



#InvestEUresearch

# Horizon Europe - WP 2020 under Horizon 2020

**KETs\* Innovate Together**  
**Strasbourg**  
**27 June 2019**

Jürgen Tiedje – Head of Unit  
Sustainable Industry Systems  
DG Research & Innovation

Research and  
Innovation

# Overview

## Horizon Europe – next steps

## Horizon 2020 – Work Programme

- NMBP
- A new crosscutting call

Latest news:  
[https://ec.europa.eu/info/designing-next-research-and-innovation-framework-programme/what-shapes-next-framework-programme\\_en](https://ec.europa.eu/info/designing-next-research-and-innovation-framework-programme/what-shapes-next-framework-programme_en)



# Commission proposal for **Horizon Europe**

THE NEXT EU RESEARCH & INNOVATION PROGRAMME  
(2021 – 2027)

#HorizonEU

Based on the Commission Proposal for Horizon Europe, the common understanding between co-legislators and the Partial General Approach, both approved in April 2019

Research and  
Innovation

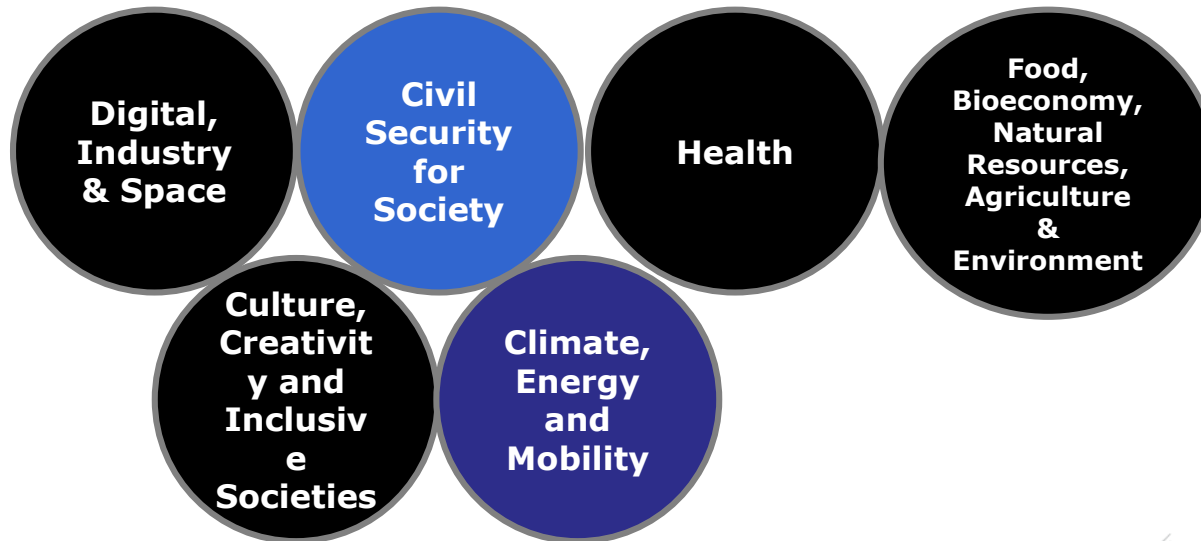


## Pillar 2 - Clusters

### Global Challenges & European Industrial Competitiveness:

Development goals

Commission proposal for budget: € 52.7 billion



## Future partnerships with industry?

- **Made in Europe - co-programmed partnership (instead of Factories of the Future)?**
- **Climate Neutral and Circular Industry co-programmed partnership (instead of SPIRE)?**
- **Clean Steel partnership - a new co-programmed partnership built on the assets of RFCS**

# Road to HE: STRATEGIC PLANNING- Tentative schedule

Please join us, if you can

Website:

[https://ec.europa.eu/info/research-and-innovation/events/upcoming-events/european-research-and-innovation-days\\_en](https://ec.europa.eu/info/research-and-innovation/events/upcoming-events/european-research-and-innovation-days_en)



# H2020 - NMBP Calls 2020

## LEIT NMBP – 3 main calls – 2020 budgets

- FOUNDATIONS FOR TOMORROW'S INDUSTRY – 161.5 M€
- TRANSFORMING EUROPEAN INDUSTRY – 221 M€
- INDUSTRIAL SUSTAINABILITY – 105 + 20 M€

**Publication:** 2 July 2019 / [pre-published](#) 3 June

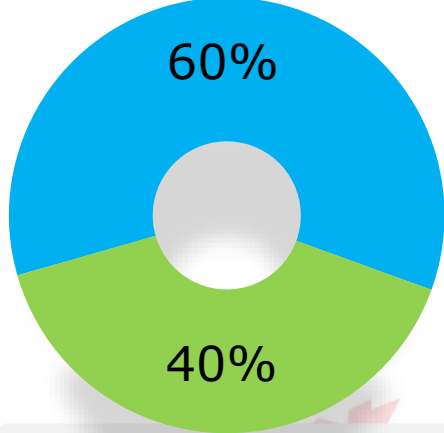
### 2020 Deadlines

- Two-stage topics: 12 December 2019 (1<sup>st</sup> stage) and 14 May 2020 (2<sup>nd</sup> stage)
- Single-stage topics: 5 February 2020
- CE-BIOTEC-08-2020: 15 April 2020

# NMBP 2018-2020

## Priorities

Bringing the digital to the physical world



Circular Economy (20%)

Climate, Energy (20%)

Climate, Energy and the Circular Economy

## Calls

**FOUNDATIONS** for tomorrow's industry

**TRANSFORMING** European industry

**Industrial SUSTAINABILITY** incl. Next-Gen. Batteries, Low-carbon, Circ. Industries

## Impacts

Eco-system for design/testing/upscaling

Global industrial leadership for re-industrialisation

Energy/  
Resource efficiency  
Low emissions



# 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-  
Horizon  
Europe**

Underlying policy: [Technology Infrastructures SWD\(2019\)158](#)



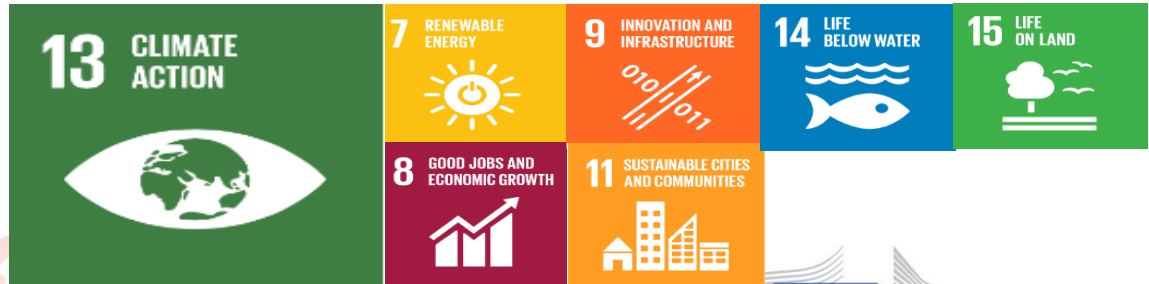
# Digitising European industry – the importance of data

- "Digitising European Industry" (Communication April 2016)
  - *Industrial platforms (e.g. "Connected smart factory")*
  - *Digital Innovation Hubs (for SMEs)*
  - *Skills*
  - *Standards*
- European Cloud Initiative and European Science Cloud
- Data Economy, Platform Economy, incl. data ownership & liability questions
- Artificial Intelligence – Coordinated Plan (December 2018)

# 'Building a low-carbon, climate resilient future'

## WP 2018-20 contributions to goals of **Paris Agreement**

- carbon neutrality and climate resilience
- limit global temperature rise to well below 2°C, make efforts to limit this to 1.5°C; enhance adaptive capacity, strengthening resilience and reducing vulnerabilities



# 'Connecting economic and environmental gains – the Circular Economy'

WP 2018-20 contributions directly supporting the circular economy policy covering raw materials, production, consumption, waste management

- Ensure that growth no longer requires increasing consumption of resources, energy, water and primary raw materials
- Minimise waste, including from plastics
- Enhance industrial competitiveness



# FOUNDATIONS FOR TOMORROW'S INDUSTRY

## Open Innovation Test beds (111.5M€)

Topic Title	Year	Type
DT-NMBP-04-2020: Open Innovation Test Beds for nano-enabled bio-based materials	2020	IA
DT-NMBP-05-2020: Open Innovation Test Beds for materials for building envelopes	2020	IA
DT-NMBP-06-2020: Open Innovation Test Beds for nano-pharmaceuticals production	2020	IA

# Open Innovation Test Beds

## EU Investment

EUR 260M investment in Open Innovation Test Beds for Nanotechnology & Advanced Materials

## What are they?

Physical facilities offering technology access and services to advance from validation in a laboratory (TRL 4) to prototypes in industrial environments (TRL 7)

## How many test beds will be funded?

- 20 Test Beds in 6 technology domains
- 4 Test Beds for materials characterisation
- 4 Test Beds for modelling
- Complementing the already established NanoSafety platform

# Open Innovation Test Beds



**ACCELERATING  
INNOVATION**  
for  
**MATERIALS Industry**

In the two KETs:  
**Nanotechnologies and  
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**FP7-H2020**

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# WP2018-2020 TEST BEDS

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

**2019**

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

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

**2020**

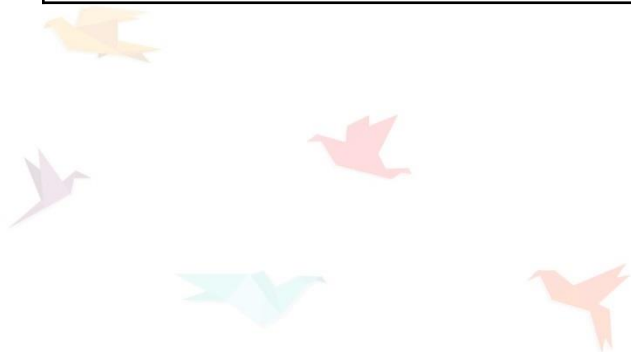
- EMMC-CSA - European Materials Modelling Council
- EPPN-CSA - European Pilot Production Network
- Nanosafety Cluster



# FOUNDATIONS FOR TOMORROW'S INDUSTRY

## Materials Characterisation and Computational Modelling (24M€)

Topic Title	Year	Type
DT-NMBP-11-2020: Open Innovation Platform for Materials Modelling	2020	RIA
NMBP-35-2020: Towards harmonised characterisation protocols in NMBP	2020	RIA



# FOUNDATIONS FOR TOMORROW'S INDUSTRY

## Governance, Science-based Risk Assessment and Regulatory Science (18M€)

Topic Title	Year	Type
NMBP-16-2020: Safe by design, from science to regulation: multi-component nanomaterials	2020	RIA
NMBP-36-2020: Monitoring and safety of transport infrastructures	2020	CSA
NMBP-37-2020: Incentivising newcomers	2020	CSA
NMBP-38-2020: Citizens and industrial technologies	2020	CSA



# FOUNDATIONS FOR TOMORROW'S INDUSTRY

## Industry Commons (8M€)

Topic Title	Year	Type
DT-NMBP-39-2020: Towards Standardised Documentation of Data through taxonomies and ontologies	2020	CSA
DT-NMBP-40-2020: Creating an open market place for industrial data	2020	RIA

# Industry Commons

- **Definition:** Sharing R&D-derived knowledge, data, and capabilities for design, engineering and manufacturing, applicable across industry sectors
- **Rationale:** Re-use of data stimulates the development of new products, services, materials and manufacturing processes.
- **Objectives:**
  - Standardise the documentation of data through taxonomies and ontologies,
  - Making data accessible and enabling its re-use across different domains,
  - Enable domains to connect, link and exchange information, create a common information system that would allow data sharing and enable new or improved materials, products, processes and services
- ✓ Make the data FAIR: findable, accessible, interoperable and re-usable

# TRANSFORMING EUROPEAN INDUSTRY Factories of the Future (100M€)

Topic Title	Year	Type
DT-FOF-07-2020: Assembly of micro parts	2020	RIA
DT-FOF-09-2020: Energy-efficient manufacturing system management	2020	IA
DT-FOF-10-2020: Pilot lines for large-part high-precision manufacturing	2020	IA 50%
DT-FOF-11-2020: Quality control in smart manufacturing	2020	IA

# TRANSFORMING EUROPEAN INDUSTRY

## Biotechnology (86M€)

Topic Title	Year	Type
BIOTEC-06-2020: Reprogrammed microorganisms for biological sensors (IA)	2020	IA
BIOTEC-07-2020: Multi-omics for genotype-phenotype associations (RIA)	2020	RIA
CE-BIOTEC-08-2020: New biotechnologies to remediate harmful contaminants (RIA)	2020	RIA
CE-BIOTEC-09-2020: Upcycling Bio Plastics of food and drinks packaging (RIA)	2020	RIA

# TRANSFORMING EUROPEAN INDUSTRY

## Medical Technology Innovations (35M€)

Topic Title	Year	Type
NMBP-21-2020: Biological scaffolds for tissue regeneration and repair	2020	RIA
DT-NMBP-23-2020: Next generation organ-on-chip	2020	RIA-LS

# INDUSTRIAL SUSTAINABILITY

## Sustainable Process Industry – SPIRE (32.5M€)

Topic Title	Year	Type
LC-SPIRE-08-2020: Novel high performance materials and components	2020	RIA
DT-SPIRE-11-2020: Artificial Intelligence and Big Data Technologies for Process Industries	2020	CSA

CE-SPIRE-01-2020, CE-SPIRE-07-2020, CE-SPIRE-09-2020  
in call “Competitive, Low-carbon and Circular Industries”



# INDUSTRIAL SUSTAINABILITY

## Clean Energy through Innovative Materials

(30M€ from NMBP + 10M€ from SC3)

Topic Title	Year	Type
LC-SC3-RES-9-2020: Next generation of thin-film photovoltaic technologies	2020	IA
LC-NMBP-31-2020: Materials for off shore energy	2020	IA

NB: Previously announced LC-NMBP-28-2020 now LC-SC3-RES-9-2020  
- in WP part of Societal Challenge 3 - Energy

# INDUSTRIAL SUSTAINABILITY

## Energy-efficient Buildings (52.5M€)

Topic Title	Year	Type
LC-EEB-04-2020: Industrialisation of building envelope kits for the renovation market	2020	IA
LC-EEB-07-2020: Smart Operation of Proactive Residential Buildings	2020	IA
LC-EEB-08-2020: Digital Building Twins	2020	RIA
NB: previously announced LC-EEB-05-2018-20 and LC-EEB-06-2018-20 will not be re-opened in 2020		

# Cross-Cutting Call: *Competitive, Low Carbon and Circular Industries*

## *(NOT NMBP but "Section 20. Cross-cutting activities")*

### ➤ Portfolio rationale: Design and demonstration of

- profitable and sustainable (circular) value chains of materials, products and services;
- novel sourcing and value-added destinations for non-product outputs between industrial facilities (industrial symbiosis)

### ➤ Portfolio approach: clustering activities

- continuous dialogue and exchange of good practices between all actors involved
- transfer of knowledge and to identify technological and non-technological barriers.
- coordinated deliverables and joint dissemination or exploitation activities

<p><b>NMBP</b></p> <ol style="list-style-type: none"> <li>1. NMBP - ERA-NET on materials, supporting the circular economy and Sustainable-Development-Goals</li> <li>2. NMBP - Materials life cycle sustainability analysis (RIA)</li> <li>3. SPIRE - Tapping into the potential of Industrial Symbiosis (IA)</li> <li>4. SPIRE - Preserving fresh water: recycling industrial waters industry (IA)</li> <li>5. SPIRE - Alternative mineral resources for high volume production (IA)</li> </ol>	<p><b>Budgets</b></p> <p><b>118.5 M€</b></p>
<p><b>SC5</b></p> <ol style="list-style-type: none"> <li>6. Develop, implement and assess a circular economy oriented product information management system for complex products from cradle to cradle (IA)</li> <li>7. Raw materials innovation for the circular economy (IA): processing and refining of primary and/or secondary raw materials; recycling of raw materials from end-of-life products &amp; buildings; advanced sorting systems for high-performance recycling of complex end-of-life products, sustainable metallurgical processes</li> <li>8. Raw materials policy support actions for the circular economy: Expert network on Critical Raw Materials (CSA)</li> </ol>	<p><b>58 M€</b></p>
<p><b>SC3</b></p> <ol style="list-style-type: none"> <li>9. Low carbon industrial production using CCUS (IA)</li> <li>10. Industrial (Waste) Heat-to-Power conversion (IA)</li> </ol>	<p><b>29 M€</b></p>

# Call deadlines:

Topics (Type of Action)	Budgets (EUR million)	Deadlines
	2020	
<b>Opening: 02 July 2019</b>		
<b>CE-NMBP-41-2020 (ERA-NET-Cofund)</b>	15.00	05 Feb 2020
<b>CE-NMBP-42-2020 (RIA)</b>	6.00	
<b>CE-SC5-08-2020 (CSA)</b>	3.00	
<b>CE-SPIRE-01-2020 (IA)</b>	97.50	
<b>CE-SPIRE-07-2020 (IA)</b>		
<b>CE-SPIRE-09-2020 (IA)</b>		
<b>CE-SC5-07-2020 (IA)</b>	40.00	05 Feb 2020 (First Stage)
<b>CE-SC5-31-2020 (IA)</b>	15.00	03 Sep 2020 (Second Stage)
<b>Opening: 05 May 2020</b>		
<b>LC-SC3-CC-9-2020 (IA)</b>	14.00	01 Sep 2020
<b>LC-SC3-NZE-5-2020 (IA)</b>	15.00	
<b>Overall indicative budget</b>	205.50	



# Where to get advice and support ?

**National Contact Points in your country** <http://europa.eu/!ub88vC> (NMP)

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

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

## 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>

**CORDIS database with EU funded research projects :** [http://cordis.europa.eu/projects/home\\_en.html](http://cordis.europa.eu/projects/home_en.html)

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Thank you!

