Media Contacts:

Danièle CLUTIER-LEAUTE

33 (0)6 80 42 20 94

Pola HENDERSON

33 (0)6 37 38 43 04

hello@smartx-europe.eu

https://www.smartx-europe.eu/

SMARTX EUROPE INTRODUCES SMART TEXTILES VALUE CHAIN MAP

BRUSSELS, APRIL 20, 2022 -- SmartX Europe, short for the European Smart Textiles Accelerator, has launched a new manufacturing value chain map for the rapidly growing smart textiles industry.

The primary objective of SmartX programme was to build an engaged and connected community of all those who count for the future of European smart textiles. Another key ambition of SmartX has been to shape and establish the industrial value chains that are needed to realise industrial manufacturing of smart textiles and to set up the ecosystem for full commercial exploitation. For this reason, the SmartX consortium conducted a detailed analysis of the value chain and developed the new multidisciplinary map, as follows.

Introduction: A complex value chain

The smart textiles value chain comprises multiple actors from three distinctive industries, namely electronics, textile, and ICT (Information and Communications Technology). This underlines both the need for cross-sectoral partnerships and how challenging it is to bring together competencies, energies and strategies based on three very different industries, viewpoints, and mindsets.

Figure 1 shows the full value chain map of smart textiles. The cross-sectoral value chain covers the hardware part, the software part, the textile part, and the end-product. Each part of this map is described in detail in the following pages.
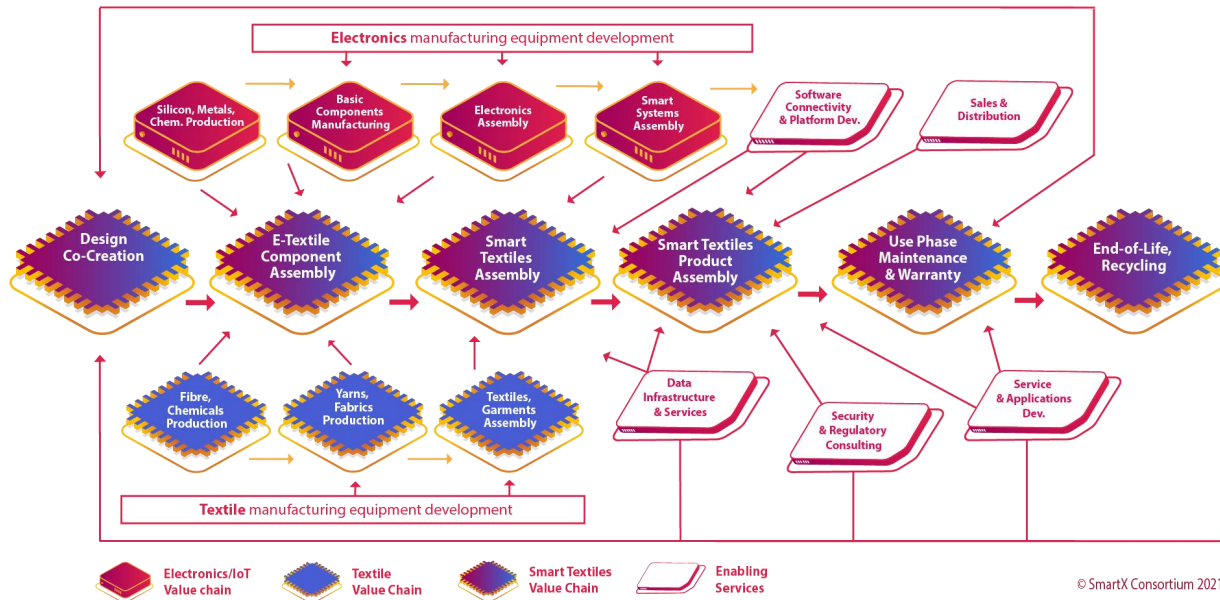
Smart Textiles Value Chain

Figure 1: Full SmartX Value Chain Map

This analytical map has been designed by [SmartX Europe](#) partners, putting together their knowledge of the different stages, nodes, and components of this smart textiles value chain. It aims to give a clear vision of the whole interactive pattern, but more specifically to identify the current gaps that slow down or jeopardise the successful development of the European industry of smart textiles.

Current challenges facing European smart textiles

In short, one can say that there is no clear absence of any specific element, but rather a weakness in many of them that comes from little collaborative history between the three industries concerned. Furthermore, the still insufficient development of volume markets prevents most of the large businesses that predominantly supply equipment machinery, chemical, and electronics components from dedicating much effort and investment to smart textiles production.

Technological breakthroughs are not what is primarily missing in order to allow the European smart textile industry to shine in the global market. Ideas are there, researchers and patents as well, but the movement is led by start-ups and SMEs who have to cope with small series and high costs. They serve a few lead customers in specific market niches, have to work with adapted equipment and very limited automation, modified chemical formulations, and need to add required new skills in the workforce. In other words, they fight using David's means in an international competition driven by Goliath's processes.

However, there are promising technological trends, such as the current development of low power flexible and organic electronics, as well as more automated integration of conductive elements into conventional textiles through knitting, embroidery or printing, which will help to achieve lower cost levels and more reliable quality and better functional properties. To meet the existing challenges, several highly promising fields are opening up to the industry. The most important one is the development of flexible electronics, which allow for efficient connections between soft material substrates and hard metal components and the very appealing use of hybrid chip platforms - system-on-chip with a low-power coprocessor- which translates into significantly better performances and user experience.

One major drawback the industry has to face is the insufficient integration of marketing in the broad sense: developing unique selling propositions, identifying how and why the smart textile product is better than existing solutions, how consumers or professional users are best going to accept and value it, how the market uptake can be organised, how specialised distributors and service providers can be incentivised and trained to offer smart textile solutions, how communication services are going to orchestrate the launch. These are concerns to which smart textile businesses often give too little importance and too late in the product development process.

Another key issue to solve as soon as possible is the lack of widespread and clear regulations and norms, be it in the design of products, services, or data management. International norms and trade rules are needed to ensure both the user safety and a level playing field for industries worldwide.

Conclusion

The authors would like to stress that a true interactive and collaborative community needs to continue its growth in the European smart textiles industry. Any smart textile development project must actively involve all relevant stakeholders going forward. This includes designers, manufacturers, end users, experts on end-of-life treatment, as well as experts on service and application development. Building a successful community - one of the goals accomplished by the SmartX programme - has been of crucial importance to ensure all talents, capacities, and knowledge work in better synergy throughout the industry.

About SmartX

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