M-ERA.NET Call 2020

Guide for Proposers

Version 3

18 March 2020

Content:

1. What is M-ERA.NET

M-ERA.NET is an EU funded network which has been established in 2012 to support and increase the coordination of European research and innovation programmes and related funding in materials science and engineering. Between 2016 and 2021, the M-ERA.NET consortium will continue to contribute to the restructuring of the European Research Area (ERA) by operating a single innovative and flexible network of national and regional funding organisations. M-ERA.NET contributes to EU policies and is complementary to funding schemes at regional, national and European levels, supporting the exploitation of knowledge along the whole innovation chain from basic research to applied research and innovation (TRL 1-8). By stimulating scientific excellence and the creation of a new, innovation oriented economy, M-ERA.NET will deliver lasting impact and significant breakthroughs. M-ERA.NET aims to develop a long-term cooperation between funding organisations from countries and regions across Europe and beyond.

What we offer:

M-ERA.NET provides a central forum where substantial pan-European research funding programmes can be aligned to support the European RTD community. M-ERA.NET aims to address societal challenges and technological needs with an interdisciplinary approach, providing a flexible umbrella structure to cover emerging topics in materials research and innovation, including materials for low carbon energy technologies and related production technologies. As a core activity, a series of joint calls for transnational RTD projects will be implemented. These calls will offer the European RTD community an opportunity to access coordinated funding across Europe and to gain access to leading knowledge world-wide. Over five years, the M-ERA.NET consortium aims to mobilise substantial national and regional public funding as well as EU funding.

Why?

Advanced materials technologies have been classified as Key Enabling Technologies (KET) with a wide range of product applications such as developing low carbon energy technologies and improving energy and resource efficiency. They have huge potential to fuel economic growth and provide jobs. In recent years, significant efforts have been made to ensure industry can meet the challenges it currently faces, in terms of the new materials being introduced and the stronger integration of products and processes required. Europe has a wealth of academic and industrial expertise and to ensure it stays at the forefront of developments it is crucial to have a strategic programme that helps to develop projects with impact on a global scale.

Strategic impact

M-ERA.NET is a large network and a powerful tool to tackle European and global challenges in materials research. Improving the coordination and cooperation of national and regional programmes will reduce the fragmentation of public funding across Europe and align programme strategies for transnational collaboration, eliminating programme duplication and a wasteful use of resources. M-ERA.NET will enable collaboration between leading academic and industrial research partners from European and non-European countries and regions and will facilitate access to previously inaccessible new markets. The joint calls for transnational RTD cooperation will mobilise a critical mass of public funding to support key players in materials research to intensify pan-European partnerships and to encourage newcomers to transnational RTD cooperation to realise innovative RTD projects.

The M-ERA.NET Consortium

M-ERA.NET started in 2012 under the FP7 scheme and continues from 2016 to 2021 under the Horizon 2020 scheme as a network of more than 40 public funding organisations from around 30 different countries, including national, regional and non-European organisations. M-ERA.NET aims to identify further relevant materials research programmes and to establish cooperation with funding organisations from Europe and beyond.

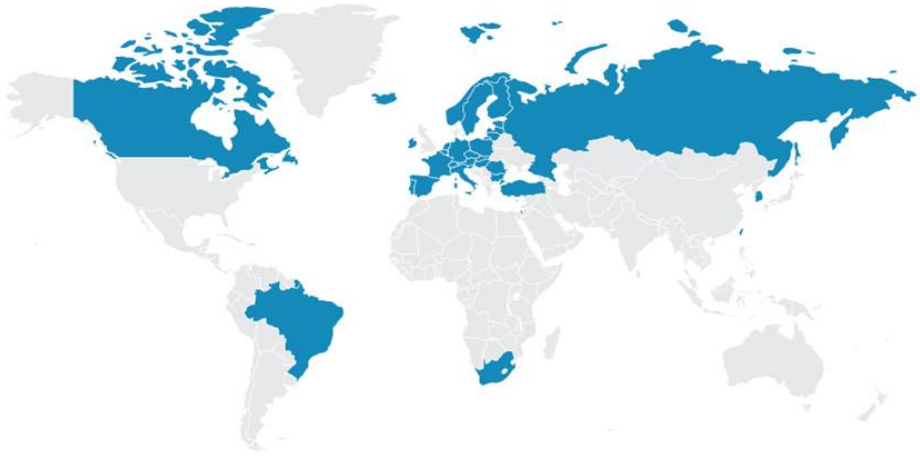

Figure 1: Participating countries of the M-ERA.NET 2 consortia, see also https://www.era-learn.eu/network-information/networks/m-era-net-2/overview-participants

2. Structure of the M-ERA.NET Call 2020

The objective of the M-ERA.NET Call 2020 is to enable transnational R&D projects between partners receiving funding from regional/national programmes.

Fig. 2 shows the schematic workflow of the Call 2020. Benefits are combined in one approach: On the one hand the regional/national funding organisations apply their own well-established funding rules and procedures known to their applicants, and on the other hand the M-ERA.NET provides transnational coordination expertise:

- The announcement and dissemination activities of the call are performed by the M-ERA.NET network.
- The eligibility of funding applications will be checked by national/regional funding organisations according to the rules defined by their respective funding programmes, targeting a reasonable balance of requested and available national/regional budgets.
- There will be a centralised evaluation performed by independent international evaluators that provide a ranking list.
- The final funding decision will be made by the national funding organisations.
- The coordination of the evaluation and funding decisions is performed by the M-ERA.NET Steering Board at the Selection Meeting.

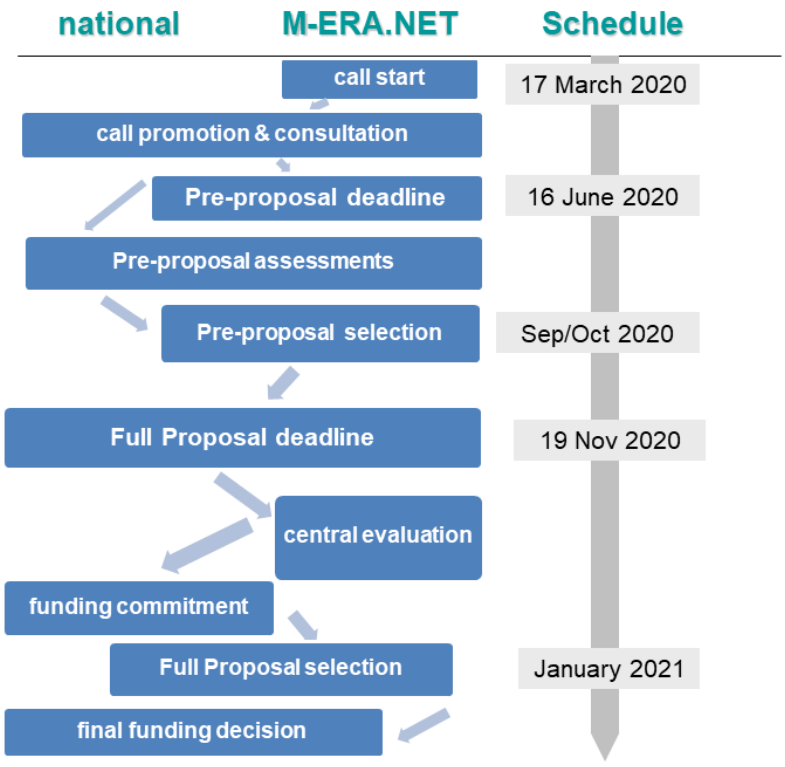

Figure 2: Workflow of the Call 2020

3. Call Announcement

3.1. Objectives and Topics

The aim is to fund ambitious transnational RTD projects addressing materials research and innovation including materials for low carbon energy technologies and related production technologies Besides the thematic topics, the call address four horizontal objectives, which are:

- **Support for the Innovation chain:** Making best use of the interdisciplinary network the calls in M-ERA.NET will facilitate the generation of knowledge along the innovation chain, from excellent science and research to innovative industrial applications.
- **Interdisciplinarity:** M-ERA.NET is the platform for an integrative approach across disciplines and across application fields, making the initiative an attractive and efficient tool for transnational joint projects that were unlikely to be realised before.
- **Socio-economic benefits:** M-ERA.NET calls will address EU areas of socio-economilogical relevance, effectively showing the leverage effect that materials research and innovation have on areas that reflect demands of society.
- **To increase attention to low carbon energy, environment and circular economy aspects of materials:** M-ERA.NET aims to strengthen the contribution of materials R&D for energy-related applications and circular economy where applicable.

This call supports the following topics:

Topic 1: Modeling for materials engineering and processing
Topic 2: Innovative surfaces, coatings and interfaces
Topic 3: High performance composites
Topic 4: Functional materials
Topic 5: New strategies for advanced material-based technologies in health applications
Topic 6: Materials for Additive Manufacturing

M-ERA.NET will support the research and innovation chain described through the Technology Readiness Levels (TRL). **A more detailed description of the topics is available in Annex 1. A description of the TRLs can be found in Annex 2.** Individual national/regional thematic programme focus and funding rules (see chapter 3.2.) must be taken into account.

3.2. Funding rules

Each project partner has to apply individually for regional/national funding. For each project partner the funding rules of the respective regional/national programmes apply. **This means that depending on the respective national/regional funding rules some project partners have to submit additional national/regional proposals or information on national/regional level.**

To obtain detailed information about the specific funding rules and programme priorities we strongly recommend contacting the respective national/regional funding organisations (see Annex 3 for details).

3.3. Eligible project structure

- Minimum requirement: Project consortia must consist of at least 3 partners (all requesting funding from a funding organisation listed in Annex 3) from at least 2 different countries (at least 1 EU member state or associated country[1]) participating in the M-ERA.NET Call 2020. In addition to the minimum consortium the participation of further partners is possible.
- Coordinator must request funding from a funding organisation listed in Annex 3.
- Proposal must address appropriate TRLs for selected M-ERA.NET Call 2020 topics.
- Mandatory proposal forms must be used (provided for download at https://www.m-era.net/joint-call-2020).
- Proposal must be written in English.
- Proposal must be recommended for Full-Proposal submission by M-ERA.NET after Pre-Proposal stage.
- Proposers (SMEs, large companies, academic research groups, universities, public research organisations or other research organisations) must be eligible for funding according to their national/regional regulations (to be checked with funding organisations listed in Annex 3).
- Applicants not eligible for proposal submission are: M-ERA.NET steering board members, evaluators of the Call 2020.

Typically, small to medium sized consortia (3-5 partners on average per proposal) are expected. However, there is no upper limit and consortia may involve as many partners as necessary for a

1 http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf

convincing proposal, ensuring that all participants have a valid role. Each partner within the consortium should clearly add value to the objectives of the proposed project. Depending on the nature of the project each partner in the consortium must demonstrate how it will exploit the expected results.

National/regional funding rules apply. Therefore in some cases only certain topics, TRLs or types of organisations are eligible (e.g. some national/regional programmes fund only industrial but no academic partners, low/high TRLs). It is highly recommended to contact the respective national/regional funding organisation before proposal submission (see Annex 3 for details).

A consortium agreement between the project partners is recommended for funded projects based on national/regional funding rules. However, the principles of the agreement should already be clear when submitting the proposal. The purpose of the consortium agreement is to clarify:

- the responsibilities of the partners;
- decision processes inside the project;
- management of any change of partners;
- how to exploit and/or commercialise the results (for each partner);
- IPR issues.

A template for the consortium agreement can be found at: www.iprhelpdesk.eu

3.4. Project budget

No overall limits have been defined on M-ERA.NET level but national/regional limits regarding the available funding will apply.

3.5. Project duration

The maximum project duration cannot exceed 36 months. National/regional limits regarding the duration of projects will apply.

3.6. Dates and deadlines

Date	Step	Place
17 March 2020	Launch of the Call 2020	
16 June 2020 12:00 noon Brussels time	Deadline for submission of: a) Pre-Proposals and b) National/regional Funding Applications, if necessary*	a) Online (via IT tool) b) National/Regional funding organisations
September / October 2020	Feedback to applicants	
19 November 2020 12:00 noon Brussels time	Deadline for submission of: a) Full-Proposals and b) National/regional Funding Applications, if necessary*	a) Online (via IT tool) b)National/Regional funding organisation
February 2021	M-ERA.NET feedback to applicants	
March 2021	Contract negotiations for selected proposals on national/regional level	National/Regional funding organisations
Spring 2021	Start of funded projects	

** contact your national/regional funding organisation*

4. Application process

The M-ERA.NET application process will be a 2-step procedure: Pre-Proposal and Full-Proposal.

1. Before submitting a proposal, all project partners must contact their respective national/regional programme funding organisations in order to discuss the project line-up and the funding conditions.
2. **A Pre-Proposal is mandatory**. It has to be submitted by the coordinator through an online application form available at www.m-era.net. The mandatory Pre-Proposal form available at https://www.m-era.net/joint-call-2020 has to be used. At the same time national/regional funding applications must be submitted to each of the involved funding organisation according to their specific rules (if applicable).
3. National/regional funding organisations will carry out assessments of Pre-Proposals and respective national/regional funding applications. The Pre-Proposal stage will be used to ensure that only high quality proposals which are in line with national requirements are invited to the Full-Proposal stage. Applicants will be provided with feedback after the review of their Pre-Proposal, including a recommendation to submit (or not) a Full-Proposal.
4. A proposal has to be recommended for Full-Proposal submission by M-ERA.NET after Pre-Proposal stage to be eligible.
5. **A Full-Proposal and an Annex 1 to the Full-Proposal are mandatory**. They must be submitted by the project coordinator through an online application form available at www.m-era.net. The mandatory Full-Proposal form and the mandatory Annex 1 to Full-Proposal form available at https://m-era.net/joint-calls/joint-call-2020 have to be used. At the same time national/regional funding applications must be submitted to each of the involved funding organisation according to their specific rules.
6. In the second stage Full-Proposals will be subject to a central evaluation performed by independent international evaluators which will result in a ranking list. At the M-ERA.NET selection meeting parties will agree on the projects that are going to be financed based on the ranking list and the available nation/regional finance resources.
7. M-ERA.NET recommends the funding of projects to the respective funding organisations. The regional/national funding organisations make the final funding decision.

4.1. Stage 1: M-ERA.NET Pre-Proposal

The Pre-Proposal gives an overview on the whole project. It is mandatory and has to be submitted in English by the project coordinator through an online application form available at www.m-era.net. In addition to the Pre-Proposal (online submission) the corresponding national/regional funding application form may be requested by the respective funding organisation according to their respective programme rules. After eligibility check and evaluation of Pre-Proposals M-ERA.NET gives advice to the project coordinators and recommends/does not recommend the submission of Full-Proposals.

4.2. Stage 2: M-ERA.NET Full-Proposal

The mandatory Full-Proposal gives an overview of the whole project and describes all national project parts. In addition, the mandatory Annex 1 to the Full-Proposal describes the partner profiles and CVs of the whole consortium. To receive funding, the national parts of the project must fulfil their national/regional criteria. This will create different submission and financing situations for partners from different countries.

- *Project objectives stated in the Pre-Proposal cannot be changed.*
- *Other changes should be avoided. This includes the transition from Pre-Proposal to Full-Proposal and finally to the funded project and beyond. In any case, these changes have to be coordinated with all involved funding organisations by the consortium leader! It is not possible to add new countries to the consortium after the Pre-Proposal stage, i.e. if new partners need to be added, they must origin from countries already participating in the proposal.*

  This means that changes regarding partners, content, costs, funding or consortium have to be communicated to all involved funding organisations. The consortium leader is responsible to coordinate and ensure the acceptance of these changes by the involved funding organisations.

4.3. Confidentiality

Proposals and any information relating to them (including the names of the evaluators) will be kept confidential and only be accessible to the organisations involved in the funding. Proposals will not be used for any purpose other than the evaluation of the applications, making funding decisions and monitoring of the project. International experts are required to sign a confidentiality agreement prior to evaluating proposals.

5. Evaluation

M-ERA.NET aims at providing a transparent, fast and straight forward assessment of the submitted project proposals.

5.1. Pre-Proposal

5.1.1 Eligibility check and evaluation criteria

At M-ERA.NET level:

- Pre-Proposal submitted on or before deadline.
- Presence of requested mandatory M-ERA.NET Pre-Proposal form in English.
- Minimum requirement: Project consortia must consist of at least 3 partners (all requesting funding from a funding organisation listed in Annex 3) from at least 2 different countries (at least 1 EU member state or associated country[2]) participating in the M-ERA.NET Call 2020. In addition to the minimum consortium the participation of further partners is possible.
- Coordinator must request funding from a funding organisation listed in Annex 3.
- Proposal must address appropriate TRLs for selected M-ERA.NET Call 2020 topics. The project duration is limited to a maximum of 36 months.
- Pre-Proposal (including the project coordinator) must be recommended for submission for a Full-Proposal by at least 2 funding organisations from the list provided in Annex 3.

At national/regional level:

- Presence of requested national/regional Pre-Proposal forms (if applicable).
- Minimum number of eligible, independent partners according to respective national/regional regulations (to be checked with funding organisations listed in Annex 3).
- Relevance to funding programme (if applicable, criteria of involved funding programmes apply).
- Financial status of applicants, especially industrial applicants.

[2] http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf

5.1.2. Result of Pre-Proposal assessment

At national / regional level the assessment of Pre-Proposal results in one of the recommendations, to be communicated to the applicants:

- *Recommended for submitting the Full-Proposal (including requirements and/or potential comments for improvement).*
- *Not recommended (motivated - mandatory comments).*

5.2. Full-Proposal

5.2.1 Eligibility check

Eligibility checks of the Full-Proposal are performed before the central evaluation.

At M-ERA.NET level:

- Full Proposal submitted on or before deadline.
- Presence of mandatory M-ERA.NET Full-Proposal form and mandatory M-ERA.NET Annex 1 to the Full-Proposal form (see https://m-era.net/joint-calls/joint-call-2020) in English.
- Minimum requirement: Project consortia must consist of at least 3 partners (all requesting funding from a funding organisation listed in Annex 3) from at least 2 different countries (at least 1 EU member state or associated country[3]) participating in the M-ERA.NET Call 2019. In addition to the minimum consortium size, the participation of further partners is possible.
- Coordinator must request funding from a funding organisation listed in Annex 3.
- Proposal must address appropriate TRLs for selected M-ERA.NET Call 2020 topics. The project duration is limited to a maximum of 36 months.
- Only in exceptional cases changes from Pre-Proposal to Full-Proposal are allowed (see chapter 4.2).
- Proposal (including the project coordinator) must be recommended for funding by at least two funding organisations from the list provided in Annex 3.

At National/regional level:

- Recommendations given in the Pre-Proposal stage are fulfilled.

[3] http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf

5.2.2. Result of Full-Proposal eligibility check

At national/regional level the eligibility check of Full-Proposals results in a preliminary commitment to the Full-Proposal, depending the outcome of the central evaluation.

5.2.3. Evaluation of Full-Proposal

The Full-Proposal evaluation is carried out as a central evaluation by independent experts.

The M-ERA.NET Call 2020 Evaluation Procedure:

- *Individual written assessments: 3 individual and independent written assessments including scoring for each Full-Proposal provided by selected and agreed experts.*
- *Compilation of individual assessments: 3 individual assessments are compiled by one of the 3 experts (= rapporteur). The compilation consists of peer review report and scoring. All experts who provided individual written assessments confirm the compilation and consistency of peer review report and scoring.*
- *A ranking list of recommended projects is based on the scoring.*
- *All of the involved funding organisations meet for a selection meeting to assemble and commit themselves to the final list of selected proposals (selection list).The selection is based on the M-ERA.NET ranking list and the available national/regional budgets.*
- *If there are big differences or changes in the Full-Proposal compared to the recommended Pre-Proposal and/or the eligibility criteria are not fulfilled, the Full-Proposal may be rejected without evaluation.*
- *The names of the independent experts will be kept confidential.*

The M-ERA.NET Call 2020 Evaluation Criteria for Full-Proposal:

The Full-Proposals will be evaluated according to the following criteria:

- **Excellence**
- **Impact**
- **Quality and efficiency of the implementation**

Evaluation criteria, scoring and thresholds are described in **Annex 4.**

6. Decision

6.1. Decision process

The M-ERA.NET selection meeting results in the M-ERA.NET recommendation for funding decisions at national/regional level. The recommended selection list will be forwarded to the involved programme owners who will be in charge of the final funding decisions.

6.2. Funding

6.2.1. Contract

Funding contracts are signed directly between the project partners and their national/regional funding organisations.

6.2.2. Payments and start of projects

Depending on the national/regional regulations, a pre-condition for transferring the first funding instalments might be the existence of a consortium agreement that also includes IPR related issues.

It is highly recommended that the project starting and finishing dates are the same for all project parties. As the national funding contracts may not all become effective at the same time, the project parties:

- Usually do not receive the instalments at the same time,
- Usually are not reviewed/monitored on national/regional level at exactly the same time. However, the M-ERA.NET consortium will help to minimise these gaps.

7. Monitoring

7.1. National/regional project review

The progress of each individual contract will be monitored by the respective national/regional funding organisation through specific project review processes.

7.2. Reporting to M-ERA.NET

Apart from the national/regional project review, the transnational cooperation aspects will be monitored at M-ERA.NET level, e.g. by using online questionnaires. At the end of the project lifetime, a final project report has to be submitted to M-ERA.NET using the M-ERA.NET reporting template.

7.3. Change in active projects

Any substantial change in an on-going project must be reported immediately to the involved funding organisations. The project partners should be aware that changes may affect their funding.

8. Dissemination

A reference to M-ERA.NET is requested in publications, exhibitions, lectures, success stories and press information concerning results of the projects.

9. Support

Frequently Asked Questions (FAQ) are listed in the website (https://m-era.net/joint-calls/joint-call-2020). In addition, all funding organisations participating in the call will provide assistance to project proposers in the case of any questions.

Annex 1: Thematic priorities for the M-ERA.NET Call 2020

Topic 1: Modeling for materials engineering and processing

Topic 2: Innovative surfaces, coatings and interfaces

Topic 3: High performance composites

Topic 4: Functional materials

Topic 5: New strategies for advanced material-based technologies in health applications

Topic 6: Materials for Additive Manufacturing

Topic 1: Modeling for materials engineering and processing

Technical content/scope

Physics-based simulations are of paramount importance in understanding materials and their processing. Currently, materials science may also benefit from emerging data-driven procedures in the field.

Moreover, hybrid approaches, coupling data-driven and physics-based models, can be of great interest in improving the predictive power of materials modelling.

In this call, proposals addressing the following subjects are expected:

- Constitutive relations discovery, based on physical hypotheses and models of fundamental relations,
- Artificial intelligence for materials science, e.g. data-driven, machine learning, data mining and assimilation,
- Combination of both approaches above,
- Space-time multiscale modelling and multi-physics coupling, bridging the gap between different time and/or length scales,
- Model order reduction, meta-models, and uncertainty quantification.

Proposals can benefit from the interaction of numerical simulation and experiments: computational modelling approaches may be based on either first principles or experimental data, and may address the whole spectrum from basic science to current technological problems (TRL target for project deliverables within levels 1-5).

Moreover, the further development of the “digital twins” approach to predict materials behaviour is encouraged, with the ambitious target to bring “digital twins” towards industrial applications.

Developing new methods and algorithms for simulations of the physics of materials by focusing on purely theoretical or atomistic aspects is also encouraged.

It is expected that part of the deliverables of the project include open source codes and/or demonstrative examples of the technologies proposed. If the projects generate relevant databases, these should also be accessible in a public repository.

Objectives

The proposals may focus on one or several of the following domains, related (but not limited) to all other call topics:

- Interfaces, coatings and surfaces,
- Fracture and fatigue phenomena,
- High performance composites,
- Functional materials and meta-materials,
- 3D printing and additive manufacturing, in particular for simulation of the physical processes and study of the resulting microstructure,
- Soft and bio-materials, including living materials,
- Energy or low carbon materials: for instance photovoltaics, fuel cells, hydrogen storage, thermoelectricity.

Special focus on battery-related modelling is also encouraged:

- Multi-scale and multi-physics modelling, to simulate a whole battery device,
- Modelling of interfaces (e.g. solid-solid, post Li-ion, or solid-electrolyte) in batteries or energy storage and conversion devices.

Expected impact

The proposals shall address their expected impact in terms of

- Understanding the phenomena associated with the synthesis, characterization and processing, structure and properties, as well as performance of materials,
- Improving predictive power of simulations in materials science and materials process engineering,
- Building or strengthening a collaborative international research network with shared research outputs such as methods, codes, data, publications and protocols,

In summary, discovering and designing new/advanced materials, providing improved predictive tools and facilitating the creation of interoperable databases, to increase the European competitiveness.

Proposals that address the modelling of materials for low carbon and circular economy, and stress related social or ethical impacts when relevant, are encouraged.

Technology Readiness Level (TRL) at the project start and at the project end should be clearly stated. The proposals should include a plan for the transition to higher TRLs at a later stage (i.e. beyond the project end date). Establishing an industrial advisory board or the participation of one or more companies in the project consortium is encouraged. For proposals aiming above TRL 4, industrial partners should be involved in the project consortium.

Target groups

This topic targets all groups in the research and innovation chain: basic research, applied research, industrial research and development. The topic is particularly suitable for the establishment of a strong collaboration between research entities, SMEs and large enterprises.

Keywords

multiscale materials modelling, materials databases, constitutive modelling, computational simulation, computational materials science, processing-structure-properties relationships, multi-physics, experimental validation, multiple length and time scales, manufacturing processes, new materials, data science, machine learning for materials, artificial intelligence.

Indicative targeted TRL: 1-5

Topic 2: Innovative surfaces, coatings and interfaces

Technical content/scope
Surface and coating technology is a key enabler for new solutions in numerous industrial sectors worldwide. This call will stimulate application driven development of innovative surfaces, thin films, coatings, interfaces and related process technologies including electrodes and other interfacially relevant inner battery components.
The proposals should consider the development, processing or production aspects aiming at flexible and energy-efficient technologies with sustainable use of materials in an environmentally friendly manner.

Objectives
The proposals shall address at least one of the following items:

- Development of innovative surfaces, thin films, coatings and/or interfaces.
- Development of optimised interfaces e.g. for chemical linkage and interphases e.g. like interpenetrating networks.
- Development or improvement of process technologies considering circular economy to enable deposition of new coatings and/or surface modification.
- Development of environmentally friendly interfaces in battery cells and of increased lifetime of the battery and reduce irreversible loss of battery capacity and innovative battery cell components, including post Li-ion battery.

Project proposals should:

- Consider aspects such as fundamental understanding of the mechanisms, experimental assessment, prototyping, up-scaling, manufacturing and validation demonstrating prototype in operational environment with a view to final customer applications.
- Address complementary characterisation techniques and/or where relevant modelling techniques.
- Ensure relevance for different partners in the value chain by stating clear concepts for application(s) in targeted industrial sector(s).

Expected impact
The proposals shall address how they will contribute to the expected impact of the topic, defined as follows:

- Availability of high-end components, products with tailored properties or functionalities by innovative surfaces, coatings and interfaces and/or
- Innovative process technologies related to interface optimisation, coating development and application and surface modification and/or
- Availability of battery cell components for improved battery lifetime, recyclability including minimum health and safety impact.
- Achieving a positive ecological and energy impact in terms of avoidance of hazardous materials and compounds by developing processes, coating materials, technology and product life cycles following a circular economy strategy;
- The proposals should aim at the development of innovative products or technologies based on functionalised surfaces, coatings and interfaces that might have a positive societal impact, on e.g. safety, economics, employment, life quality, etc.

- The proposal should demonstrate in a convincing way synergies between industry and academia.

All proposals should address environmental aspects, including reuse, remanufacturing or recycling considerations, social or ethical impacts when relevant. All proposals should clearly state the Technology Readiness Level (TRL) at the project start and at the project end (see 1.3.). The proposals should include a plan for the transition to higher TRLs at a later stage (i.e. beyond the project end date). Establishing an industrial advisory board or the participation of one or more companies in the project consortium or is encouraged. For proposals aiming at TRL **4**, industrial partners and at least one project partner, specialised on customer demands, should be involved in the project consortium.

Target groups

This topic is targeted at all groups in the innovation chain: basic research, applied research, industrial research and experimental development as well as at the end-user industry. The topic is particularly suitable for the establishment of a strong collaboration between research entities and SMEs. Participation of large enterprises should be considered due to their powerful research units or as potential end users of the technology or of the product proposed.
Interdisciplinary projects along the value chain are encouraged and should enable a broader cross-sectorial use.

Keywords

Innovative surfaces, functional coatings, thin films, interfaces, interphases; advanced coating and surface technologies, structured surfaces, battery cell components, post Li-ion battery.

Indicative TRL range: 2-7

Topic 3: High performance composites

Technical content/scope
Within the scope of this call, composites are defined as engineered materials, and coatings, including hybrids, composed of two or more constituents, for example, a polymer or metallic matrix reinforced by a fibre, particle, container or a filler that meets the requirements which cannot be otherwise fulfilled by one component alone. The matrix, fibres, particles and fillers can be from mineral, synthetic or biological sources. Fibres, particles, containers, and fillers can be on the nanoscale.

Objectives
This call topic is aimed at high performance composites having functional properties for engineering applications such as transportation, construction, packaging, energy, etc.
Regarding the properties of materials, the composites should combine at least two of the following:

- High strength and stiffness to weight-ratio.
- Recyclability features.
- Durability (e.g. good resistance to creep, fatigue, humidity, etc.)
- Tailored thermal or electrical properties.
- Self-healing properties.
- Biocompatible or anti-microbial properties.
- Biodegradable and compostable properties.
- Fire retardant properties with environmentally friendly substances.

In addition, the research proposals should address one or more of the following material design and manufacturing issues (descriptive of process):

- Molecular design, functionalisation and characterisation for improved reinforcement/matrix interaction.
- Development of new bio-based resins and/or bio-based fibres or fillers, and their composites.
- Materials use optimization. Use of recycled materials to develop composites.
- Methodology and validation tools for design-optimisation.
- Determination of long-term properties (e.g. creep, fatigue, ageing, etc.)
- Retaining economic value and energy of materials as long as possible to promote the circular economy.
- Scalable and rapid manufacturing techniques, such as fast curing, low viscosity resins and thermoforming among others.
- Automation, robotisation and cost-efficient manufacturing techniques.
- Composites suitable for various processing techniques
- Joining, assembly and repair including solutions for joining dissimilar materials.

To strengthen the whole innovation chain it is strongly recommended that the project proposal covers materials, processing and application development of composites. Such integration could be further enhanced by fostering collaboration between universities and industry, and by a consortium covering the whole value chain.

Expected impact
The proposals shall address how they will contribute to the expected impact of the topic, defined as follows:

- More competitive industrial products and processes using the advanced materials design and manufacturing concepts;
- Socio-ecological benefits provided by products with higher integration level of functionality, lighter products to transport, lighter dynamic applications to decrease energy consumption, and by using materials that will result in a lower environmental impact;
- Because the composites industry is characterised by a large number of scattered players, including SME manufacturers and equipment suppliers, the projects should result in networks inside Europe, thereby improving the sharing of knowledge and reinforcing both technological and scientific platforms.

All proposals should address environmental considerations, including reuse, remanufacturing or recycling, social or ethical impacts when relevant. All proposals should clearly state the Technology Readiness Level (TRL) at the project start and at the project end (see 1.3.). The proposals should include a plan for the transition to higher TRLs at a later stage (i.e. beyond the project end date). Establishing an industrial advisory board or the participation of one or more companies in the project consortium is encouraged. For proposals aiming above TRL 4, industrial partners should be involved in the project consortium.

Target groups
This topic is targeted at all groups in the innovation chain: basic research, applied research, industrial research and development. The particular subject of the proposal deals with the establishment of a strong collaboration between research entities, SMEs and large enterprises.

Keywords
synthetic composites, hybrid material systems, polymer matrix, metal matrix, ceramic matrix, bio based composites, functional properties, in-service behaviour, design methodology, process technology, recycling, material behaviour modeling, long-term properties.

Indicative targeted TRL: 1-6

Topic 4: Functional materials

Technical content/scope

Advanced functional materials are an important economic and employment generator in Europe. Functional materials are the bottleneck for almost all technologies. Design and simulation of materials and microstructures with tailored properties and appropriate process technologies are needed to achieve high performance in industrial applications. European product innovation relies strongly on deep theoretical knowledge on functional materials and more efficient technologies with new physical properties and performance. Improved materials are expected to contribute to reduce our dependence on oil, gas and coal. In terms of circular economy, there is increasing concern regarding the replacement of critical raw materials, toxic materials, recycling and long-term stability. The European Strategic Energy Technology Plan (SET Plan) recognizes this situation and emphasises cost-competitive low carbon energy and energy efficiency technologies. The SET Plan Materials Road Map reinforces the pivotal enabling role of advanced materials and clearly outlines the medium to long-term strategy for the coming years.

Objectives

Proposals within the scope of this topic should aim at the development of advanced functional materials or materials systems in at least one of the following areas:

- Materials for sensing and actuation, and ICT: smart materials, stretchable materials and metamaterials with controlled electrical, magnetic, thermal, optical, and mechanical properties, photonic materials, where possible enabling low power or autonomous device/systems.
- Smart materials: thermal insulation materials and efficient heat radiation solutions, smart windows, etc. for buildings
- Electrochemical energy conversion: new materials for supercapacitors, fuel cells, electrolysers and photo catalysis.
- Membranes for energy efficient separation and process intensification
- Next generation materials for batteries: solid state batteries, and materials and systems enabling high-power and/or high-energy, long-cycle-life operation, biodegradable battery materials, materials for flexible and free form-factor batteries.
- Dynamic, self-healing materials and next-generation smart textiles.
- Waste-energy harvesting materials and solutions: new energy harvesting materials based on advanced thermoelectric, caloric, piezoelectric, phase change, triboelectric and others. New designs and architectures for increased energy efficiency.
- Photovoltaics: new concepts and architectures for efficient silicon-based thin film solar cells, novel solar cell materials (nano-based concepts, others).

Expected impact

The proposals shall address how they will contribute to the expected impact of the topic, defined as follows:

- Ensure the future European energy supply through technological development based on novel multifunctional materials
- Support the European strategic policy targets in terms of greenhouse gas emission reduction and developing affordable sustainable energy sources and usage;
- Improved competitiveness and strengthened industrial leadership

- Strengthened innovation excellence of the European academia and research institutes.
- Breakthrough outcomes in energy storage, conversion and harvesting.

All proposals should address environmental, including reuse, remanufacturing or recycling considerations, social or ethical impacts when relevant. All proposals should clearly state the Technology Readiness Level (TRL) at the project start and at the project end (see 1.3.).The proposals based on original and innovative approaches may start with TRL 1. The proposals should include a plan for the transition to higher TRLs at a later stage (i.e. beyond the project end date). Establishing an industrial advisory board or the participation of one or more companies in the project consortium is encouraged. For proposals aiming above TRL 4, industrial partners should be involved in the project consortium.

Target groups
This topic is targeted at all groups: basic research, applied research, industrial research and development.

Keywords
advanced functional materials, multifunctional materials, dynamic materials, electrical properties, magnetic properties, optical properties, chemical properties, thermal properties, mechanical properties, nano/microstructured materials, photonic materials, processing technologies, sensors, ICT, photovoltaics, photo catalysis, electrochromics, photochromics, waste energy harvesting, piezoelectric materials, triboelectric materials, flexoelectric materials, thermoelectric materials, batteries, fuel cells, supercapacitors, electrolysers, membranes, self-healing materials, smart textiles.

Indicative targeted TRL: 1-5

Topic 5: New strategies for advanced material-based technologies in health applications

Technical content/scope

Wellness and healthy ageing of the European population require new or improved solutions to health-related issues. Many of these solutions will come from the development of new advanced materials as key components of therapeutics (e.g. drug delivery systems, implants, tissue regeneration strategies, cell and gene therapies, etc.). These materials will be in contact with the human body at different levels.

The purpose of this call topic is to provide opportunities to advance material-based technologies towards the market related to biomaterials. This action is aligned with societal challenges regarding "Health, Demographic Change and Wellbeing" as defined in the H2020 framework. It is also in agreement with the recognition of advanced materials as a Key Enabling Technology for strengthening the competitiveness of the European industry.

Objectives

The objective is to develop biomaterials as scaffolds for tissue regeneration. The investigated biomaterials should target at least one clinical indication.

Such biomaterials may include functionalised, adaptable or stimuli responsive materials, hierarchical structures to allow 3D cell in-growth, structural or topographic modification to direct specific cells morphology or functionalities. Such biomaterials with desired properties can be designed by *in silico* techniques.

Proposals should at least address one of the following:

- Mechanical properties of the biomaterials when relevant for the foreseen application.
- Understanding interactions between biomaterials and biological hosts with specific focus on immuno-modulatory materials.
- Aspects such as biodegradation and immunogenicity.

Proposals are expected to take into account the following:

- The potential market and exploitation routes including scalability.
- Relevant regulatory issues[4].
- When appropriate, the *in vitro* testing and/or assays in animals must be conducted following the national ethical rules of each relevant partner involved.
- Where relevant; alternatives to animal testing (methods and models) need to be incorporated in the study design.

Moreover, the proposals are strongly encouraged to consider:

- Cross-collaboration between material scientists, engineers, biologists, clinicians, immunologists, regulatory scientists, toxicologists and industrial partners.

Expected impact

The proposals shall address how they will contribute to the expected impact of the topic, defined as follows:

- Understanding the complexity of biomaterial interfaces over time;

[4] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017R0745

- Achievement of new or improved materials performance for at least one clinical target;
- Higher competitiveness of the European health industry through more reliable products, scalable and reproducible processes and awareness of the regulatory protocols;
- Increased collaborations between materials science RTD performers, industrial and medical stakeholders in the health sector;
- At the end of the project the technology being addressed is expected to reach at least TRL 3 (see 1.3.).

All proposals should address social or ethical impacts (e.g. when involving patient samples; iPSCs', preclinical studies). All proposals should clearly state the Technology Readiness Level (TRL) at the project start and at the project end (see 1.3.). The proposals should include a plan for the transition to higher TRLs at a later stage (i.e. beyond the project end date). Establishing an industrial advisory board or the participation of one or more companies in the project consortium is encouraged.

Target groups
This topic is targeted at all groups in the innovation chain: basic, applied and industrial research. Collaboration between research entities including clinical centres and industrial partners is encouraged.

Keywords:
biomaterials, biointerfaces, biodegradation, scaffolds, regulatory science, toxicology, immuno-modulation

Indicative targeted TRL: 1-4

Topic 6: Materials for Additive Manufacturing

Technical content/scope
Additive Manufacturing (AM) comprises of disruptive processes to directly build 3D parts and components based on a digital model by successively adding material. AM is a rapidly developing industrial field because of its material efficiency and almost limitless design freedom. However, the commercial exploitation of 3D AM processes is currently restricted due to the limited availability of feedstock, the lack of standards and in-process quality certification. Within this call topic, proposals should focus on the development of materials and related processes for use in AM, leading to the required performance, reliability and economics of manufactured components.
The use of living biological materials as part of the AM process is not covered by this call topic.

Objectives
The objective is to develop innovative materials such as metals, ceramics, polymers, composites and multi-materials designed for use in AM processes (e.g. tuning composition, micro-structure, morphology, powder size distribution, etc.) and enhanced production processes in order to improve or modify properties of manufactured products. The final goal of proposed projects should be to demonstrate the ability of new materials and processes to achieve finished components exhibiting improved performance, preferably with reduced overall costs, as compared to the state-of-the-art.
Project proposals should address materials and production processes for part production. This could include e.g. modelling of materials and processes (including microstructures), (static and dynamic) mechanical and corrosion properties, surface finishing, internal stress and warpage reduction, electrical and thermal conductivity, and materials specifically designed to exploit the potential of AM including the ability to effectively produce functionally graded or multi-material structures. Proposals should also discuss energy and environmental related aspects of the research as well as how the project results support recycling, zero waste and circular economy.
Proposals falling under the scope of this topic could address (but are not restricted to) the following areas:

- Development of materials and processes designed to improve mechanical performance and quality of AM parts and enhance the process productivity;
- Development of novel materials and processes to enable innovative applications for AM parts (e.g. batteries, novel implants), which could include multifunctional, hierarchically structured or composite materials;
- New strategies to improve the part quality by including instrumentation, process monitoring, post-processing, collecting material data, modelling, simulation and setting up a digital twin;
- Improvement of lifetime of products by repair or remanufacturing with AM technology, e.g. with laser cladding;
- New technologies for reconditioning of feedstock material for re-use;
- New feedstock materials using waste from other processes
- New materials for parts with complex geometry (e.g. cooling channels) or for lightweight structures (e.g. scaffolds)

- AM of materials used in demanding high-quality applications, e.g. aerospace or medical applications;

Expected impact
The proposal shall address how it will contribute to the expected impact of the topic, defined as follows:

- The availability of new material compositions for the production of high quality AM parts/components suitable for respective application classes;
- The availability of new feedstocks (e.g. powder, slurry, wire, filament) specifically developed to enhance functionality, quality and performance of AM parts to reduce the cost;
- The availability of new process technologies for the production of AM parts with novel materials and material combinations, including composites and multi-materials.
- The availability of hybrid processes directly combining AM with other manufacturing techniques (e.g. coating processes);
- Reducing the use of hazardous or scarce substances, reducing collateral production of potentially toxic products (e.g. free nanoparticles or solvents) and promoting the biodegradability of materials.

All proposals should address environmental considerations, including resource and energy efficiency, reuse, remanufacturing or recycling. Consider social or ethical impacts when relevant.
All proposals should clearly state the Technology Readiness Level (TRL) at the project start and at the project end (see 1.3.). The proposals should include a plan for the transition to higher TRLs at a later stage (i.e. beyond the project end date).
Establishing an industrial advisory board or the participation of one or more companies in the project consortium is encouraged. For proposals aiming above TRL 4, industrial partners should be involved in the project consortium.

Target groups
This topic is targeted at all groups in the innovation chain: basic research, applied research, industrial research, development and innovation. Collaboration between research entities, SMEs and large enterprises is encouraged as well as participation of international organisations in project consortia.

Keywords
additive manufacturing, productivity, production, part quality, mechanical performance, material properties, warpage, internal stress, biodegradability, polymers, metals, ceramics, composites, multi-materials, lightweight structures, feedstock, lifetime, sustainability, resource efficiency, energy efficiency, recycling, modelling, simulation, digital twin.

Indicative targeted TRL: 2-6

Annex 2: Technology Readiness Level

All proposals should clearly state and motivate at what level on the Technology Readiness Level (TRL) scale the project is situated at the beginning and after the project is finished. In order to increase the potential for new business opportunities and commercial exploitation of the results:

- Proposals aiming at TRL below 4 should include a plan for the transition to higher TRL's at a later stage (i.e. beyond the project end date) and demonstrate industrial involvement. This can be realised by establishing an industrial advisory board (or alternatively by the participation of one or more companies in the project consortium when feasible).
- For proposals aiming at TRL above 4, industrial partners should be involved in the project consortium.

Where the topic description refers to the concept of **"Technology Readiness Level"** (TRL), the following definition in accordance with H2020[5] applies:

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 (industrially relevant environment in the case of key enabling technologies)
TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
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 key enabling technologies; or in space)

In the project proposal, it should be indicated what is the TRL position in the beginning of the project and after the project is finished.

[5] See p. 27 http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-ga_en.pdf

Topic	TRL 1	TRL 2	TRL 3	TRL 4	TRL 5	TRL 6	TRL 7	TRL 8	TRL 9
Topic 1: Modeling for materials engineering and processing									
Topic 2: Innovative surfaces, coatings and interfaces									
Topic 3: High performance composites									
Topic 4: Functional materials									
Topic 5: New strategies for advanced material-based technologies in health applications									
Topic 6: Materials for additive manufacturing									

Annex 3: Funding organisations participating in the M-ERA.NET Call 2020

Country	National / regional coverage	Funding organisation	Contact person:
Austria	national	Austrian Research Promotion Agency (FFG)	Name: Fabienne Nikowitz Phone:+43 57755 5081 e-mail: fabienne.nikowitz@ffg.at
Belgium	regional: Flanders	Flanders Innovation and Entrepreneurship (VLAIO)	Name: Paul Schreurs Phone: +32 2 432 42 85 e-mail: paul.schreurs@vlaio.be
			Name: Elsie De Clercq Phone: +32 2 432 42 78 e-mail: elsie.declercq@vlaio.be
	regional: French-Speaking Community	Fonds de la Recherche Scientifique (FNRS)	Name: Florence Quist Phone: +32 2 504 93 51 e-mail: Florence.Quist@frs-fnrs.be
			Name: Joël Groeneveld Phone: +32 2 504 92 70 e-mail: joel.groeneveld@frs-fnrs.be
	regional: Wallonia	Service public de Wallonie (SPW)	Name: Pierre Demoitié Phone: +32 81 33 45 40 e-mail: pierre.demoitie@spw.wallonie.be
Brazil	regional: Sao Paulo	Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP)	Name: Virginia Sanches Subiñas; Roberto M. Cesar Jr Phone: + 55 11 3838 4000 e-mail: chamada_meranet@fapesp.br

Country	National / regional coverage	Funding organisation	Contact person:
Bulgaria	national	Bulgarian National Science Fund (BNSF)	Name: Milena Alexandrova Phone: +359 884 171 363 e-mail: aleksandrova@mon.bg
Canada	regional: Québec	PRIMA Québec	Name: Michel Lefèvre Phone: +1 514 284-0211 ext. 227 e-mail: michel.lefevre@prima.ca
Cyprus	national	Research and Innovation Foundation (RIF)	Name: Georgia Pantelide Phone:+357 22205031 e-mail: gpantelide@research.org.cy
Czech Republic	national	Technology Agency of the Czech Republic (TA CR)	Name: Iveta Zápařková Phone: +420 234 611 629 e-mail: iveta.zaparkova@tacr.cz
			Name: Kristina Nehilcova Phone: +420 234 611 629 e-mail: kristina.nehilcova@tacr.cz
France	national	Agence Nationale de la Recherche (ANR)	Name: Massimiliano Picciani Phone: +33 01 73 54 81 96 e-mail: Massimiliano.Picciani@agencerecherche.fr
	regional: Nouvelle Aquitaine	Nouvelle-Aquitaine Region (RNA)	Name: Emmanuelle Pallier Phone: +33 5 55 45 00 80 e-mail: emmanuelle.pallier@nouvelle-aquitaine.fr
			Name: Hélène Boisserie Phone: +33 5 56 56 38 53 ; (0)6 71 56 92 89 e-mail:; Helene.boisserie@nouvelle-aquitaine.fr

Country	National / regional coverage	Funding organisation	Contact person:
Germany	regional: Saxony	Sächsisches Staatsministerium für Wissenschaft und Kunst (SMWK)	Name: Gabriele Süptitz Phone +49 351 564 64210 e-mail: Gabriele.Sueptitz@smwk.sachsen.de
Hungary	national	National Research, Development, and Innovation Office (NKFIH)	Name: Elod Nemerkenyi Phone: +36-1-896-3987 e-mail: elod.nemerkenyi@nkfih.gov.hu
Israel	national	Ministry of Science Technology (MOST)	Name: Dr. Ela Strauss Phone: +972-2-5411136 e-mail: elas@most.gov.il
	national	Israel Innovation Authority (IIA)	Name: Rachel Loutaty Phone:+972 3 5118152 e-mail: Rachel.l@iserd.org.il
Latvia	national	State Education Development Agency Valsts izglītības attīstības aģentūra (VIAA)	Name: Maija Bundule Phone: +371 67785423 e-mail: maija.bundule@viaa.gov.lv
Lithuania	national	Research Council of Lithuania (RCL) Lietuvos mokslo taryba	Name: Saulius Marcinkonis Phone: +370 676 17256 e-mail: saulius.marcinkonis@lmt.lt
Luxembourg	national	National Research Fund (FNR)	Name: Christiane Kaell Phone: +352 261925-34 e-mail: christiane.kaell@fnr.lu
Norway	national	The Research Council of Norway - RCN	Name: Lenka Hannevold Phone: +47 98 23 04 53 e-mail: lha@rcn.no

Country	National / regional coverage	Funding organisation	Contact person:
Poland	national	National Centre for Research and Development (NCBR)	Name: Maciej Jędrzejek Phone: +48 22 39 07 160 e-mail: maciej.jedrzejek@ncbr.gov.pl
	national	National Science Centre (NCN)	Name: Anna Kotarba Phone: +48 12 341 9091 e-mail: anna.kotarba@ncn.gov.pl
Romania	national	Unitatea Executiva pentru Finantarea Invatamantului Superior, a Cercetarii, Dezvoltarii si Inovarii (UEFISCDI)	Name: Domnica Coteț Phone: +4021 30 23 880 e-mail: domnica.cotet@uefiscdi.ro
			Name: Cristina Coteț Phone: +4021 30 23 884 e-mail: cristina.cotet@uefiscdi.ro
Russian Federation	national	Foundation for Assistance to Small Innovative Enterprises (FASIE)	Name: Olga Levchenko Phone: +7 (495) 231-3851 e-mail: levchenko@fasie.ru
South Africa	national	Department of Science and Technology (DST)	Name: Toto Matshediso Phone: +27 12 843 6339 e-mail: toto.matshediso@dst.gov.za
Spain	regional: Asturias	Instituto de Desarrollo Económico del Principado de Asturias (IDEPA)	Name: Ana E. Fernández Monzón Phone: + 34. 985 98 00 20 e-mail: anae@idepa.es
	regional: Basque Country	Consejería de Desarrollo Económico e Infraestructuras – Eusko Jaurlaritza - Gobierno Vasco / Basque Government - The Ministry for Economic Development and Infrastructures	Name: Catalina Chamorro Silgado Phone: +34 945 018 210 e-mail: cat-chamorro@euskadi.eus

Country	National / regional coverage	Funding organisation	Contact person:
		Agencia Vasca de Innovación (Innobasque)	Name: Judith de Prado Olivenza Phone: +34 944 209 488 e-mail: jdeprado@innobasque.eus
Switzerland	national	Innosuisse – Swiss Innovation Agency	Name: Roland Bühler Phone: +41 58 466 77 03 e-mail: roland.buehler@innosuisse.ch
Taiwan	national	Ministry of Science and Technology (MOST)	Name: Dr. Ching-Mei Tang Phone: +886- 2-2737-7557 e-mail: cmtom@most.gov.tw
			Name: Dr. Jason Chia-Seng Chang Phone: +886-2-2789-6722 e-mail: jasonc@phys.sinica.edu.tw
Turkey	national	The Scientific and Technological Research Council of Turkey (TÜBİTAK)	Name: Burcu Koç Haskılıç Phone: +90 312 298 94 67 e-mail: burcu.haskilic@tubitak.gov.tr
			Name: Tayyip Kösoğlu Phone: +90 312 298 18 06 e-mail: tayyip.kosoglu@tubitak.gov.tr

Commitment per funding organisation 2020:

	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6	
	Modeling for materials engineering and processing	**Innovative surfaces, coatings and interfaces**	**High performance composites**	**Functional materials**	**New strategies for advanced material-based technologies in health applications**	**Materials for Additive Manufacturing**	**Indicative call budget (MEUR)**
Austria: FFG	X		X			X	1.0
Belgium (Flanders): VLAIO	X	X	X	X	X	X	1.0
Belgium (French Speaking Community): FNRS	X	X	X	X	X	X	0.2
Belgium (Wallonia): SPW	X	X	X	X	X	X	1.0
Brazil (Sao Paulo): FAPESP	X	X	X	X	X	X	0.4
Bulgaria: BNSF	X	X	X	X	X	X	0.23
Brazil (Sao Paulo): FAPESP	X	X	X	X	X	X	0.4
Canada (Québec): PRIMA	X	X	X	X	X	X	0.7
Cyprus: RIF	X	X	X	X	X	X	0.4

	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6	
Czech Republic: TA CR	X	X	X	X	X	X	1.0
France: ANR	X	X	X	X		X	1.0
France (Novelle-Aquitaine): Nouvelle-Aquitaine Region	X	X	X	X	X	X	0.5
Germany (Saxony): SMWK	X	X	X	X	X	X	2.0
Hungary: NKFIH	X	X	X	X	X	X	0.3
Israel: MOST*	X	X	X	X	X	X	0.4
Israel: IIA*	X	X	X	X	X	X	0.7
Latvia: VIAA	X	X	X	X	X	X	0.8
Lithuania: RCL	X	X	X	X	X	X	0.3
Luxembourg: FNR	X	X	X	X	X	X	0.5
Norway: RCN	X	X	X	X		X	1.0
Poland: NCBR	X	X	X	X	X	X	2.0

	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6	
Poland: NCN	X	X	X	X	X	X	0.5
Romania: UEFISCDI	X	X	X	X	X	X	1.0
Russia: FASIE	X	X	X	X	X	X	0.5
South Africa: DST	X	X	X	X	X	X	0.4
Spain (Asturias): IDEPA	X	X	X	X	X	X	0.3
Spain (Basque Country): INNOBASQUE	X	X	X	X	X	X	0.5
Switzerland: INNOSUISSE	X	X	X	X	X	X	1.0
Taiwan: MOST	X	X	X	X	X	X	0.5
Turkey: TÜBITAK	X	X	X	X	X	X	1.0

*participation pending confirmation

Annex 4: M-ERA.NET Full-Proposal Evaluation Criteria

- **1. Excellence (max. 5.0 points)**
  - 1.1 Clarity and pertinence of the objectives (max. 1.5 points)
  - 1.2 Credibility of the proposed approach and soundness of the concept (max. 2.0 points)
  - 1.3 Extent that proposed work is ambitious, has innovation potential, and is beyond the state of the art (e.g. ground-breaking objectives, novel concepts and approaches (max. 1.5 points)

- **2. Impact (max. 5.0 points)**
  - 2.1 Contribution at the European or international level to the expected impacts listed in the work programme under the relevant topic (max. 2.5 points)
  - 2.2 Additional Impact (max 1.0 point)
    - Enhancing innovation capacity and integration of new knowledge;
    - Strengthening the competitiveness and growth of companies by developing innovations meeting the needs of European and global markets; and, where relevant, by delivering such innovations to the markets;
    - Any other environmental and socially important impacts (not already covered above);
  - 2.3 Effectiveness of the proposed measures to exploit and disseminate the project results (including management of IPR), to communicate the project, and to manage research data where relevant (max. 1.5 points)

- **3. Quality and efficiency of the implementation (max. 5.0 points)**
  - 3.1 Quality and effectiveness of the work plan, including extent to which the resources assigned to work packages are in line with their objectives and deliverables (max. 1.0 point)
  - 3.2 Appropriateness of the management structures and procedures (max. 1.0 point)
  - 3.3 Quality and relevant experience of the individual participants (max. 1.0 point)
  - 3.4 Quality of the consortium as a whole (including complementarity, balance) (max. 1.0 point)
  - 3.5 Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and allocation and justification of the resources to fulfil that role (max.1.0 point)

- **Ethical issues:** Full-Proposal include H2020 „Ethical issues Table". In case ethical issues apply (applicants mark respective issues in the table), M-ERA.NET recommends that the national/regional organisations observe these issues (e.g. post-evaluation review) for their respective funded projects.

- **Gender aspect** is not an evaluation criterion. It is only used for M-ERA.NET internal purpose.

Additional Information

Individual assessment report: Each criterion will be scored between 0.0 and 5.0 representing the sum of the scoring of the individual sub criteria.

Sub-criteria have individual maximum scores with a resolution of 0.1 points. There are no thresholds for sub-criteria. The awarded scores for each sub-criterion have to be justified with written statements by the evaluators.

Peer review report: the rapporteur will compile a peer review report, to be accepted by all 3 evaluators. The final scoring of the main criteria will take into consideration the scores from the individual assessments. Each criterion will be scored between 0.0 and 5.0 in multiples of half (0.5) points.

The threshold for individual criteria will be 3.0; the overall threshold, applying to the sum of the individual scores will be 10.0.

In case of equal scoring of proposals the scores of the individual criteria and sub-criteria can be compared as follows for the elaboration of M-ERA.NET ranking list: compare scores of impact criterion, if still equal compare scores of excellence criterion, if still equal compare scores of implementation criterion, if still equal compare sub-criteria.

Annex 5: Checklist for Proposers

The proposal conforms to the call guidelines.	☐
Every project partner has been in direct contact with his/her national/regional funding agency and has checked that their collaboration and their project contributions are eligible for funding.	☐
All project partners have checked the national/regional programme procedures and regulations. All project partners are aware of documents requested by the national/regional funding organisations. ***IMPORTANT REMINDER: All consortium partners must check if applications (at Pre-Proposal and/or Full-Proposal stage) have to be submitted also to their national/regional funding organisations.***	☐
All partners who are not eligible for 100% funding are able to provide financial resources for their own contribution.	☐
The consortium is aware that a duly signed and stamped consortium agreement (CA) between the project partners is recommended for funded projects based on national/regional funding rules, including agreements on intellectual property rights (IPR) and agreements on scientific publications. At the time of proposal submission it is recommended to provide the principles ruling the CA but not the CA itself.	☐

Please go to https://www.m-era.net/joint-call-2020 to submit the:

1. **Pre-Proposal form online.**
   Deadline for submission: 16 June 2020, 12:00 noon Brussels time

2. **Full-Proposal form + Annex 1 to the Full-Proposal form online.**
   Deadline for submission: 19 November 2020, 12:00 noon Brussels time

For further information on M-ERA.NET please go to: http://www.m-era.net