Mapping key competences in European advanced manufacturing towards 2020

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What we do

Commercialisation
Product, Process and Service launch

Ideation
Strategy
Opportunity spotting
Innovation
Creativity

Markets
Assessments
Access
Planning
IP

Research and Development

Prototyping

Concept Design Scoping
Core Technologies and Markets

**Electroheat** (Microwave, RF, Ohmic, Plasma)

**Electrochemistry**

**Energy**
- Redox batteries
- Battery chemistries
- Fuel cells
- Energy from waste

**Advanced Materials**
- Electro-polishing
- RF welding
- Nanoparticle manufacture

**Food & Beverage**
- Pasteurisation
- Baking/drying
- Nutrient recovery

**Chemical**
- Microwave chemistry
- Membrane separations
- Catalyst recovery
- Biocatalysis

**Environment**
- Water & waste treatment
- Recovery of waste value
- Air & water quality
- Security
- Sensing & detoxification
- Nuclear decontamination
Manufacturing Development

We develop and commercialise processes and build equipment for the food, chemical and advanced material industries.

Specialisms include:
• Thermal processing
• Microwave, radio frequency, ohmic, plasma
• Electro-chemistry
• Waste treatment, metals processing, fuel cells, flow batteries
• Engineering design service
• Life cycle assessment capability
Our Clients and Collaborators
Helping the big names innovate
Advanced Manufacturing

Definition by the EU Key Enabling Technologies High Level Group:

“Advanced manufacturing systems comprise production systems and associated services, processes, plants and equipment, including automation, robotics, measurement systems, cognitive information processing, signal processing and production control by high-speed information & communication systems.”

Focus of European Advanced Manufacturing from an SMEs point of view:

• Productivity
• Competitiveness → How can mapping help???
• Strategy
Productivity

Productivity output in the worldwide manufacturing sector showing a general downtrend:

From an SMEs point of view the requirement to mix ‘business as usual’ with product development means an overall increase in productivity is required.
Continued investment in R&D for advanced manufacturing technologies is of prime importance for the competitiveness of manufacturing industry in the EU:

Gross domestic spending on R&D in millions $ (OECD data)

It is not the excellence in research, but the commercialisation of research results on the market that generates turnover and jobs in industry.
Strategy

Whilst countries in the EU have a strong record of early stage research, they are relatively weak at turning those innovations into commercial successes:

Notably China spends 80–90% of its R&D funding on later stage experimental developments compared to 30–40% for the EU countries.
Mapping

Why use mapping:

“Mapping is a powerful tool to enable a company to either identify someone with capability to collaborate with or place work, or if they are selling, then to identify an organisation that may be willing / able to use their services - so potential clients”

David Gardner – Coordinator 4M2020 project

Groups of people who can use mapping:

• Those offering expertise (e.g. researchers and developers)
• Those seeking expertise and new partnerships
• Those offering products
Mapping

Identification of competencies, development of synergies between companies and identification of key application areas:

Capability

MappingPortal

Priority products / needs

New Partnerships
Mapping - 4M2020 project

4M2020 will facilitate cross fertilisation of product centred advanced manufacturing platforms along the five R&D+I streams and thus create alliances based on interrelated technological research and product demonstration activities and add value to its stakeholders by establishing R&D+I environment for combining KETs heterogeneously in the context of specific technology and product requirements.

This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608843.
Mapping - 4M2020 project

- Assessed 150 4M Cluster projects and according to Application areas and technological competences
- 1200 possible combinations of sub-application-competence pairs
- Total score was between min. 1 and max. 14.
- Therefore made a Preselection by setting a threshold at the median value of 7
  - => 42 Peaks

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Mapping

Data base of relevant NMP projects and organisations

Summary:
Extended list of the 4M2020 cluster of projects:
- 100 projects
- 462 locations
- 34 countries
- 709 organisations

Sources:
- 4M partners
- Cordis
- Foresight forum attendees

Mapping

http://4mexpertise.eu/map/
Mapping

Open Innovation
Companies which adopt a network perspective in internal and external knowledge search can achieve significant benefits in various key areas in Open Innovation.

Competitive Intelligence
Network analysis provides key strategic insights with regard to where peers are now and where they might be heading in the near future.

Human Resource Management
Kenedict’s network analytics services enable HR managers to gain a clear, objective view of internal R&D collaboration networks and improve their day-to-day decision-making accordingly.

R&D Policy Evaluation
Kenedict enables organisations to objectively evaluate the effects of R&D policy and craft future policy measures based on this.
Mapping and open innovation

**Unilever: Open to your ideas**

For creating a better future — for consumers, for the environment, and businesses — is necessary to innovate — to improve existing products and create new ones. For doing that, Unilever has world-class research and development facilities, making breakthroughs that keep Unilever at the forefront of product development. But they also know that the world is full of brilliant people, with brilliant ideas — so they are constantly looking for new ways to work with potential partners. This way of working is called Open innovation.

**Background**

They are looking for help in achieving their most important ambition: a better future for the world and their business.

They have recognized that the planet will not be able to sustain the demands on its resources that will come from a growing population unless people everywhere — including them — find new ways to do things.

The Unilever Sustainable Living Plan sets out their commitment to halving the environmental impact — and increasing the social benefits — of their products as they grow their business.

Thank you very much
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