

tExtended project overview

PUBLIC PRESENTATION MATERIAL

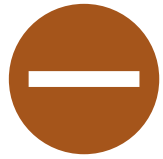
6th July 2023



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Specific needs that triggered the project



Currently textile **production and use** are not sustainable, and linear consumption model produces huge amount of waste. There are multiple **technological** and **non-technological challenges** related to creation of a sustainable circular textile ecosystem.



Separate collection of **textile waste** is going to be started by EU member states by 2025. Currently the textile sorting is done mainly by hand, which is not accurate enough for high-value end uses: technologies and know-how are needed for **identification, collection,** and automated **sorting.** Technologies and know-how are also needed in order to recycle the collected and sorted waste.

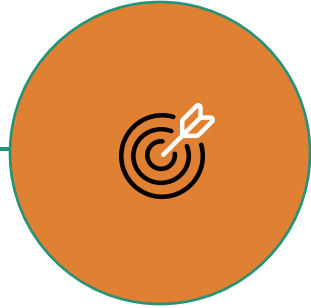


Even though most textile materials are made of **blended fibres,** the current technologies lack the necessary processing options. The current activities mainly focus on down-cycling the waste to low value applications, and the current textile fibres are not **sustainable:** they are oil-based, and the cultivation of the cotton needed to produce them require lots of water and chemicals.

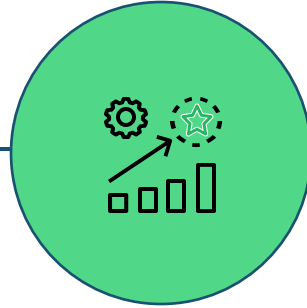


To support an efficient material flow and circular economy processes and support the Industrial-Urban Symbiosis, also **data sharing** readiness needs to be increased. The circular textile system also need the contribute of textile users, who need to be **motivated to participate.**

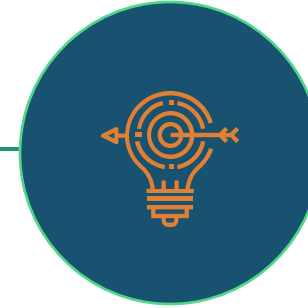
tExtended – Knowledge based Framework for Extended Textile Circularity



The overall objective of the tExtended project is to develop a **Blueprint**, i.e., a masterplan for a sustainable textile ecosystem where product and material cycles are reducing the use of primary raw materials.

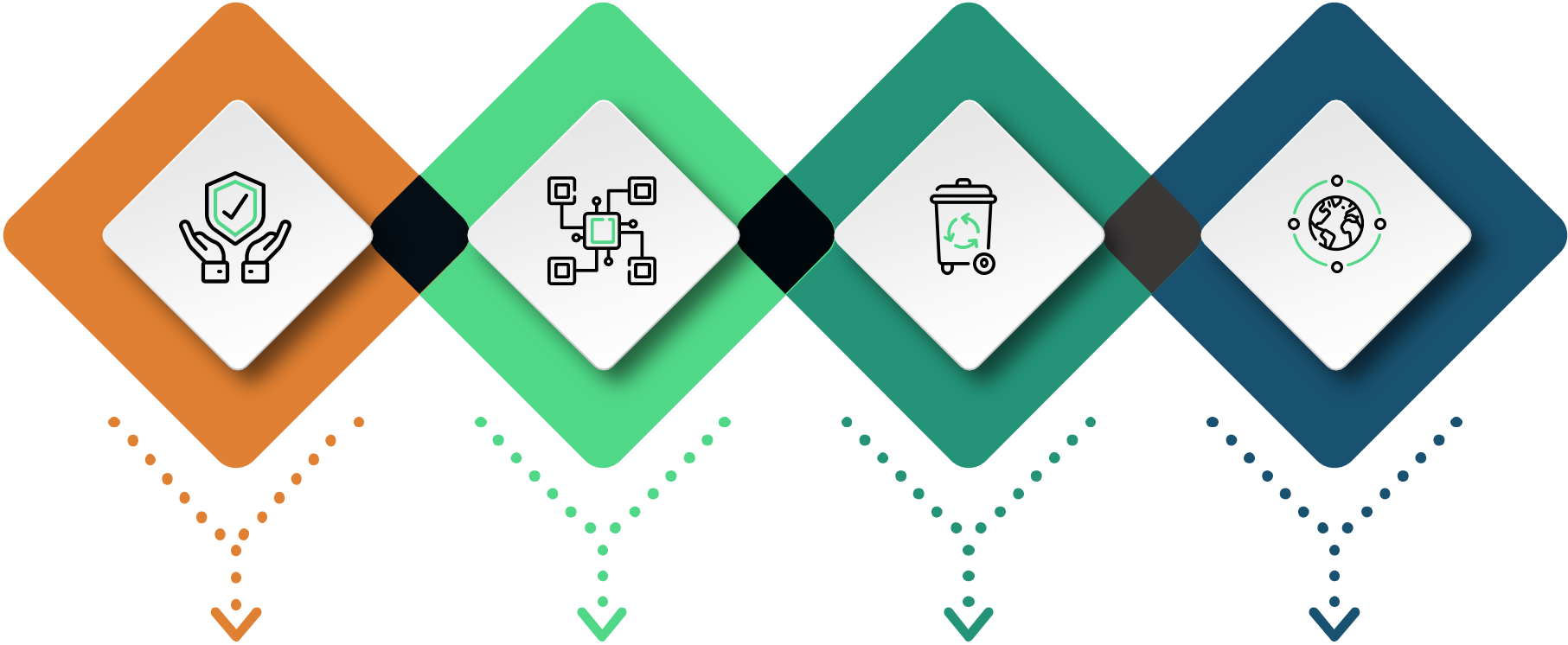


The basis of the Blueprint is a knowledge-based **Conceptual Framework** determining the optimized utilization of textile flows, aiming for retention of value of materials in a safe and sustainable way.



Based on the Blueprint, we will implement a **Real Scale Demonstrator**, verifying its replicability and potential to reduce textile waste by 80% via reduction of post-industrial waste, increased product re-use and material recycling.

Impact generation in tExtended: pathways



PATHWAY 1

Knowledge based and digitally enabled circular textile ecosystem

PATHWAY 2

Efficient textile recovery including collecting and sorting

PATHWAY 3

Waste valorization and recycling aiming for high value applications

PATHWAY 4

Systemic, sustainable and safe circularity for textiles

Impact generation: business case target groups



Re-use and waste management

Lounais-Suomen Jätehuolto (LSJH), De Kringloopwinkel (KLW)

Recyclers

Rester Oy (RES), Lounais-Suomen Jätehuolto (LSJH), PurFi (PURF)

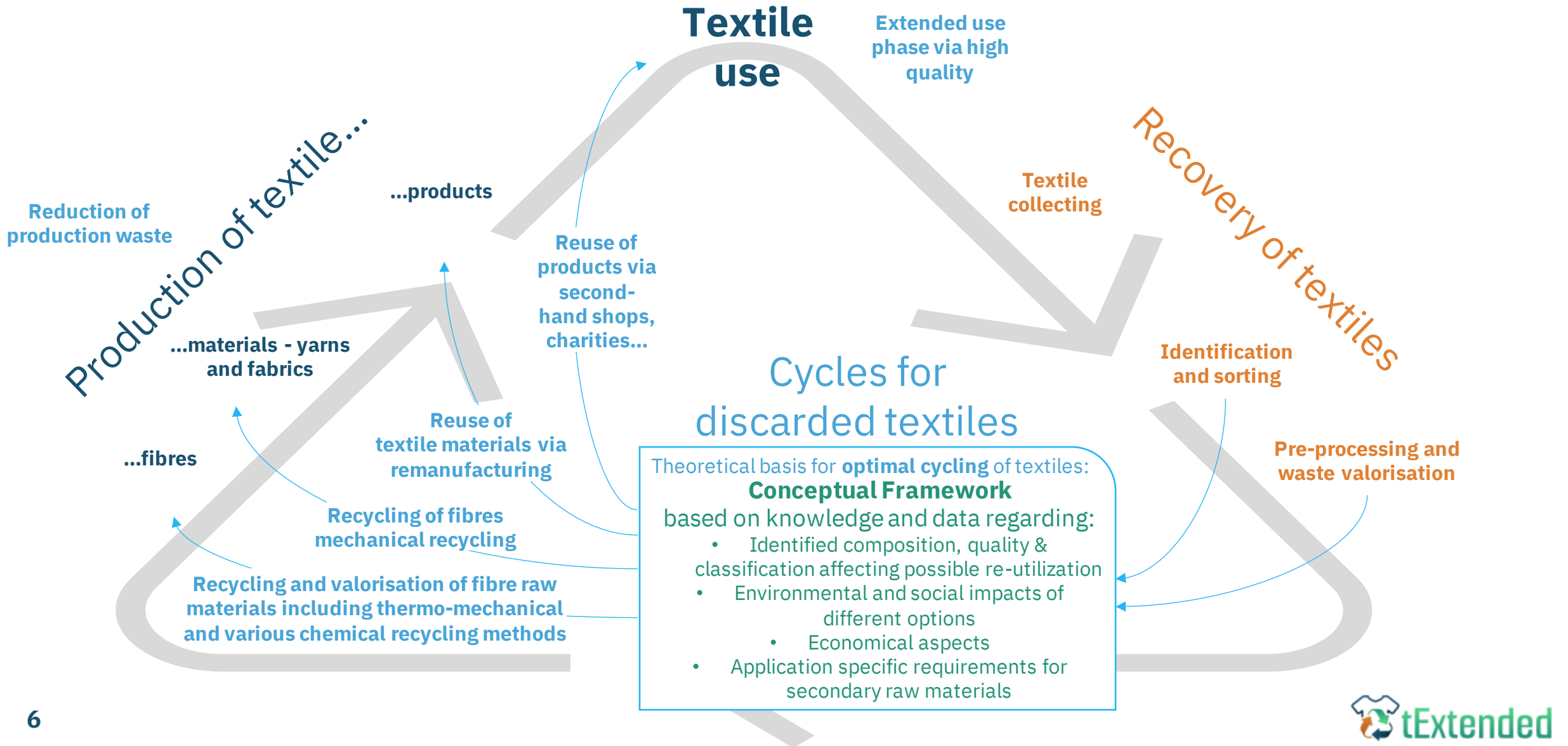
Textile producers & brands

Utexbel (UTEX), ERT Têxtil (ERT), J. F. Almeida (JFA), Tally Wejil (TAW)

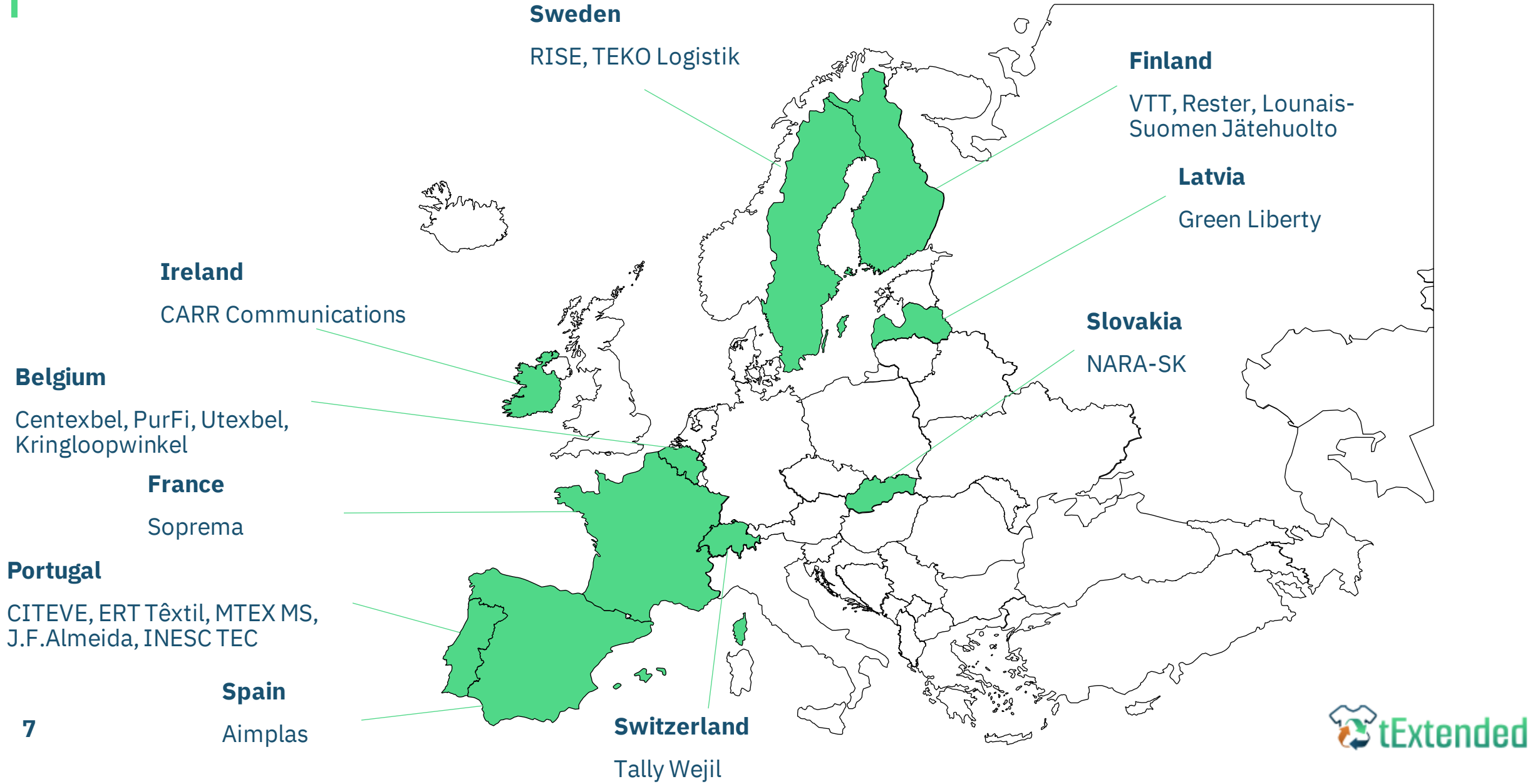
Automatization & machine building & process development

MTEX NS (MTEX), Soprema (SOP)

Conceptual Framework and Blueprint for textile circularity

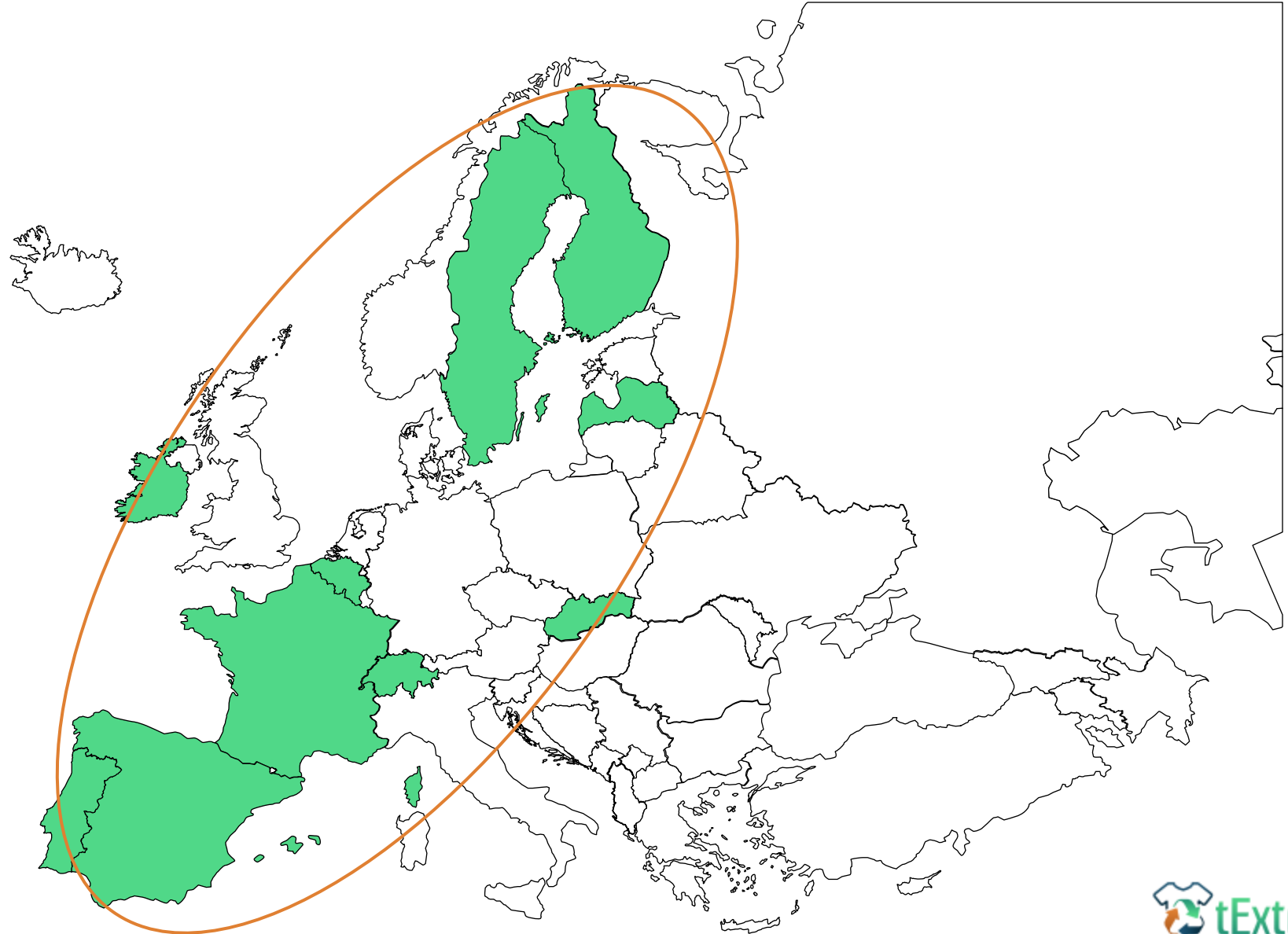


tExtended partners distribution



Real Scale Demonstrator

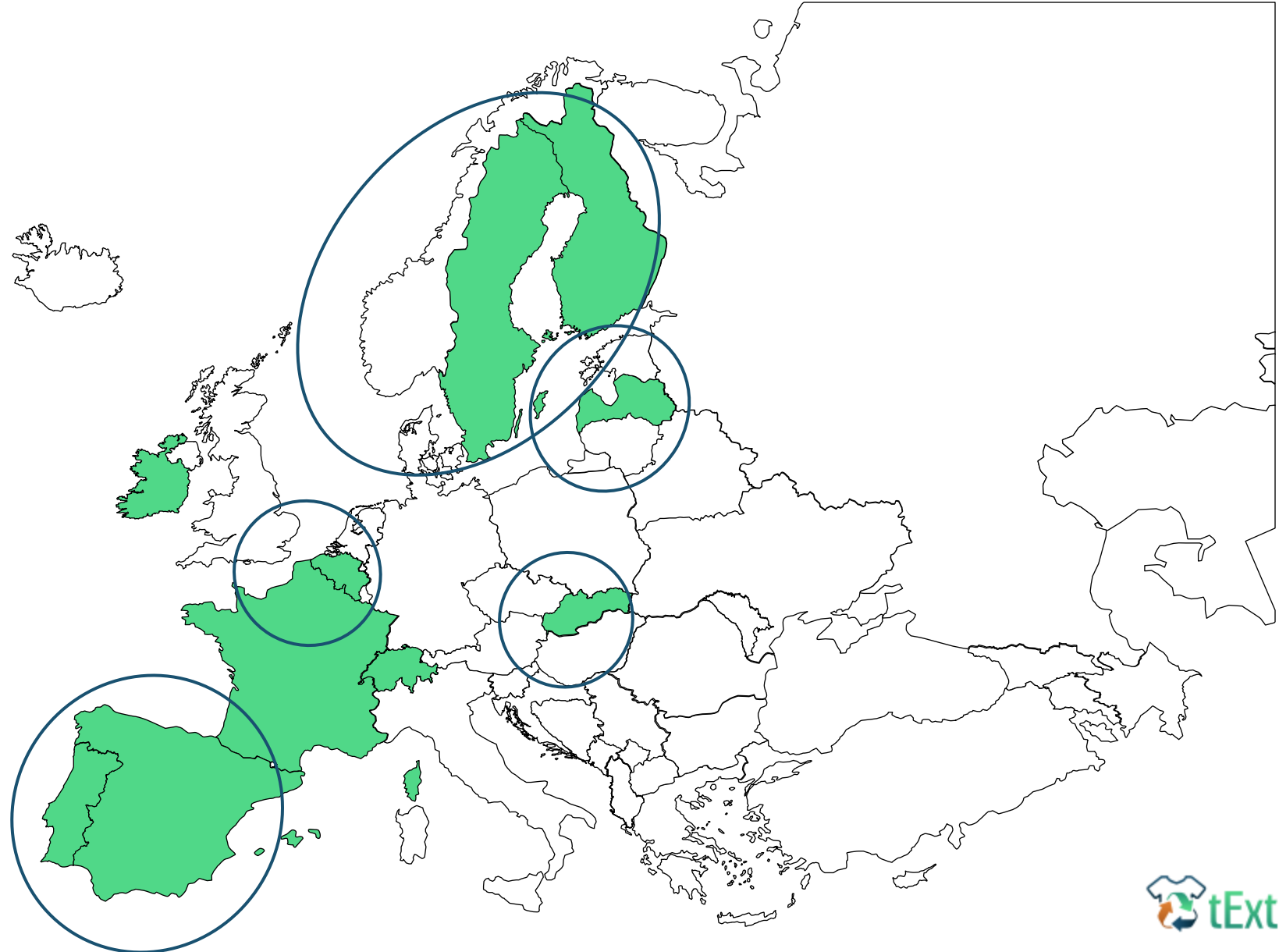
The real scale demonstrator will be carried out in collaboration **with the EU-wide consortium**. Our activities will generate knowledge and demonstrate solutions needed for textile sorting and recycling in all regions and EU member states by 2025.



Replication Potential Study

The replication potential of demonstrator and developed technologies will be studied regionally in

- Nordic countries - Finland, Sweden, Norway, and Denmark;
- Baltic countries – Estonia, Latvia, Lithuania;
- Western Europe - Belgium, the Netherlands, Germany and Northern France;
- Eastern Central Europe - Slovakia, Czechia;
- Southern Europe - Portugal & Spain



Expected Impact

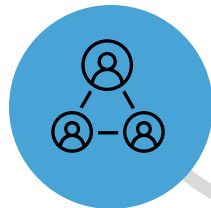
Scientific

Production of new fundamental and applied knowledge for industries and scientific communities, produced on circular economy of textiles.



Societal

Prevention of waste, sustainable consumption models via re-use, creation of jobs.



Economic/Technological

Accelerate the twin green and digital transition in European textile industry by generating new business, strengthening competitiveness and resilience through sustainability, and digitalization.



Environmental

More sustainable textile industry, less emissions, potential to reduce textile waste by 80 %.



Research work

Mainly theoretical work
Practical development and experimental work
Focus on engagement

WP1 Circular textile ecosystem

Building an overview on value chains, shared data and symbiotic interactions in future circular textile ecosystem.

Social Innovation Spin-Off

WP2 Digital tools and technologies for textile recovery

Development of data-driven solutions for optimisation of textile recovery including data sharing, identification, sorting, and development of pre-processing aiming for waste valorisation.

WP3 Textile recycling technologies

Development of textile recycling processes including mechanical, thermo-mechanical and chemical processes; and adjusting textile manufacturing to extended use of secondary raw materials.



WP6 Benefits to sustainability and circularity

Evaluation of sustainability, circularity potential and technological and non-technological barriers

WP5 - Demonstrators

The **Blueprint** – implementation plan for the **Conceptual Framework**

A real scale demonstrator by joined resources of the tExtended consortium

Replication potential study in different regions

WP4 Data-driven framework for textile circulation

Builds a textile classification system, collects textile life-time data and develops the **Conceptual Framework** for determination of an optimised – safe and sustainable – utilization route for different types of textile flows

Communication and collaboration

- + The project online channels are: the website, Twitter, LinkedIn, Instagram, Facebook, and YouTube. The project newsletter is going to be published on both LinkedIn and the website.
- + Important stakeholders of the projects are:
 - + tExtended Technology Advisory Board (TAB) *to be launched in autumn 2023*
 - + tExtended Community of Practitioners (CoP) *to be launched in autumn 2023*
 - + ECOSYSTEM, the European Community of Practice for a Sustainable Textile Ecosystem, collaboration with more than 20 EU-funded member projects focusing on textile sustainability
 - + Processes4Planet partnership



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tExtended - Knowledge based Framework for Extended Textile Circularity

- + Funding from Horizon Europe Programme Grant Agreement 101091575
- + Call identifier: HORIZON-CL4-2022-TWIN-TRANSITION-01-10
- + Call title: Circular flows for solid waste in urban environment (Processes4Planet Partnership) (IA)
- + Coordinator: VTT Technical Research Centre of Finland Ltd.
- + Number of partners / countries: 20 / 10
- + EU contribution / Total budget : 12.3 M€ /15.3 M€
- + Duration: 4 years, started 1st Dec 2022
- + Linkages to European level activities and initiatives e.g.
 - + Processes4Planet Partnership
 - + Hubs4Circularity & Industrial-Urban Symbiosis
 - + ECOSYSTEMEX & ECoP - European Community of Practice





tExtended

Thank you!



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