

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 Health and Healthcare 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.

## H.1.4: Portable Point-of-Care (POC) devices and test kits for instant diagnosis based on microfluidics, biosensors and/or arrays

### Scope:

To develop rapid, safe and cheap diagnostics, portable and miniaturized devices or easy kits for diagnosis or treatment monitoring at home (capable of data collection and communication with the medical doctor).

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

- Tackle the “health, demographic change and wellbeing” societal challenge

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

- Individualised / personalized health care
- Reduced discomfort to patients associated with sampling aimed at in vitro diagnostics
- Improved quality (increased sensitivity and speed) of in vitro diagnostics

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

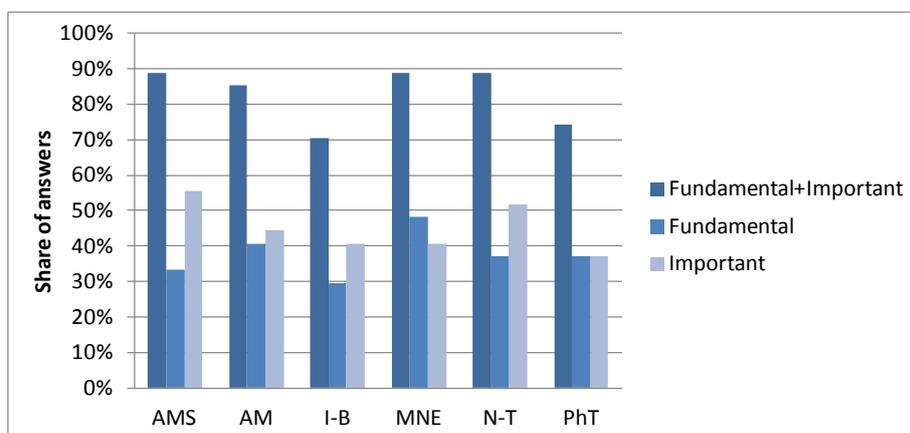
- Substitution of analytical labs by point-of-care in vitro diagnostic tests

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

In respect to this Innovation Field, the integration of KETs could contribute to the development of more advanced portable Point-of-Care (POC) devices and test kits for instant diagnoses based on microfluidics, miniaturized multi-parameter measuring devices, bio-sensors and/or arrays, 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:

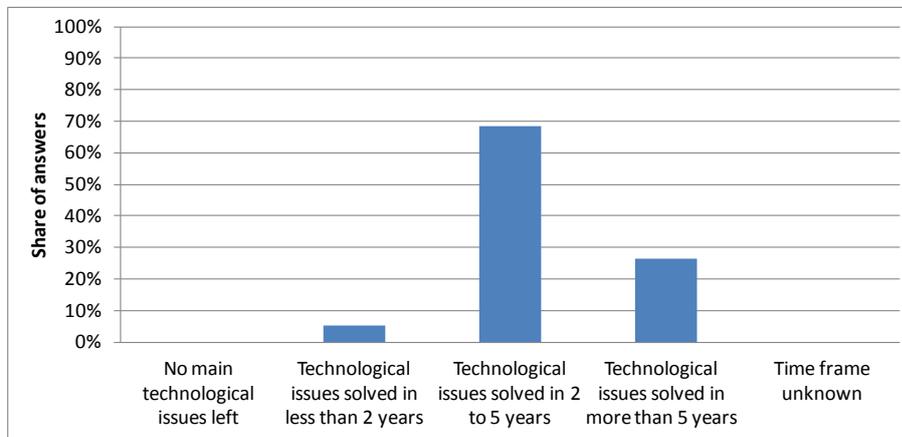
- Advanced Manufacturing Systems (AMS)
- Advanced Materials (AM)
- Photonics (PhT)
- Micro- and Nano-Electronics (MNE)
- Nanotechnologies (N-T)
- Industrial Biotechnology (I-B)



### 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 European POCT market is a robust and dynamic market which has evolved into one of the largest sub-segments of the global medical equipment market. Significant and major technological advances and developments have occurred over the last couple of decades, which have helped stimulate and acted as a major driver of the market. The major suppliers have progressively introduced new products which have increased the number and range of diagnostic applications and indications whilst supporting the healthcare professionals by improving the quality of patient care. The introduction of these new and innovative technologies has also helped to rejuvenate the market, retain and gain market share and improve their return on Investments (ROI) (Source: Trimark Publications, European Point of Care Diagnostic Testing Markets, September 2011).

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

- Only 11 exclusively KETs-related patents identified in the period 2001-2011 for the specific Innovation Field
- Hence, no significant patent-related indicators can be reported in this field