

ITMF–ITA Report Identifies Barriers to AI Adoption in Textiles

TECHNICAL TEXTILES TODAY

The International Textile Manufacturers Federation (ITMF) and the Institut für Textiltechnik of RWTH Aachen University (ITA) have published a new white paper, *AI in the Textile Value Chain: A Strategic Guide to Artificial Intelligence for the Global Textile Industry*. The report identifies poor data integration, skills shortages and governance gaps as the principal barriers to artificial intelligence (AI) adoption in the textile and apparel industry, rather than limitations in the technology itself.

The white paper argues that the industry's ability to benefit from AI will depend on coordinated efforts to strengthen digital infrastructure, develop workforce capabilities and establish trusted governance practices.

Research Draws on Industry Experts and Practitioner Discussions

The report builds on the ITMF and ITA webinar series *AI in the Textile Value Chain*, conducted between 2024 and 2026. Across ten sessions, more than 20 experts from companies, research institutes and policy bodies shared their perspectives on AI applications and challenges across the textile value chain.

The findings also incorporate a World Café discussion with industry practitioners held at the ITMF Conference 2025 in Yogyakarta, Indonesia.

According to the authors, AI is gaining relevance in response to structural challenges facing the industry, including demographic decline, persistent skills shortages, volatile markets and increasing requirements for quality, traceability and sustainability.

Although decades of digitalisation have generated substantial amounts of industrial data, many companies continue to operate with disconnected systems. The report therefore characterises the sector as “not under-digitalised, but digitally fragmented.”

Key Findings on AI Adoption in Textiles

AI Is Delivering Measurable Results in Specific Applications

AI is already generating measurable value in clearly defined industrial applications. These include computer-vision systems for fabric and yarn inspection, predictive maintenance, energy optimisation and demand forecasting.

One example cited in the report involves a nonwovens production line where causal AI reduced scrap by 10%.

Data Quality and Skills Remain Major Constraints

The report identifies data readiness and workforce capabilities as more significant constraints than the availability of algorithms. Participants cautioned that AI does not correct poor-quality

data but can amplify existing weaknesses.

Many companies also have less usable, structured data than they believe, limiting their ability to deploy AI effectively.

AI Systems Are Moving Towards Direct Action

AI applications are progressing beyond decision support towards systems capable of coordinating and executing multi-step processes.

Agentic AI systems are beginning to coordinate activities such as sourcing, while causal AI is starting to adjust production settings directly. Both applications remain under human supervision.

The report estimates that end-to-end AI workflows could become realistic within two to three years.

Trust and Accountability Are Essential

The study identifies trust as a decisive factor in AI adoption. Industry participants highlighted several conditions for responsible implementation, including control over sensitive data, strong cybersecurity, transparency about system limitations and continued human accountability.

White Paper Recommends Investment in People and Shared Data Infrastructure

The report recommends that textile and apparel companies prioritise workforce development before scaling AI technologies and treat data as shared infrastructure.

It advises companies to begin with clearly defined, limited applications and expand implementation incrementally as capabilities develop.

Industry associations and pre-competitive collaboration are also identified as important, particularly for small and medium-sized enterprises (SMEs). Suggested approaches include shared data standards, data spaces that preserve ownership for the original data provider, and sector-specific tools such as a controlled “Textile GPT.”

These approaches could help companies address common challenges and build the capabilities required to use AI more effectively across the textile value chain.

ITMF and ITA Highlight the Need for Industry Collaboration

Olivier Zieschank, Director, ITMF, said:

“AI is not a shortcut around the structural challenges our industry faces, but it can help companies manage complexity and make the most of scarce expertise. Understanding where AI genuinely helps is a learning process. That is why exchange through associations like ITMF matters so much.”

Prof. Thomas Gries, Director, Institut für Textiltechnik ITA, RWTH Aachen University, said:

“Companies need a dedicated task force to embed data integration into their day-to-day and strategic technical and business processes. Partnering with external experts on a transparent assessment — a data or automation waste walk — and on effective implementation is not only

decisive to future success, but essential to survive!”

Access the White Paper

The white paper, *AI in the Textile Value Chain: A Strategic Guide to Artificial Intelligence for the Global Textile Industry*, is available through the following resources:

- **White paper:** <https://doi.org/10.18154/RWTH-2026-09336>
- **Publication record:** <https://publications.rwth-aachen.de/record/1042375>
- **ITMF and ITA webinar recordings:** <https://www.itmf.org/virtual-forum> — available to ITMF members.

The report calls for a coordinated industry response that combines data integration, workforce skills, governance and collaboration to support effective and trusted AI adoption across the global textile industry.