentum:** Through a collaborative expert-driven process and public dissemination of the Strategy, highlight the innovation opportunities of bio-based materials for textiles, raise awareness among EU stakeholders, and catalyse coordinated action across industry, research, and policy communities.

Timeline

First co-creation session webinar
March

Call for case study submissions to be featured as leading positive examples in the Strategy
April

Second co-creation session webinar
June

Finalisation and validation of the Strategy
Summer

Presentation of the final Strategy at the ECOSYSTEX Conference
September

How to Join & Collaborate

EU-based companies, technology and research organisations can directly **sign up to the Circular & Biobased Textiles Innovation Hub**, where 3 annual subscription levels are offered, depending on number of company experts involved (expert – 750 €, team – 1250 €, corporate – 2000 €).

Learn more and sign up at https://www.textile-platform.eu/innovation-hub-circular-and-biobased-textiles.

Expert

✔ 1 person
✔ Access to the Circular & Biobased Textiles Innovation Hub activities
✔ Access to the Textile EPR Masterclass

€750/year

€675/year
for ETP Associate members

Team

✔ 3 persons
✔ Access to the Circular & Biobased Textiles Innovation Hub activities
✔ Access to the Textile EPR Masterclass

€1250/year

€1100/year
for ETP Associate members

Corporate

✔ Unlimited
✔ Access to the Circular & Biobased Textiles Innovation Hub activities
✔ Access to the Textile EPR Masterclass

€2000/year

€1700/year
for ETP Associate members