



#InvestEUresearch

# Horizon 2020 Work Programme for Research & Innovation 2018-2020

**OPEN INNOVATION TEST BEDS  
Nanotech and Advanced Materials**

**EASN Open Workshop  
12 April 2018**

Søren BØWADT-Deputy Head of Unit  
Advanced Materials and Nanotechnologies  
DG Research & Innovation – Industrial Technologies

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

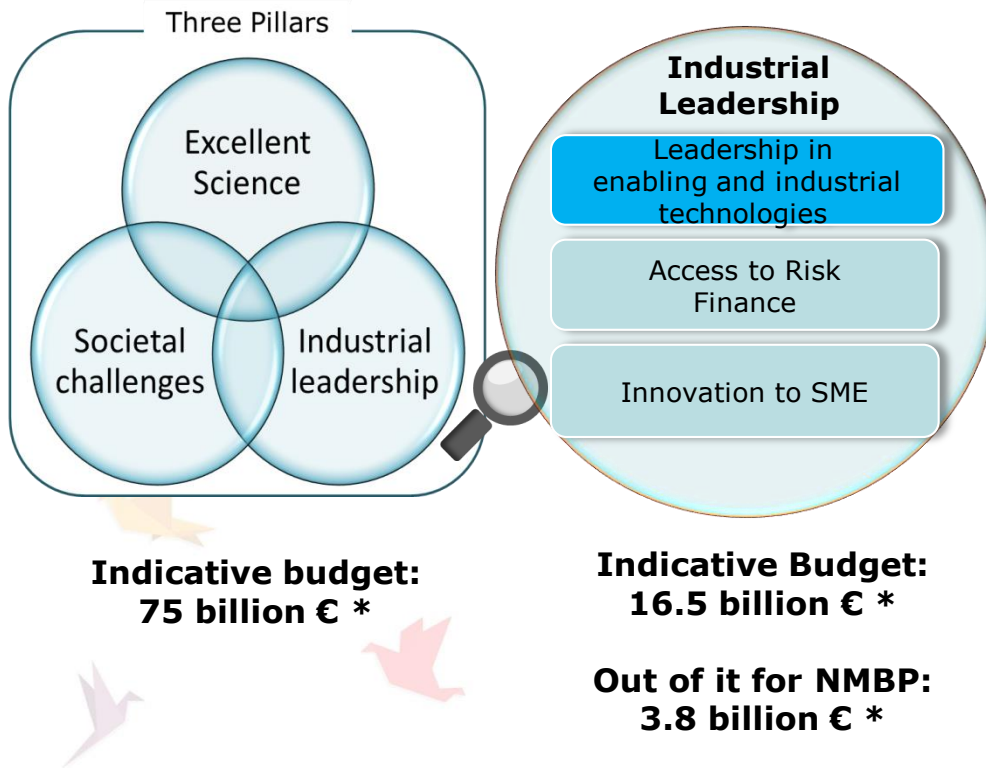
## EU Strategy for Key Enabling Technologies

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

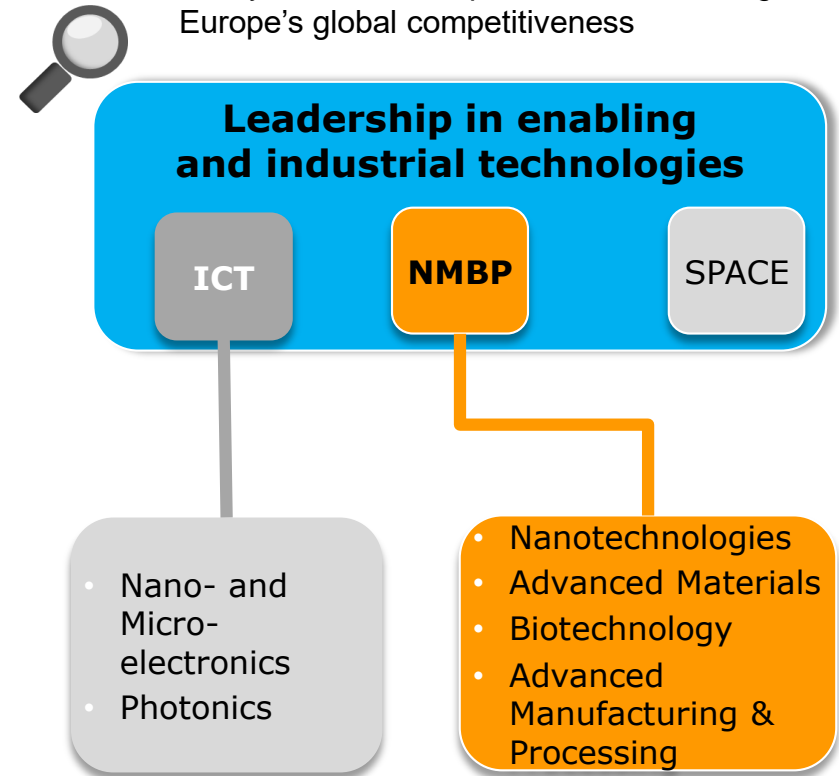
## Commissioner Moedas's priorities

- Open Innovation

# NMBP in Horizon 2020



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



\* 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:**

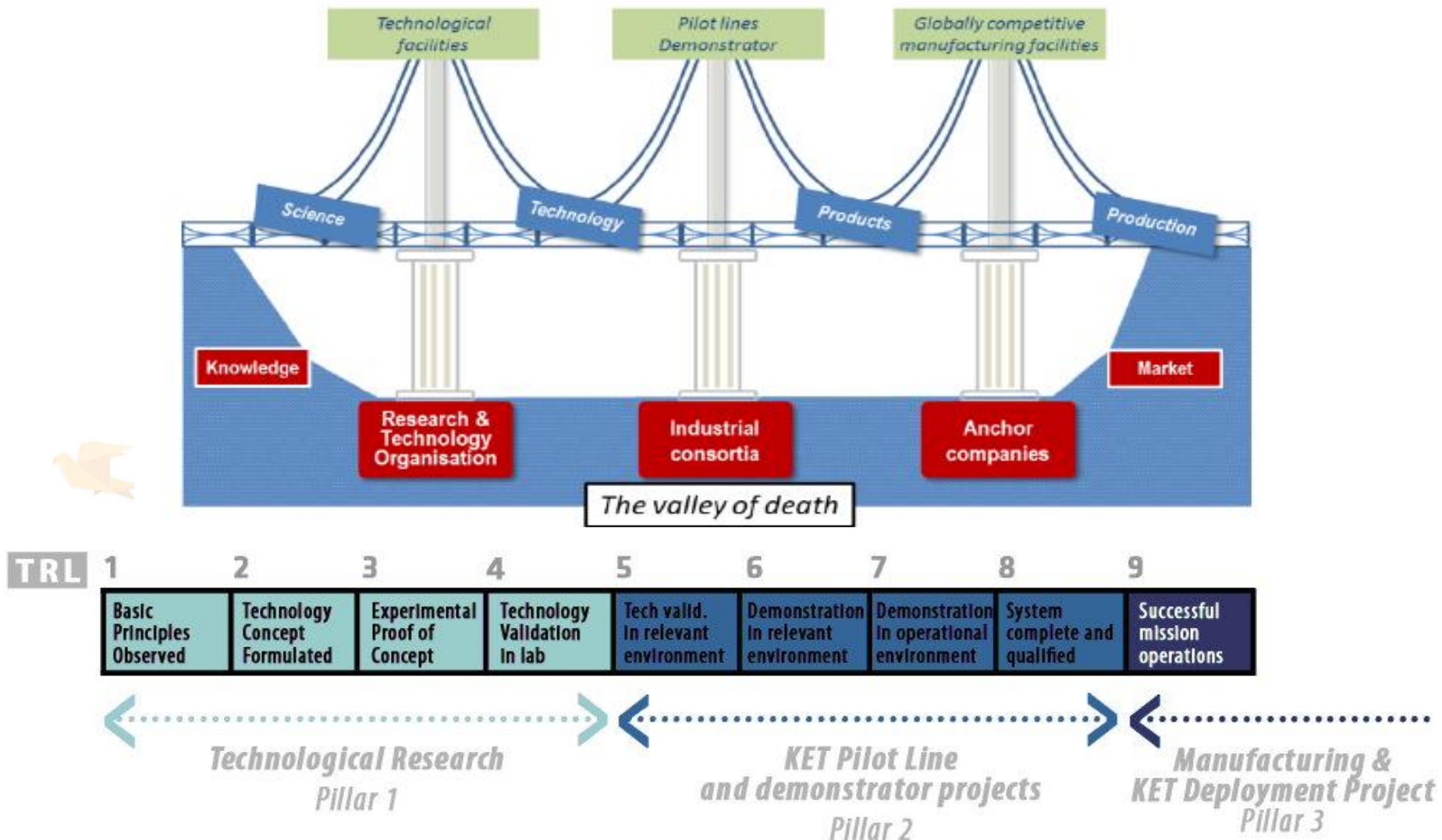
Nanoparticles

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

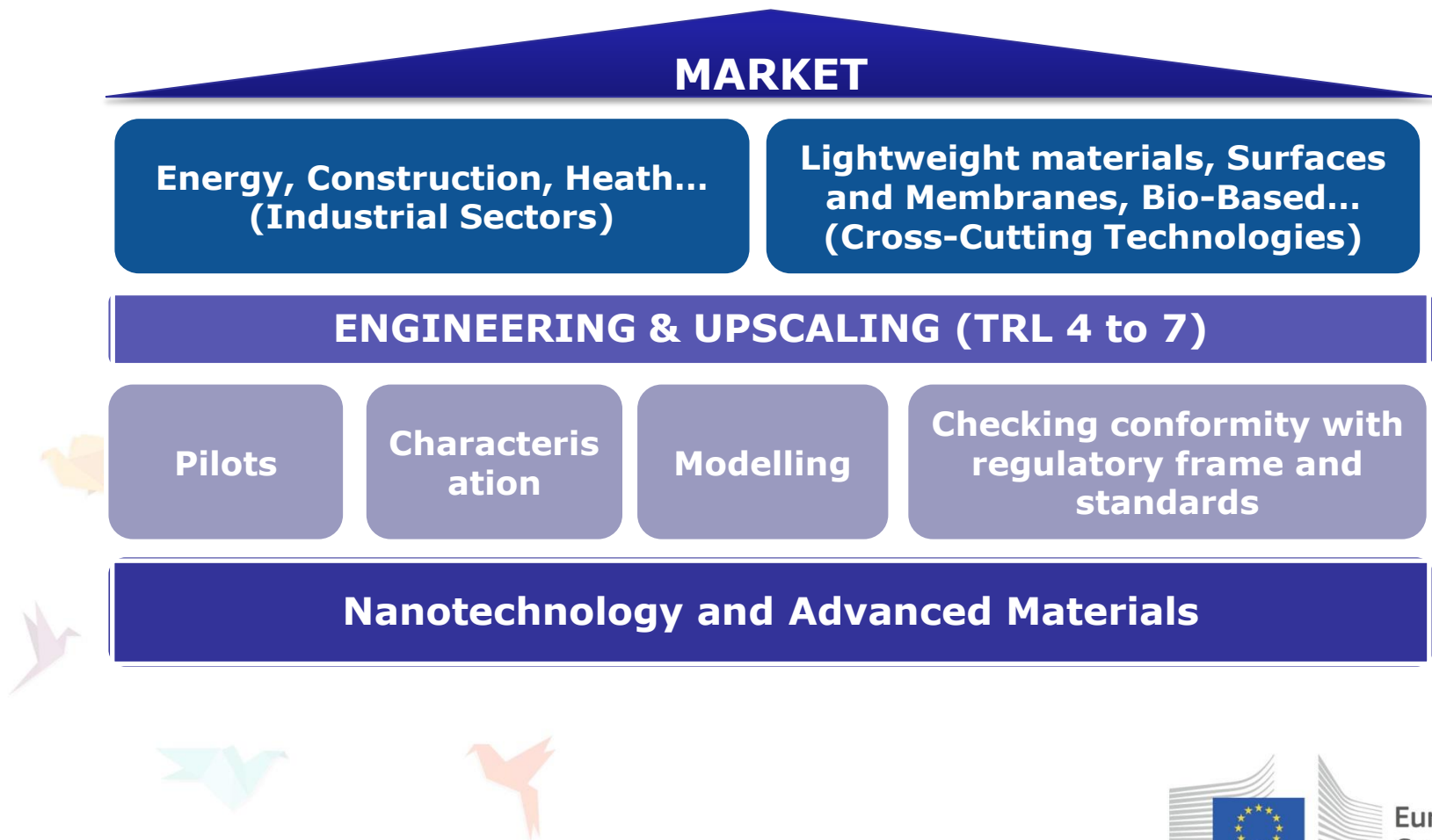
Glass Producer,  
Windscreens producer  
Car manufacturer



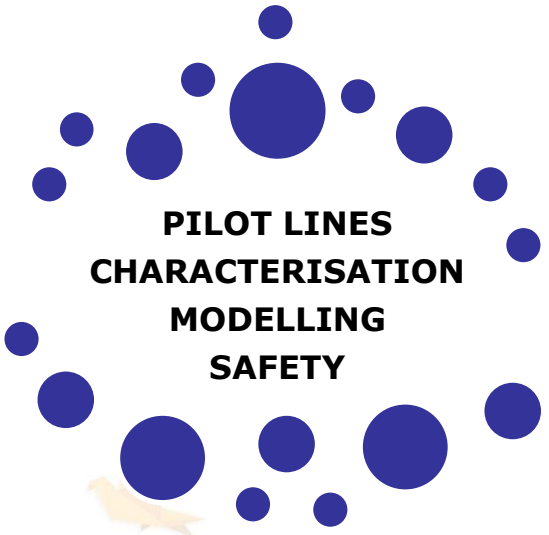
# Crossing the valley of death



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



# Open Innovation Test Beds



**PILOT LINES  
CHARACTERISATION  
MODELLING  
SAFETY**



**ACCELERATING  
INNOVATION  
for  
MATERIALS Industry**

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



**OPEN  
INNOVATION  
TEST BEDS**



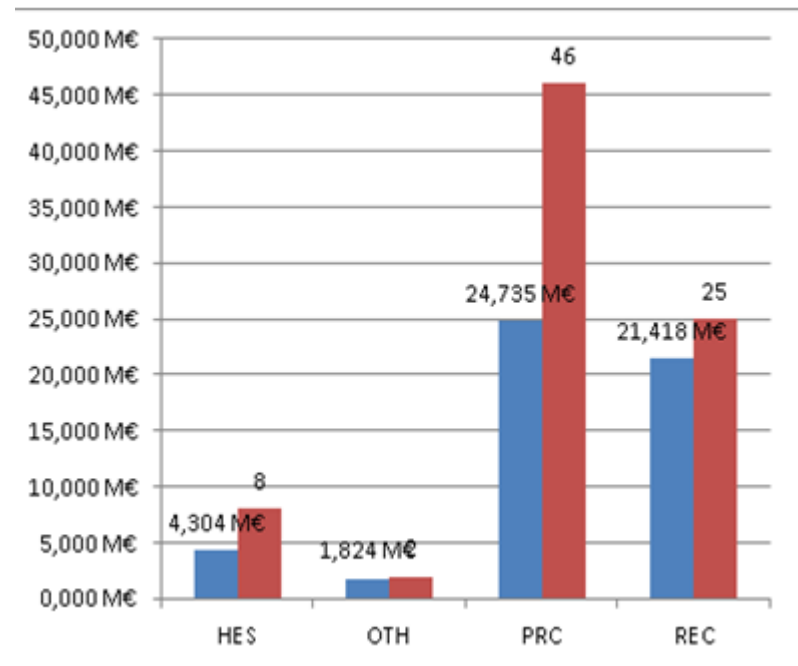
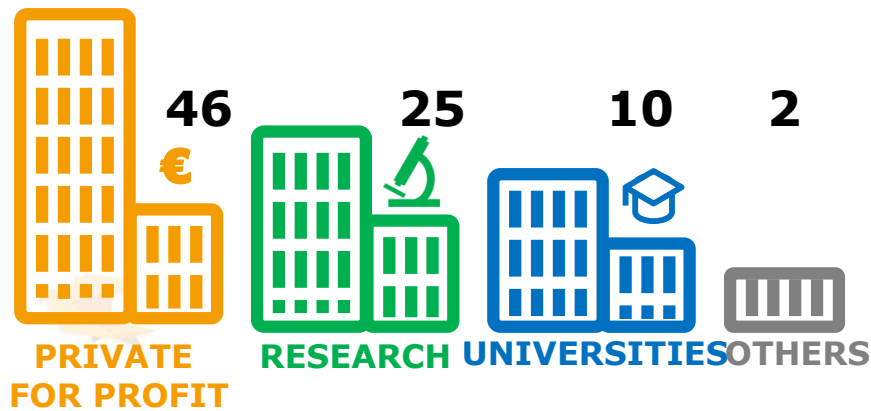
**FP7-H2020**

**H2020-FP9**



# Enablers for Innovation Ecosystems

- **Industry Pilot Facilities:** 83 Pilot Facilities and Demonstrators, mostly with industry:



Type of entity

EC Funding



European  
Commission

# WP2018-2020 TEST BEDS

For upscaling nanotechnology and materials, Open Innovation Test Beds will be funded in 6 technology domains, plus **Characterisation and Modelling**

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

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

**2018**

**2020**

**2019**

- **DT-NMBP-03-2019** Surfaces and membranes

- EMMC-CSA - European Materials Modelling Council
- EPPN-CSA - European Pilot Production Network
- Nanosafety Cluster

## Open Innovation Test Beds - Scope



The diagram illustrates the scope of Open Innovation Test Beds. It features a vertical line on the left with six circular nodes. Each node is connected to a horizontal bar containing text. The bars have a color gradient from dark blue at the top to light blue at the bottom. The first node has a small blue line segment extending from its top-left. The last node has a small blue line segment extending from its bottom-left.

**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 value chains**

**Identification and assessment of potential regulatory, economic and technical barriers**

**Engagement of stakeholders across the EU and the Associated Countries**



**European  
Commission**

# 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

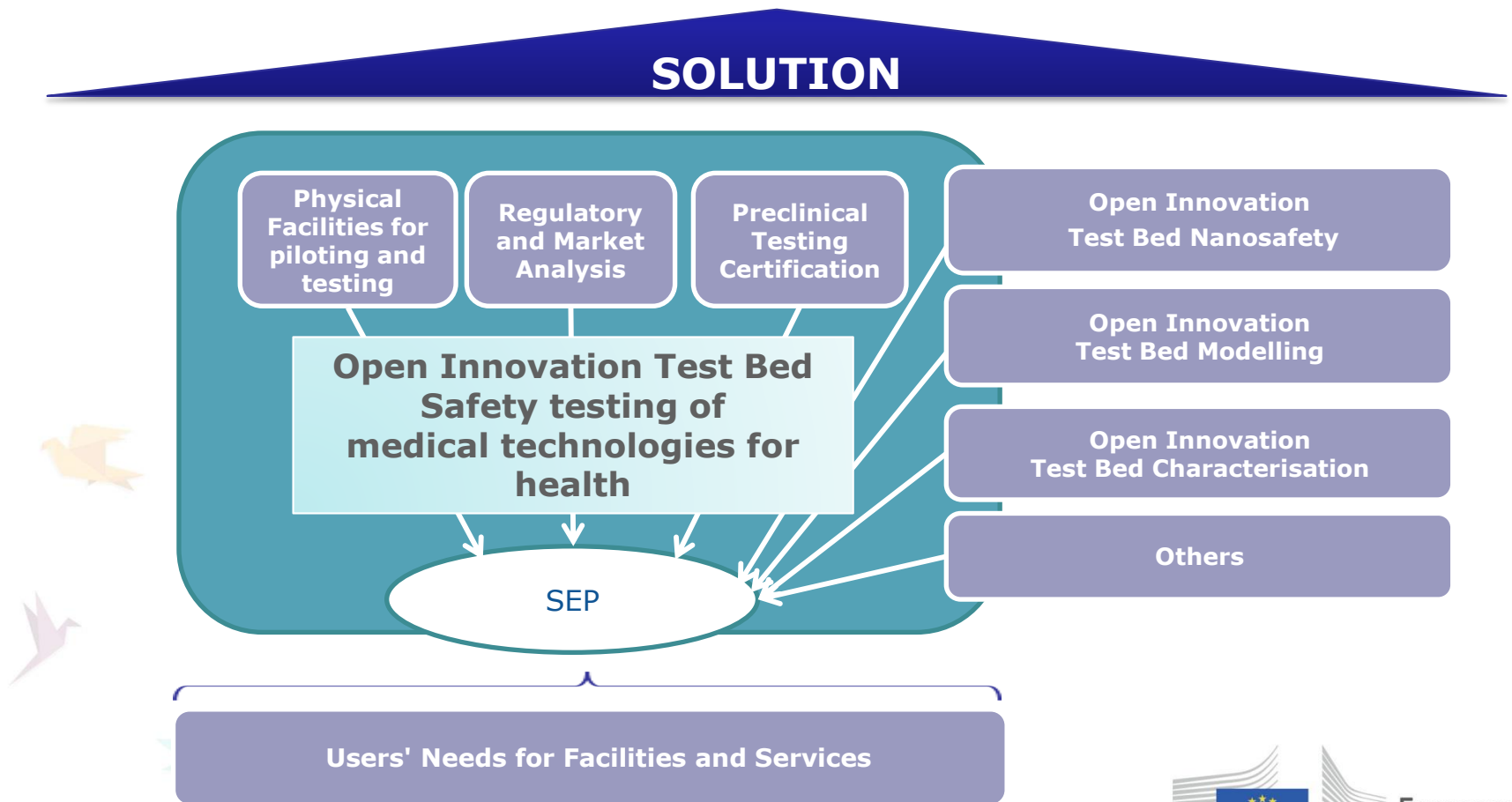
Business/  
Marketing  
Services

Users' Needs for Facilities and Services



European  
Commission

# 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 test beds**

**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 test beds' services and increased access to finance for investing in these materials or in applications using them**



# Further information

**Horizon 2020:** [http://ec.europa.eu/research/horizon2020/index\\_en.cfm](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](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](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](http://cordis.europa.eu/projects/home_en.html)

# Thank you!

#InvestEUresearch

[www.ec.europa.eu/research](http://www.ec.europa.eu/research)



**WP NMBP 2018/2020**

## **FAQ on Open Innovation Test Beds**

Living document: updated as of 20 November 2017



# INDEX

1. What are the OITBs for material upscaling, characterisation, modelling, and safety?
2. How many OITBs will be funded and in which domains?
3. Which activities of OITBs will be eligible for funding?
4. Which costs are not eligible?
5. What is the European added value of OITBs?
6. How will OITBs become sustainable once EU funding ends?
7. Who are the potential applicants?
8. What does open access mean?
9. What "single entry point" mean for the users

# INDEX

10. Will SMEs outside the project consortium have access to these OITBs?
11. How do the OITBs interact with other test beds funded under the same topic and with other similar initiatives?
12. Will the interaction between test beds be an evaluation criteria?
13. What is the link / synergy with regional funding?
14. What is the link/difference with the Digital Innovation Hubs (DIH)?
15. Why we are not using cascading grants for OITBs?
16. How does the INNO SUP actions relate to the OITBs?
17. What is the link with the Knowledge and Innovation Communities (KICs)?
18. Is there a link between the Horizon 2020 programme on research infrastructures and the OITBs?

# 1- What are OITBs for material upscaling, characterisation, modelling, and safety?

- **Entities**, established in at least three Member States and Associated Countries, **offering access to physical facilities, capabilities and services** required for the development, testing and upscaling of nanotechnology and advanced materials in industrial environments.
- Bring nanotechnology and advanced materials within the reach of companies and users in order to **advance from validation in a laboratory (TRL 4) to prototypes in industrial environments (TRL 7)**.
- **Upgrade existing or support the setting of new public and private** test beds, pilot lines, and demonstrators to develop, test and upscale nanotechnologies and advanced materials for new innovative products and services in some specific domains.
- Typically run by for **profit organisations**.
- Users could be **industry**, including **SMEs**, as well as **innovators** and **start-ups**.





## 2- How many OITBs will be funded and in which domains?

- The call is expected to create about 20 Open Innovation Test Beds for **materials development and upscaling in six 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
- Four Open Innovation Test Beds for **materials characterisation** and four Open Innovation Test Beds for **modelling** will be also funded, in addition to the already existing NanoSafety Platform.



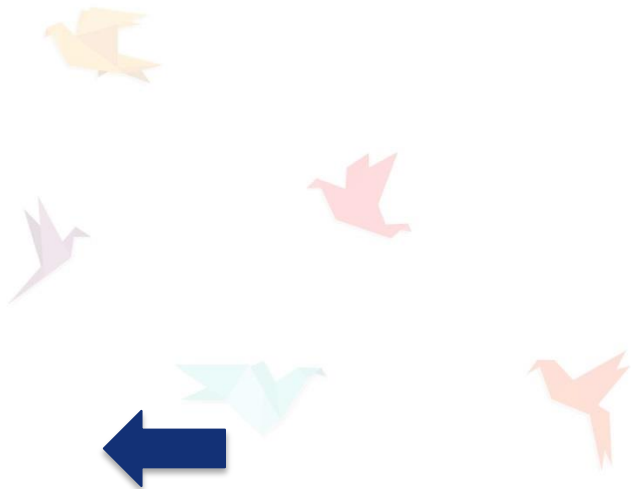
### 3- Which activities eligible for funding?

- All **activities from the prototyping to the industrial production**, and especially the testing in industrial environment, the validation of the characteristics of the materials and the control of the respect of legal and regulatory constraints.
- The **EU funding will support the upscaling and engineering process, a number of demonstration cases and dissemination/links with other eco-systems.**
- **Eligible costs** could notably include:
  - Acquisition, adaptation, installation and calibration of upscaling and testing equipment
  - Demonstration cases
  - Definition of access conditions to facilities and services
  - Networking activities between Open Innovation Test Beds and similar initiatives
  - Communication and dissemination activities
  - Design and Development of Services Infrastructure: Technology expertise; Legal / regulatory expertise; Modelling tasks; Characterisation tasks; Facilitation of access to funding for test beds' customers



## 4- Which costs are not eligible?

- Building costs
- Research costs, including acquisition of equipment, if not used for upscaling materials as described in the Open Innovation Test Beds topics
- Costs already paid by a national, regional or European subsidy



## 5- What is the European added value of OITBs?

- **Single entry point** for any users to materials facilities and services across Europe
- **Broad access** to materials development facilities and services across Europe
- **Accelerated maturity of products for a faster market entry**
- **Reduced costs** for accelerating materials production for both industry and users
- **Harmonised conditions** for testing and procedures for materials upscaling, characterisation and modelling to improve internal market accessibility
- **Increased return on investment** in materials research
- **Early stage access to intelligence on EU regulations** making the materials development process more efficient
- **Easier marketability of products in Europe** (e.g. non-European products to be tested in accordance to EU regulations to enter the market)



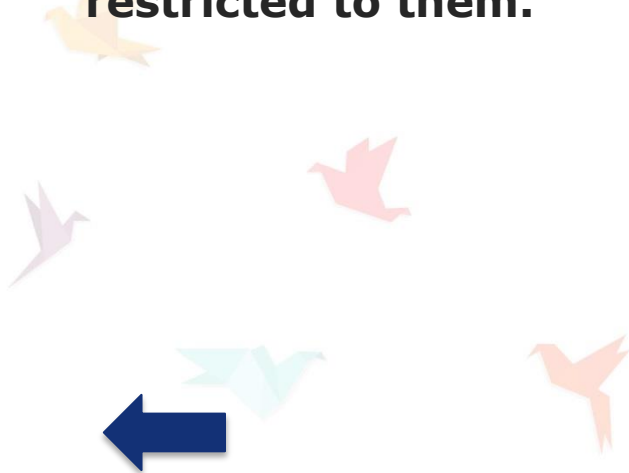
## 6- How will OITBs become sustainable once EU funding ends?

- Proposals should demonstrate that the test beds will reach out and deliver services to users, including SMEs, in a sustainable way and based on **market analysis, a business plan and how to attract further investments.**
- The consortium will have to provide their **own resources** from the beginning, they should pay attention to adjust their services to reach a sufficient number of potential users.
- Proposals should include an **exploitation strategy**, together with dissemination actions, to ensure that potential customers will know about test beds existence, services, and access conditions.
- **After the end of EU funding, the Test Beds will have to operate autonomously on the revenues of the services they provide.**



## 7- Who are the potential applicants?

- Proposals can be submitted by a consortium, which is free to involve any relevant partner from **Members States and Associated Countries**, provided that it respects Horizon 2020 rules and the conditions specified in the Work Programme.
- This means that **private entities** can apply, as well as **Research and Technology Organisations, Research Centres, or Higher Education Establishments**.
- **While current pilot lines can apply, test beds' funding is not restricted to them.**





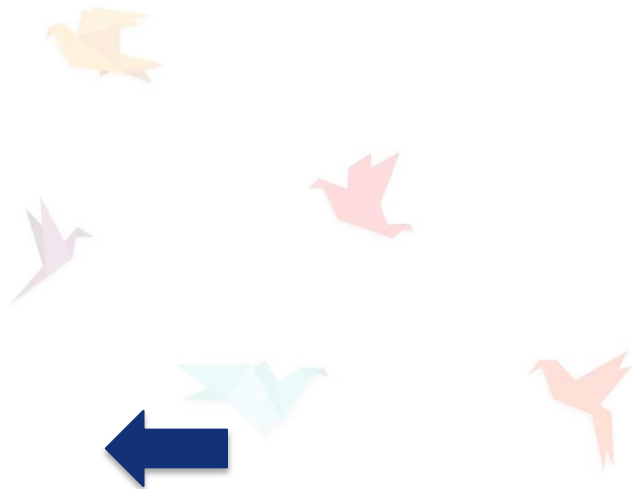
## 8- What does open access mean?

- Open access in this context means that any interested party, from Europe and globally, **can access test beds' facilities and services independently** whether they are part of the consortium or not.
- It is critical that any interested party from the EU or Associated Countries can access the test beds at **fair conditions and pricing and with transparent and mutual obligations in regard to for instance on security, safety and intellectual property rights.**
- Open Innovation Test Beds should set a **framework for the definition of the access conditions to their facilities and services respecting transparency and fair access conditions.**



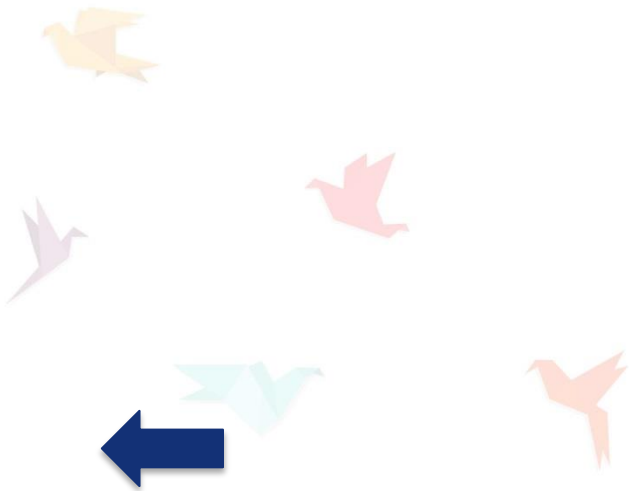
## 9- What will "single entry point" mean for the users?

- As test beds aim at **providing a full service along all steps of the technological development** of a physical innovation, all needed expertise have to be provided to users through a **single entry point**.
- If necessary, each test bed have **to acquire complementary services** from other entities, for instance on characterisation and or modelling, in order to offer a full package to users.



## 10- Will SMEs outside the project consortium have access to these test beds?

- Yes, SMEs will have access to the test beds at the **same conditions** as any other entity from the EU or Associated Countries.
- For **SMEs as core targeted user group**. The test beds will **offer a range of services**, which are of specific interest to them, e.g. regulatory support and development of innovative materials SMEs frequently cannot afford on their own.
- Proposals should demonstrate a solid and measurable outreach strategy towards SMEs and innovators outside the consortium.



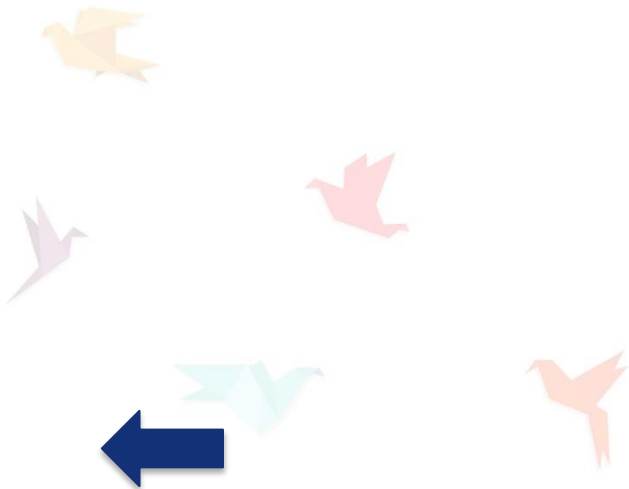
# 11- How do the test beds interact with other test beds funded under the same topic and with other similar initiatives?

- Part of the EU funding is for **launching cooperation** among themselves and with the other existing OITBs to make the cooperation systematic and sustainable at the end of the project. Moreover, it will be in the test beds' interest to **cooperate in a regular way with others entities to exchange services**, as well as the outcomes of their experience in providing services.
- Each proposal should include an amount for **coordination and networking**, with other similar test beds as well as with other innovation eco-systems in the EU, whether European, national or regional.
- A 2017 NMBP call Coordination and Support Action (CSA) project EPPN has started to map existing services on upscaling of materials across the EU and Associated Countries. This mapping exercise is involving Member States, Candidate Countries and Associated Countries, e.g. through the support of the High Level Group on Nanotechnologies and Advanced Materials (HLG).



## 12- Will the interaction between test beds be an evaluation criteria?

- The proposers will have to specify the way they plan their cooperation with other OITBs (existing or under establishment). Therefore this element will be part of the overall evaluation.
- It is considered an element of the sustainability analysis.



## 13- What is the link / synergy with regional funding?

- Open Innovation Test Beds should become an element of an overall eco-system on materials upscaling, which already contains some regional facilities, and therefore **should cooperate together**. The sustainability analysis and the business study which are part of the proposals will ensure **there won't be duplication of facilities and activities at the regional level**.
- When funding facilities and services through Open Innovation Test Beds, **the principle of no double funding will apply** - <https://ec.europa.eu/research/regions/index.cfm?pg=synergies>
- If a Member State or a region wishes to support some entities with the costs for acceding to the Open Innovation Test Beds, this is possible within the remit of the EU and national rules on state aid.





## 14- What is the link/difference with the Digital Innovation Hubs (DIH)?

- Digital Innovation Hubs focus primarily on helping SMEs to master their digital transformation and advice on the choice among technologies for digitisation.
- Open Innovation Test Beds **are complementary** to Digital Innovation Hubs as they concentrate on the upscaling, demonstration, characterisation and modelling of advanced materials, including nanomaterials.
- Open Innovation Test Beds could in some cases have the need to acquire digital services on a specific technology development. **Synergies based on complementarities are possible.**



## 15- Why cascading grants are not being used for OITBs?

- Digital Innovation Hubs operate with cascading grants but their scope is larger than the Open Innovation Test Beds. The cascading grant system ensures to the Digital Innovation Hubs a stable range of users. Digital Innovation Hubs are technology neutral and provide their users with a neutral opinion on which technology to use. Moreover, cascading grants have to be managed by an entity having a large financial capacity to bear the subsequent financial risk.
- **Open Innovation Test Beds work on a different scope and a more downward segment of the value chain, where users of Test Beds will find an immediate benefit, without needing a system of cascading grants.**
- It is expected, as it is currently the case for the existing Pilot Lines, to have mainly private entities managing the Open Innovation Test Beds.



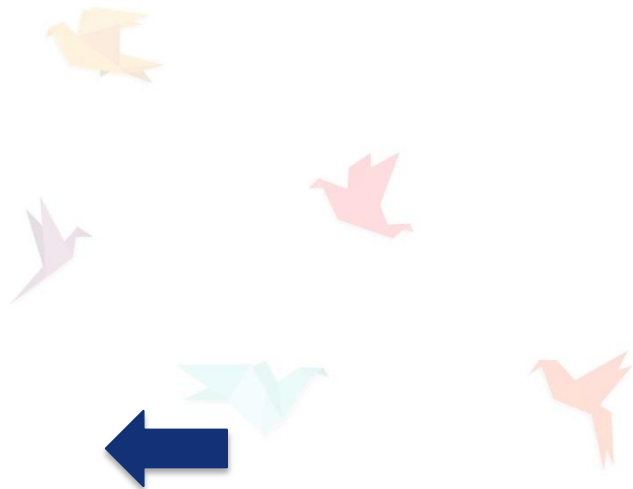
## 16- How does the INNO SUP actions relate to the OITBs?

- The INNO-SUP topics (under Horizon 2020) will fund mainly brokerage actions, matchmaking initiatives between innovative SMEs and large entities, but it doesn't fund the development process of the innovation in materials. The new INNO-SUP from 2017 calls foresees a similar approach as DIH, however focusing on manufacturing technics, therefore a different scope than the Open Innovation Test Beds.
- Nevertheless, OITBs, DIH and INNO SUP funded entities, have links and need to **ensure coordination** as well as cooperation in some domains, as well as a coordination with national and regional structures.



## 17- What is the link with the Knowledge and Innovation Communities (KICs)?

- KICs are partnerships that bring together business, research centres and universities to develop innovative products and services, start new companies and train the next generation of entrepreneurs.
- Start-ups set up following a KIC partnership can use the Open Innovation Test Beds to upscale their innovation in materials towards reaching the market.



## 18- Is there a link between the Horizon 2020 programme on research infrastructures and the OITBs?

- Horizon 2020 Research Infrastructures programme deals with facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. To ensure the implementation and operation of the ESFRI and other world class research infrastructures, including the development of regional partner facilities; integration of and access to national research infrastructures.
- The Open Innovation Test Beds focus on testing and upscaling equipment as well as modelling, characterisation, regulatory and technology advice for innovative technology products which have already gone through the research process and are at the further step of upscaling.
- In some specific cases, an Open Innovation Test Beds may acquire a service from an ESFRI infrastructure for a specific product, however the ESFRI infrastrucutres cannot be seen as Open Innovation Test Beds.



European  
Commission