PENGUIN

Bioinspired and advanced fibres and materials for sustainable outdoor textiles with biomimetic functionalities

NEWSLETTER
November 2024

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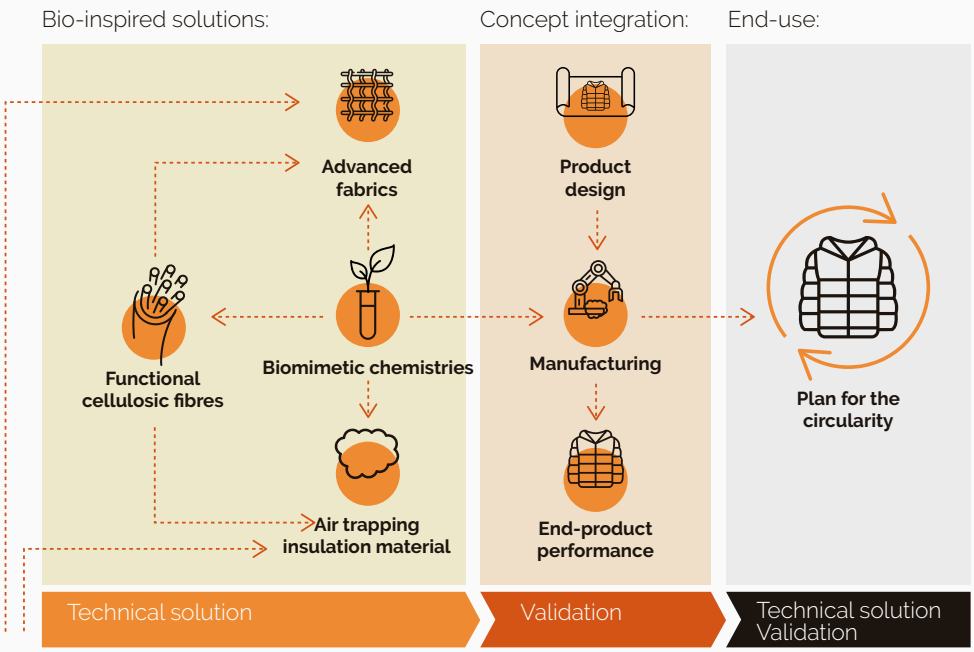
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PENGUIN
in a brief

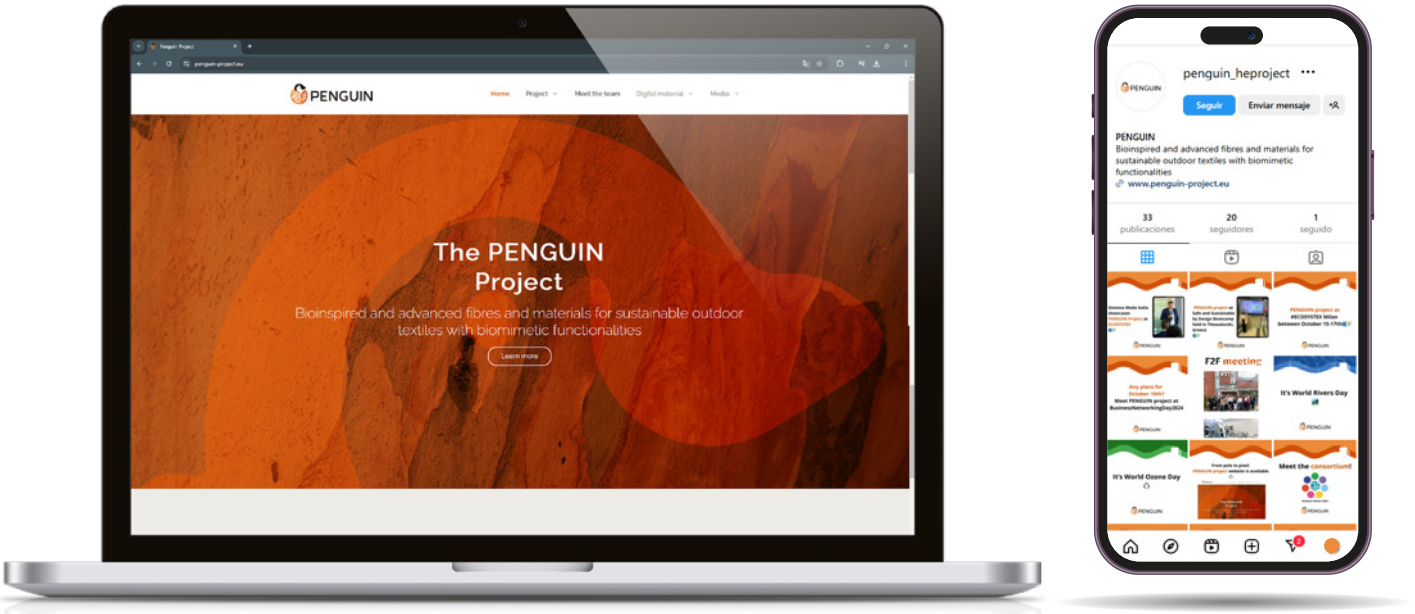
PENGUIN is a 48 months initiative focused on developing sustainable materials for outdoor garments, with an emphasis on cellulose-based fibers that emulate the way penguins protect themselves from cold and moisture. PENGUIN's goal is to position Europe as a leader in textile technology, bringing together leading experts in advanced materials to reduce the environmental impact of the garment industry and address the growing sustainability concerns of consumers.

Specifically, PENGUIN aims to create sustainable and recyclable textile fibers derived from **wood cellulose,** incorporating enhanced hydrophobicity, adhesion, and custom morphologies to produce eco-friendly insulation materials. Advanced biomimetic functionalities and digital tools will be integrated to optimize performance, ensuring that the fabrics meet the high standards of durability and environmental responsibility. A detailed reuse and recycling plan, alongside new recycling technologies, will help ensure that PENGUIN's materials contribute to the circular economy.

With a focus on safety, sustainability, affordability, and market appeal, PENGUIN aims to transform the textile industry by developing innovative materials and production methods through partnerships and cutting-edge research. This effort will contribute to Europe's industrial leadership, strategic autonomy in value chains, and secure access to essential raw materials, reinforcing a resilient and forward-thinking industry.



Communication and *dissemination*



PENGUIN *website*

PENGUIN website (www.penguin-project.eu) was designed and launched in August 2024. Navigate through its Concept, Objectives, and Outcomes, meet our multidisciplinary team, familiarize with the project's Workplan, Methodology, Applications, and Field studies and stay up to date visiting our media section, including News, Events, Newsletters & Press Releases deriving from the PENGUIN team. Access the D&C material, Publications, and Public deliverables as well as our cluster projects and do not hesitate contacting us for any further information.

From pole to pixel: PENGUIN is into social media

The **PENGUIN** project has expanded its outreach by establishing a social media footprint. The project's new profiles on **X, Instagram,** and **LinkedIn** are now live, offering followers an exclusive look into the latest developments, research breakthroughs, and collaborative efforts to create eco-friendly solutions for the textile industry. The PENGUIN project's commitment to environmental responsibility and cutting-edge research will be showcased, providing a platform for dialogue and interaction with both industry professionals and the general public. Join our community!



Dissemination and Communication material

The Dissemination and Communication toolbox already designed and developed under PENGUIN can be found in the dedicated section of our website including:

PENGUIN TEMPLATES:

- Presentation Slides
- Deliverable Template Agenda
- List of participants
- Meeting minutes

PRINTED MATERIAL:

- Brochure
- Flyer
- Roll up
- Poster





PENGUIN

Bioinspired and advanced fibres and materials for sustainable outdoor textiles with biomimetic functionalities

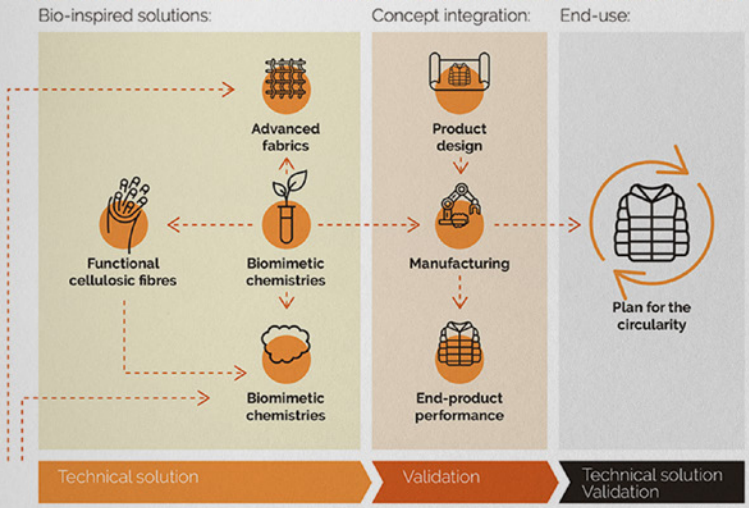
Abstract

PENGUIN is focused on creating sustainable, recyclable insulation materials for outdoor clothing using cellulose-based fibres inspired by penguin's natural protection, aiming to maintain Europe's leadership in the textile sector, reduce environmental impact, and foster circular economy through innovative materials and recycling technologies.

Management:

- Digital tools e.g. modelling & sensors
- Safe and Sustainable by Design
- Market adoption and stakeholder acceptance

Communication, Dissemination & Exploitation



13 partners from 8 countries

VTT · smi · idener.ai · COLMAR · citeve · OrganoClick · RINA · SPINNOVA

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News

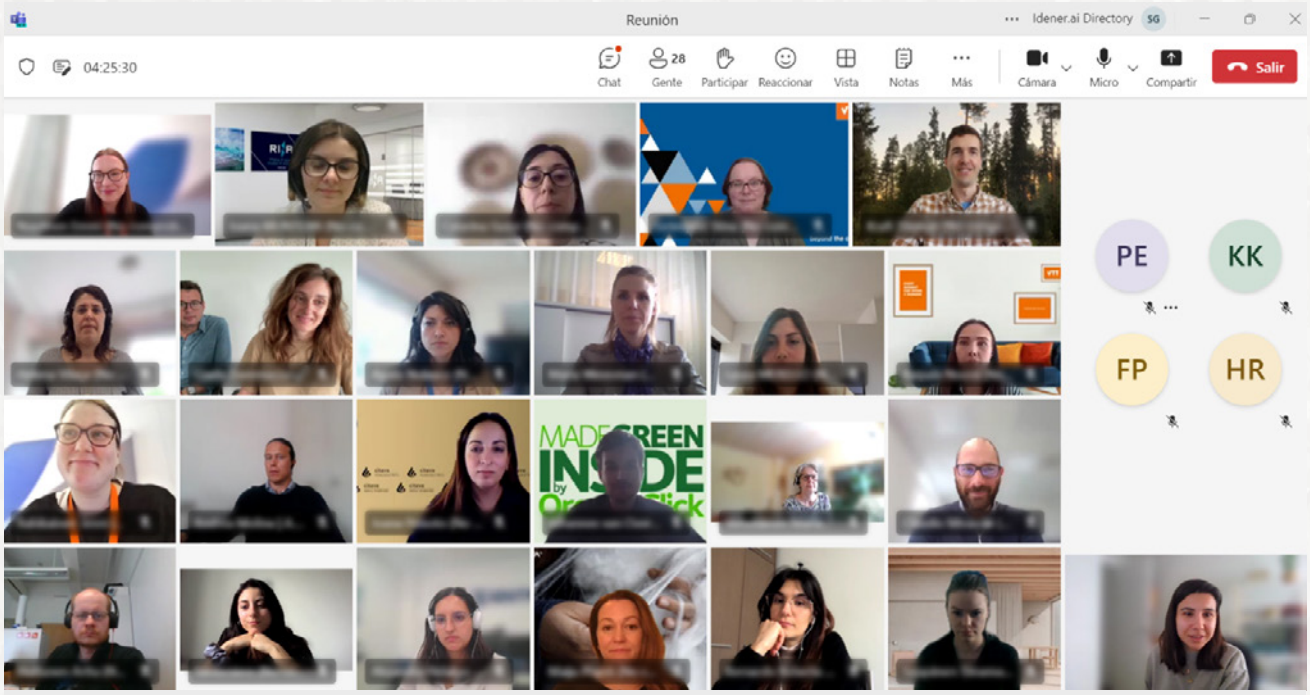


F2F meeting in Jyväskylä

The consortium's first face-to-face meeting was held with great success in Jyväskylä, Finland, on September 25-26, 2024. This pivotal gathering saw partners aligning on the project's vision to revolutionize outdoor textiles through bioinspired innovation. Participants delved deep into various components of the initiative, sharing their latest findings on novel fiber development, state-of-the-art textile manufacturing processes, and the integration of biomimetic attributes tailored for the great outdoors. A highlight of the consortium's time in Jyväskylä was the exclusive tour of VTT and SPINNOVA facilities, which stand at the forefront of textile innovation. Here, the PENGUIN partners were introduced to groundbreaking technologies that are redefining the production of textile fibers and materials.



News



Kick-off meeting of PENGUIN

The PENGUIN project, a significant initiative aimed at advancing sustainability within the European Union, has officially commenced. The consortium's first kick-off meeting took place on May 20, 2024, setting a profound and strategic foundation for the ambitious objectives that lay ahead. Gathered in a spirit of collaboration and determination, the PENGUIN partners shared their insights and outlined the project's core objectives during their inaugural meeting. The consortium, which comprises a diverse group of experts and stakeholders, is focusing its collective expertise on the development of sustainable practices and technologies to foster a greener future for the EU. Each presentation and discussion reinforced the importance of synergy and the potential impact of the PENGUIN project on the region's environmental policies and practices.

News

PENGUIN at Business Networking Day



PLACE: Jyväskylä, Finland

DATE: October 10th

PARTNER: VTT

VTT Technical Research Centre of Finland, as project coordinator, proudly presented the **PENGUIN** project at the University of Jyväskylä's BusinessNetworking Day on October 10, 2024, showcasing the project's innovative and bioinspired approach to sustainable outdoor textiles, and highlighting the incorporation of biomimetic functionalities for high-performance, eco-friendly materials.

SMI enhances ECOSYSTEX with PENGUIN innovations



PLACE: Milan, Italy

DATE: October 15th – 17th

PARTNER: SMI

The **ECOSYSTEX** initiative recently featured a presentation by the **SMI** team on the **PENGUIN project,** which brought fresh perspectives and innovative approaches to the event. This showcase highlighted PENGUIN's contributions, demonstrating how collaborative efforts are driving environmental progress and technological development forward.

News

PENGUIN at Modtissimo fair held in Porto



PLACE: Porto, Portugal

DATE: September 12th – 13th

PARTNER: CITEVE

CITEVE presented the **PENGUIN project** at the **Modtissimo** fair held in Matosinhos-Porto, Portugal, on September 12-13, As the oldest textile fair on the Iberian Peninsula, Modtissimo stands as a pivotal event for the Portuguese Textile and Clothing Industry, attracting a diverse array of sectors including fabrics, accessories, apparel, and emerging textile technologies. This year's fair provided an exceptional platform for CITEVE to introduce the PENGUIN project to a wide audience, emphasizing its commitment to sustainability and the pursuit of circular economy principles within the textile domain.

Reseachers night at University of Jyväskylä



PLACE: Jyväskylä, Finland

DATE: September 27th

PARTNER: VTT

During the recent Research Night at the University of Jyväskylä, an initiative, aimed in bringing advanced sustainability and energy efficiency scientific developments to the general public, **VTT** highlighted our groundbreaking work on the **PENGUIN project.** The organization demonstrated how the project aligns with global efforts to combat climate change, showcasing the tangible outcomes of their research.

News

IDENER.AI showcases PENGUIN project advances at 2nd SSbD bootcamp



idener.ai

PLACE: Thessaloniki, Greece,

DATE: October 22-25th

PARTNER: IDENER.AI

IDENER.AI made a significant contribution to the 2nd Safe and Sustainable by Design (SSbD) Bootcamp hosted in Thessaloniki, Greece, from October 22-25. The bootcamp centered around the pivotal updates to the SSbD methodological guidelines that were released in May, and the ongoing developments of the PARC toolbox.

UPCOMING *events*

PARTNER	EVENT	YEAR	DATE	LOCATION
OrganoClick AB, MOLINA, CITEVE, SMI	ISPO Munich	2024	December 3-5th	**Munich,** Germany
MOLINA	Heimtextil Frankfurt	2025	January 14-17th	**Frankfurt,** Germany
SMI	Pitti Uomo	2025	January 14-17th	**Florence,** Italy
CITEVE	Modtissimo	2025	January 29-30th	**Porto,** Portugal
SMI	Milano Unica	2025	February 4-6th	**Milan,** Italy
CITEVE	iTechStyle Summit	2025	May 26-28th	**Porto,** Portugal

Meet the consortium

VTT

VTT, Technical Research Centre of Finland Ltd, serves as a Coordinator, harnessing its experience in coordination and management, coupled with its proficiency in data management, open science, and technology transfer. Additionally, VTT contributes its expertise across various key activities, encompassing textile fibre production, insulation material development, sensor validation platforms, and access to advanced manufacturing facilities.

SMI

SMI, Sistema Moda Italia, is dedicated to advancing research and innovation, while also facilitating technology transfer by connecting companies, industry sectors, and European associations. SMI leverages its broad expertise in European R&I initiatives and its well-established international textile network to drive the project's success. Also, SMI *coordinate* the Dissemination and Communications activities in PENGUIN project.

IDENER.AI

IDENER.AI's Biotechnology Applications division showcases its proficiency in applying computational tools to advance sustainable bio-based processes and products, emphasizing *in silico* and multi-scale modeling with a focus on Safe and Sustainable by Design principles. Simultaneously, IDENER.AI takes on a leading role in developing and implementing the project's communication strategy.

Meet the consortium



CITEVE

Citeve contributes to the PENGUIN project with their expertise in fabric and material validation for companies of the textile sector, along with leading the advancement of recycling technologies, ensuring a sustainable and innovative approach to textile manufacturing.



ORGANOCLICK AB

OrganoClick AB contributes to the PENGUIN project by providing biomimetic chemical products and additives, playing a key role in the innovation works. Their nature-inspired solutions offer a valuable dimension to the project's advancements.



RINA

Rina's role encompasses conducting sustainability assessments, including environmental, economic and social dimensions with Life Cycle Assessment. They will also develop the project's exploitation strategy and lead efforts in defining reuse and recycling strategies, contributing across multiple facets to ensure the project's success.



MOLINA

MOLINA is dedicated to innovating in the field of loose-fill insulation utilizing a specialized pilot line for development and focusing on up-scaling these materials for broader application in outdoor jacket manufacturing. Their efforts are key to enhancing the thermal properties and comfort of outdoor wear.

Meet the consortium

COLMAR

Colmar is set to design and validate an outdoor puffer jacket prototype ideal for active wear, utilizing the project's top-performing insulation materials and fabrics, showcasing practical application of the PENGUIN project's innovations.

SPINNOVA

Spinnova takes a pioneering role in producing innovative functional cellulose-based fibers, drawing on their extensive knowledge to push the boundaries of sustainable fiber technology. Their involvement extends to collaborating on the enhancement of fiber applications, demonstrating their commitment to textile innovation and sustainability.

PANGAIA GRADO ZERO

Pangaia Grado Zero plays a pivotal role in shaping the future of sustainable textiles, as they are responsible for the critical stages of design, development, and validation of the final product, ensuring that the innovative materials from the project's earlier phases are realized into functional and market-ready apparel.

PENGUIN

PARTNERS

VTT
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COLMAR
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