

Project duration

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September 2024 to August 2028

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Europe contribution

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15 partners
from 7 countries



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Bioinspired
e-textile



& Context approach

The textile industry, the world's third-largest polluter, faces significant challenges, including high water and energy use, pollution, waste, and contributing 10% of global carbon emissions.

Pressure from consumers and European regulations is driving demand for sustainable, high-value products, forcing the EU textile sector to adopt biobased materials, innovate production processes, and improve end-of-life handling.

UPWEARS aims to enhance resource efficiency and sustainability by developing advanced biobased and hybrid fabrics for e-textiles.

These fabrics will feature multifunctional fibres, biomimetic designs, embedded electronics, and pollution sensors. Using AI automation, digital twins, and green bleaching, UPWEARS will minimize waste and chemical use.

The project will showcase a sustainable cross-country biking suit that is abrasion-resistant, waterproof, stretchable, breathable, and tear-resistant, integrating innovative e-textiles and manufacturing processes.

Objectives



Create an innovative & sustainable value chain from the native fibre to the functional device end-of-life



Switch from a traditional process towards a modern textile fabrication process supporting the textile industry's digital and sustainable transformation



Eco-design an e-textile for high added-value sportswear applications meeting European consumer's demand and contributing to EU competitiveness.

Expected Impacts

ENVIRONMENTAL



Minimise manufacturing waste thanks to artificial intelligence and multiscale testing



Reduce chemical usage by incorporating green solvents

SOCIAL



Job creation in Europe (from the field to the market), implementation European labour laws and quality requirements



A valuable value chain for the European competitiveness on the global textile market especially for technical textile segment and avoid dependencies on third countries



Reinforce industrial leadership and increasing European autonomy with security of supply in raw materials, dynamic industrial innovation ecosystems and advanced solutions for substitution, resource and energy efficiency, effective reuse, recycling and clean primary production of raw materials



Produce recommendations and solutions to recycle textiles to avoid landfilling and discard

Applications

UPWEARS will build an innovative and replicable value chain from the valorisation of flax, cork, hemp and by-products of the paper industry towards an innovative, bioinspired, e-textile for application in sport industry.

CONTRIBUTION TO SUSTAINABLE DEVELOPMENT GOALS

