TURKEY in HORIZON 2020
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H2020 Theme Oriented Training NMBP

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How to read a call topic?

Read all call topics related to your research area

Define the topics you are interested in

Select the topic you would like to submit a proposal

Check the submission year

- Content of topics:
  - Title
  - Specific challenge
  - Scope
  - Objectives
  - Key words and concepts
  - TRL
  - Type of funding
  - Project budget
  - Impact

How to define call topics you are interested in?

What is your H2020 strategy?

- Being a coordinator!
- Being a partner!

Plan your future proposals

- Do not focus on only one call
- Do not focus on only one call topic!

NMPB 2018-20	
NMPB Topic 1	%70-80
NMPB topic 2	%30-40
ICT 2018-20	
ICT topic 1	%20-30

Characterization Landscape

Development of new functional materials and nanomaterial systems often requires development and utilization of new characterization techniques

- Material characterization is a wide field with diversity within both materials and techniques
- Specific characterization tasks require tailor-made equipment and routines
- Upscaling and manufacturing of nanomaterials, performance validation in products require characterization to **comply with regulation, safety and quality requirements**
- Scientific, technical and regulatory purposes as well as industrial trouble shooting necessitates the combination of various techniques and subsequent expertise **- no single technique can provide all information needed**
- The market for characterization and testing equipment is rather small, competitive and dominated by small companies with innovative products
- Many groups universities and research institutes perform cutting edge research which may find industrial application in a long term perspective (15-20 years)

There is a significant innovation potential to overcome technical difficulties in industrial upscaling of advanced characterization methods

Modeling Landscape

Development of new functional materials and nanomaterial systems often requires advanced modeling approaches

- Modeling today is under-used because modeling tools are often seen as difficult to use, not accurate enough, or unable to get answers to specific questions
- **Multi-scale, multi-technique and real-time** modeling with workflows of different types of models (discrete and continuum) applied to finer scales to give more accurate results, where appropriate
- Leading to a better understanding of and/or discovery of new phenomena and complex functional material for new breakthrough products
- With the recent growth in available computational power, predictive modeling of materials can be used **to predict trends**, to design new materials, to understand phenomena occurring in measurements and **reduce the need of massive experimental testing**
- Key application area of High-Performance Computing (HPC) and closely linked with the Digital Single Market (DSM) strategy as a driver for growth
- iIntegral part of **product life cycle** management

Material Characterization and Modeling

Materials characterization and modeling should become an integrated part of industrial R&D, leading the way to the reliable design of new and safe materials and processes, rapid upscaling, and effective quality control

- Requires the coordination of a wide range of actors and disciplines, covering standards, data quality, Open Research Data, information management
- Need to provide industrial users with central access to models and characterization tools that can meet their **specific requirements throughout the value chain**
- Achieved via user-driven Open Innovation Test Beds dedicated to characterization and to modellng
- Contribute actively to the on-going relevant European initiatives:
  - EMCC (European Materials Characterization Council),
  - EMMC (European Materials Modeling Council),
  - EPPN (European Pilot Production Network)
  - European clusters and networks (EMIRI etc)

2018-20 Work Program: Call Topics covered

MATERIALS CHARACTERISATION and COMPUTATIONAL MODELLING

DT-NMBP-07-2018: Open Innovation Test Beds for Characterisation (IA)

DT-NMBP-08-2019: Real-time nano-characterisation technologies (RIA)

DT-NMBP-09-2018: Accelerating the uptake of materials modelling software (IA)

DT-NMBP-10-2019: Adopting materials modelling to challenges in manufacturing processes (RIA)

DT-NMBP-11-2020: Open Innovation Test Beds for Materials Modelling (IA)

DT-NMBP-12-2019: Sustainable Nano-Fabrication (CSA)

DT-NMBP-07-2018: Open Innovation Test Beds for Characterisation (IA)

Specific Challenge: Efficiency of materials up-scaling and use in new products in European manufacturing industries depends on advances in characterisation and testing. Essential industry competencies comprise technologies, know-how and proficiency in interpretation of results, data, and characterisation standards in order to help bring new materials into products. The challenge is to establish open user-driven characterisation test beds including all aspects of novel multi-scale and multi-modal characterisation solutions management, analytics and mining of the resulting data (Materials Informatics). Interaction is required between the stakeholders regarding the latest technological solutions, such as non-destructive characterisation approaches.

Scope: Proposals should establish an open innovation characterisation test beds that will create, sustain and drive the use of novel materials characterisation techniques to support industrial innovation and will network materials characterisation stakeholders and concretely implement an integrated approach.

DT-NMBP-07-2018: Open Innovation Test Beds for Characterisation (IA)

- Collectively develop novel advanced solutions for specific and relevant industrial problems. Support advanced data analysis and storage, standardisation, reference materials, regulation and safety
- Facilitate common approaches to common problems for fast adoption of innovative tools for characterisation by industry and strengthen the interface between **academia** and industry
- Enable the integration of information based on materials modelling and characterisation through the development of widely agreed and standardised datasheets to enhance value chain interactions
- Network relevant stakeholders across Europe for defining roadmaps, application of real- time methods, implementation of regulatory and safety requirements, training and management of information (including Materials Informatics) and development of new skills
- Ensure the accessibility and reusability of data produced in the course of the project by agreeing on metadata for the description of materials characterisation and databases.
- TRL 4 ➔ TRL 6

DT-NMBP-07-2018: Open Innovation Test Beds for Characterisation (IA)

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- Ensure the accessibility and reusability of data produced in the course of the project by agreeing on metadata for the description of materials characterisation and databases.
- TRL 4 ➔ TRL 6
- **9 Mil EUR available for funding**

DT-NMBP-07-2018: Open Innovation Test Beds for Characterisation (IA)

Expected Impact:

- Translation of industrial needs into characterisation workflows, increased awareness and uptake by industry, and effective access of materials manufacturing companies to the know-how and advanced tools;
- Measurable reduction of costs for product design and time-to-market by means of faster and cheaper evaluation of production process deviations
- Increased ability and quantifiable cost reduction for industry to comply with regulations

DT-NMBP-08-2019: Real-time nano-characterisation technologies (RIA)

Specific Challenge: Enterprises using and producing nanomaterials face a constant increase of requirements in regard to fast process and product quality control, regulatory compliance and quicker market introduction of high quality products

This calls for real-time measurements, necessitating process-adapted nanoscale metrology for the manufacturing **industry**.

Tools and devices for materials characterisation need increased speed and reliability, suitable for industrial demands, while at the same time retaining the same or better measurement accuracy and precision.

Scope: Proposals should advance and establish nano-scale, multimodal and multi-scale materials characterisation tools and methods, allowing rapid and reliable high-resolution analyses. These should be suitable for characterisation during processing and manufacturing of advanced materials, i.e. real-time and reliable. This includes the optimisation of existing or the development of new technologies, characterisation equipment, data processing routes and data analysis strategies, or a combination of these

DT-NMBP-08-2019: Real-time nano-characterisation technologies (RIA)

- Proposals should deal with one or more industrial applications
- In addition to the characterisation speed (relative to the manufacturing process), proposals should cover the requirements for real-time nano-scale characterisation during manufacturing (e.g. in situ characterisation, multiple acquisition etc.)
- Proposals should demonstrate measurable improvement with respect to the state of the art of nano-scale characterisation technologies adequate for industrial use (adaptability to the industrial process, product quality, etc.)
- Developed characterisation protocols should consist of faster methods to be exploited in close connection with manufacturing enterprises, or be suitable online or inline use in the factory
- Detailed training and dissemination activities should be planned to ensure appropriate transfer of knowledge and/or expertise to industry, and SMEs in particular

DT-NMBP-08-2019: Real-time nano-characterisation technologies (RIA)

- Funded proposals will be invited to participate in clustering activities, to agree on metadata for the description of materials characterisation and databases
- Proposals submitted under this topic should include actions designed to facilitate cooperation with other projects; to enhance user involvement; and to ensure the accessibility and reusability of data produced in the course of the project
- TRL 4 ➔ TRL 6
- **9 Mil EUR available for funding**

DT-NMBP-08-2019: Real-time nano-characterisation technologies (RIA)

Expected Impact:

- Measurable improvement of speed by at least a factor 2 of nanoscale characterisation procedures, in comparison to already established performance and reliability for the application leading to a significant increase in industrial competitiveness
- Significant reduction of the time and resources needed for nanomaterial development and upscaling, and for nanomaterials-based product development, which should be quantified with respect to established conditions for specific market sectors, with a return of investment in less than 5 years
- Quantifiable enhancement of the ability to control the quality and reliability of products, with consequent improvement of product lifetime and associated environmental benefits
- Relevant indicators and metrics, with baseline values, should be clearly stated in the proposal.

DT-NMBP-09-2018: Accelerating the uptake of materials modelling software (IA)

Specific Challenge:

European modellers have created a large set of materials modelling software of which a major part remains an untapped and unused source of information while having a large potential for exploitation. Further model development and software engineering is needed to make this available to third parties in order to provide industry ready software solutions.

Scope:

Development and adaption of existing models and interoperability software developed by academics and SMEs should provide industry-ready integrated, standardised, interoperable software solutions.

DT-NMBP-09-2018: Accelerating the uptake of materials modelling software (IA)

- Existing academic codes (models, solvers, post-processors and interoperability modules) or codes owned by European RTO's and SMEs, are to be further developed and integrated into commercial software according to industrial needs;
- Software packages to be developed should form a modelling framework allowing the seamless integration with and re-use of various existing models used in industry
- Coupling and linking of models should allow reliable top-down and bottom up design of new materials and processes for faster product development;
- The new packages should use existing and emerging standards for semantic interoperability across domains;
- Apps should be developed to remove the underlying complexity of the models in order to facilitate the use by the end-user;
- The upscaled software and services for maintenance and support should be available via the existing and future European Materials Modelling Marketplace and the network of modelling translation environments and the Open Innovation modelling test beds.

DT-NMBP-09-2018: Accelerating the uptake of materials modelling software (IA)

- Proposals submitted under this topic should include actions designed to facilitate cooperation with other projects;
- Enhance user involvement;
- Ensure the accessibility and reusability of data produced in the course of the project.

- TRL 4 ➔ TRL 7
- **4 Mil EUR available for funding**

DT-NMBP-09-2018: Accelerating the uptake of materials modelling software (IA)

Expected Impact:

- Increased use of discrete and continuum models in manufacturing industry, which will reduce the number of trial and error experiments by a factor of 5 and thus support the Digital Single Market (DSM) objectives and significantly reduce the development cost for industry
- Additional exploitation channels for academics and research organisations in Europe which should increase the impact of earlier model developments by a factor 2
- Widening and upscaling of software of commercial companies into better, faster, optimised materials modelling suites enlarging application possibilities in all industry sectors.

Relevant indicators and metrics, with baseline values, should be clearly stated in the proposal

DT-NMBP-10-2019: Adopting materials modelling to challenges in manufacturing processes (RIA)

Specific Challenge:

Improved decision making for materials producers and product manufacturers needs an environment that gives fast access to information and thereby allows reacting to changing feedstock, markets and regulatory demands. This would need an open translation environment that translates a specific manufacturing challenge into a materials modelling workflow that provides knowledge to support optimal material and process design

Scope:

Translation environment should be one coherent and seamless system for optimised development of novel materials and products. This environment should allow reuse of materials modelling software, knowledge and expertise in different industrial domains, by use of the models, protocols and systems in other relevant areas or sectors.

DT-NMBP-10-2019: Adopting materials modelling to challenges in manufacturing processes (RIA)

- The environment should contain a suite of integrated and interoperable apps that combine existing materials models, and databases of materials properties in a standardised manner
- Apps should be developed that will enhance the ability for manufacturing companies (end-users) to do an effective search of numerical tools and/or providers of numerical simulations
- They should facilitate the building of the required workflows, while removing the underlying complexity of the model in order to address a specific challenge
- Apps should improve decision making on the level of differentiating materials and processes
- Translation environments should facilitate the operations of a pan-European network supported by Open Innovation Test Beds

DT-NMBP-10-2019: Adopting materials modelling to challenges in manufacturing processes (RIA)

- Proposals submitted under this topic should include actions designed to facilitate cooperation with other projects;
- Enhance user involvement;
- Ensure the accessibility and reusability of data produced in the course of the project.

- TRL 4 ➔ TRL 6
- **5 Mil EUR available for funding**

DT-NMBP-10-2019: Adopting materials modelling to challenges in manufacturing processes (RIA)

Expected Impact:

- Remove barriers to the use of materials models by lowering the learning curve, increase the knowledge-base of European industry and the total cost of ownership leading to an industrial user base of companies increased by a factor 2;
- Increased speed of material/and or product development time and rapid design from concept to market by factor 5 and allow industry to react to changing market and regulatory demands;
- Change the operational practice of companies by making them more data driven, agile, light and competitive and thus support the Digital Single Market (DSM) objectives and thus drastically reduced development costs for industry by a factor 2;
- Allow reuse of materials modelling knowledge and expertise in different industrial domains and cross-industry fertilisation by use of the protocols and systems in other relevant areas or sectors beyond the ones covered by the proposal.

Relevant indicators and metrics, with baseline values, should be clearly stated in the proposal

DT-NMBP-12-2019: Sustainable Nano-Fabrication (CSA)

Specific Challenge:

Nanotechnology research has led to a remarkable development of nanoscale materials in bulk form with unique properties. Several of these materials are in the market or are expected to enter the market in the near future. The challenge is to establish industrial scale manufacturing of functional systems based on manufactured nanoparticles with designed properties for use in semiconductors, energy harvesting and storage, waste heat recovery, medicine, etc.

Scope:

Establish a network of EU stakeholders that will manage information and communication among its members in the technical domains such as nano-synthesis, nanofabrication, nanostructuring, additive nanomanufacturing, nanostructure assembly, roll-to-roll nanofabrication

DT-NMBP-12-2019: Sustainable Nano-Fabrication (CSA)

- Cover research and new standards for functional nanoparticles, nanomaterials, components, devices and processes
- Establish common approaches for nomenclature, metrology, measurements and characterisation applied for nanomaterials by design, three-dimensional nanostructures, multi-layer nanodevices, multi-material and multi- functional nanosystems, dynamic nanosystems, etc.;
- Provide access across Europe to services and infrastructure for SME
- Cover sustainability in terms of human health, ethics, environment, life-cycle analysis
- Cover development of the necessary skills for this new industry

2 Mil EUR available for funding

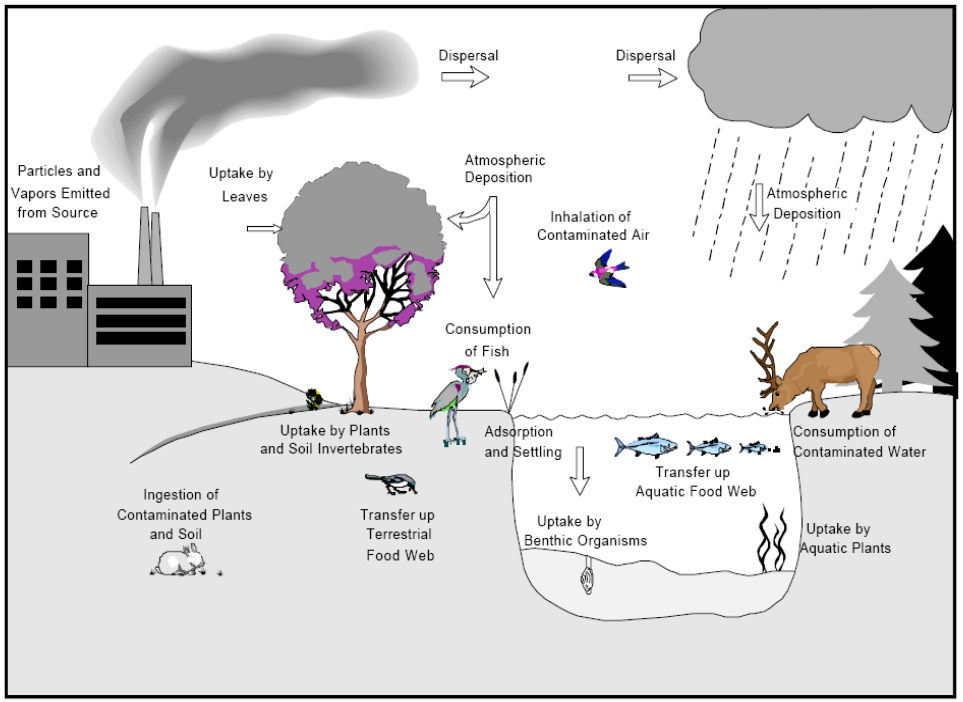
DT-NMBP-12-2019: Sustainable Nano-Fabrication (CSA)

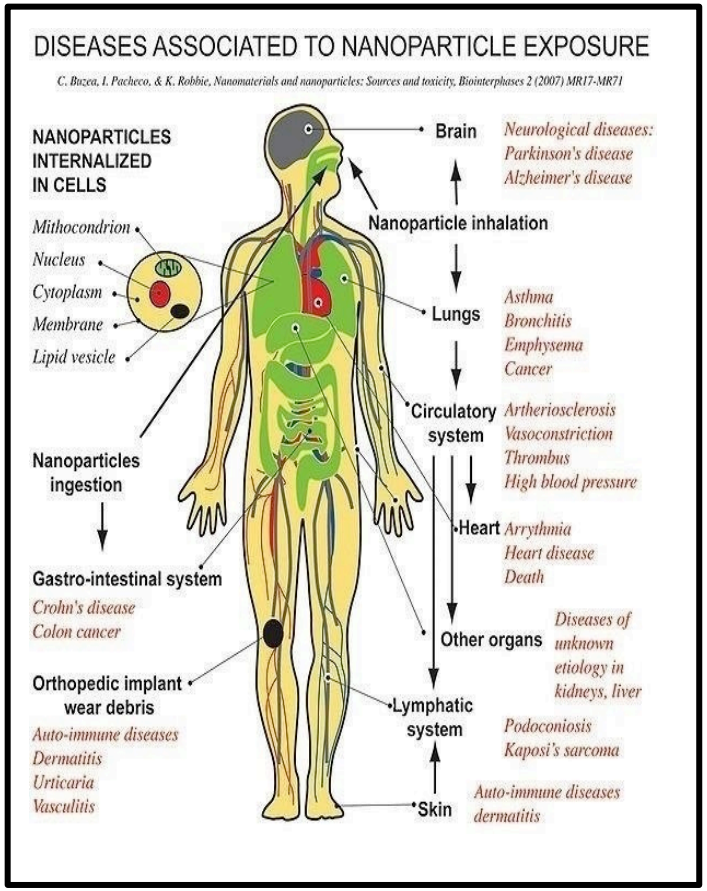
Expected Impact:

- Integrate nanoscale building blocks into complex, large scale systems that will become the basis for a new European high-value industry;
- Link and consolidate existing infrastructure,
- Create a sustainable community of stakeholders managing information and communication within and outside the group and develop an EU wide research and innovation strategy;
- Establish a network of existing EU funded projects and initiatives, which will solve common issues through cross-project collaboration, and will strengthen technology take- up across Europe;
- Establish international cooperation in particular with the nanomanufacturing programme of USA-NSF and the NNI Signature initiative of Sustainable Nanomanufacturing.

RISK ASSESSMENT AND REGULATORY ASPECTS

Risk governance of nanotechnology and nanomaterials is a challenge and needs to be resolved to ensure acceptance by stakeholders (civil society, industry, regulators).





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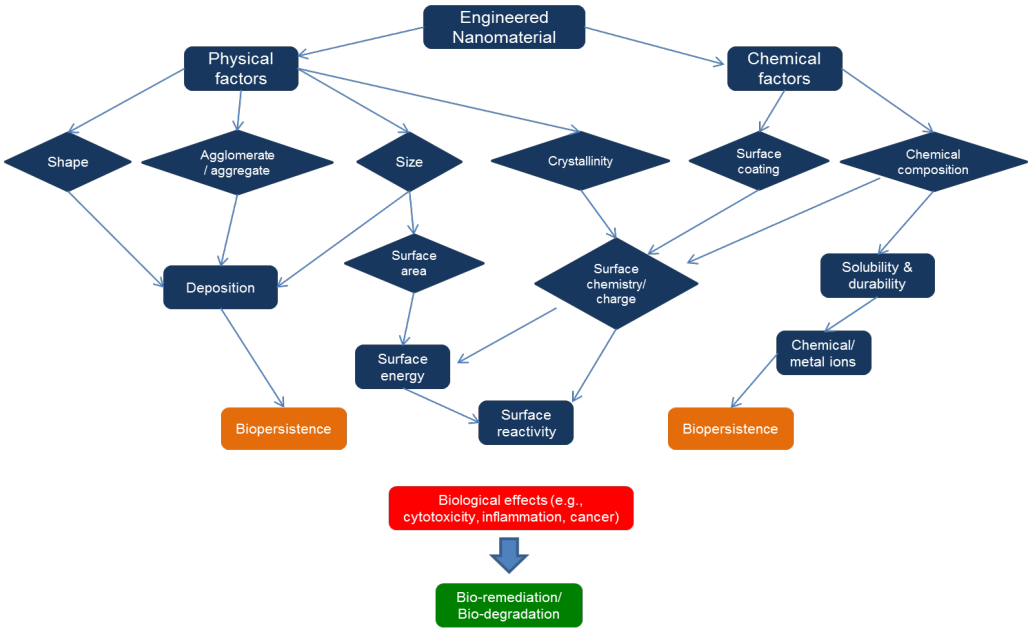
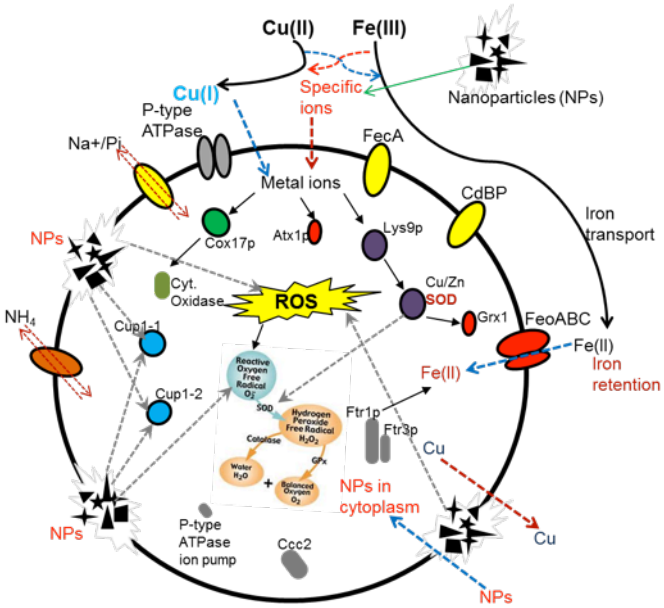




RISK ASSESSMENT AND REGULATORY ASPECTS

Risk governance of nanotechnology and nanomaterials is a challenge and needs to be resolved to ensure acceptance by stakeholders (civil society, industry, regulators).

- Scientific research layer for sound foundations and
- regulatory research layer to validate and translate the scientific findings into appropriate regulatory frameworks and implementation
- Market layer dealing with the daily management of risks and safety
- Integration needed for risk governance, risk assessment and **safe by design**

✓ Regulatory layer jointly supported by Horizon 2020, Member States governments and industry

✓ Horizon 2020 support only the networking and coordination for market layer.

✓ Proposals in all layers should integrate additional public or private funding and international cooperation in nanosafety.

RISK ASSESSMENT AND REGULATORY ASPECTS

- Include Open Access and the Open Data Access policies
- Support the activities of EU regulatory bodies and agencies, and of international organisations like ISO, CEN and OECD.
- Synergy with strategy and roadmaps
- Respect and complement the established ontology and the data logging format (ISA-TAB-NANO6)
- Contribute to the objectives of relevant platforms such as the EU NanoSafety Cluster7 or The Nanomedicine Translation Hub and foresee the necessary resources to this effect.

Nanosafety issues are global and, therefore, international collaboration is strongly encouraged.

- Collaborate with similar projects under the established scheme of Communities of Research with the USA NNI programme8 and/or to include direct participation of relevant USA entities.
- Participation from countries actively involved in the work of OECD -WPMN, the NanoSafety Cluster and the NANoREG9 project (e.g. South Korea, Brazil, Canada, Australia, China, Japan, South Africa) encouraged

2018-20 Work Program: Call Topics covered

GOVERNANCE, SCIENCE-BASED RISK ASSESSMENT AND REGULATORY ASPECTS

NMBP-13-2018: Risk Governance of nanotechnology (RIA)

NMBP-14-2018: Nanoinformatics: from materials models to predictive toxicology and ecotoxicology

NMBP-15-2019: Safe by design, from science to regulation: metrics and main sectors (RIA)

NMBP-16-2020: Safe by design, from science to regulation: behaviour of multi-component nanomaterials (RIA)

NMBP-17-2020: Regulatory science for medical technology products (RIA)

NMBP-13-2018: Risk Governance of nanotechnology (RIA)

Specific Challenge:

Significant progress has been achieved in relation to research regarding the safety of engineered nanomaterials and the transfer of this knowledge into regulation. Still, more needs to be done as nanotechnology reaches the market. To fill this gap, transdisciplinary risk governance is required based on a clear understanding of risk, its management practices and the societal risk perception by all stakeholders. It should propose and apply clear criteria for risk evaluation and acceptance and for transfer of acceptable risk. It should develop reinforced decision making tools incorporating those aspects and facilitate risk communication to relevant stakeholders, including industry, regulators, insurance companies and the general public.

NMBP-13-2018: Risk Governance of nanotechnology (RIA)

Scope

- Data and information management and framework tools with regard to the safety of nanomaterials for risk assessment, hazard and exposure, human health and environment, and risk mitigation including regulatory aspects of safe-by-design;
- Responsible communication with stakeholders and the civil society based on good quality information and valuable feedback;
- Plans for future scientific and regulatory research paying attention to social, ethical and environmental aspects, to achieve completeness, consistency, maximum synergy of actions and international cooperation;
- Mechanisms to monitor progress in several industrial sectors and to revise plans

NMBP-13-2018: Risk Governance of nanotechnology (RIA)

- Proposals submitted under this topic should include actions designed to facilitate cooperation with other projects;
- Enhance user involvement;
- Ensure the accessibility and reusability of data produced in the course of the project.

- TRL 4 ➔ TRL 6
- **5 Mil EUR available for funding**

NMBP-13-2018: Risk Governance of nanotechnology (RIA)

Expected Impact:

- A transparent, self-sustained and science-based risk governance council
- Governance framework tools for managing possible nanotechnologies risks in regard to social, environmental and economic benefits;
- Availability of high quality data for industry and regulators decision making;
- Sustainable solutions demonstrated at a level that will allow both consistent integration of scientific results and regulatory application of scientifically sound concepts
- Consistency of science based risk management approaches in all EU Member States and synergy with similar actions internationally

NMBP-14-2018: Nanoinformatics: from materials models to predictive toxicology and ecotoxicology (RIA)

Specific Challenge:

Despite the significant amounts of data on physico-chemical and toxicological and ecotoxicological properties of nanomaterials generated over the last decades, detailed knowledge on how these properties are linked to specific physico-chemical characteristics is only beginning to emerge.

The challenge is to develop and implement modern methods, more cost effective and less reliant on animal testing, for toxicity investigations in each stage of product innovation, through making best use of joining existing and emerging data with the help of progress in nanoinformatics

NMBP-14-2018: Nanoinformatics: from materials models to predictive toxicology and ecotoxicology (RIA)

Scope

- Development of models that support the prediction of both specific functionalities and hazard and are crucial to establish safe-by-design principles at early stages of material development
- Development of a sustainable multi-scale modelling framework, based on the integration/linking of different types of nanoinformatics models in order to advance towards predictively linking of physico-chemical NM property models to NM functionality and hazard
- Uptake and valid use of these tools and nanoinformatics models, user-friendly interfaces to enhance accessibility and usability of the nanoinformatics models,
- Clear explanations of their applicability domains, especially regulatory compliance, should be provided for different stakeholders (industry, regulators, and civil society)

NMBP-14-2018: Nanoinformatics: from materials models to predictive toxicology and ecotoxicology (RIA)

- In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is particularly encouraged
- *Proposals submitted under this topic should include actions designed to facilitate cooperation with other projects;*
- *Enhance user involvement;*
- *Ensure the accessibility and reusability of data produced in the course of the project.*

- TRL 4 ➔ TRL 6
- **6 Mil EUR available for funding**

NMBP-14-2018: Nanoinformatics: from materials models to predictive toxicology and ecotoxicology (RIA)

Expected Impact:

- Reliable nanomaterials safety data systems, models and strategies to allow material characteristics to be linked to adverse outcomes
- A validated accessible framework, designed to predict human and environmental toxicological hazards;
- Increased confidence in nanosafety nanoinformatics predictive models through agreed standards, harmonised standard operating procedures,
- Considering OECD validation principles

NMBP-15-2019: Safe by design, from science to regulation: metrics and main sectors (RIA)

Specific Challenge:

Risk management involves quantifying hazard (toxicity) and exposure, and taking the necessary steps to reduce both to acceptable levels, ideally at an early stage of the nanomaterial development process (Safe-by-Design).

Various industrial sectors, and in particular structural or functional materials, coatings and cosmetics, as well as pharma and health technology are currently searching for ways to mitigate possible risks from nanomaterials and nano-containing products.

The challenge now is to distil existing methods into simple, robust, cost-effective methods for monitoring and modelling of physical-chemical properties and biological effect assessment of nanomaterials in relevant use conditions including in product-relevant matrices.

NMBP-15-2019: Safe by design, from science to regulation: metrics and main sectors (RIA)

Scope

- Degradation of nano-enabled products and ageing of nanomaterials, and mixture toxicity;
- New Safe by Design methods that enable reduction of hazard and exposure through design to an acceptable risk level without affecting the material performance and guide development of safer products at different stages
- Implementation of control measures and mitigation strategies for nanomaterials specific scenarios in various industrial sectors to reach acceptable regulatory risk level on the effectiveness of such measures
- Develop computational approaches to model them;

For this topic the parallel calls scheme is envisaged with the USA-NNI. Resulting projects should establish close cooperation mechanisms

Legal, policy making and Responsible Research and Innovation aspects should be integrated in the proposal.

NMBP-15-2019: Safe by design, from science to regulation: metrics and main sectors (RIA)

- In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is particularly encouraged
- Proposals submitted under this topic should include actions designed to facilitate cooperation with other projects;
- Enhance user involvement;
- Ensure the accessibility and reusability of data produced in the course of the project.

- TRL 4 ➔ TRL 6
- **5-6 Mil EUR available for funding**

NMBP-15-2019: Safe by design, from science to regulation: metrics and main sectors (RIA)

Expected Impact:

- Safe by design approaches and tools at an early stage of the nanomaterial development process;
- Quality workplaces that ensure maximum technical and economic performance in line with acceptable risk levels
- Control and mitigate exposure to acceptable risk level in case after release of nanomaterials from products;
- Develop and validate low-cost techniques for delivering an integrated exposure driven risk assessment and the associated design of the required post-use monitoring

Types of Projects

- Research and Innovation Action
  - Research and innovation in an application area
  - TRL 3-5
  - %100 funding
  - Application focus or business plan
- Innovation Action
  - Focused applicqation , impact and added value, prototype TRL 4-6 (7)
  - %100 funding
  - İş planı

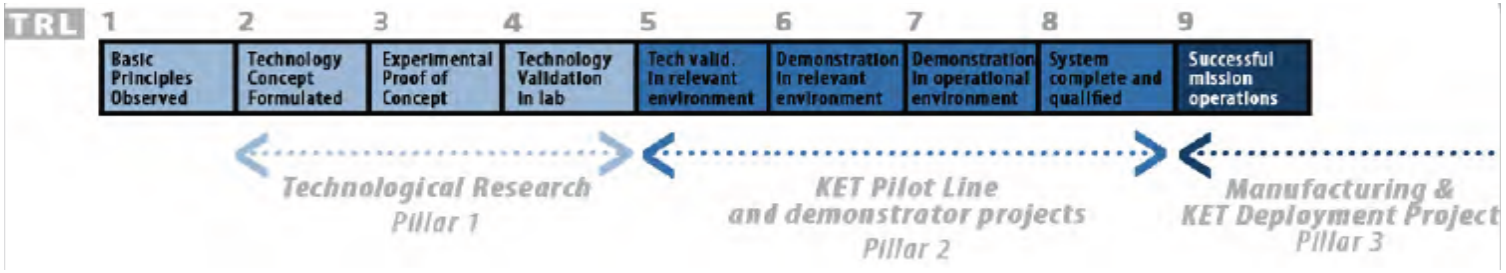
Type of Projects

- Large scale research and demonstration projects
- 70% funding for direct costs
- Demo projects clearly identified in the:
  - To develop and demonstrate novel, innovative products enabled by TOLAE technologies in smart packaging, advertisement and sensing by using suitable manufacturing options (sheet-to-sheet and/or roll-to-roll, printed and/or deposited) with the right balance between performance and volume. Each action should build a dedicated **innovation value chain** (preferably covering the full value chain). Proposals should contain **prototype development and demonstration** and may include **small scale pilot manufacturing**. **End-of-life/disposal and recyclability** issues should also be addressed.

Technology Readiness Levels (TRLs)

- TRL 1 – basic principles observed
- TRL 2 – technology concept formulated
- TRL 3 – experimental proof of concept
- TRL 4 – technology validated in lab
- TRL 5 – technology validated in relevant environment (industrial environment in the case of KETs)
- TRL 6 – technology demonstrated in relevant environment (industrial environment in the case of KETs)
- TRL 7 – system prototype demonstration in operational environment
- TRL 8 – system complete and qualified
- TRL 9 – Actual system proven in operational environment (competitive manufacturing in the case of KETs; or in space)

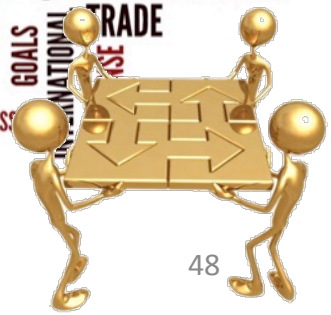
Technology Readiness Levels (TRLs)



- **System Test, Flight and Operations**
  - 9 Actual System "Flight Proven" Through Successful Mission Operations
  - 8 Actual System Completed and "Flight Qualified" Through Test and Demonstration
- **System/Subsystem Development**
  - 7 System Prototype Demonstration in an Operational Environment
- **Technology Demonstration**
  - 6 System/Subsystem Model or Prototype Demonstration in a Relevant Environment
  - 5 Component and/or Breadboard Validation in Relevant Environment
- **Technology Development**
  - 4 Component and/or Breadboard Validation in Laboratory Environment
- **Research to Prove Feasibility**
  - 3 Analytical and Experimental Critical Function and/or Characteristic Proof-of-Concept
- **Basic Technology Research**
  - 2 Technology Concept and/or Application Formulated
  - 1 Basic Principles Observed and Reported

What is Collaborative Project?

COLLABORATION
SUCCESS
KNOWLEDGE
TOGETHER
LEARNING
SECTION
BASED
PEER
SOURCES
BENEFITS
PRODUCTION
MANAGEMENT
GROUPS
WORK
PROJECT
PROJECTS
COLLABORATIVE
LEADERSHIP
CORPORATION
SOFTWARE
PEOPLE
GROUP
INTERNET
TOOLS
HELP
DEVELOPMENT
COMMUNITIES
ORGANIZATIONS
IMPROVE
CITATIONS
ORGANIZATION
SOCIAL
INCLUDE
RELIABLE
PERFORMANCE
SHARED
MEMBERS
SKILLS
COMMUNICATION
INDUSTRY
TERM
WORKING
COMMUNITY
INDIVIDUAL
IMPORTANT
CHALLENGED
ADDING
UNITED
SHARING
RESOURCES
THEORY
INTEREST
COMPLEX
CORPORATION
POLITICAL
PRACTICE
BUILDING
BETWEEN
GOAL
TIME
STRONG
ADDITIONAL
DEVELOP
ALLOWS
BUSINESS
SCIENTIFIC
TECHNOLOGY
EDUCATION
INFORMATION
CONSTRUCTION
ESTABLISHED
COLLECTIVE
INCLUDING
LARGE
BUILT
WEB
FORMED
DURING
SPECIFICALLY
IDEAS
CREATIVE
GREATER
WIDELY
CONTROL
TECHNIQUE
PERSONAL
USED
ECONOMIC
BEST
TRUST
SUPPLY
SIMPLICITY
PROVIDED
OPERATING
MEDIA
LEVEL
UNIQUE
PART
SELECTED
CULTURE
SET
MEETING
SHORT
SOLVING
CITE
USE
MODERN
PARTNERS
STANDARDS
BLOGS
POPULAR
RELATIONSHIP
SUPPORT
PROCESS
OCCUPATION
RESEARCH
RECOGNITION
SYSTEM
INTENTIONAL
MARKET
TRADE
GOALS
DISCUSS
PRIVATE
ORGANIZED
WAYS
FIELDS
HIGH
WIDE
VENTURE
TEAM
COMPLEXITY
CREATED
REALIZE
PRACTICAL
TEAMS
WORLD
STAFF
FOUNDED
INDUSTRIAL
WEBSITE
SERVES
QUICKLY
TOOL



Collaborative Projects Life Cycle

- Opening Calls
- Deadline
- Negotiation
- Final Report
- Work Programme
- Proposal Writing
- Consortium Building
- Consortium Aggrement
- Grant Aggrement
- Guide for Applicants
- Call Topic
- TRLs
- Research vs Innovation
- Brokerage Events
- Evaluation
- You

Collaborative Projects Life Cycle

Sabancı Üniversitesi

You are here!

- Opening Calls
- Deadline
- tiation
- Report
- Programme
- Proposa
- Consortium Building
- Consortium
- grement

- Grant Aggrer
- for Applicants
- Call Topi
- TRLs
- ch vs
- Brokerage Events
- Evaluatio
- You

- 2 year WPs
- Draft WPs
- Defining the Topic
- Dev. of Project Idea

GfA

WP

B2Bs

Consortium Building

TRLs

Opening Calls

RA or R&IA

Deadline

Proposal Writing

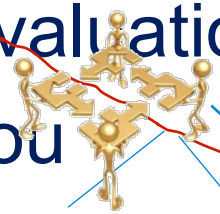
Negotiation

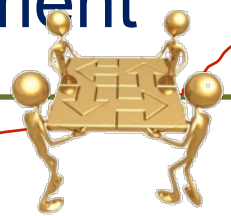
Final Report

GA

CA (DESCA)

Evaluation





How to read call topics?

NMP 2 – 2015: Integration of novel nanomaterials into existing production lines

Specific challenge: Nanomaterials are intended to improve the performance of existing production technologies, and to give new functionalities to products, such as lightweight solutions for transportation and construction, enhanced properties for packaging materials and processes, decreased wear and friction of yarns, enhanced electrical performance and reliability and high-performance thermal insulation and UV shielding fibrous materials (e.g. hollow fibres). However, such new nanomaterials need to be introduced into production and the correct controlled conditions need to be created and maintained in industrial processes.

Scope: Development and demonstration in operational environments; the integration of technologies and processing for using novel nanomaterials in production; to improve the control and monitoring of the conditions required for the use of nanomaterials in industrial processes; to increase the level of robustness and repeatability of such industrial processes; to optimize and evaluate the increased performances of the production lines in terms of productivity and cost-effectiveness; to assess the functionality and performance of the produced component/product.

For this topic, proposals should include an outline of the initial exploitation and business plans. Wherever possible, proposers could actively seek synergies, including possibilities for cumulative funding, with relevant national / regional research and innovation programmes and/or European Structural and Investment Funds in connection with smart specialisation strategies. Exploitation plans, outline financial arrangements and any follow-up should be developed during the project.

How to read call topics?

Existing!

Sectors!

NMP 2 – 2015: Integration of novel nanomaterials into existing production lines

Specific challenge: Nanomaterials are intended to **improve the performance of existing production technologies**, and to give **new functionalities to products**, such as lightweight solutions for **transportation** and **construction**, enhanced properties for **packaging materials and processes**, decreased wear and friction of **yarns**, enhanced electrical performance and reliability and high-performance **thermal insulation** and UV shielding fibrous materials (e.g. hollow fibres). However, such new nanomaterials need to be **introduced into production** and the **correct controlled conditions** need to be created and maintained in **industrial processes**.

TRL7

Scope: **Development and demonstration in operational environments**; the **integration of technologies** and processing for **using novel nanomaterials in production**; to improve the control and monitoring of the conditions required for the use of nanomaterials in industrial processes; to increase the level of **robustness** and **repeatability** of such industrial processes; to optimize and evaluate the **increased performances** of the production lines in terms of **productivity** and **cost-effectiveness**; to assess the functionality and performance of the produced component/product.

FOR THIS TOPIC, PROPOSALS SHOULD include an outline of the initial exploitation and business plans. Wherever possible, proposers could actively seek synergies, including possibilities for **cumulative funding**, with relevant **national / regional research and innovation programmes** and/or European Structural and Investment Funds in connection with **smart specialisation** strategies. Exploitation plans, outline financial arrangements and any follow-up should be developed during the project.

Additional funds

How to read call topics?

Demonstration

The implementation of this proposal is intended to **start at TRL 5-6**, **target TRL 7**, Implemented as cross-KET activities.

*The Commission considers that proposals **requesting a contribution** from the EU **between EUR 5 and 8 million** would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Have a protype?

Nb of Partners?

Expected impact:

- Accelerated market uptake of nanomaterials and products in **one or more of the following sectors**: **fibre, yarn and textile**; **biomedical products**, **packaging products**; **energy**; **construction and building**; and **transportation**. This non-exhaustive list does not preclude submission and selection of proposals addressing other sectors.

  Improvement in existing manufacturing processes and equipment through integration of nano materials, demonstrating better **resource efficiency, safety, sustainability** and **recyclability** of a wide variety of **components and final products**.
- **Improvement in technical knowledge** on the integrated manufacturing processes for nanomaterials in terms of **productivity** and **cost-effectiveness**.
- Contribution to **development of business plans** that encourage **private sector investment** for future business growth.
- **Promoting safe-by-design approaches** in collaboration with the **EU nano-safety cluster** and contributing towards the framework of EU nanosafety and **regulatory strategies**.

Type of action: **Innovation Actions**

%70 funding

NANOREG Project

Technology Readiness Levels (TRLs)

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrial environment in the case of KETs)

TRL 6 – technology demonstrated in relevant environment (industrial environment in the case of KETs)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – Actual system proven in operational environment (competitive manufacturing in the case of KETs; or in space)

NMP, Energy is actively using TRLs.

Health, Food, Society is not using TRLs.

How to define call topics you are interested in?

- What is your H2020 strategy?
  - Being coordinator!
  - Being partner!
- Plan your future proposals.
  - Do not focus on only one topic!

	 %70-80	 %20-30
NMP-2014-4	X	
ICT-2014-12		X
PHC-2015-25		X
EE-2014-1		X
WASTE-2015-6	X	

How to develop a project idea?

- You have a project idea
  - Find a suitable call!

These are mostly rejected projects which are resubmitted!

vs.

A group of people from different disciplines should develop the project idea!

- Find a suitable call
  - Develop a project idea!

- One page short proposal
  - To search for partners
  - Send to NCPs to get feedback
  - Send to **core group** to get feedback
- **Revise** the project idea according to feedbacks
- Project idea must be read by a researcher out of the consortium
- What are the project **objectives** and what are NOT the project **objectives**?
- Why will they **fund** your project?

Consortium Building

- Brokerage Events
- Consortium meetings
- Bilateral meetings
- Skype calls
- COST Actions
- TUBITAK 1003, 1007, 1511 Projects

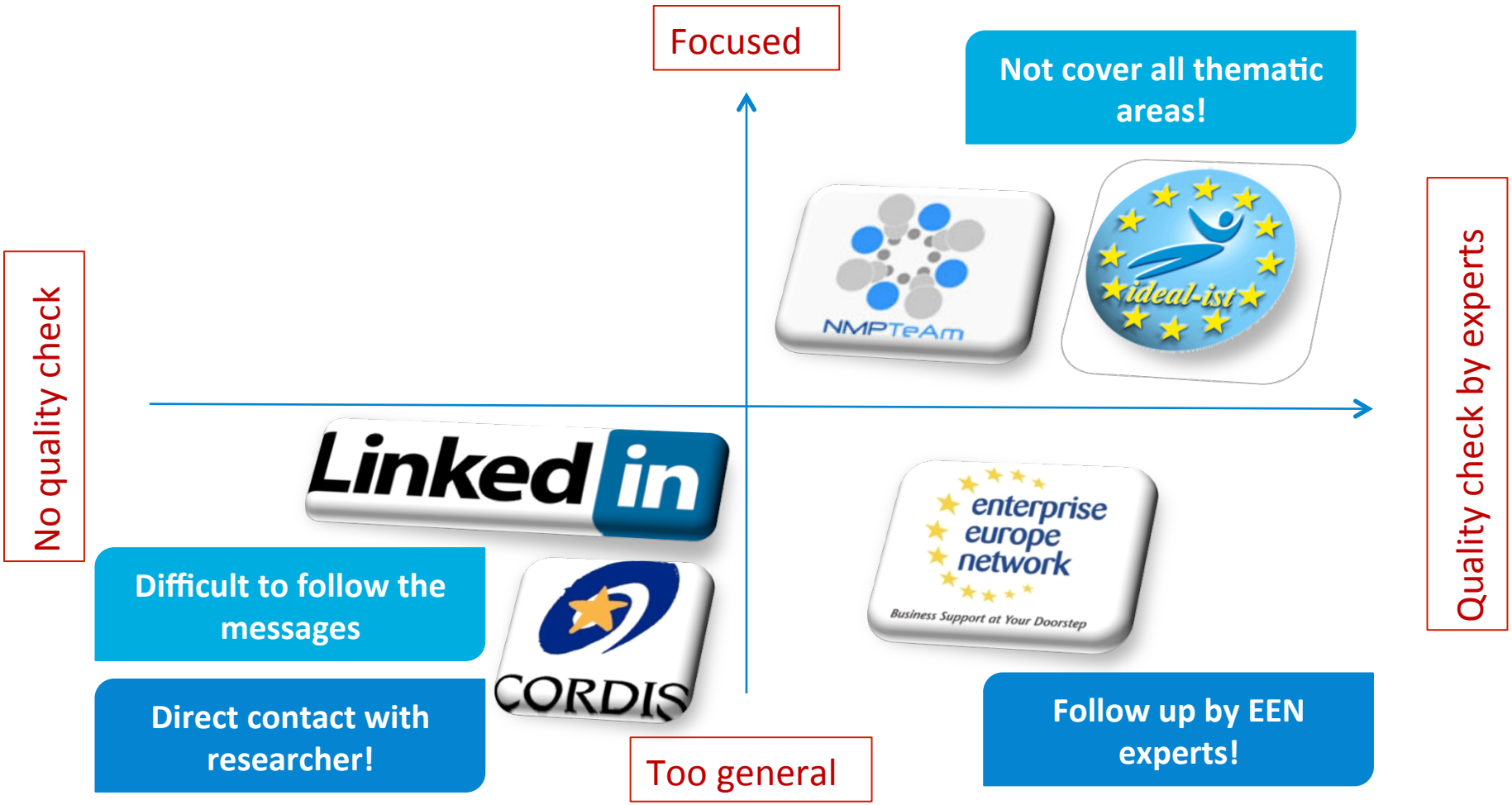
- Partner searches
- Profile forms
- Expression of interests
- Scientific papers, patents
- Being evaluator for H2020 projects

Brokerage events

- Organised by
  - NCPs
  - EEN
- Type of BEs;
  - As side event of conferences (Third day of conferences)
  - Dedicated one day Bes
- Scope of BEs;
  - Thematic (NMP, Energy, …)
  - Sectoral (Textile, Chemical, …)
  - LEIT, SC, etc. (Two or three thematic areas)

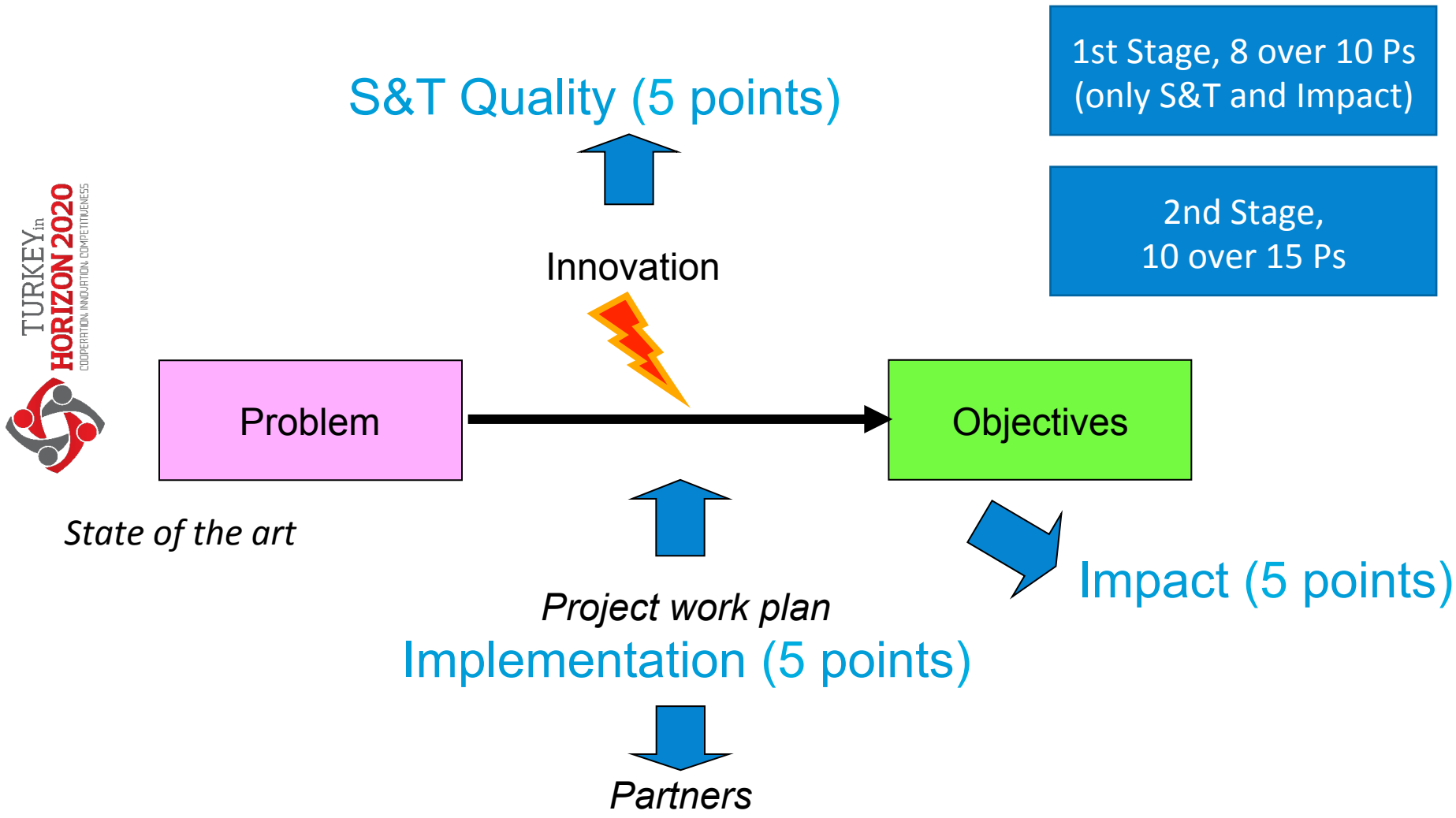
- Online tool to organise meetings
  - www.b2match.eu (Google it as «H2020 b2match»)
  - Visit EEN event calendar page
- Upcoming events
  - Check websites

Partner Search Tools



Part B – H2020 vs FP7

Evaluation


1st Stage, 8 over 10 Ps
(only S&T and Impact)
2nd Stage,
10 over 15 Ps
S&T Quality (5 points)
Innovation
Problem
Objectives
State of the art
Project work plan
Impact (5 points)
Implementation (5 points)
Partners

Useful Guidelines

Guide for proposal submission and evaluation
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/pse/h2020-guide-pse_en.pdf

Online submission
http://ec.europa.eu/research/participants/data/support/sep_usermanual.pdf

Useful Links

- Brokerage Events
  - www.b2match.eu
  - EEN Events Calendar
- Cost Actions

- Partner Search Tools
  - EEN
  - CORDIS
  - LinkedIn H2020 Groups
  - NMPTeAm
  - Ideal-ist