

## Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing plus cross-cutting focus areas

Full Work Programme available here:

[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-leit-nmp_en.pdf)

[http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016\\_2017/main/h2020-wp1617-focus\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-focus_en.pdf)

### Call - CALL FOR NANOTECHNOLOGIES, ADVANCED MATERIALS, BIOTECHNOLOGY AND PRODUCTION

#### ADVANCED MATERIALS AND NANOTECHNOLOGIES FOR HIGH ADDED VALUE PRODUCTS AND PROCESS INDUSTRIES

**NMBP-01-2016:** Novel hybrid materials for heterogeneous catalysis

**NMBP-02-2016:** Advanced Materials for Power Electronics based on wide bandgap semiconductor devices technology

**NMBP-03-2016:** Innovative and sustainable materials solutions for the substitution of critical raw materials in the electric power system

**NMBP-04-2017:** Architected /Advanced material concepts for intelligent bulk material structures

**NMBP-05-2017:** Advanced materials and innovative design for improved functionality and aesthetics in high added value consumer goods

**NMBP-06-2017:** Improved material durability in buildings and infrastructures, including offshore

**NMBP-07-2017:** Systems of materials characterisation for model, product and process optimisation

#### NMBP – GREEN VEHICLES

**NMBP-08-2016:** Affordable weight reduction of high-volume vehicles and components taking into account the entire life-cycle

#### ADVANCED MATERIALS AND NANOTECHNOLOGIES FOR HEALTHCARE

**NMBP-09-2016:** Biomaterials for diagnosis and treatment of demyelination disorders of the Central Nervous System

**NMBP-10-2016:** Nanoformulation of biologicals

**NMBP-11-2016:** ERA-NET on Nanomedicine

**NMBP-12-2017:** Development of a reliable methodology for better risk management of engineered biomaterials in Advanced Therapy Medicinal Products and/or Medical Devices

**NMBP-13-2017:** Cross-cutting KETs for diagnostics at the point-of-care

**NMBP-14-2017:** Regulatory Science Framework for assessment of risk benefit ratio of Nanomedicines and Biomaterials

**NMBP-15-2017:** Nanotechnologies for imaging cellular transplants and regenerative processes in vivo

**NMBP-16-2017:** Mobilising the European nano-biomedical ecosystem

#### ADVANCED MATERIALS AND NANOTECHNOLOGIES FOR ENERGY APPLICATIONS

**NMBP-17-2016:** Advanced materials solutions and architectures for high efficiency solar energy harvesting

**NMBP-18-2016:** Advanced materials enabling the integration of storage technologies in the electricity grid

**NMBP-19-2017:** Cost-effective materials for “power-to-chemical” technologies

**NMBP-20-2017:** High-performance materials for optimizing carbon dioxide capture

#### ECO-DESIGN AND NEW SUSTAINABLE BUSINESS MODELS

**NMBP-21-2016:** ERA-NET on manufacturing technologies supporting industry and particularly SMEs in the global competition

**NMBP-22-2017:** Business models and industrial strategies supporting novel supply chains for innovative product-services

# Engineering Opportunities in Horizon 2020

## **BIOTECHNOLOGY**

**BIOTEC-01-2016:** ERA-NET Cofund on Biotechnologies

**BIOTEC-02-2016:** Bioconversion of non-agricultural waste into biomolecules for industrial applications

**BIOTEC-03-2016:** Microbial chassis platforms with optimized metabolic pathways for industrial innovations through systems biology

**BIOTEC-04-2016:** KET Biotechnology foresight identifying gaps and high-value opportunities for the EU industry

**BIOTEC-05-2017:** Microbial platforms for CO<sub>2</sub>-reuse processes in the low-carbon economy

**BIOTEC-06-2017:** Optimisation of biocatalysis and downstream processing for the sustainable production of high value-added platform chemicals

**BIOTEC-07-2017:** New Plant Breeding Techniques (NPBT) in molecular farming: Multipurpose crops for industrial bioproducts

**BIOTEC-08-2017:** Support for enhancing and demonstrating the impact of KET Biotechnology projects

## **MODELLING FOR THE DEVELOPMENT OF NANOTECHNOLOGIES AND ADVANCED MATERIALS**

**NMBP-23-2016:** Advancing the integration of Materials Modelling in Business Processes to enhance effective industrial decision making and increase competitiveness

**NMBP-24-2016:** Network to capitalise on strong European position in materials modelling and to allow industry to reap the benefits

**NMBP-25-2017:** Next generation system integrating tangible and intangible materials model components to support innovation in industry

## **SCIENCE-BASED RISK ASSESSMENT AND MANAGEMENT OF NANOTECHNOLOGIES, ADVANCED MATERIALS AND BIOTECHNOLOGIES**

**NMBP-26-2016:** Analytical techniques and tools in support of nanomaterial risk assessment

**NMBP-27-2016:** Promoting safe innovation through global consolidation and networking of nanosafety centres and strengthening the European industry through cooperation in nanosafety

**NMBP-28-2017:** Framework and strategies for nanomaterial characterisation, classification, grouping and read-across for risk analysis

**NMBP-29-2017:** Advanced and realistic models and assays for nanomaterial hazard assessment

**NMBP-22-2017:** Business models and industrial strategies supporting novel supply chains for innovative product-services

## **Call for PILOTS**

**PILOTS-01-2016:** Pilot lines for manufacturing of materials with customized thermal/electrical conductivity properties

**PILOTS-02-2016:** Pilot Line Manufacturing of Nanostructured Antimicrobial Surfaces using Advanced Nanosurface Functionalization Technologies

**PILOTS-03-2017:** Pilot Lines for Manufacturing of Nanotextured surfaces with mechanically enhanced properties

**PILOTS-04-2017:** Pilot Lines for 3D printed and/or injection moulded polymeric or ceramic microfluidic MEMS

**PILOTS-05-2017:** Paper-based electronics

## **Call for FACTORIES OF THE FUTURE - FOF**

**FOF-01-2016:** Novel hybrid approaches for additive and subtractive manufacturing machines

**FOF-02-2016:** Machinery and robot systems in dynamic shop floor environments using novel embedded cognitive functions

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**FOF-03-2016:** Zero-defect strategies at system level for multi-stage manufacturing in production lines  
**FOF-04-2016:** Continuous adaptation of work environments with changing levels of automation in evolving production systems  
**FOF-05-2016:** Support for the further development of Additive Manufacturing technologies in Europe  
**FOF-06-2017:** New product functionalities through advanced surface manufacturing processes for mass production  
**FOF-07-2017:** Integration of unconventional technologies for multi-material processing into manufacturing systems  
**FOF-08-2017:** In-line measurement and control for micro-/nano-enabled high-volume manufacturing for enhanced reliability  
**FOF-09-2017:** Novel design and predictive maintenance technologies for increased operating life of production systems  
**FOF-10-2017:** New technologies and life cycle management for reconfigurable and reusable customised products  
**FOF-11-2016:** Digital automation  
**FOF-12-2017:** ICT Innovation for Manufacturing SMEs (I4MS)  
**FOF-13-2016:** Photonics Laser-based production

## Call for SUSTAINABLE PROCESS INDUSTRIES - SPIRE

**SPIRE-01-2016:** Systematic approaches for resource-efficient water management systems in process industries  
**SPIRE-02-2016:** Plant-wide monitoring and control of data-intensive processes  
**SPIRE-03-2016:** Industrial technologies for the valorisation of European bio-resources into high added value process streams  
**SPIRE-04-2016:** Industrial furnace design addressing energy efficiency in new and existing furnaces  
**SPIRE-05-2016:** Potential use of carbon dioxide / carbon monoxide and non-conventional fossil natural resources in Europe as feedstock for the process industry

**SPIRE-06-2016:** Business models for flexible and delocalised approaches for intensified processing  
**SPIRE-07-2017:** Integrated approach to process optimisation for raw material resources efficiency, excluding recovery technologies of waste streams  
**SPIRE-08-2017:** Carbon dioxide utilisation to produce added value chemicals  
**SPIRE-09-2017:** Pilot lines based on more flexible and down-scaled high performance processing  
**SPIRE-10-2017:** New electrochemical solutions for industrial processing, which contribute to a reduction of carbon dioxide emissions  
**SPIRE-11-2017:** Support for the enhancement of the impact of SPIRE PPP projects  
**SPIRE-12-2017:** Assessment of standardisation needs and ways to overcome regulatory bottlenecks in the process industry

## Call - CALL FOR ENERGY-EFFICIENT BUILDINGS

**EEB-01-2016:** Highly efficient insulation materials with improved properties  
**EEB-02-2016:** Performance indicators and monitoring techniques for energy-efficiency and environmental quality at building and district level  
**EEB-03-2016:** Integration of advanced technologies for heating and cooling at building and district level  
**EEB-04-2016:** New technologies and strategies for the development of pre-fabricated elements through the reuse and recycling of construction materials and structures  
**EEB-05-2017:** Development of near zero energy building renovation  
**EEB-06-2017:** Highly efficient hybrid storage solutions for power and heat in residential buildings and district areas, balancing the supply and demand conditions  
**EEB-07-2017:** Integration of energy harvesting at building and district level  
**EEB-08-2017:** New business models for energy-efficient buildings through adaptable refurbishment solutions

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## SMART, GREEN AND INTEGRATED TRANSPORT

Full Work Programme available here:

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### Call - 2016-2017 Mobility for Growth

#### 1. AVIATION

**MG-1.1-2016:** Reducing energy consumption and environmental impact of aviation

**MG-1.2-2017:** Reducing aviation noise

**MG-1.3-2017:** Maintaining industrial leadership in aeronautics

**MG-1.4-2016-2017:** Breakthrough innovation

**MG-1.5-2016-2017:** Identification of gaps, barriers and needs in the aviation research

#### 2. WATERBORNE

**MG-2.1-2017:** Innovations for energy efficiency and emission control in waterborne transport

**MG-2.2-2016:** Development, production and use of high performance and lightweight materials for vessels and equipment

**MG-2.3-2016:** New and improved transport concepts in waterborne transport

**MG-2.4-2017:** Complex and value-added specialised vessels

#### 3. SAFETY

**MG-3.1-2016:** Addressing aviation safety challenges

**MG-3.2-2017:** Protection of all road users in crashes

**MG-3.3-2016:** Safer waterborne transport and maritime operations

**MG-3.4-2016:** Transport infrastructure innovation to increase the transport system safety at modal and intermodal level (including nodes and interchanges)

**MG-3.5-2016:** Behavioural aspects for safer transport

**MG-3.6-2016:** Euro-African initiative on road safety and traffic management

#### 4. URBAN MOBILITY

**MG-4.1-2017:** Increasing the take up and scale-up of innovative solutions to achieve sustainable mobility in urban areas

**MG-4.2-2017:** Supporting 'smart electric mobility' in cities

**MG-4.3-2017:** Innovative approaches for integrating urban nodes in the TEN-T core network corridors

**MG-4.4-2016:** Facilitating public procurement of innovative sustainable transport and mobility solutions in urban areas  
**MG-4.5-2016:** New ways of supporting development and implementation of neighbourhood-level and urban-district-level transport innovations

#### 5. LOGISTICS

**MG-5.1-2016:** Networked and efficient logistics clusters

**MG-5.2-2017:** Innovative ICT solutions for future logistics operations

**MG-5.3-2016:** Promoting the deployment of green transport, towards Eco-labels for logistics

**MG-5.4-2017:** Potential of the Physical Internet

#### 6. INTELLIGENT TRANSPORT SYSTEMS

**MG-6.1-2016:** Innovative concepts, systems and services towards 'mobility as a service'.

**MG-6.2-2016:** Large-scale demonstration(s) of cooperative ITS

**MG-6.3-2016:** Roadmap, new business models, awareness raising, support and incentives for the roll-out of ITS

#### 7. INFRASTRUCTURE

**MG-7.1-2017:** Resilience to extreme (natural and man-made) events

**MG-7.2-2017:** Optimisation of transport infrastructure including terminals

**MG-7.3-2017:** The Port of the future

# Engineering Opportunities in Horizon 2020

## 8. SOCIO-ECONOMIC AND BEHAVIOURAL RESEARCH AND FORWARD LOOKING ACTIVITIES FOR POLICY MAKING

**MG-8.1-2016:** Research, technology development and market trends for the European transport manufacturing industries

**MG-8.2-2017:** Big data in Transport: Research opportunities, challenges and limitations .

**MG-8.3-2016:** Assessing future requirements for skills and jobs across transport modes and systems

**MG-8.4-2017:** Improving accessibility, inclusive mobility and equity: new tools and business models for public transport in prioritised areas

**MG-8.5-2017:** Shifting paradigms: Exploring the dynamics of individual preferences, behaviours and lifestyles influencing travel and mobility choices

**MG-8.6-2016:** Innovation awards for students and researchers in the context of the Transport Research Arena conference - TRA 2018

## Call - 2016-2017 Automated Road Transport

**ART-01-2017:** ICT infrastructure to enable the transition towards road transport automation

**ART-02-2016:** Automation pilots for passenger cars

**ART-03-2017:** Multi-Brand platooning in real traffic conditions

**ART-04-2016:** Safety and end-user acceptance aspects of road automation in the transition period

**ART-05-2016:** Road infrastructure to support the transition to automation and the coexistence of conventional and automated vehicles on the same network

**ART-06-2016:** Coordination of activities in support of road automation

**ART-07-2017:** Full-scale demonstration of urban road transport automation

## Call - 2016-2017 Green Vehicles

**GV-01-2017:** Optimisation of heavy duty vehicles for alternative fuels use

**GV-02-2016:** Technologies for low emission light duty powertrains

**GV-03-2016:** System and cost optimised hybridisation of road vehicles

**GV-04-2017:** Next generation electric drivetrains for fully electric vehicles, focusing on high efficiency and low cost

**GV-05-2017:** Electric vehicle user-centric design for optimised energy efficiency

**GV-06-2017:** Physical integration of hybrid and electric vehicle batteries at pack level aiming at increased energy density and efficiency

**GV-07-2017:** Multi-level modelling and testing of electric vehicles and their components

**GV-08-2017:** Electrified urban commercial vehicles integration with fast charging infrastructure

**GV-09-2017:** Aerodynamic and flexible trucks

**GV-10-2017:** Demonstration (pilots) for integration of electrified L-category vehicles in the urban transport system

**GV-11-2016:** Stimulating European research and development for the implementation of future road transport technologies

**GV-12-2016:** ERA-NET Co-fund on electromobility