



The EU Framework Programme for Research and Innovation

HORIZON 2020

**Leadership in Enabling and
Industrial Technologies**

**Impact of European research
and innovation on key
Enabling Technologies**



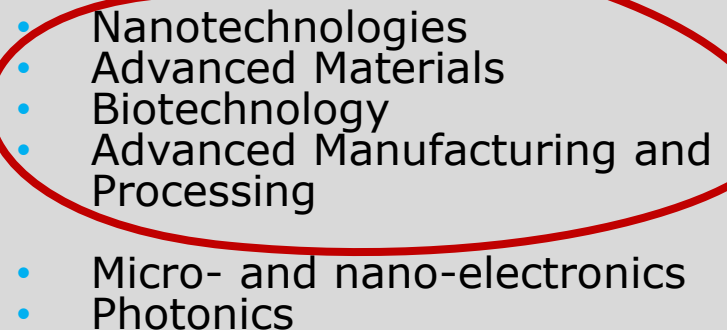
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Key Enabling Technologies (KETs)

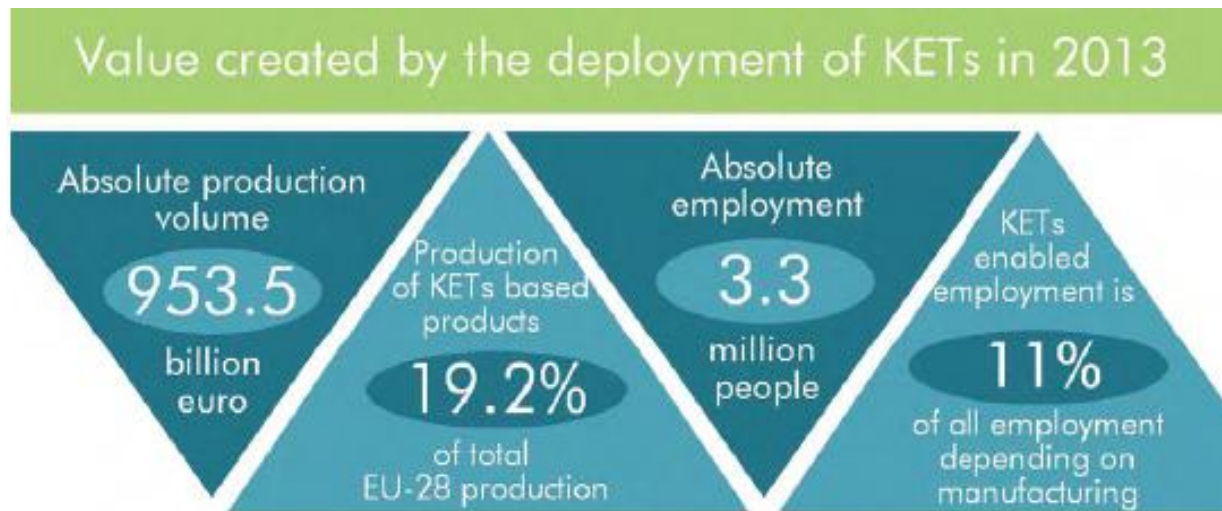
What are KETs?

- Six strategic technologies
- Driving competitiveness and growth
- Contributing to solving societal challenges
- Knowledge- and Capital- intensive
- Cut across many sectors

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- Nanotechnologies
 - Advanced Materials
 - Biotechnology
 - Advanced Manufacturing and Processing
 - Micro- and nano-electronics
 - Photonics

European KET Strategy:

- EC Communications (2009)512 & (2012)341
- KET High-level Group: final report '*KETs: Time to Act*', June 2015



- **Our economy is based on technologies, whether directly or as support to services;**
- **Key Enabling Technologies focus on technologies which may have applications in various domains and match diverse needs;**
- **They are a source of constant innovation, core for our competitiveness; very often disruptive by nature;**

Challenges: the EU in the world

- (Faster) growth is « elsewhere » - global markets
- Fast growing competitors
- Investments outside EU
- Still good in patenting, less good in turning R&D into innovation and business (e.g. KETs)
- Taking care of the SME landscape, value chains, « eco-systems »
- Bottlenecks in access to financing
- Keeping and developing skills and competences

→ How to make industry invest and create jobs in Europe, renew and extend global leadership and generate returns for Europe in an open and quickly moving global environment

EU Policy Context

Four of the Commission President's priorities:

- To boost jobs, growth and investment;
- To realise a connected digital single market;
- To implement a resilient Energy Union with a forward looking climate change policy;
- To make Europe a stronger global actor

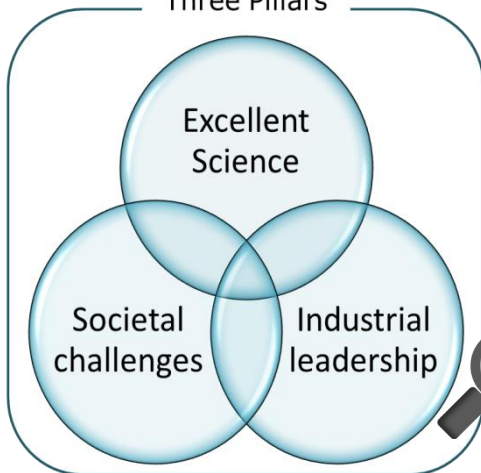
Priorities of Commissioner Moedas:

- Open innovation, Open science, Open to the world



KETs - NMBP in Horizon 2020

Three Pillars



Indicative budget:
75 billion € *



Indicative Budget:
16.5 billion € *

Out of it for NMBP:
3.8 billion € *



Leadership in enabling and industrial technologies

ICT

NMBP

SPACE

- Nano- and Micro-electronics
- Photonics

- Nanotechnologies
- Advanced Materials
- Biotechnology
- Advanced Manufacturing & Processing

* July 2015 – includes EIT, JRC, "Science with and for Society", "Spreading Excellence / Widening Participation", in addition to three priorities above

Impact of KETs

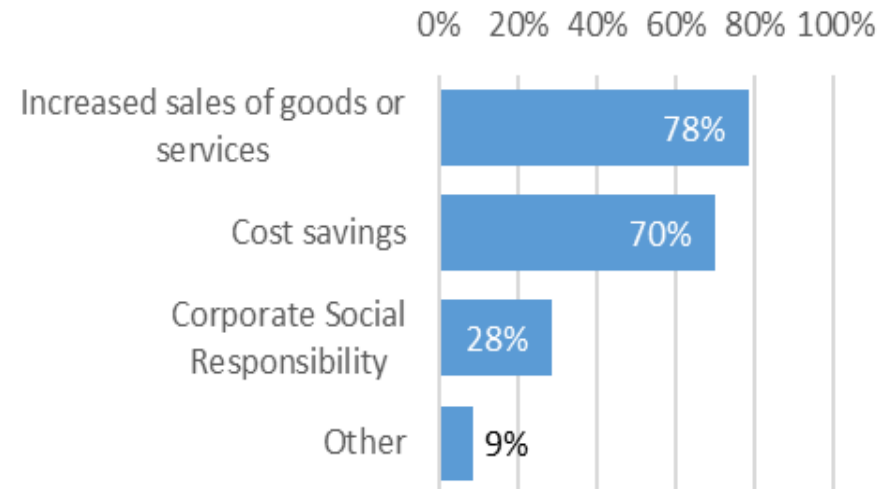
- Could be on very diverse domains of applications
- An "enabling" impact: leading to new processes or products, to new markets, new products on existing markets, more efficient production processes
- Therefore complex to assess
- Even more complex seeing the length of a research / innovation processus

Types of impact on the enterprise

- Commercial benefits
- Cost savings
- Corporate social responsibility

Expected commercial benefits (Survey of projects)

- *New product/service placed on the market / IP sold*
- *Better technology, used in-house*
- *Corporate social responsibility and other*
 - **Lower energy and raw material consumption**
 - **Quality upgrades to the value chain**
 - **Opening up new business innovation opportunities**



Impact on EU competitiveness

- Supporting SMEs to grow and reinforce the industrial landscape
- A European eco-system for enterprises
- Creating "European champions": IDIs for instance
- EU "labelling" as innovative
- Matching quicker grand challenges in Europe and outside

Economic benefits to SMEs

- *Revenue and profit + 'soft benefits'*
 - **innovation capabilities**
 - **experience in accessing new markets widening collaboration networks**
- *Problems*
 - **SMEs usually don't control the value chain**
 - **High cost of commercialisation**

EU ECO-SYSTEM

- Digital Single Market
- Technology upscaling
- Regulatory support
- Access to funding
- Skills

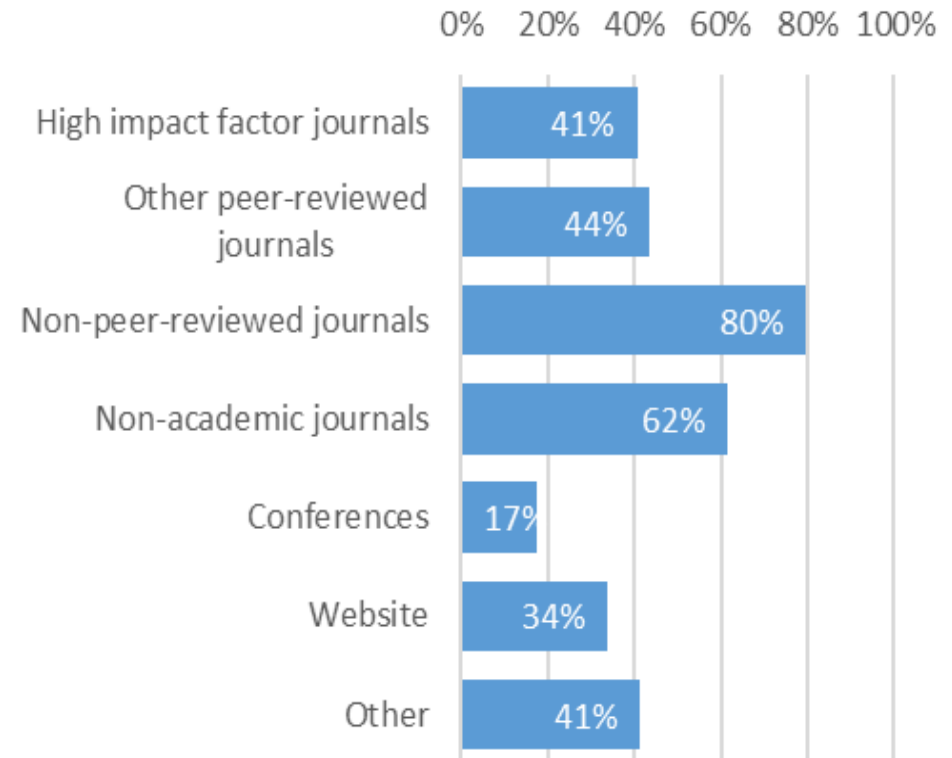
How to measure the impact of the building of such eco-system?

Impact / Eco-system

- The capacity to transfer knowledge into competitiveness
- The development of new industry sectors
- The acceleration of innovation and of innovative approaches and products
- The level of high value products and processes in the EU industry
- Using H2020 as an accelerator and a support for discovering new domains

Publication outputs (Survey of projects)

- *Almost all projects will publish*
- *Traditional academic journals less overwhelming*

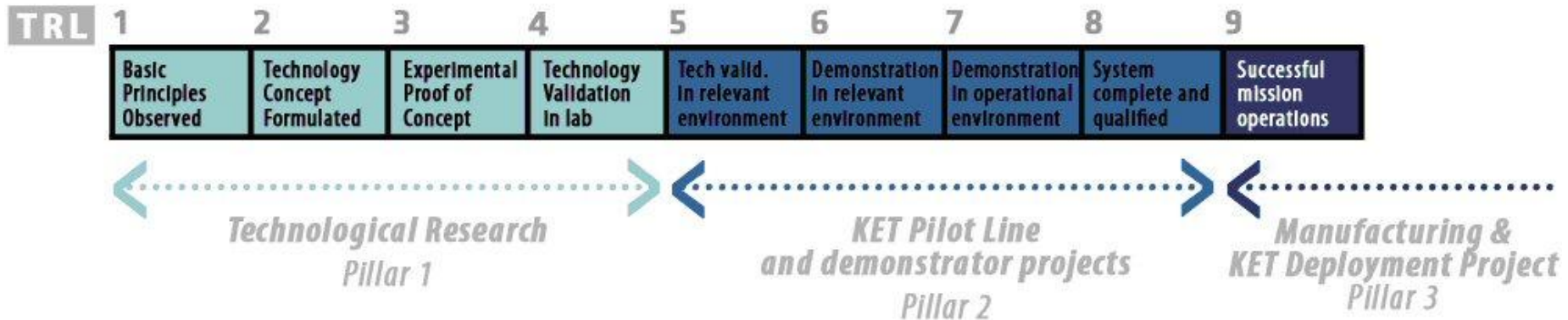


International cooperation

- *Should be focused on domains where there is a win-win approach for the EU*
- *Should support the EU policy on main global challenges*
- *Is measured through the participation to H2020 as well as joint policy actions in research and innovation – science and diplomacy*

Going to higher Technology Readiness Levels (TRLs)

- The LEIT part of Horizon 2020 targets TRLs from 3-4 up to 7 with a centre of gravity on 5-6
- Highest TRLs for cases with a strong industrial commitment



- Beyond TRL 7: *explore paths to commercial exploitation, to deploy technologies funded under Horizon 2020, to use the regional funding, to coordinate with national funding*

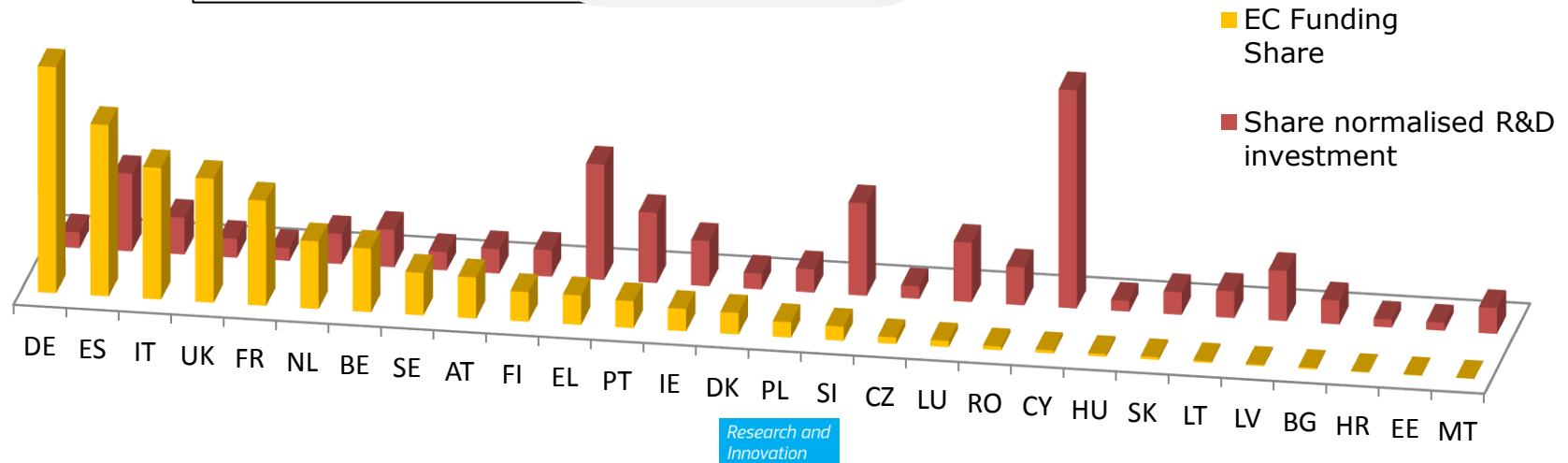
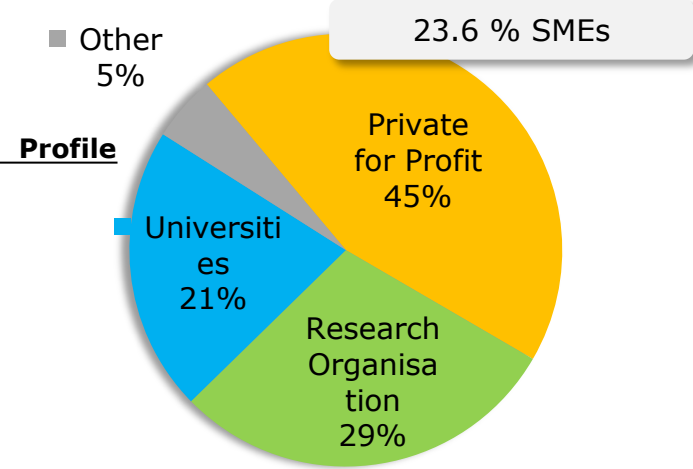
H2020 LEIT – NMBP: Participation overview – collaborative R&I

21 % new (not in FP7)
45 % new to NMBP

Newcomers



Member States



Outlook on H2020 NMBP further on:

- The 4th Industrial Revolution- combining digital and physical advances for innovative new products and services
- Post-COP21 action- Energy and Climate, resource efficiency and the Circular Economy
- Health
- Technical upscaling and pilot lines;
- Cross-cutting activities; New ways of engaging with broader society
- International cooperation



Further information

Horizon 2020: http://ec.europa.eu/research/horizon2020/index_en.cfm

Key Enabling Technologies, R&I website :

http://ec.europa.eu/research/industrial_technologies/index_en.cfm

Participant Portal - Funding Opportunities and support services

<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>

NMBP Work Programme :

http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-leit-nmp_en.pdf

http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-focus_en.pdf
(cross-cutting - focus areas)

National Contact Points in your country (NMP)

http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html#c,contact=country/sbg//1/1/0&+person.last_name/desc

National Contact Points website - webinars, presentations, guidance : <http://www.nmpteam.eu/>

Research Enquiry Service: <http://ec.europa.eu/research/index.cfm?pg=enquiries>

CORDIS database with EU funded research projects : http://cordis.europa.eu/projects/home_en.html

Thank you for your attention