Key Enabling Technologies:
Nanoscience, Advanced Materials, Advanced Manufacturing, Industrial Biotechnology (NMP-B)

HORIZON2020 – Year 2020 Work Programme

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Nanotechnologies, Advanced Materials, Advanced Manufacturing and Industrial Biotechnology (NMPB) – Year 2020

- Last WP - what is new:

  - Budget $630m, 20% more than other years.
  - Less number of topics.
  - Larger budget per topic in cases.
  - 50% funding to industry in cases; Lump-sum pilot.
  - Deadlines from Dec’19
  - WP NMPB updated -
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Industrial Biotechnology (NMPB) –

WANTED: PLEASE READ THE INTRODUCTION TO THE LEIT PROGRAMME –

Strategic orientation on innovative technologies closer to the market
Activities will develop innovative technologies bringing them closer to the markets, including a progress towards higher Technology Readiness Levels (TRLs). This will help the manufacturing sectors to adapt to global competitive pressure by improving their technological base. As proposed in the European KET Strategy, the KET parts of this work programme use TRLs where relevant. This Work Programme spans TRLs from 3-4 up to 7, with an overall centre of gravity in the range from 5-6, with the highest level reserved for cases where there is strong industrial commitment.

Business cases and exploitation strategies for industrialisation (LEIT-NMBP)
Proposals should demonstrate the expected impact by including a business case and exploitation strategy for industrialisation. The business case and exploitation strategy will be evaluated under the ‘Impact’ criterion. The business case should demonstrate the expected impact of the proposal in terms of enhanced market opportunities for European enterprises. It should describe the targeted market(s); estimated market size in Europe and globally; user and customer needs;

Synergies with other funds
Project proposers should consider and actively seek synergies with, and where appropriate possibilities for further funding from, other relevant EU, national or regional research and innovation programmes (including ERDF/ESF+, private funds or financial instruments (including EFSI)).
INDUSTRIAL TECHNOLOGIES programme based on Key Enabling Technologies

A) Six strategic technologies  B) Driving competitiveness and growth.  
### Challenge 1.1 - 2020: Open Innovation Test Beds

| Tentative 2020: DT-NMBP-04-2020: Open Innovation Test Beds for bio-based nano-materials and solutions | TRL 4-7 | Innovation Action (IA) |
| DT-NMBP-05-2020: Open Innovation Test Beds for functional materials for building envelopes | TRL 4-7 | IA |
| DT-NMBP-06-2020: Open Innovation Test Beds for nano-pharmaceuticals producton | TRL 4-7 | IA |

### Challenge 1.2 - 2020: Materials Characterisation and computational modelling

| Tentative 2020: NMBP-35-2020: Towards harmonised characterisation protocols in NMBP | TRL 4-6 | RIA |

### Challenge 1.3 - 2020: Governance, Science based risk assessment and regulatory aspects

| Tentative 2020: NMBP-16-2020: Safe by design, from science to regulation: multi-component nanomaterials | TRL 4-6 | RIA |
| NMBP-36-2020: Monitoring and safety of transport infrastructures | CSA |
| NMBP-37-2020: Incentivising newcomers | CSA |
| NMBP-38-2020: Citizen and industrial technologies | CSA |

### Challenge 2.1 - 2020: Factories of the Future

| Tentative 2020: DT-FoF-07-2020: Assembly of micro parts | TRL 4-9 | RIA |
| DT-FoF-08-2020: Energy efficient manufacturing systems management | TRL 5-7 | IA |
| DT-FoF-10-2020: Pilot lines for large-part high-precision manufacturing | TRL 5-7 | IA (50%) |
| DT-FoF-11-2020: Quality control in smart manufacturing | TRL 5-7 | IA |

### Challenge 2.2 - 2020: Industrial Biotechnology

| Tentative 2020: BIOTEC-05-2020: Reprogrammed microorganisms for biological sensors | TRL 3-6 | IA |
| BIOTEC-07-2020: Multi-omics for the optimisation of genotype-phenotype associations | TRL 4-6 | RIA |
| BIOTEC-08-2020: New biotechnologies for remediation of harmful contaminants | TRL 3 – 8 | RIA |
| BIOTEC-09-2020: Upcycling bioplastics of food and drinks packaging | TRL 3 – 6 | RIA |

### Challenge 2.3 - 2020: Medical Technology Innovations

| Tentative 2020: NMBP-21-2020: Biological scaffolds for specific tissue regeneration and repair | TRL 3-5 | RIA |
| DT-NMBP-23-2020: Next generation organ-on-chip | TRL 3-5 | RIA |
### Challenge 3.1 - 2020: Sustainable process Industries

<table>
<thead>
<tr>
<th>Topic</th>
<th>Details</th>
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<tr>
<td>CE-SPIRE-06-2020: Novel high performance materials and components for future low carbon technologies and processes</td>
<td>TRL 3-5 RIA</td>
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<tr>
<td>DT-SPIRE-11-2020: Artificial Intelligence and Big Data Technologies for Process Industries</td>
<td>CSA</td>
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### Challenge 3.2 - 2020: Catalysing the circular economy

| Tentative 2020: LC-NMII-31-2020: Materials for offshore energy | TRL 4-6 IA |
| LC-NMII-28-2020: Next generation of thin film PV technologies (moved now to the H2020 Energy LC-SC3-RESS-2020) | |

### Challenge 3.3 - 2020: Clean Energy through Innovative materials

| Tentative 2020: LC-NMII-31-2020: Materials for offshore energy | TRL 4-6 IA |

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**Deadlines:**
- **Single Stage NMP 2020** topics: 05/02/20.
- **Two Stage NMP 2019** 1\(^{st}\) stage: 12/12/19, 2\(^{nd}\) stage: 14/05/20. Exceptions:
  - [Biotec08: 15/04/20, BAT-12,13,14,15: 16/01/2020, BAT8, 9,10,11: 21/04/20, NMP28: 11/12/19] Discuss with your NCP 2020 topics and deadlines.

**NMPB 2020 Work Programme pre published:**
Cross Cutting Programme – Tentative Topics:

Call - Building a Low-Carbon, Climate Resilient Future: Next-Generation Batteries

LC-BAT-8-2020: Next-generation batteries for stationary energy storage
LC-BAT-9-2020: Hybridisation of battery systems for stationary energy storage
LC-BAT-10-2020: Next generation and realisation of battery packs for BEV and PHEV
LC-BAT-11-2020: Reducing the cost of large batteries for waterborne transport

A large-scale research initiative on Future Battery Technologies

LC-BAT-12-2020: Novel methodologies for autonomous discovery of advanced battery chemistries
LC-BAT-13-2020: Sensing functionalities for smart battery cell chemistries
LC-BAT-14-2020: Self-healing functionalities for long lasting battery cell chemistries
LC-BAT-15-2020: Coordinate and support the large scale research initiative on Future Battery Technologies
Call - COMPETITIVE, LOW CARBON AND CIRCULAR INDUSTRIES - Cross Cutting Programme – Tentative Topics:

CE-NMBP-42-2020: Materials life cycle sustainability analysis
CE-SPIRE-01-2020: Tapping into the potential of Industrial Symbiosis
CE-SPIRE-07-2020: Preserving fresh water: recycling industrial waters industry
CE-SPIRE-09-2020: Alternative mineral resources for high volume production (IA)

CE-SC5-07-2020: Raw materials innovation for the circular economy: sustainable processing, reuse, recycling and recovery schemes
CE-SC5-08-2020: Raw materials policy support actions for the circular economy - Expert network on Critical Raw Materials
CE-SC5-31-2020: Develop, implement and assess a circular economy oriented product information management system for complex products from cradle to cradle
LC-SC3-NZE-5-2020: Low carbon industrial production using CCUS
EU groups: how to influence future European calls
The composition of the European Factories of The Future (EFFRA) Board reflects the diversity of European manufacturing and includes suppliers as well as customers of production technologies, trade associations, research centres and universities.
AM Platform

The AM Sub-Platform, initiated by the MANUFACTURE Technology Platform (Manufuture CNR-ITIA, 2004), acts as a focal point, where key stakeholders in the field, propose and develop activities for increasing the competitiveness of AM. Through this, the AM Sub-Platform continuously engages within the field of AM to ensure its maximum exploitation. This is to ensure that the direction in which AM is landscaping fulfills the requirements and expectations of not only consumers and industry, but also inspects deeper by looking to support the top level European challenges.

The governing structure of the AM Sub-Platform has been organised in a way as to optimise the input and impact of the platform's activities, see image below. The sub-platform interfaces with the EC to ensure relevance on a European and Policy level.

HORIZON 2020 NATIONAL SUPPORT NETWORK LED BY ENTERPRISE IRELAND
Alliance for Materials (A4M)

Rationale

The collaboration was initiated by a number of ETPs that have a strong material focus to

The aim for this collaboration is to establish a Virtual Chair

The main research objectives in the next decade will be to

The organisations involved are undergoing further

A4M Coordinator

November 2010: Signature of

December 2009: Information to European Commission (DG RTD) and GIS, informing about the

September 2011: Presentation of

November 2011: Terms of

October 2012: Start of EU FP7

NEW!!
Building a European battery industry

The future is electric. In the massive migration from fossil to electric, the availability of capable batteries is a major issue. The need for efficient batteries – for transport, power and industrial applications – is growing fast and at an increasing pace.

The European Commission launched the European Battery Alliance in October 2017 to address the industrial challenge. The annual market value is estimated at €170 billion from 2020 onwards. For Europe, the establishment of a complete domestic battery value chain is imperative for a clean energy transition and a competitive industry.

The industrial development programme of the European Battery Alliance, the EBA2020, is managed by EIT InnoEnergy. Today, EBA2020 is a project-driven community which brings together more than 200 industrial and innovation actors, three strategic partners with the remit to cultivate a build a strong and competitive European battery value chain.
NMPB Programme main consultation groups

- EUMAT-Advanced Engineering, Materials and Technology
- ETP SMR-Sustainable Mineral Resources
- ESTEP-European Steel Technology
- EPSI- European Platform for Sport Innovation
- Nanofutures
- Nanomedicine – PPP?
- SuSChem
- SPIRE Association
- Batteries Europe ETIP
- Industrial Safety (ETPIS)
- Future Textile and Clothing (EURATEX)
- Forestry Technology Platform
- Prosumer Initiative.
- ECTP-European Construction Technology, E2B
- Manufuture – Factories of the Future (EFFRA), Additive Manufacturing Platform (AM Platform) – working group
- Energy Materials Industry Research Initiative (EMIRI) – PPP?
- European Materials Characterisation Council - Cluster
- European Materials Modeling Council - Cluster
- Bio Based Consortium,
- EuropaBio, European Federation of Biotechnology.
- Europa Bioeconomy Alliance.
- European Plant Science Organisation: (EPSO)

• European Research and Innovation Days 24-26 September, Brussels. The [European Research and Innovation Days](#).


• FoF, EEB, SPIRE info days??,
Thank you for your attention

www.ec.europa.eu/research/horizon2020

www.horizon2020.ie

H2020 Industrial Leadership programmes

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