



#InvestEUresearch



Horizon 2020 Work Programme for Research & Innovation 2018-2020

OPEN INNOVATION TEST BEDS Advanced Materials & Nanotechnology

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Research and
Innovation



EU Policy Context

Juncker's Priorities

- Boosting competitiveness, creating jobs and supporting growth

EU Industrial Policy

- Stimulating investments in innovation and new technologies
- SMEs and Entrepreneurship

EU Strategy for Key Enabling Technologies

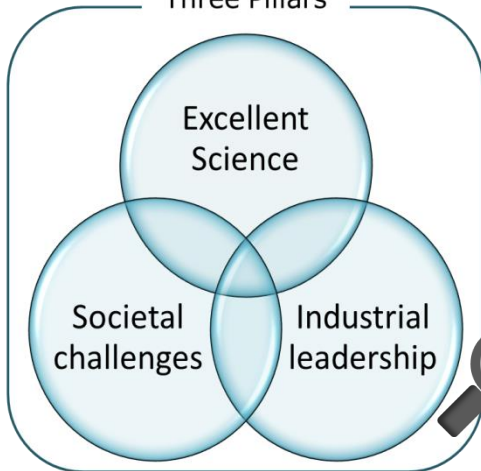
- EU's industrial innovation capacities
- Exploitation of the EU's potential in competitive markets

Commissioner Moedas's priorities

- Open Innovation

NMBP in Horizon 2020

Three Pillars



**Indicative budget:
75 billion € ***

Industrial Leadership



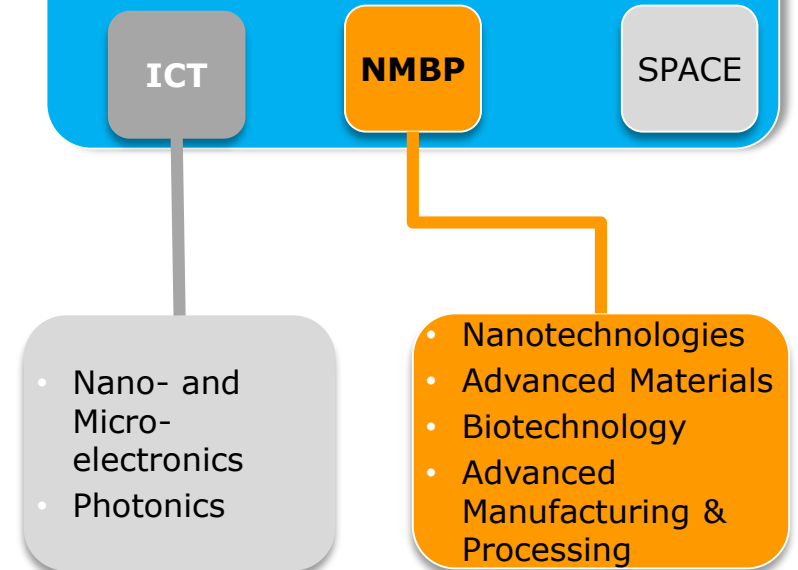
**Indicative Budget:
16.5 billion € ***

**Out of it for NMBP:
3.8 billion € ***

Key Enabling Technologies (KETs) areas of key industrial competences determining Europe's global competitiveness



Leadership in enabling and industrial technologies



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

H2020 LEIT NMBP Operational Objectives

- Stimulate growth and jobs
- Enhance the Integration and deployment of enabling technologies by European industry
- Stimulate strong private sector involvement
- Enhance product competitiveness and impact
- Technology validation in an industrial environment to a complete and qualified system, ready or close to enter the market
- Provide new opportunities to tackle societal challenges

Nanotechnologies and Advanced Materials

- **Industry successive markets**

NANOMATERIALS

Nanoscale Structures in unprocessed form

Nanoparticles, Nanotubes, Nanoporous materials, etc

NANOINTERMEDIATES

Intermediate products with nanoscale features

Nanocomposites, nanocoatings, etc

NANO-enabled Products

Finished goods incorporating nanotechnology

Specific Sectors: Energy, Construction, Health, etc
Crosscutting Technologies: Lightweight, membranes, etc

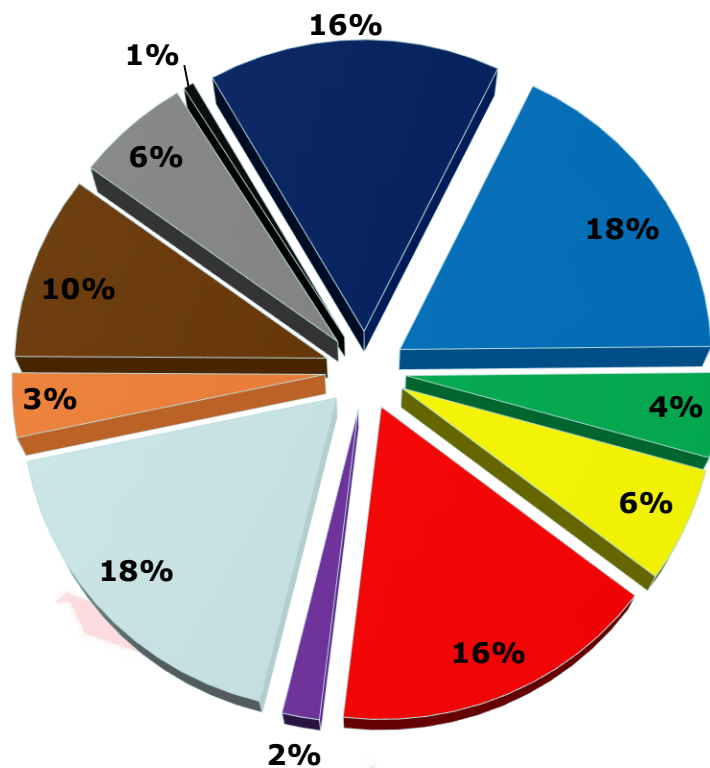
- **Example:**

Nanoparticles

Nanocoatings
Thin-films (Self-Cleaning, anti-scratch...)

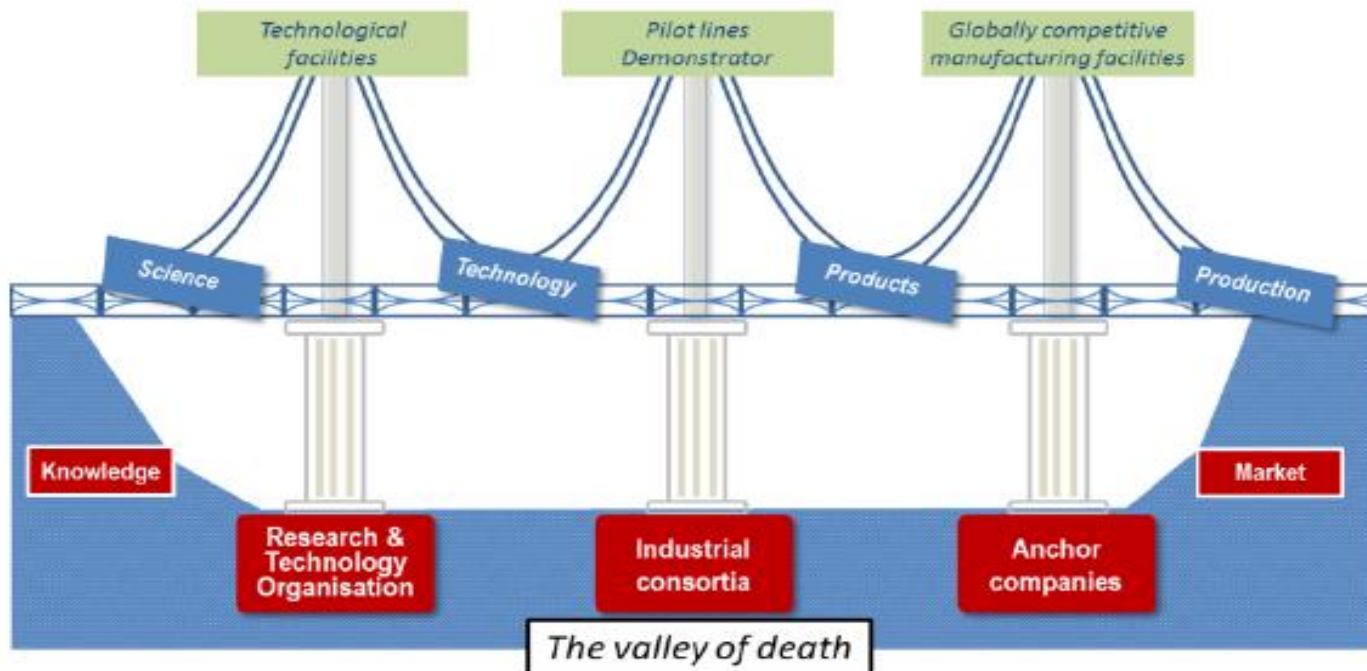
Glass Producer,
Windscreens producer
Car manufacturer

Nanotechnologies and Advanced Materials Horizon 2020 Projects



- Chemistry/Catalysis
- Energy
- Photonics/ Electronics
- Transport
- Health
- ICT
- Cross-cutting
- Nanosafety/Nanoregulation
- Environment
- Construction materials
- Others/Networking

Crossing the valley of death



TRL	1	2	3	4	5	6	7	8	9
	Basic Principles Observed	Technology Concept Formulated	Experimental Proof of Concept	Technology Validation in lab	Tech valid. In relevant environment	Demonstration in relevant environment	Demonstration in operational environment	System complete and qualified	Successful mission operations



Overcoming the Challenge of Upscaling: Reduction of Technological Risk & attract investments

MARKET

Energy, Construction, Health...
(Industrial Sectors)

Lightweight materials, Surfaces
and Membranes, Bio-Based...
(Cross-Cutting Technologies)

ENGINEERING & UPSCALING (TRL 4 to 7)

Pilots

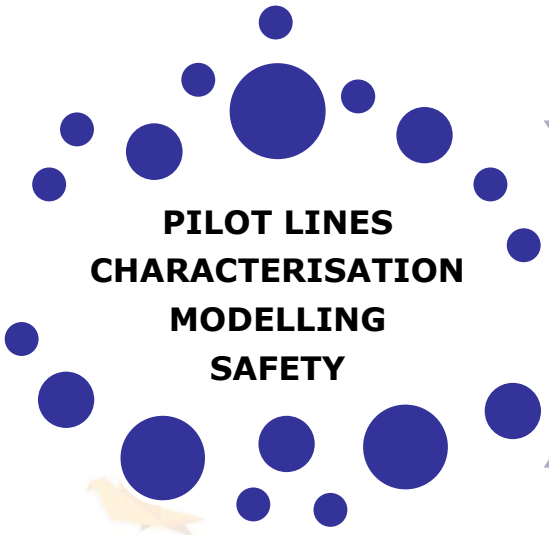
Characterisation

Modelling

Checking conformity with
regulatory frame and
standards

Nanotechnology and Advanced Materials

Open Innovation Test Beds



**PILOT LINES
CHARACTERISATION
MODELLING
SAFETY**

FP7-H2020



**ACCELERATING
INNOVATION
for
MATERIALS Industry**

In the two KETs:
**Nanotechnologies and
Advanced Materials**



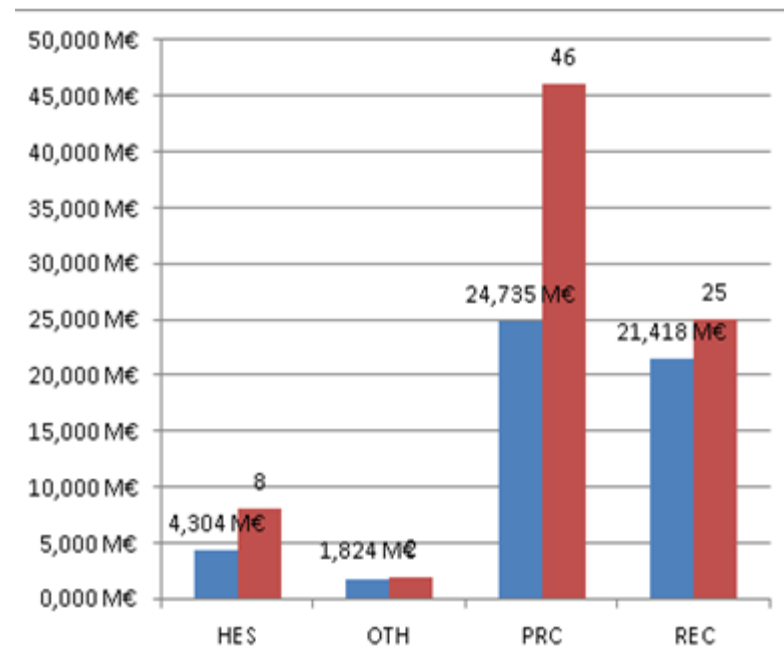
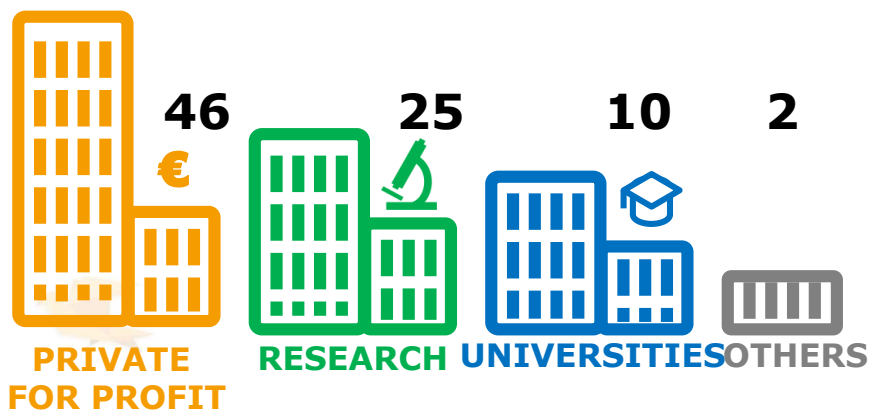
**Open
Innovation Test
Beds**

H2020-FP9

Enablers for Innovation Ecosystems

- **Industry Pilot Facilities**

83 Pilot Facilities and Demonstrators, mostly with industry:



WP2018-2020 Open Innovation Test Beds

For upscaling nanotechnology and materials will be funded in the following technology domains

- Lightweight nano-enabled multifunctional materials and components
- Safety Testing of Medical Technologies for Health
- Nano-enabled surfaces and membranes
- Bio-based nano-materials and solutions
- Functional materials for building envelopes
- Nano-pharmaceuticals production

The activities will be supported through the establishment of Open Innovation Test Beds in Characterisation and Modelling as well as the already established NanoSafety Platform

Open Innovation Test Beds - Tasks

Open access to facilities and services for design, development (prototyping), testing, and upscaling materials and nanotechnologies for new products

Demonstration in the relevant industrial environments

Show-casing technologies with user industry in cross border applications

Facilitate access of European SMEs along product supply chains

Identification and assessment of potential regulatory, economic and technical barriers

Engagement of stakeholders across the EU and the Associated Countries

Example of Test Bed with Own Facilities and Services

SOLUTION

**Open Innovation Test Bed on
Lightweight nano-enabled multifunctional composite materials
and components**

Physical
Facilities for
piloting and
testing

Characterisation

Modelling

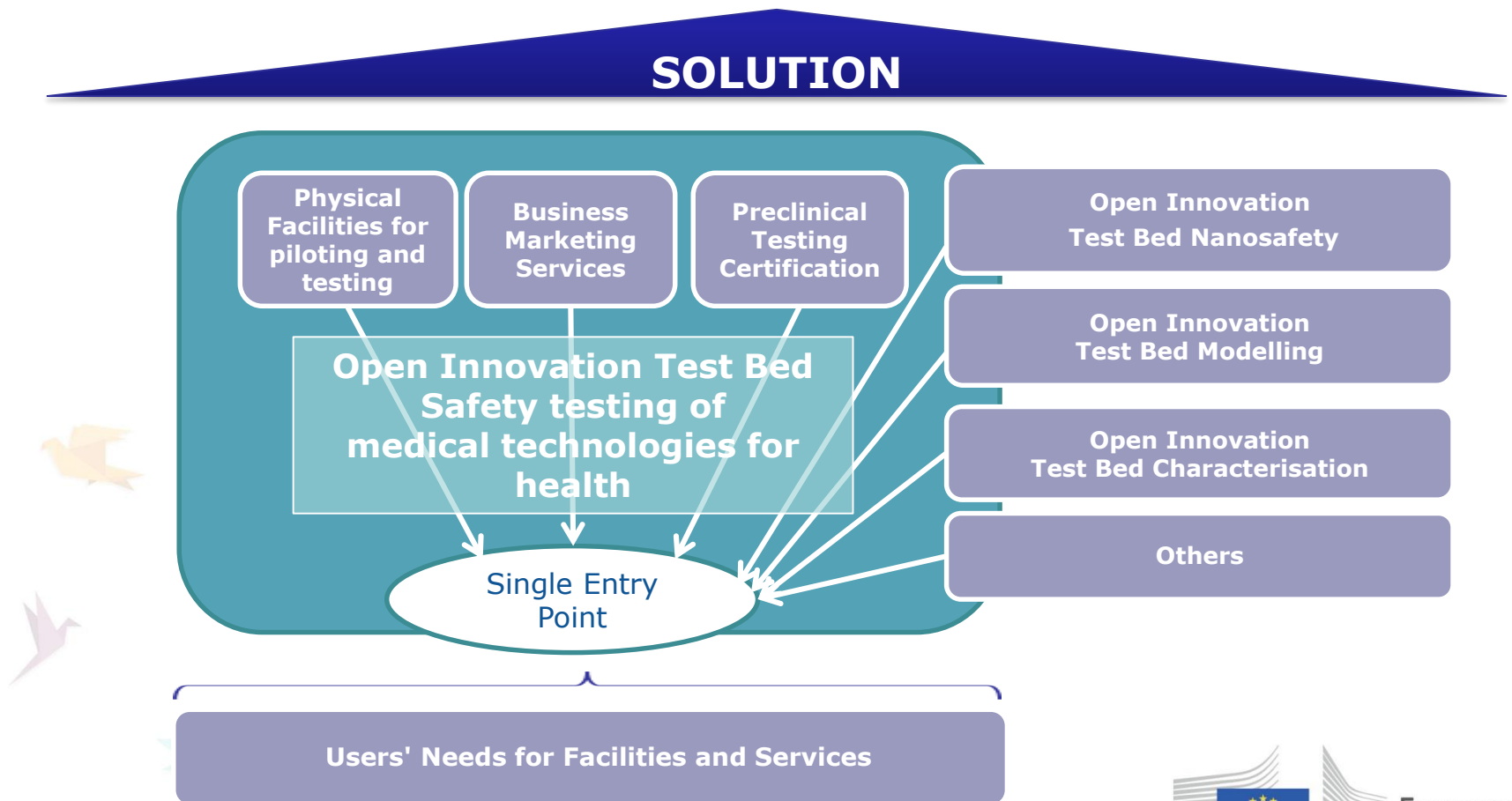
Nanosafety

Regulation &
Standardisation

Business/
Marketing
Services

Users' Needs for Facilities and Services

Example of Test Bed with Facilities & Service in House and Provided by External Entities



Open Innovation Test Beds – Expected Impact



Open and upgraded facilities at the EU level

Reduced services access costs for companies using the hubs

Improved industrial productivity

Accelerated innovation in the specific domain

Increased access to finance (for SMEs in particular) for investing in these materials or in applications using them

~20% increase in SMEs access to hubs' services and increased access to finance for investing in materials or in the applications using them.



WP2018-2020 TIMELINE

- DT-NMBP-01-2018 Lightweight
- DT-NMBP-02-2018 Med Tech Health
- DT-NMBP-07-2018 Characterization

2018

- DT-NMBP-04-2020: Bio-based
- DT-NMBP-05-2020: Building envelopes
- DT-NMBP-06-2020: Nano-pharmaceuticals
- DT-NMBP-11-2020: Modelling

2020

2019

- DT-NMBP-03-2019 Surfaces and membranes

- EEMC-CSA - European Materials Modelling Council (2016-mid 2019)
- EPPN -CSA - European Pilot Production Network (2017-2019)
- Nanosafety Cluster



Industrial Innovation Info Days **Brussels, 3 & 4 October 2017**

Charlemagne Building (CHAR)
170 rue de la Loi, Brussels

Centre Albert Borschette (CCAB)
36 rue Froissart, Brussels

Please register by 26 September 2017, 17:00 CET.

REGISTER ▶

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>

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



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About Horizon 2020

<http://ec.europa.eu/research/horizon2020/>

