Key Enabling Technologies (KET) and H2020

Christos Tokamanis
Unit G4 "Nanoscience and Nanotechnologies"
Directorate G "Industrial Technologies"
DG Research and Innovation
Brussels, 27th March 2013

European Commission

- ❑ Policy context
- ❑ Why KETs?
- ❑ The KET approach (examples)
- ❑ KETs in H2020

New policy landscape

Europe 2020: flagship initiatives

Innovation Union

Digital Agenda

Industrial Policy in a Globalisation Era

EUROPEAN COMMISSION

Brussels, 3.3.2010
COM(2010) 2020

COMMUNICATION FROM THE COMMISSION

EUROPE 2020

A strategy for smart, sustainable and inclusive growth

Smart Specialisation

KETs in the Innovation Union

-The transversal and specific role of KETs in the next European Innovation Partnerships (EIPs) (page 12).

-Promoting world-class research Infrastructures (page 10).

Developing Industry-driven partnerships on KETs (page 12).

-Clarifying state aids policy concerning KETs (page 15).

- Basing regulatory frameworks with regard to KETs on scientific evidence with transparent information and involvement of citizens (page 12).

Commissioner Geoghegan-Quinn for Research and Innovation

EUROPEAN COMMISSION

Brussels, 6.10.2010
COM(2010) 546 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Europe 2020 Flagship Initiative
Innovation Union

SEC(2010) 1161

KETs and the Smart Growth Initiative (Regional Policy)

KETs are mentioned in the context of the "smart specialisation" concept:

Commissioner Hahn for Regional Policy

"Identifying an original and economically profitable niche for each region in terms of key enabling technologies (e.g. ICT bio- or nano-technology) and facilitating the emergence of pan European areas of specialisation which are competitive at a global level "

EUROPEAN COMMISSION

Brussels, 6.10.2010
COM(2010) 553 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

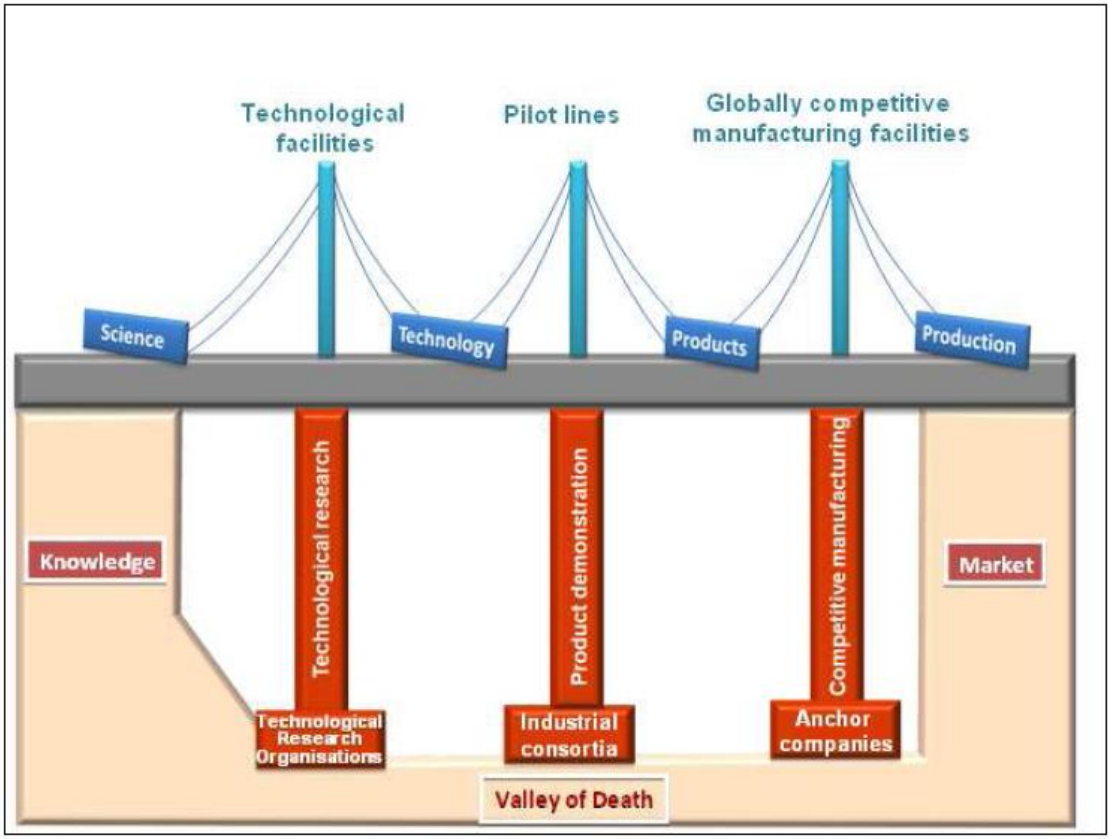
Regional Policy contributing to smart growth in Europe 2020

SEC(2010) 1183

KETs: a European integrated initiative to bridge knowledge and market

European key-nodes in terms of cross-sectional research, technology and innovation issues

Socio-economic challenges driving implementation and commercialization of sustainable and KET-enabled products



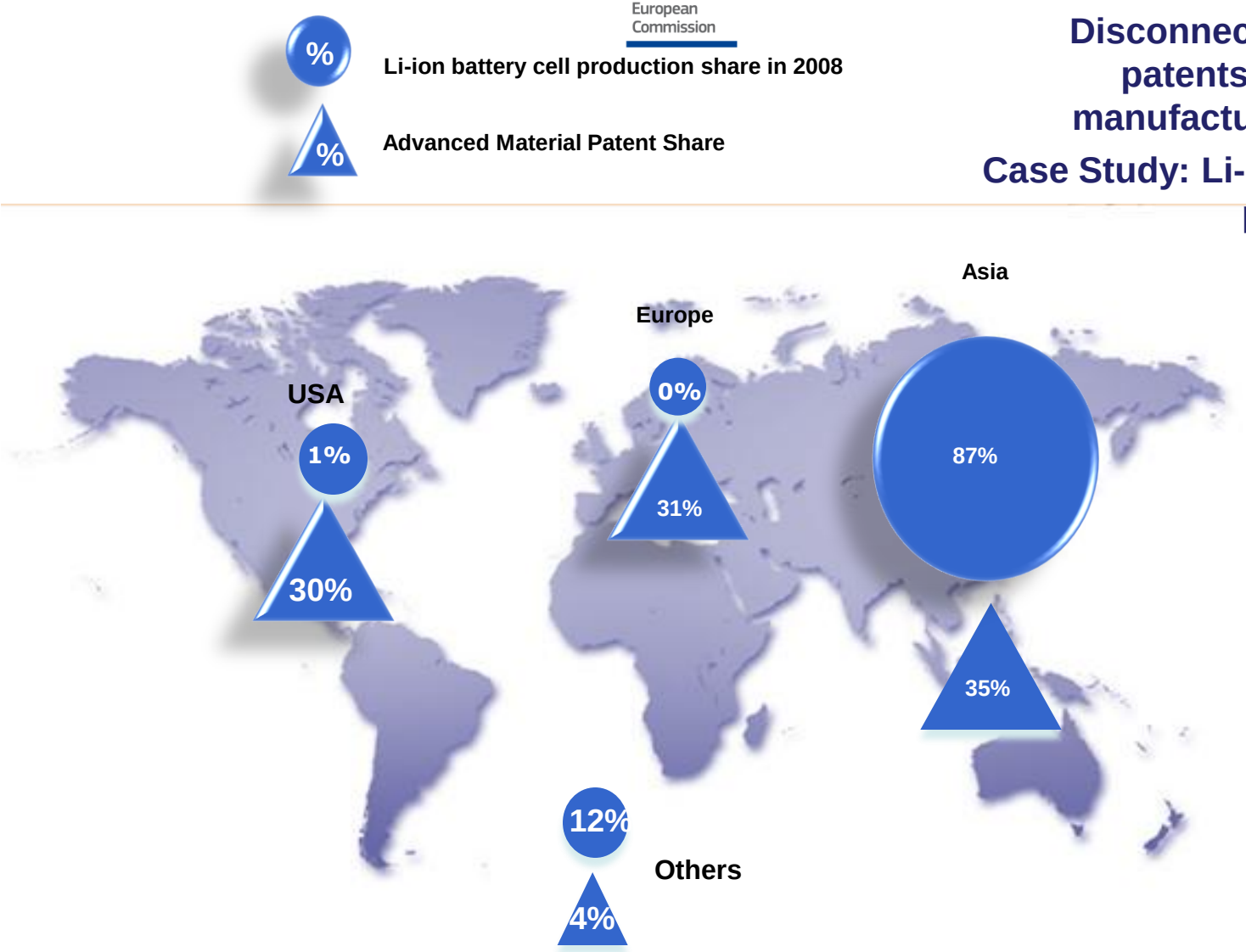
Disconnect between patent base and manufacturing share

Example from dedicated KETs case-studies

1 - Lithium-ion batteries for low-carbon electric vehicle

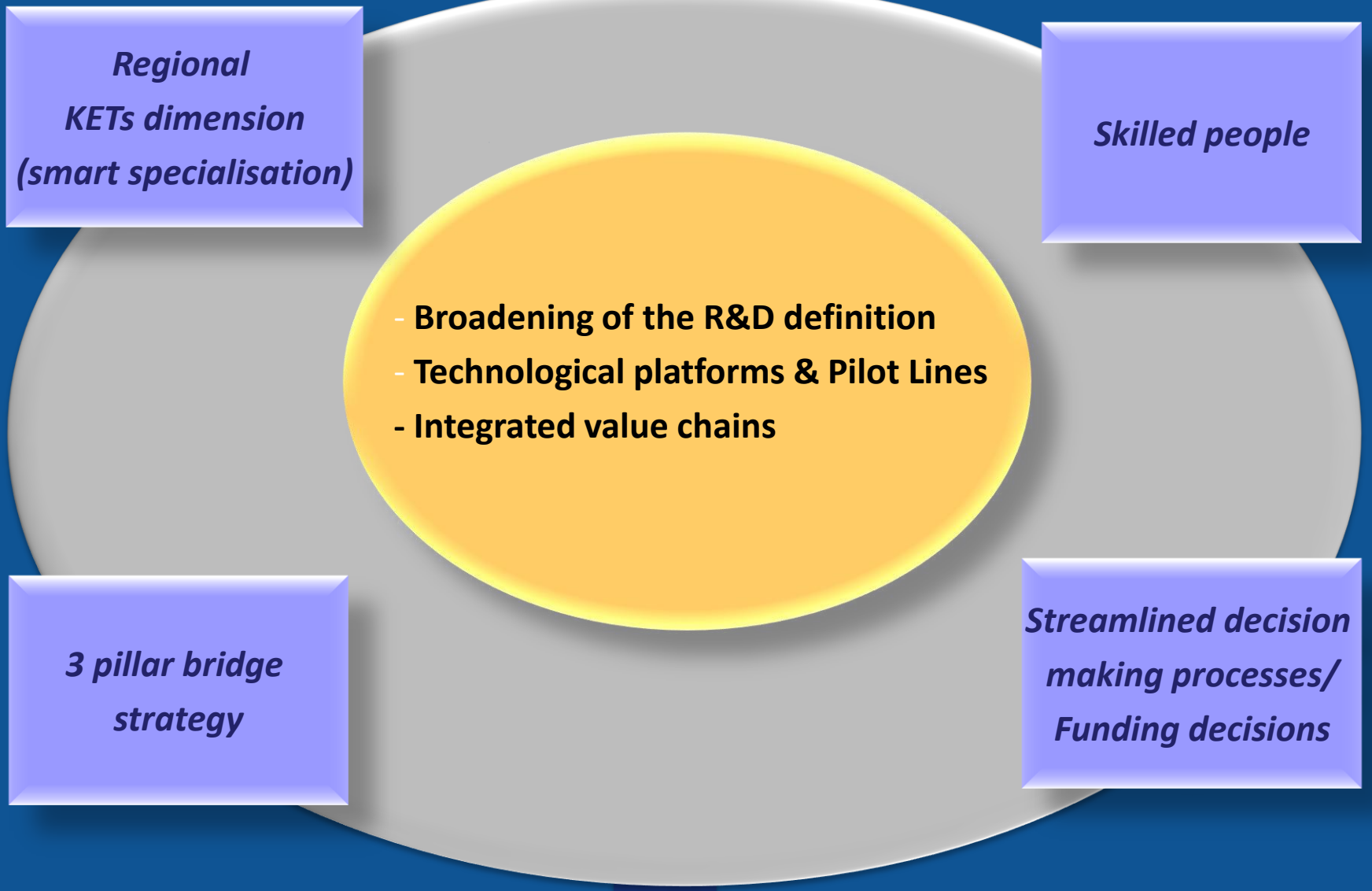
Disconnect between patents share and manufacturing share

Case Study: Li-ion battery production



Source: European Competitiveness Report 2010, European Competitiveness in Key Enabling Technologies (TNO/ZEW), CGGC, Lithium-ion Batteries for Electric Vehicles : THE U.S. VALUE CHAIN, October 2010

An integrated KETs approach



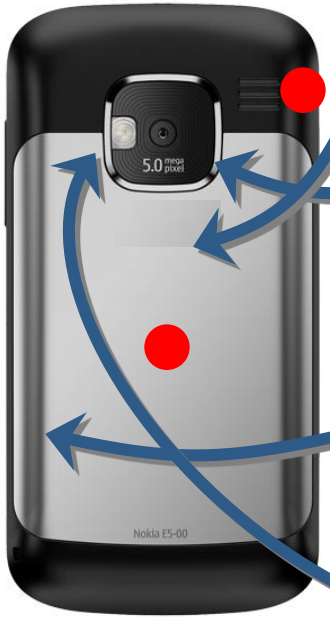
Combining several key enabling technologies for advanced products

Societal Challenge

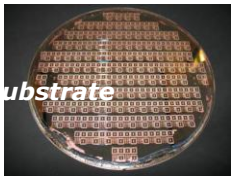
Information

Digital Society

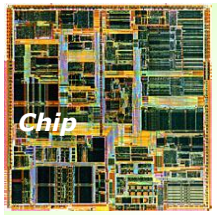
Smartphone



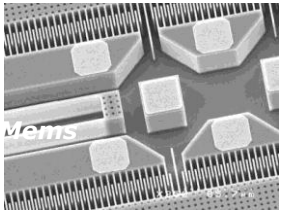
Advanced materials



Microelectronics



Nanotechnologies



Photonics

Biotechnologies

European Commission

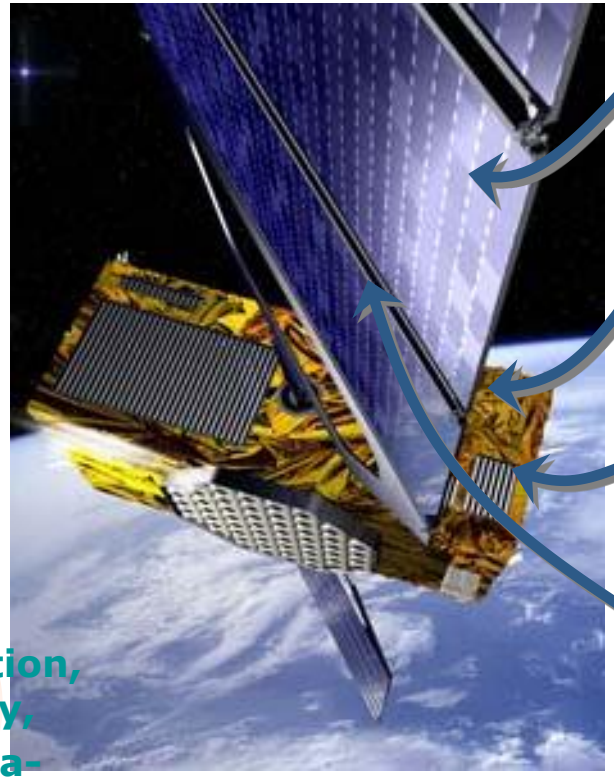
Combining several key enabling technologies for advanced products

Societal Challenge

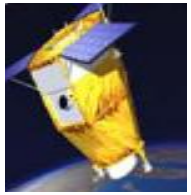
Information

New services & applications (navigation, environment, security, GMES, telecommunications, meteorology)

Satellite & communication

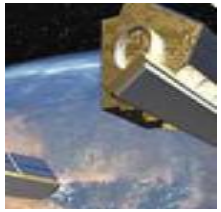


Advanced materials



Microelectronics

Nanotechnologies



Photonics

Biotechnologies

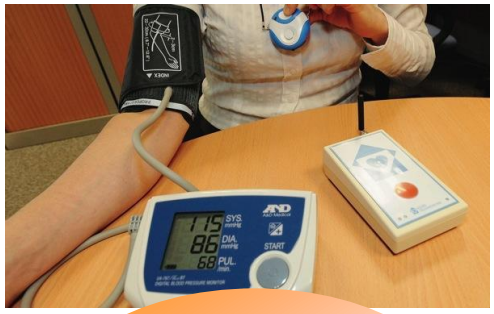
European Commission

Combining several key enabling technologies for advanced products

Societal Challenge

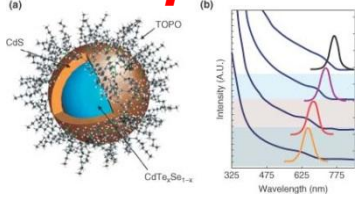
Health

Real-time Avian flu test



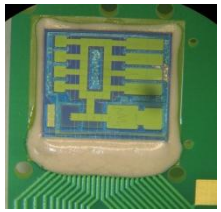
Effective timely detection and diagnostic systems

Advanced materials



Microelectronics

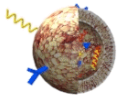
Nanotechnologies

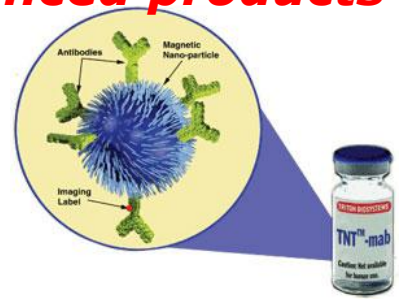


Photonics

Biotechnologies

Combining several key enabling technologies for advanced products





Societal Challenge

Health

New nanotechnology-based diagnostics

New target drug delivery and release

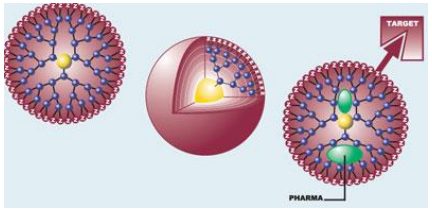
Regenerative medecine

Advanced materials

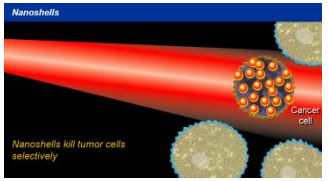
Nanomedicine

Microelectronics

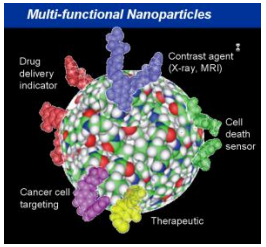
Nanotechnologies



Photonics



Biotechnologies



Combining several key enabling technologies for advanced products

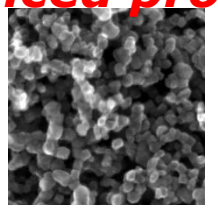
Societal Challenge

Energy

Combating climate change

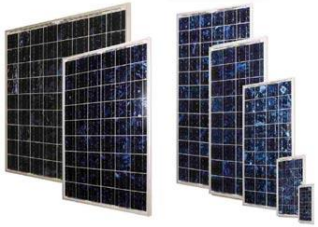
Photovoltaïc cells

Advanced materials



Microelectronics

Nanotechnologies



Photonics

Biotechnologies

Horizon 2020

Total indicative budget: 87 740 M€*

Excellent science

- ***European Research Council***
- ***Future and EmergingTechnologies***
- ***Marie Curie actions***
- ***Research infrastructures***

Indicative Budget:
24 598 M€*

Industrial leadership

- ***Leadership in enabling and industrial technologies***
- ***Access to risk finance***
- ***Innovation in SMEs***

Indicative Budget:
17 938 M€*

Societal challenges

- ***Health, demographic change and wellbeing***
- ***Food security, sustainable agriculture, marine and maritime research & the bioeconomy***
- ***Secure, clean and efficient energy***
- ***Smart, green and integrated transport***
- ***Climate action, resource efficiency and raw materials***
- ***Inclusive, innovative and secure societies***

Indicative Budget:
31 748 M€*

* 2014-20, in constant 2011 prices

Industrial deployment of key enabling technologies
What are KETs?

- Six strategic technologies
- Driving competitiveness and growth opportunities, contribution to solving societal challenges and knowledge intensity
- Knowledge- and Capital intensive
- Cut across many sectors

- Nanotechnologies
- Advanced Materials
- Micro- and nano-electronics
- Photonics
- Biotechnology
- Advanced Manufacturing
- + cross-cutting activities

KET High level group, EC Communications)

Horizon 2020: Leadership in Enabling and Industrial Technologies

- Innovation: Emphasis on technology development, industrial-scale pilots and demonstrators, prototyping and product validation
- Specific support for "multi-KETs" / "cross-KETs"
- Strong focus on leveraging private sector investment
- Important role of PPPs to implement KET related activities

❖ **Promote the "enabling" nature of KETs**

❖ High potential of KETs to create most advanced products

❖ **Address the whole innovation chain**

➢ **Promote involvement of industry (value chain correctness)**

➢ **Combined funding**

European Commission

De-carbonisation of transport

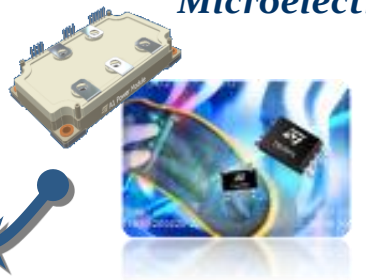
Societal Challenge

Energy

Combining several KETs for advanced products

Electric vehicle

Microelectronics



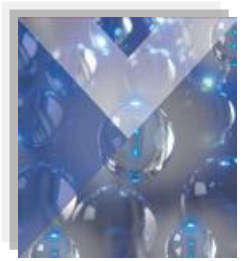
Biotechnologies

Photonics

Advanced materials

Advanced Manufacturing Systems

Nanotechnologies




European
Commission
Thank you for your attention!