Introduction to the SUSTAFIT Research Project

The SUSTAFIT project focused on sustainable, fit-for-purpose nonwovens, and it was established in response to the Finnish industry's need to enhance its competitiveness and expand its opportunities in the varied and growing market for sustainable nonwovens. To achieve this, industry representatives emphasise the importance of strengthening the collaborative network among stakeholders, including businesses, research institutions, service providers, and customers. This collaborative approach is essential for fostering sustainable business practices in the nonwovens sector.

In response to this need, the SUSTAFIT research project outlined sustainability strategies for specific application segments, and facilitated a deeper understanding of the knowledge gaps identified collaboratively. The gaps identified relate to the expansion of sustainable raw materials in nonwovens and the correlations between raw material, processing, and properties. A particular focus of SUSTAFIT was to enhance the appeal of sustainable fibres for nonwoven applications. This was achieved by improving their hydrophobicity and antimicrobial properties, addressing two significant barriers to the broader adoption of sustainable fibres.

Methodologically, the SUSTAFIT research project functioned as an innovation ecosystem that facilitated the development of new material innovations. This was achieved by advancing from laboratory scale to pilot scale, leveraging raw materials, knowledge, and infrastructure from various participating entities. The project also engaged stakeholders in collaborative workshops to foster innovation and address the research gaps identified. Additionally, it effectively incorporated stakeholders and resources beyond the consortium into the knowledge creation process in various ways.

Sustafit partners

SUSTAFIT – Sustainable fit-for-purpose nonwovens was a research project funded by Business Finland conducted between 1 October 2022 and 30 September 2024. The research was carried out by Tampere University of Applied Sciences (project coordinator), VTT Technical Research Centre of Finland and Aalto University. In addition, participants included seventeen industry companies in the nonwoven value network: Fortum, UPM, Sulzer, Kemira, Lounais-Suomen Jätehuolto, Anpap, Spinnova, Nordic Bioproducts Group, Rester, Valmet, SharpCell, NordShield, Fiber-X, JedX Medcare, Paptic, Mirka, and Lixea.

SUSTAFIT – Sustainable fit-for-purpose nonwovens responded to the Finnish industry's need to boost competitiveness and broaden opportunities in the versatile, growing sustainable nonwoven markets.

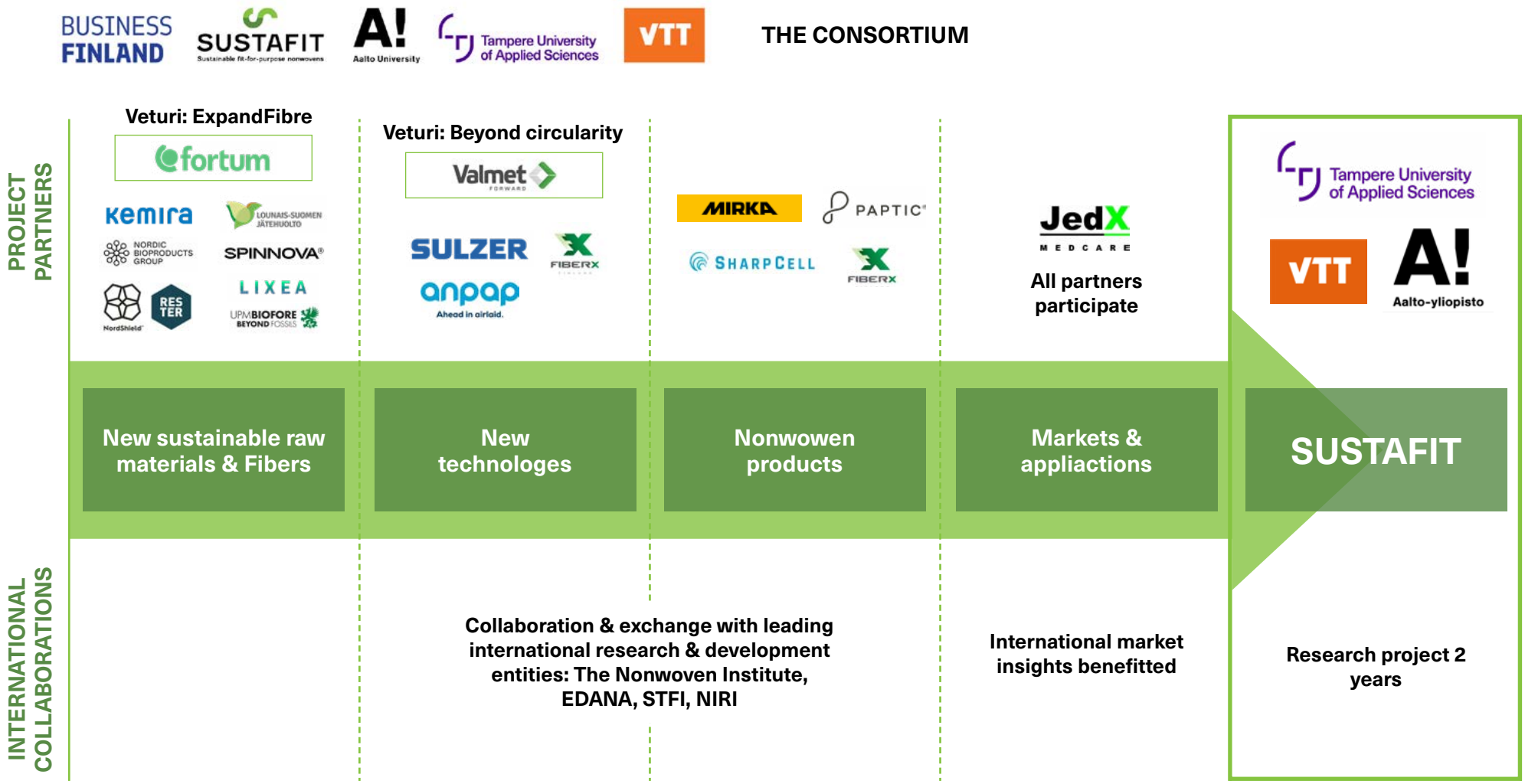
SUSTAFIT described application segment specific sustainability strategies. The project also built understanding on the jointly identified knowledge gaps around how to expand the use of sustainable and recycled fibres from alternative renewable and sustainable feedstocks in nonwovens, and how to relate the properties of the raw materials and their processing to the properties of the nonwoven products. As one specific target, SUSTAFIT boosted the attractiveness of sustainable fibres for nonwoven applications by developing their hydrophobicity and antimicrobial performance, the two major restricting factors for increased sustainable fibre introduction. SUSTAFIT tackled these jointly identified research gaps through practical demonstrations and by involving stakeholders to jointly assess new value chain opportunities.

SUSTAFIT aimed to

- describe **segment-specific sustainability strategies** for nonwoven application areas (addressed in the SUSTAFIT work package 1);
- **broaden the feedstock portfolio** for sustainable nonwovens (addressed in the SUSTAFIT work package 2);
- create **understanding between the properties** of raw materials, processing, and nonwoven **products** (addressed in the SUSTAFIT work package 2);
- develop **water-repellent** and **antimicrobial** bio-based nonwovens (addressed in the SUSTAFIT work package 3);
- identify **business opportunities** for sustainable and high-performance nonwovens (addressed in the SUSTAFIT work package 3); and
- **increase international collaboration** and disseminate the outcomes (addressed in the SUSTAFIT work package 4).

If you are interested in learning more about what we have been working on in the SUSTAFIT research project beyond what is presented in this Practical Workbook, please visit our webpage: https://projects.tuni.fi/sustafit

Figure 3. The SUSTAFIT project consortium (Source: SUSTAFIT)



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