

Call: HORIZON-WIDERA-2021-ACCESS-03/Twinning

Project SustDesignTex (GA No. 101079009), title: „Sustainable Industrial Design of Textile Structures for Composites” funded by the European Union

Deliverable Report

SUSTainable industrial DESIGN of TEXtile structures for composites (SustDesignTex)

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Abstract:	<i>The main objective of the deliverable was to maximize the visibility of the Lodz University of Technology's research activities and SustDesignTex work activities by organizing an international conference. The InnovaTex2025 conference was held at Lodz University of Technology from 22nd to 24th January 2025 in Lodz, Poland. The conference was organized at an international level for the second time in this project and attracted participants from different countries and institutions. The conference was organized under the theme of "Beyond Textiles: Materials Engineering for the Modern Age." In total, 120 participants from 13 countries have attended the conference. No fees were charged as part of the InnovaTex2025 Conference. The conference was free for all participants.</i>

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Introduction

InnovaTex2025 international conference was organized from 22nd to 24th January 2025 in Lodz, Poland, under the theme of " *Beyond Textiles: Materials Engineering for the Modern Age.*" The conference was held at the Institute of Material Science and Engineering of the Lodz University of Technology.

The InnovaTex2025 international conference was organized at the global level to enable researchers and various industries from different countries and project partners to participate in the conference. The conference was organized jointly with the Faculty of Material Technologies and Textile Design and the Faculty of Mechanical Engineering of the Lodz University of Technology, with the participation of people involved in industrial activities undertaking joint research and projects. To increase the level of conference and attract people from various institutions to expand cooperation beyond a single project consortium, exchange experiences, use the budget properly and make new acquaintances the two Horizon Europe Projects namely SustDesignTex (GA No. 101079009) and AIdesignTex (Innovative IT tools for a circular textile economy: driving sustainability and resource efficiency" is funded by the European Union Grant Agreement no. 101159060 Call: HORIZON-WIDERA-2023-ACCESS-02) where collaborated to organize this project. The two projects are coordinated by the Lodz University of Technology at the Faculty of Material Technologies and Textile Design. Thanks to this collaboration, the conference attracted participants from thirteen different countries, with a total of 120 attendees. The circular economy, textile sustainability, textile-reinforced composites, the application of Artificial Intelligence (AI) and Machine Learning (ML) in the textile industry, and composite recycling were among the major topics discussed during the conference.

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Registration of Participants for the InnovaTex2025 International Conference

The InnovaTex2025 conference website (<https://www.innovatex2025.eu/>) was launched and opened for registration to participants on 8th May 2024, and the registration and submission of conference extended abstracts by the participants were closed on 30th September 2024. During the registration period, 120 participants from various universities, Small and Medium Enterprises (SMEs), and companies were registered for the conference.



Figure 1. InnovaTex2025 international conference website's front page.

InnovaTex2025 International Conference Events

The conference was officially opened on 22nd January 2025 by Professor Krzysztof Jóźwik, Rector of Lodz University of Technology (TUL), Professor Katarzyna Grabowska, Dean of Faculty of Material Technologies and Textile Design of TUL, Associate Professor Marcin Barburski, coordinator of SustDesignTex project, Professor Jacek Sawicki, Dean of the Faculty of Mechanical Engineering. In their opening speeches, they welcomed the conference participants to the city of Lodz and the Lodz University of Technology; they all highlighted how collaboration is key for developing cutting-edge technology and tackling the sustainability issue of the textile industry. In addition, Associate Professor Marcin Barburski, the SustDesignTex project coordinator, highlighted the SustDesignTex project's objective to the conference participants during his welcome speech.

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Figure 2. InnovaTex2025 international conference welcome opening session.

After the welcome speech, keynote speakers from Sweden, Germany, and Norway delivered presentations on topics "Advancing Mechanical Textile Recycling and Spinning," "Composite Circular Economy - Threats, Fundamental Laws, Perspectives," and " Leveraging Artificial Intelligence (AI) for Circular Textile Innovation: Optimizing Waste Reuse," respectively.

Following the keynote speakers' presentations, the exhibition "Circular Creations: Green Solutions in Textile, Fashion, and Product Design" was opened, showcasing the work of the SustDesignTex teams throughout the project's implementation. Subsequently, two parallel sessions were organized, providing both esteemed and early-career researchers from various countries with the opportunity to present their work. Researchers shared their findings according to the schedule posted on the conference website (<https://www.innovatex2025.eu/>).

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The second day of the conference also started with keynote speakers from Poland and Spain delivered presentations on topics "The EU Textile Strategy from Vision to Regulation" and "A more sustainable approach to sporting goods," respectively. Following the keynote speakers' presentations, researchers presented their findings in various areas.



Figure 3. InnovaTex2025 international conference events.

InnovaTex2025 international conference papers and posters

The conference extended abstracts and posters submitted by the participants were peer-reviewed by the InnovaTex2025 conference's scientific committee before acceptance. The conference papers were compiled together, presented in an electronic book of abstracts, and uploaded to the conference's website page. Access to the conference book is available to the public free of charge.

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Figure 4. Book of abstracts cover page.

SustDesignTex consortium partners meeting - progress discussion

On the second day of the conference, SustDesignTex consortium partners had a separate meeting where we evaluated the project's progress and discussed future works. Besides discussing the current project, the consortium partners also discussed the strategies of post-twinning collaboration between partner institutions.



Figure 5. SustDesignTex project progress discussion meeting.

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Conclusion

The InnovaTex2025 international conference brought together researchers and industry experts to share and discuss various research advancements and insights on sustainability, the circular economy of textiles, textile-reinforced composites, and many other related topics. Organizing the InnovaTex2025 conference at an international level in a joint format provided a unique opportunity to network with a diverse range of researchers, industry professionals, and other stakeholders in the textile sector. A notable highlight of the conference was the Business Forum, held on the second day in a separate session, which facilitated in-depth discussions between project partners and industry representatives on current challenges in the textile and aviation sectors. This session fostered valuable exchanges between academia and industry, bridging the gap between research and practical applications.

Overall, the conference delivered significant added value, including, but not limited to, networking opportunities, exposure to diverse perspectives within the textile field, and increased visibility for our project and universities. Furthermore, it served as a platform to foster collaborations, inspire innovative solutions, and contribute to the ongoing advancements in sustainable textile technologies.