

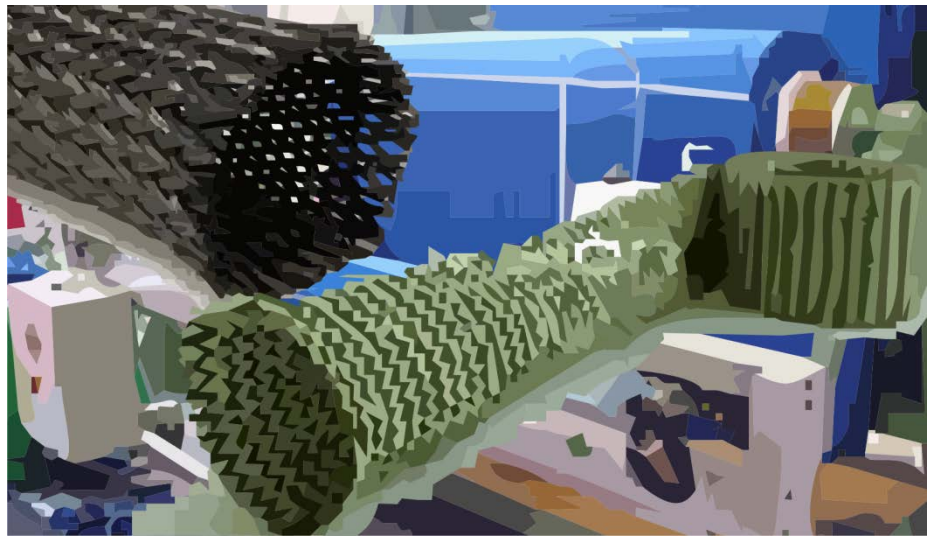
This fiche is part of the wider roadmap for cross-cutting KETs activities

**'Cross-cutting KETs' activities bring together and integrate different KETs and reflect the interdisciplinary nature of technological development. They have the potential to lead to unforeseen advances and new markets, and are important contributors to new technological components or products.**

The complete roadmap for cross-cutting KETs activities can be downloaded from:

<http://ec.europa.eu/growth/industry/key-enabling-technologies/eu-actions/ro-ckets>

## Potential areas of industrial interest relevant for cross-cutting KETs in the Textiles domain



This innovation field is part of the wider roadmap for cross-cutting KETs activities developed within the framework of the RO-ckETS study. The roadmap for cross-cutting KETs activities identifies the potential innovation fields of industrial interest relevant for cross-cutting KETs in a broad range of industrial sectors relevant for the European economy.

The roadmap has been developed starting from actual market needs and industrial challenges in a broad range of industrial sectors relevant for the European economy. The roadmapping activity has focused on exploring potential innovation areas in terms of products, processes or services with respect to which the cross-fertilization between KETs can provide an added value, taking into account the main market drivers for each of those innovation areas as well as the societal and economic context in which they locate.

Taking the demand side as a starting point, cross-cutting KETs activities will in general include activities closer to market and applications. The study focused on identifying potential innovation areas of industrial interest implying Technology Readiness Levels of between 4 and 8.

## TX.1.1: Textiles with enhanced care (cleaning, washing, etc.) properties

### Scope:

To develop textiles and textile products with enhanced care (cleaning, washing, etc.) properties.

### Demand-side requirements (stemming from Societal Challenges) addressed:

Depending on the application or the type of feedstocks or processes used for production, textiles can contribute to tackle the following societal challenges:

- Health, demographic change and wellbeing
- Inclusive, innovative and secure societies
- Climate action, resource efficiency and raw materials
- Secure, clean and efficient energy

### Demand-side requirements (stemming from market needs) addressed:

- Increase products' usage flexibility in order to cope with today's lifestyles
- Address individual customer needs and use scenarios

### Specific technical/industrial challenges (mainly resulting from gaps in technological capacities):

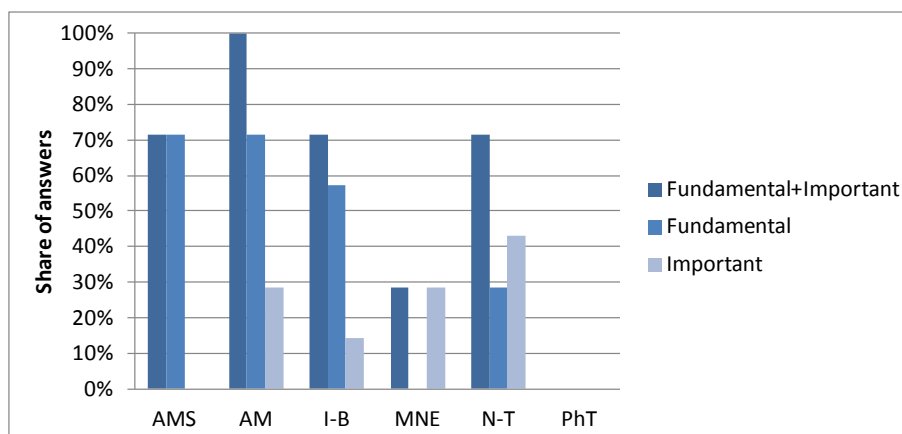
- Development of enhanced surface treatments and coatings to provide effective anti-stain, anti-dust and other properties to the textile

### Contribution by cross-cutting Key Enabling Technologies:

In respect to this Innovation Field, the integration of KETs could contribute to the development of enhanced surface treatments and coatings to provide anti-stain, anti-dust and other functionalities to textiles, building on new formulations for coatings or advanced surface treatments, such as plasma treatment, enzymatic processes, etc.

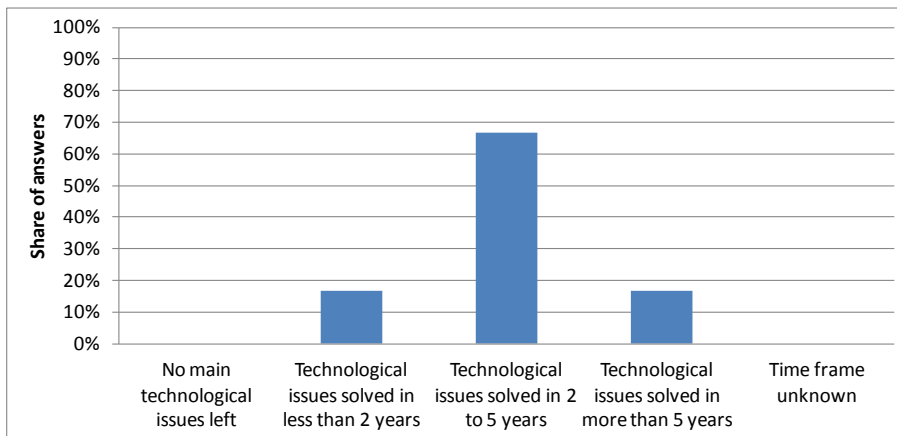
To this aim, the combination of KETs experts' opinions collected through the dedicated survey (whose result is depicted in the below bar chart), the examination of KETs-related patenting activity in respect to this Innovation Field, and desk research activities, have allowed identifying a rather strong interaction of KETs with respect to this Innovation Field, with either fundamental or important contribution mainly by the following KETs:

- Advanced Manufacturing Systems (AMS)
- Advanced Materials (AM)
- Industrial Biotechnology (I-B)
- Nanotechnologies (N-T)



### Timing for implementation:

According to the majority of KETs experts' opinions (whose result is depicted in the below bar chart), desk research, and in line with the KETs-related patenting activity in this field, it is considered that the main technological issues holding back the achievement of cross-cutting KETs based products related to this Innovation Field could be solved in a time frame of 2 to 5 years:



Hence, depending on the specific technical and/or industrial challenges holding back the achievement of cross-cutting KETs based products related to this Innovation Field, the provision of support in the short term should be taken into consideration within this framework.

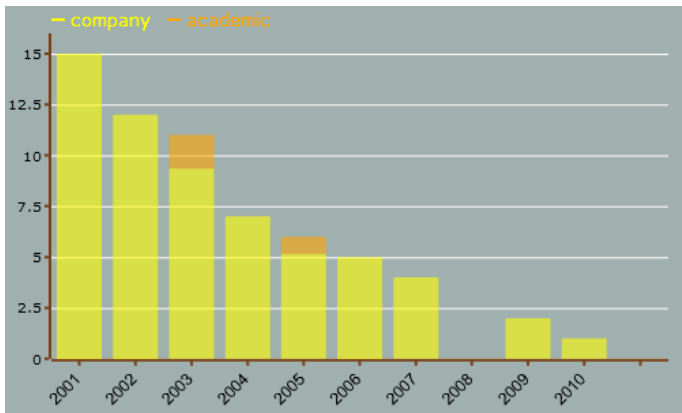
### Additional information according to results of assessment:

#### ➤ **Impact assessment:**

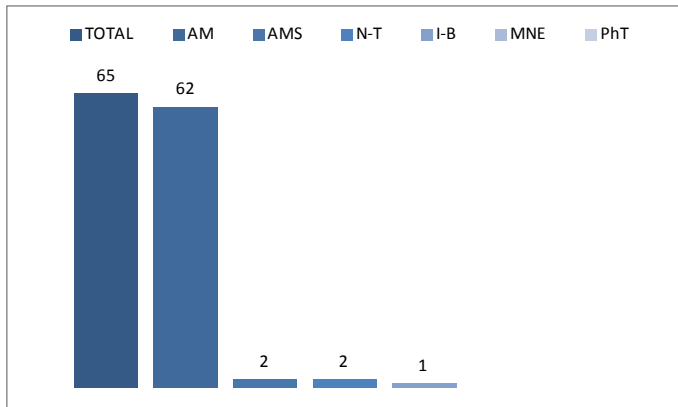
- The textile industry is living a period of changes in the supply chain, in the end markets and business models. The major long-term industry trends for the textile and clothing sector are well identified by the European Technology Platform for Textiles and Clothing. Among others, the textile industry is experiencing a change from providing commodities to providing specialty products by applying high-tech processes, fibres, filaments, fabrics and final products with highly functional, purpose-targeted properties (Source: In-depth assessment of the situation of the T&C sector in the EU and prospects, Task 7: Synthesis report for the European textile and clothing sector, December 2012).
- Within this framework, one of the earliest functional products introduced in the market by the textile industry are textiles with anti-stain properties imparted thanks to surface treatments (e.g. plasma treatment, enzymatic processes) and coatings. Yet, the industry is still developing enhanced surface treatments and coatings to provide effective anti-stain, anti-dust but also other properties to the textile so to facilitate care (cleaning, washing, etc.) in order to respond to market needs calling for increased products' usage flexibility, which is especially the case in the home textiles market segment, in order to cope with today's lifestyles.

#### ➤ **Results of patents scenario analysis:**

- 65 exclusively KETs-related patents identified in the period 2001-2011 for the specific Innovation Field
- Decreasing trend curve (number of patents per year)
- Highest almost exclusive share of industrial applicants:



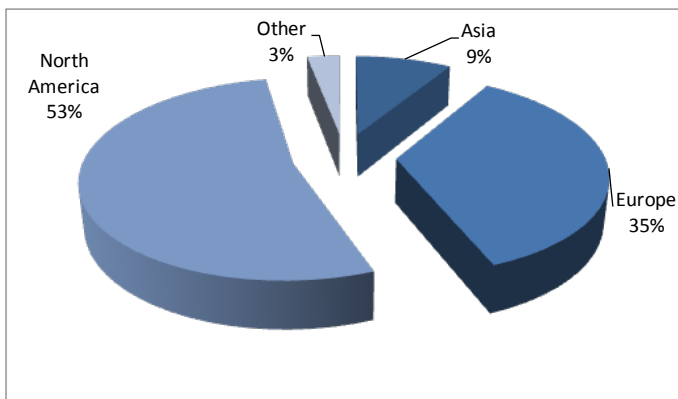
- Patents by KET:



- Patents by KET(s) and relevant combinations of KETs:

KET(s)	Number of patents
AM	62
AM / N-T	2
AMS	2
IBT	1
N-T	2

- Patent distribution by (Applicant) organization geographical zone:



- Patent distribution by geographical zone of priority protection:

