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Interview Christine BROWAEYS , Consultant Engineer T3Nel



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In France, the production of technical textiles materials is increasing by over 4% each year, a major part of which is intended for the export markets (35%). There is a lot at stake for these materials and their primary processing phase, with regard to technological and environmental concerns. A recent study published by the European Commission showed that 69% of textiles firms interviewed considered new materials to be essential for innovation.

"Textiles engineering" can broaden the scope of applications by offering substitutes for conventional materials, the flexibility of textiles providing a technic response in a number of markets, from the high-tech Airbus to consumer goods (automotive, home improvements, personal protection, etc.). The European textile industry has in the last ten years made a significant transition towards a knowledge-based industry. Made up essentially of small and medium-sized businesses almost half of them have put in place an innovation and R&D process. The drivers behind these new developments are not just textiles firms, but other discipline such as chemicals, materials sciences, engineering and electronics.

But how can the results of research in related disciplines be turned to advantage the development of new textiles products? We often notice that there is a certain compartmentalization of knowledge of materials within the same sector. In the textiles sector, the characterization of fibrous materials made up of at least tw components has enormous scientific importance for making other sectors look to textiles for identifying their potential applications.

New competences in textiles systems

The design of new flexible materials requires new scientific or industrial partnerships to be set up, and the traditional cooperation with the chemicals and mechanical engineering sectors need to be extended to other fields. Education and training courses in textiles need to be constructed with a strong interdisciplinary approach.

The textiles industry of tomorrow will need specialists in materials sciences who are able to identify the relations between the materials specifications and the characteristics required of product. It will need engineers and research scientists who are highly qualified in basic sciences .

There has nevertheless been a marked decline in interest for science in Europe over the last twenty years. According to Eurostat, the number of students graduating in mathematics, physic and technological subjects has fallen by around 1% each year for the last ten years. Germany remains the exception to this rule, especially in the North Rhine-Westphalia region which has strong tradition in engineering that continues to attract 17% of students.

The required skills are specific to each sub-sector and strongly depend on the new techniques and products to be designed. The cross-disciplinary nature of textiles technologies makes necessary to have good knowledge of the various fields of application. Besides the necessary technical competences, it is necessary to be able to cooperate with the sectors in which th products are used (construction, transport, healthcare, etc.).

The techniques used in composite textiles materials are borrowed from both the textiles and plastics industries. Biopolymers and biofunctional materials are key subjects in a knowledge-base bio-economy (European directive EU Economic Strategy 2020)and the implementation of biotechnologies should be included in all textiles engineering courses.

At the end of 2011, the European Commission set up the first council for the textiles, clothing and leather sector (EU TCL Skills Council) in order to rapidly meet the requirements for new skills In France, as in Germany, almost half of workers in the textiles industry are seniors (aged over 45) working in low-qualified production jobs. It is important for us to anticipate future skill requirements now in order to keep in line with changes in the textiles industry. This is the strategy adopted in recent years by the ENSAIT (Ecole Nationale Supérieure des Arts et Industrie Textiles), who has adapted its courses accordingly. This establishment now trains 70% of France's and 15% of Europe's textiles engineers, all of whom have excellent employment prospects o graduating.

Apart from providing state-of-the-art equipment, CETI has an important role to play in defining the new skills necessary for textiles systems, going far beyond the field of textiles or proces engineering.

¹ See survey conducted for the European Commission of the main textiles training providers in the North Rhine-Westphalia region, Christine Browaeys (T3Nel for IFM), Dec.2011.

RESEARCH FRONT OF FUNCTIONAL TEXTILES

