



EU policies on Sustainability & Circular Economy for Textiles

Closing the Automation Gap: Robotics for Textile Handling in Europe contributing to competitiveness –
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EU Textile and clothing sector

- Significant economic force (2023: turnover of €170 billion, 1.3 million employees across 197,000 companies).
- Significant environmental impacts (in 2020, in the EU, the consumption area with the third highest impact on water and land use, and the fifth highest in terms of raw material use and greenhouse gas emissions) + about 12.6 million tonnes of textile waste generated in 2019, of which only one-fifth was separately collected for reuse or recycling.

Key EU Regulations related to Sustainability & Circular Economy for Textiles – in line with the EU Strategy for Sustainable and Circular Textiles

- **Ecodesign for Sustainable Products Regulation (ESPR)**
- **Waste Framework Directive**



Ecodesign for Sustainable Products Regulation (ESPR)

Objective: significantly improve the sustainability of products placed on the EU market

- establishes a framework for the setting of ecodesign requirements that products have to comply with to be placed on the EU market
- establishes a digital product passport (DPP)
- provides for the setting of mandatory green public procurement requirements



ESPR establishes a framework legislation

**ESPR =
framework
legislation**

It does not set
specific measures.
Rather, it enables
their later
adoption

Framework legislation



Regularly updated
**multiannual working
plans** setting out
priorities, including
apparel

Product-specific measures
In Delegated Acts based on
detailed preparatory study
and impact assessment

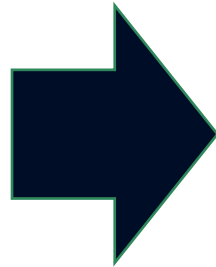
Work on-going on apparel



ESPR Delegated Act on Textiles Apparel

JRC preparatory study on-going to assess possible ecodesign requirements

- Durability/robustness
- Recyclability
- Recycled content
- Environmental impacts
- SoCs

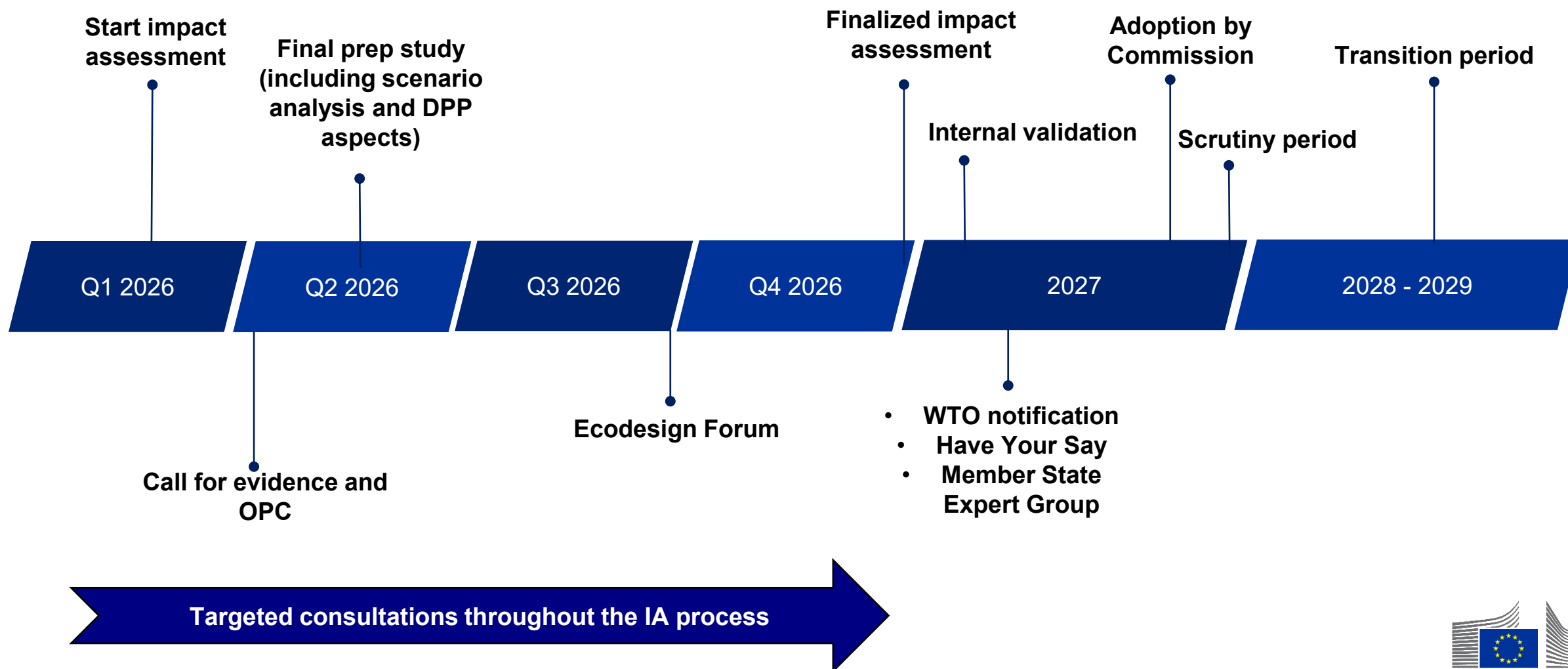


JRC preparatory study so far predominantly identifies **information requirements + performance requirements on recycled content** - *Additional requirements may be added for consideration in the IA based on comments on JRC 3rd milestone (over 200 respondents)*

Complemented by an extensive impact assessment to select suitable policy measures to include in the DA



Next steps and indicative timeline



Waste Framework Directive

- Establishing a legal framework for treating waste in the EU including a waste hierarchy
- Introduces the Extended Producer Responsibility
- Separate collection of textiles by 1 January 2025
- Revised WFD introducing new rules for the management of used textiles and textile waste



Textiles: New Elements



Scope: household textile products, articles of apparel, clothing accessories and footwear, apparel and clothing accessories listed in Annex IVc ('textiles')

- Extended Producer Responsibility (EPR) for textiles and footwear
- General rules on textiles waste management
- Shipment of textiles assessed as fit for reuse



Extended Producer Responsibility for textiles



MS to ensure that producers have EPR for textiles that are made available on the market for the first time within the territory of a Member State



Producers to cover the costs of collection and management of used and waste textiles



Textiles producer register - Implementing acts establishing the harmonised format

Producer Responsibility Organisations (PRO)



Producers to designate a **PRO** to fulfil their EPR obligations on their behalf



EPR fees based on **weight** and, where appropriate, **the quantity of the products**, and **eco-modulated** according to harmonised **sustainability criteria** and measurement methods (**Ecodesign for Sustainable Products Regulation**) and on the basis of **producers' practices** (to address ultra-fast fashion and fast fashion practices).

Commission to adopt Implementing Act on fee modulation criteria



Set up **separate collection systems**



Publish on their websites the information on used and waste textile



Rules on textiles waste management

Separate collection of textiles by 1 January 2025

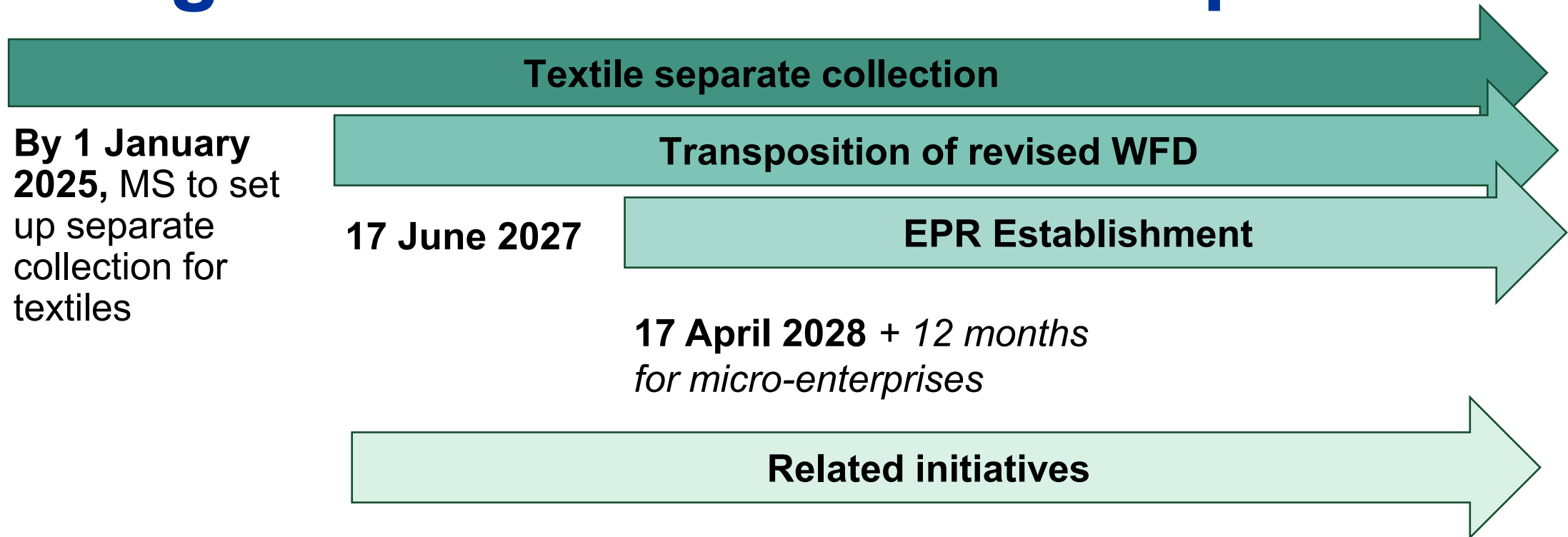
Used and waste textiles, separately collected to be considered **waste upon collection**

sorting operations to ensure the treatment in line with the waste hierarchy

shipment of used textiles assessed as fit for re-use:
obligations for inspections and prior sorting requirements



Timing of main WFD and ESPR provisions



2027 – Delegated Act under ESPR

***Date tbd* – End-of waste criteria for textiles (report by JRC under finalisation)**

***Date tbd* – EU –wide EPR Modulated fees criteria**



How could automation support? (1/2)

Automated Data Collection & Traceability:

- **Automatically tracking of material origin, chemical treatments, and carbon footprint** throughout garments' lifecycle.
- **Automate compliance reporting** for the **DPP**, ensuring transparency

Automated Sorting & Recycling:

- Identification of **fibre composition, dyes, and contaminants** in discarded textiles, improving **recycling efficiency**
- **Separation of blended fabrics**



How could automation support? (2/2)

Waste Reduction in Manufacturing:

- **Automated cutting optimisation** to minimises **fabric waste**
- **3D knitting machines** to produce **zero-waste garments** (whole pieces without cut-offs)

Automated Fibre-to-Fibre Recycling:

- **Mechanical & chemical recycling plants** use **automation** to **break down old textiles into new fibres** at scale.
- **Robotics** can **disassemble garments** (removing zippers, buttons) to **improve recycling purity**.



Funding opportunities – Horizon Europe

calls opened in **Apr** and will close **17 and 22 Sept 2026**

[HORIZON-CL6-2026-01-CIRCBIO-02](#): **Advancing recycling technologies for mixed post-consumer textiles waste from blended products**

One of the expected outcome: European textiles manufacturers have access to novel technologies for fibre-to-fibre recycling of post-consumer textile waste;

[HORIZON-CL6-2027-01-CIRCBIO-05](#): **Innovative circular solutions for end-of-life footwear through collection, sorting and recycling**

One of the expected outcome: Economic operators and waste managers are provided with evidence-based, innovative, cost-effective, and scalable solutions that improve the management of end-of-life footwear products, valorise post-consumer footwear waste materials and increase the circularity of the value chain



Funding opportunities – Digital Europe

Call opened in Apr and closing on 01 October 2026

DIGITAL-2026-AI-DATA-10-COMPLIANCE

Call for proposals, focusing on **AI-driven regulatory compliance and automated reporting**

Objective: Streamline Regulatory Reporting with AI & Automation

Goal: Reduce the administrative burden on businesses by automating compliance data sharing (e.g., environmental, financial, or product registrations) through trusted, secure digital solutions.

The objective is to **pilot innovative approaches that automate compliance processes across EU legislation, ranging from aggregate data (e.g. balance sheets) to detailed data (e.g. transactions, events, product registrations).**

A strong emphasis is placed on collaboration with reporting entities and regulators to enable secure, efficient, and automated compliance while reducing administrative burden.

Where relevant, projects may also explore the use of the European Digital Identity Wallet and trust services to strengthen secure identification and trusted data exchange.



Funding opportunities - Life

Standard Action Projects (SAPs) call for Circular Economy and Zero Pollution, open for submission until **22 September 2026**.

Among the priorities addressed by this call:

- separate collection, preparation for re-use and recycling of **textiles, including mattresses and footwear**;
- the development of **innovative source control methods and on-site technologies** to reduce discharges of pollutants of emerging concern — such as pharmaceuticals, nanoparticles and textile fibres — as well as pathogens in wastewater effluent.



CORDIS Results Pack

Showcases nine Horizon research projects focused on optimising resource use and minimising waste across the entire **textile** production and consumption cycle.



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Example of Horizon 2020 successful project

SCIRT project: System Circularity and Innovative Recycling of Textiles

SCIRT demonstrated a textile-to-textile recycling system for post-consumer materials; two mechanical technologies for accurately sorting and trimming textiles at high speed were developed:

- One to separate material based on fibre content and colour using robots and near-infrared technology.
- One to take the separated fibres and cuts them into small segments ranging from 20 mm to 100 mm in size. The fragments are analysed using cameras and metal detectors to remove non-fibre elements such as tags, buttons and zips.



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These automated sorting and dismantling procedures have lowered the cost of textile recycling and increased the recyclability of garments to 90 %.



Thank you!

