



M-ERA.NET Transnational Call 2015

Guide for Proposers

19 January 2015

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1. What is M-ERA.NET

M-ERA.NET is an EU funded network which has been established to support and increase the coordination of European research programmes and related funding in materials science and engineering. Between 2012 and 2016, the M-ERA.NET consortium will contribute to the restructuring of the European Research Area (ERA) by operating as a single innovative and flexible network of funding organisations.

M-ERA.NET will complement existing instruments and contribute to EU policies whilst supporting the exploitation of knowledge along the whole innovation chain from basic research to applied research and innovation.

By stimulating scientific excellence and the creation of a new innovation oriented economy, M-ERA.NET will deliver a lasting impact and significant breakthroughs. It aims to develop a long-term cooperation between funding organisations across the EU.

What we offer:

M-ERA.NET will provide a central forum where substantial pan-European funding and research programmes can be aligned.

The consortium aims to address societal challenges and technological needs with an interdisciplinary approach, creating a flexible umbrella structure to allow coverage of topics in materials science and engineering. As a core activity, a series of joint calls for transnational RTD projects will be implemented. These calls will provide the European RTD community the opportunity to access coordinated funding across Europe and gain access to leading knowledge world-wide. Over four years, the M-ERA.NET consortium will mobilise substantial national and regional budgets in the range of €150M, to support the European RTD community. Cooperation with partners outside Europe is targeted to build a global network of public funding programmes.

Why?

Materials science has become one of the most dynamic engineering disciplines, impacting modern society with applications ranging from domestic appliances to electronics and energy production. 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.

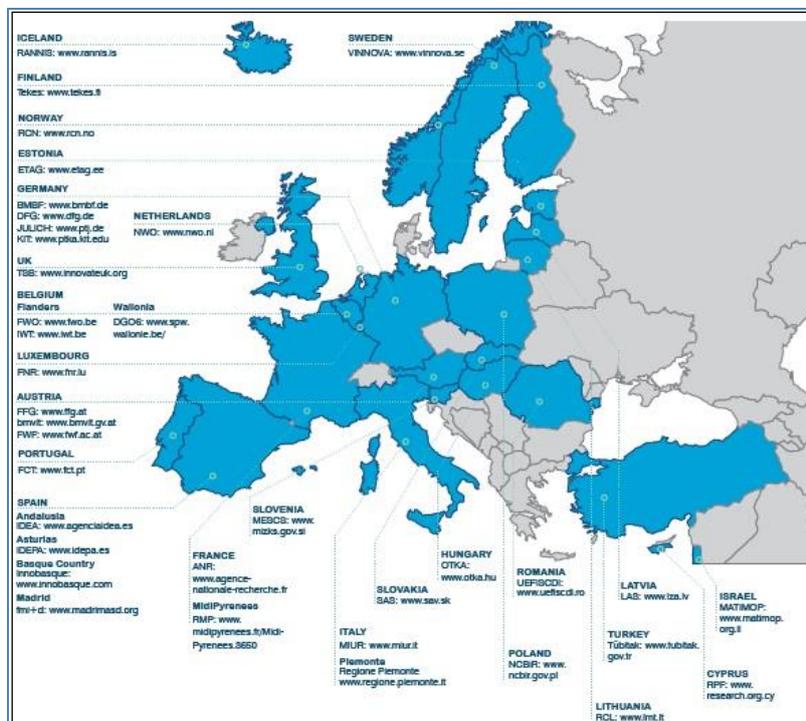
Europe has a wealth of academic and industrial expertise. To ensure it stays at the forefront of developments it is crucial that a strategic programme is established that will help develop projects with impact on a global scale.

Strategic impact

Improving the coordination and cooperation of research funding programmes will reduce the fragmentation across Europe and align programme strategies for transnational collaboration, eliminating cross-European programme duplication. M-ERA.NET will enable easy access to collaboration between leading research partners and industry across and also outside Europe and create a powerful network to tackle European and global challenges. Increasing interdisciplinary cooperation with a series of joint calls and activities will enable EU researchers and industry to access previously inaccessible new markets, creating a new innovation oriented economy. The annual joint calls and other joint activities will encourage key players as well as newcomers in transnational projects and SMEs to develop a pan-European partnership. This increased interdisciplinary cooperation and exploitation of European and international roadmaps will create a new dynamism in the field of materials science and engineering whilst stimulating the generation of leading knowledge along the innovation chain.

The M-ERA.NET Consortium

M-ERA.NET started, in February 2012, as a network of 36 public funding organisations, of which 29 are national and 7 regional, from 25 European countries. M-ERA.NET aims to identify further relevant European programmes and develop links with partners outside Europe. Funding organisations are free to determine their level of participation in transnational calls; see Annex 3 for funding organisations in the Call 2015.



2. Structure of the M-ERA.NET Call 2015

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

Figure 1 shows the schematic workflow of the coordinated call. 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.
- 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.

Schedule and Procedure for Call 2015

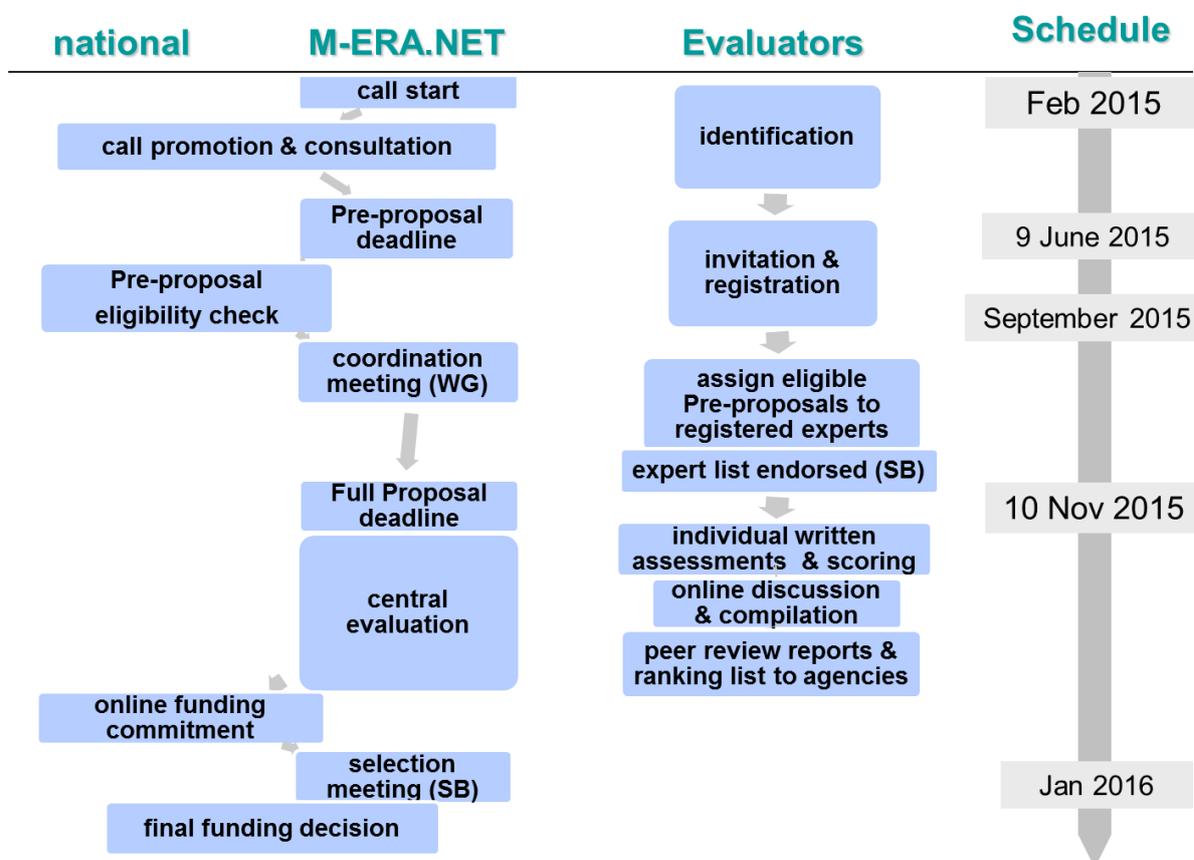


Figure 1 - Workflow of the Call 2015

3. Call Announcement

3.1. Objectives and Topics

The aim is to fund transnational high risk RTD projects addressing Materials Science and Engineering including micro and nano technologies, production processes and technologies. The specific objectives for Call 2015 are increasing synergy, support for innovation chain, international cooperation, interdisciplinarity and socio-ecological benefits. Proposals will typically be smaller than proposals submitted to the EU Framework Programme.

This call supports the following topics:

1. Integrated Computational Materials Engineering
2. New Surfaces and Coatings
3. High performance synthetic and biobased composites
4. Materials for Sustainable and Affordable Low Carbon Energy Technologies
5. Tailoring of bioactive material surfaces for health applications
6. Materials for additive manufacturing

As horizontal themes, cooperation between industry and academia (exchange of researchers) and international cooperation are highlighted. International cooperation is recommended for cases where a clear benefit is evident or expected for the European parties involved. International cooperation needs to be compatible with the M-ERA.NET objectives and IPR pre-requisites.

A more detailed description of the topics is available in Annex 1.

The individual regional/national thematic programme focus (e.g. basic research or applied research) and funding rules (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 regional/national funding organisations (see Annex 3 for details).

3.3. Eligible project structure

- Project consortia consisting of at least 3 parties (all requesting funding) from 2 different countries (at least 1 European) participating in the M-ERA.NET call 2015 (see Annex 3 for details) can apply. The consortia may involve as many partners as necessary. The coordinator must belong to a country/region participating in the call.
- Proposal is recommended for Full Proposal submission by M-ERA.NET after Pre-proposal stage.
- SMEs, Large companies, Academic research groups, universities, public research organisations or other research organisations may also participate according to their national/regional financing regulations.

Small to medium projects (4 or 5 partners) are expected. The roles of 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 or types of organisations are eligible (e.g. some national/regional programmes fund only industrial but no academic partners, basic and/or applied research).

A consortium agreement between the project partners is required for funding (after the final funding decision), although the principles of the agreement should be clear in the application form. 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 may not exceed 36 months. National/regional limits regarding the duration of projects will apply.

3.6. Dates and deadlines

Date	Step	Place
3 February 2015	Publication of the joint call	
9 June 2015 12:00 noon Brussels time	Deadline for submission of Pre-Proposals a) Pre-Proposals and b) National/regional Funding Applications, if necessary*	a) Online (via IT tool) b) National/Regional funding organisations
September 2015	Feedback to applicants	
10 November 2015 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
End of January 2016	M-ERA.NET feedback to applicants	
Spring 2016	Contract negotiations for selected proposals on national/regional level	National/ Regional funding organisations
Summer 2016	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. 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. The National/Regional organisations will carry out their own eligibility check (or evaluation) based on the pre-proposal and the respective regional/national funding application. Applicants will be provided with feedback after the review of their pre-proposal, including a recommendation to submit (or not) a full proposal.
4. The proposal has to be recommended for Full Proposal submission by M-ERA.NET after Pre-proposal stage to be eligible.
5. The full proposal must be submitted by the project coordinator through an online application form available at www.m-era.net. At the same time regional/national funding applications must be submitted to each of the involved funding organisation according to their specific rules.
6. The National/Regional funding organisations might carry out their own evaluation based on the full project proposal and the respective regional/national funding application. There will be a centralised 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 availability of finance resources.
7. M-ERA.NET recommends the funding of projects to the respective funding organisations. The regional/national 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/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 and regional/national funding applications

The full proposal gives an overview of the whole project and describes all national project parts. In addition to the full proposal (on-line submission) the corresponding National/Regional funding application form may be requested by the respective funding organisation according to their respective programme rules. 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 from Pre- to Full Proposal should be avoided. In any case, changes from Pre- to Full Proposal stage have to be coordinated with all involved funding organisations by the consortium leader!*

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. Thus, the National/Regional evaluation will be carried out in cooperation with M-ERA.NET.

5.1. Pre-Proposal:

5.1.1 Eligibility check and evaluation criteria:

At M-ERA.NET level:

- Date and time of receipt of Pre-proposal on or before deadline.
- Presence of requested M-ERA.NET Pre-Proposal form in English.
- Minimum of 3 partners requesting funding from 2 different participating countries (min. 1 European) participating in the M-ERA.NET Call 2015.
- Pre-proposal is recommended for submission for a full proposal by at least 2 funding organisations from the countries/regions involved.

At National/regional level:

- Eligibility of the applicants.
- Programme regulations observed if applicable (e.g. presence of requested national/regional proposal forms, ...).
- Assessment of relevance to the national/regional funding programme.

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:

At M-ERA.NET level:

- Date and time of receipt of proposal on or before deadline.
- Presence of requested M-ERA.NET Full Proposal form.
- Minimum of 3 partners requesting funding from 2 different countries (min. 1 European) participating in the M-ERA.NET Call 2015.
- Proposal is recommended for funding by at least 2 funding organisations from the countries/regions involved after the pre-proposal assessment.

At National/regional level:

- Recommendations given in the pre-proposal stage are fulfilled.

5.2.2. Result of Full Proposal Eligibility check:

At Full Proposal stage only in exceptional and very well justified cases proposals recommended for funding by M-ERA.NET central peer review can be rejected by individual funding organisations. Eligibility checks of the Full Proposal are done in parallel to 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 2015 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); feedback to applicants is agreed (peer review report, national comments if applicable, ...).*
- *If there are big differences 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 2015 Evaluation Criteria for Full Proposal:

The full proposals will be evaluated according to the following criteria:

- **Scientific and technical quality**
- **Implementation**
- **Impact**

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

6. Decision

6.1. Decision process

The final funding decision for the projects will be taken by the involved funding organisations. After the selection meeting M-ERA.NET informs the project coordinator (applicants) about the funding recommendation.

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 regional/national funding organisation through specific project review processes.

7.2. M-ERA.NET reporting

Apart from the National/Regional project review, the transnational cooperation aspects will be monitored on M-ERA.NET level, e.g. by using online questionnaires.

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 and press information concerning results of the projects.

9. Support

Frequently Asked Questions (FAQ) are listed in the website (www.m-era.net). 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 Call 2015

1. Integrated Computational Materials Engineering (ICME)

Technical content/scope

Current developments in combinatorial synthesis and multi-scale modelling together with high throughput or multi-scale experimentation allow for a faster development of materials targeted to both enhanced performance and processability. A skilful combination of these approaches in terms of Integrated Computational Materials Engineering will lead to significant improvements in our ability to design new materials or to assess materials performance already in the product development stage.

The proposals should focus on either of the following model-driven schemes:

- a) Design of new (compositionally defined) materials with target properties, OR
- b) Tailoring microstructural changes of known materials (e.g., during processing) to obtain new or improved properties, OR
- c) Creating or improving open-source tools to advance virtual design or processing.

The proposals should address each of the following items:

- 1) **Constitutive modelling and computational simulation:** Use of materials physics-based design principles in a computational environment, bridging the gap between different time and size scales
- 2) **Target properties:** Definition of specific goals to be reached, by defining criteria. For schemes a) and b) the criteria need to be quantitative target properties.
- 3) **Validation:** Validation of the model, including its main constituents. The proposals should clearly present the approach taken for relating these three items.

Expected impact

- Improved predictive power of Integrated Computational Materials Engineering.
- Establishment of well-targeted materials design and processing concepts.
- Building and strengthening a common European research community in the area of Integrated Computational Materials Engineering.
- Increased competitiveness of the European industry by cost saving in materials design and processing and a shortened time-to-market for materials with advanced properties.

The proposal should address how it will contribute to the expected impact of the topic.

Target groups

This topic is targeted to two steps in the innovation chain: basic research and applied research. Project consortia focusing only on basic research or only on applied research are also eligible. The establishment of a strong collaboration between research entities and further networking is strongly encouraged.

2. New Surfaces and Coatings

Technical content/scope

Surface and coating technology is a key enabler for new solutions in numerous industrial sectors in Europe. This call will stimulate application driven development of new, multifunctional coatings and related processes.

In this call the areas that are specifically addressed are: tribology, chemical and corrosion resistance, optical, electromagnetic, (anti-) adhesive, electro-catalytic characteristics, active and responding coatings, long term performance, multifunctionality and coatings for severe environmental conditions.

The objective is to develop new or significantly improved coatings, interfaces and process solutions by chemical and/or physical surface modification. This call aims to generate new insights in surface modification, manufacturing, and tailoring of (multi-) functional coatings by a holistic understanding of the relationship of materials - processes - applications. This will enable a new generation of engineered surfaces with improved and combined characteristics.

The project proposals should address new surface modification and coating solutions, consider new processing routes or new concepts for coating and surface treatment. Project proposals should also focus on one or several of the following points: interdisciplinary process combinations, new surfaces and coating materials, material compounds, nanomaterials, materials for sensors, structured surfaces, composite coatings or multilayers. Consideration should be given to basic understanding of the mechanisms, experimental assessment, prototyping, up-scaling, manufacturing and/or validation. The proposals should consider the processing aspect of the new technology aiming for flexible and energy-efficient approaches in production with smart use of materials (saving resources and tailoring applications) in an environmentally friendly manner. In order to ensure relevance for different partners in the value chain the proposal should state clear concepts for application(s) and industrial sector(s).

This topic does not aim at surfaces and interfaces related to health applications, e.g. antibacterial surfaces and general hygiene, bioactive surfaces for health and diagnostics, coatings for implants, which will be addressed in the Topic “Tailoring of bioactive material surfaces for health applications”. This topic excludes surface modification technologies as applied to components produced by an additive manufacturing process which will be addressed in the Topic “Materials Science for Additive Manufacturing

All proposals should clearly indicate at what level on the Technology Readiness Level (TRL) scale the project is situated at the beginning and after the project is finished (see Annex 2).

Expected impact

- New and improved components/products with tailored properties or functionalities by tuned surfaces and coatings.

- The focus has to be laid on a clear ecological impact in terms of avoidance of hazardous materials and compounds and aspects of sustainability in processes, coating material, technology and product life cycles.
- The project should include partners all throughout the value chain, even proposals focused on basic research should give a strategy for transfer to industry including a roadmap of valorisation.
- The project should emphasize on new products by functionalised surfaces and coatings that might have strong societal impact, on e.g. safety, economics, employment and life quality, and are expected to create synergies between industry and research.
- The transnational and/or international exchange of researchers from RTD entities and industrial partners is encouraged.

Target groups

This topic is targeted to all groups in the innovation chain: basic research, applied research and industrial R&D. The particular subject of the proposal deals with the establishment of a strong collaboration between research entities and SMEs. Interdisciplinary projects are encouraged and should enable a broader cross-sectorial use. Participation of large industry is encouraged e.g. as potential end user of the technology proposed.

3. High performance synthetic and biobased composites

Technical content/scope

Within the scope of this call, composites are defined as engineered materials, including hybrids, composed of two or more constituents - typically a polymer matrix and a reinforcement being in the form of a fibre or a filler - to meet the requirements which cannot be otherwise fulfilled by one component alone. The matrix and/or fibres/fillers can be synthetic or biobased. With biobased materials it is meant materials obtained from renewable, biological resources.

The call aims basically at structural composites having outstanding mechanical performance with high strength or stiffness to weight ratio, but additional properties targeting enhancements in physical/chemical properties are welcomed as well. The research proposals could also address methodology and tools for design-optimisation, manufacturing, automation, process and structural health monitoring, modelling and simulation of processing as well as in-service behaviour of composites. The possible application areas may include among others light weight structures in transportation, mobility, and other engineering applications.

The research proposals should address one or more of the following:

- New material designs based on defined structure/property relationships, enabling substantial improvement of the mechanical performance.
- Development of new biobased resins, biobased fibres/fillers, biobased composites with natural fibre reinforcement, and fully biobased composites.
- New composites which combine improved mechanical performance with other physical or physical-chemical functionalities This could be achieved among others by the integration of nanophases into the material.
- Composite processing methods enabling high production rates, aiming at applications in high-volume markets. Material innovations could encompass fast curing, low viscosity resins or stampable thermoplastic composite sheets, but also automation, robotisation and energy optimisation of the production process should be envisaged.
- Composite processing technologies for joining, assembling and repair, which also reduce after-work.
- Composite end-of-life technologies.
- Novel and unique knowledge in molecular design, functionalization and characterization of a wide range of fibre or filler reinforced composite materials.
- Modelling and simulation of processing conditions and in service behaviour of composites using a multiscale approach.
- Composites with improved reinforcement/matrix interaction.

To strengthen the whole innovation chain it is strongly recommended that the project proposal is balanced by incorporating 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. International cooperation is encouraged.

Expected impact

- 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 with 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.

Target groups

This topic is targeted to all groups in the innovation chain: basic research, applied research, industrial R&D. The particular subject of the proposal deals with the establishment of a strong collaboration between research entities, SMEs and large industry.

4. Materials for Sustainable and Affordable Low Carbon Energy Technologies

Technical content/scope

The sector of advanced materials for energy is an important economic and employment generator in Europe. Sustained innovation by research and development projects will reinforce its economic value.

New and advanced materials are essential to achieving the goals of a low carbon economy. Materials are an integral part of the solution for addressing the Energy and Climate Change Challenges. Currently over 80 % of Europe's energy use is based on oil, gas and coal. The European Strategic Energy Technology Plan (SET Plan)¹ recognises this situation and emphasises the growing need for cost-competitive low carbon energy and energy efficiency technologies. **The SET Plan Materials Road Map** emphasises the pivotal enabling role of advanced materials and clearly outlines the medium to long term strategy for the coming years.

The scope of this call is to **develop advanced materials, or material systems with improved physical, chemical and mechanical properties** leading to advances on the following topics:

- 1) Energy efficiency in residential and commercial buildings (for example: advanced insulation materials, materials for high efficiency / high brightness lighting (LEDs / OLEDs)...))
- 2) Energy efficiency in energy intensive industrial sectors such as chemicals, cement, glass, non-ferrous metallurgy, pulp and paper, etc. (for example advanced insulation, materials for extreme conditions, materials for high power electronics in converters, thermoelectric conversion ...)
- 3) Decarbonisation of the fossil fuel energies sector (for example: advanced materials for the affordable implementation of carbon capture/separation, materials for the storage or utilisation of CO₂ ...)
- 4) Solar energy generation (for example: materials for photovoltaics, thermal-solar and concentrated photovoltaics)
- 5) Other energy conversion (generation) systems (for example: mechanical to electrical, chemical to electrical, fuel cells, geothermal energy, biofuels ...)
- 6) Energy storage (for example: materials for electro-chemical energy storage, chemical energy storage, "solar" fuels, mechanical energy storage, molten salts...)

The research proposals should give sufficient attention to mid- or long term industrial feasibility, reliability, durability and life cycle analysis (LCA). The materials development should **aim to a future decrease in cost of energy, combined with lower carbon emissions**. Proposals should include some quantitative appraisal on the expected greenhouse gas emissions savings (including CO₂, methane, nitrous oxide and F-gases).

¹ http://ec.europa.eu/energy/technology/set_plan/set_plan_en.htm

A proposal must consider, demonstrate and clarify its added value and impact, and where appropriate, its alignment with the SET Plan materials Roadmap. The proposal has to position itself on the Technology Readiness Level (TRL, see Annex 2) scale with clear start and envisioned end point as well as a potential roadmap towards an existing or future end-market.

For basic research programmes (lower TRL), the establishment of an industrial advisory board is highly recommended to ensure the relevance of the research. For higher TRL, integration of industrial partners who manufacture or use the advanced material is strongly recommended.

In case the research proposal intends to make use of critical and potentially scarce raw materials - see critical raw materials for EU² - the applicants are requested to present a justification for this choice. Projects may also address substitution or recycling of such critical or scarce materials.

Expected impact

- Support to meet the European strategic policy targets in terms of greenhouse gas emission reduction and developing affordable sustainable energy usage.
- Improved competitiveness and strengthened industrial leadership.
- Innovation excellence of the European academia and research institutes.

Target groups

This topic is targeted to all groups in the innovation chain: basic research, applied research, industrial R&D. The particular subject of the proposal deals with the establishment of a strong collaboration between research entities, SMEs and large industry. Consortia focusing only on basic research or industrial R&D are also eligible.

² http://ec.europa.eu/enterprise/policies/raw-materials/critical/index_en.htm

5. Tailoring of bioactive material surfaces for health applications

Technical content/scope

Wellness and healthy ageing of the European population will require new or improved solutions to health-related issues. Many of those solutions will come from the development of new advanced materials as key components of diagnostics (contrast agents, substrates for immunoassays, sensors) and therapeutics products (implants, tissue regeneration strategies, advanced therapies, etc.).

The objective of this call topic is to provide opportunities to advance **material-based technologies** closer to the market. This action is aligned with societal challenge 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.

The 2015 call of M-ERA.NET aims at supporting the development and commercial exploitation of innovative bioactive surfaces and of the processes that enable production. In the context of this call, the meaning of the term “bioactive” includes not only the ability of eliciting a target tissue response, but also the ability of providing bidirectional signalling to and from a biological environment, or to interact with biological molecules. A few examples of such bioactive surfaces and related processes are as follows: (i) porous surfaces and coatings on the macro-, micro-, nano- and meso-scale levels, that promote osteointegration of bone implants, (ii) functionalization with organic or inorganic chemicals of implants, day-care materials and textiles providing antibacterial and/or antifouling activity, (iii) new surface design of scaffolds for tissue engineering, (iv) nanostructured smart surfaces, thin films and coatings with multifunctional activity, (v) surface immobilization of biomolecules (proteins, DNA, RNA, etc.) for *in vitro* diagnostic purposes, etc.

Successful proposals are expected to take into account the following:

- Where applicable, biocompatibility and interaction of materials with appropriate body tissues or fluids should be considered.
- The market potential and exploitation route for the proposed technical solutions should be outlined.
- Adequate resources should be provisioned to deal with the relevant regulatory hurdles during the course of the project.
- Where relevant, adequate consideration should be given to the future scaling-up of the proposed processes and to the possible industrialization of a final product.
- Efforts should also be made to position the start of the project-and estimate the expected end points on the Technology Readiness Level (TRL) scale as well as an estimation of the time needed to reach the market (see Annex 2).

Moreover, the proposals are strongly encouraged to consider the following issues:

- Where applicable, pre-clinical proof of concept (*in vitro* testing and/or assays in small animals).

- Cross collaboration between biologists, medical doctors and materials scientists.
- Involvement of SMEs and/or industrial partners.
- International collaborations with leading research entities from M-ERA.NET-associated countries.

Expected impact

- Production of new or improved materials for health that deliver enhanced performance and/or enhanced cost/benefit ratio.
- Improved competitiveness of the European health industry through a clear increase of the Technology Readiness Level for the proposed technologies.
- Improved market access through increased awareness on the part of the RTD performers and industrial partners of the regulatory protocols that must be followed before their materials reach the patients.
- Generation of a robust dialogue between RTD performers and industrial and medical stakeholders of the health sector.

Target group

This topic is targeted to all groups in the innovation chain: basic research, applied research, industrial R&D. Collaboration between research entities, SMEs and large industry is encouraged.

6. Materials for additive manufacturing

Technical content/scope

Additive Manufacturing (AM) is a process of building parts and components directly based on a digital model usually by adding material layer by layer. AM is a rapidly developing industrial sector and, potentially, a disruptive one not least because, in principle, it is resource effective and sustainable compared to subtractive technologies. However, the ability to fully exploit the potential of the various processes involved is currently limited by the availability of materials specifically tuned to the requirements of those processes. While past developments have focused mainly on polymers, there exist big opportunities related to metal alloys, ceramics and composites. Within this call, the driving force for materials development should come from specific potential applications that will arise from improved performance and economics of manufactured components.

Objective

The objective is to develop innovative materials designed for use in AM processes in order to confer improved or novel properties for manufactured components. The main focus of this call lies in the development of novel materials specifically designed for use in AM processes (e.g. tuning composition, structure, morphology, powder processing parameters etc.). The final goal of proposed projects should be to demonstrate the ability to achieve finished components exhibiting improved performance, preferably with reduced price.

Project proposals should address developments in e.g. mechanical and corrosion properties, surface finishing, internal stress reduction, electrical and thermal conductivity, and materials specifically designed to exploit the potential of AM to produce functionally graded and composites components. Focus should be on materials for final part production, not prototyping.

Expected impact

- New and improved components with improved properties arising from AM processes
- New feedstock materials (e.g. powder, wire, filament) specifically developed to enhance functionality and performance
- Projects within this call could be basic or applied research (TRL target for project deliverables within levels 4-7)
- Project consortia should include partners having the ability to industrialize the results
- The use of living biological materials as part of the AM process is not covered by this call
- All proposals should not result in negative environmental, social or ethical impacts.

Examples of proposals that would be considered eligible under this call include, but are not exclusively confined to:

- Development of materials designed to overcome problems relating to internal stress in AM parts.

- Development of materials for the AM production of components for use in extreme environments.
- Materials for use in the production of improved scaffolds used in regenerative medicine applications.
- Development of novel materials to enable innovative applications for AM parts.

Main target groups

This topic is targeted at all groups in the innovation chain: basic research, applied research, industrial R&D. Collaboration between research entities, SMEs and large industry is encouraged as is participation in project consortia by international organisations.

Annex 2 Technology Readiness Level

Where the topic description refers to the concept of “**Technology Readiness Level**” (TRL), the following definition in accordance with H2020³ 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)

Whenever it`s relevant 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. If relevant TRLs should be mentioned in the project summary.

³ See p. 27 http://ec.europa.eu/research/participants/portal/doc/call/h2020/common/1597678-part_18_general_annexes_incl_corr_en.pdf

Annex 3: Funding organisations participating in the M-ERA.NET Call 2015

Country/Region	Funding organisation involved	Contact person:
Austria	FFG Austrian Research Promotion Agency	FFG-TP: Name: Fabienne EDER Phone:+43 57755 5081 e-mail: fabienne.eder@ffg.at
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Belgium	Flanders: IWT Agency for Innovation by Science and Technology	Name: Paul SCHREURS Phone: +32 2 432 42 85 e-mail: ps@iwt.be
		Name: Johan MICHIELS Phone: +32 2 432 43 06 e-mail: jmi@iwt.be
	Research Foundation Flanders: FWO	Name: Toon Monbaliu Phone: +32 2 550 15 70 e-mail: eranet@fwo.be
	Walloon Region: DGo6 Service public de Wallonie	Name: Cedric VOLCKE Phone: +32 81 334548 / +32 479 670131 e-mail: cedric.volcke@spw.wallonie.be
Brazil	FAPESP	Name: Simone Godoi Phone: + 55 11 3838-4174 e-mail: sgodoi@fapesp.br
Cyprus	RPF Research Promotion Foundation	Name: Styliani Petroudi Phone: +357-22205042 e-mail:spetroudi@research.org.cy
Estonia	ETAg Eesti Teadusagentuur	Name: Aare Ignat Phone: +372 73 1 73 64 e-mail: aare.ignat@etag.ee
France	Region Limousin : Conseil Régional du Limousin	Name : Emmanuelle Pallier Valenzuela Phone : +33 555 45 00 80 Name : Fanny Duban Phone : +33 555 45 17 83
Finland	Tekes – the Finnish Funding Agency for Innovation	Name: Sisko Sipilä Phone: +358 50 5577 845 e-mail: sisko.sipila@tekes.fi
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	PTKA Projektträger Karlsruhe	Name: Stefan Scherr Phone +49 721 608 25286 e-mail: stefan.scherr@kit.edu
Hungary	NKFIH National Office for	Name: Elod Nemerkenyi

Country/Region	Funding organisation involved	Contact person:
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Iceland	RANNIS The Icelandic Centre for Research	Name: Ingolfur THORBJORNSSON Phone: +3548918795 e-mail: ingo@nmi.is
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Netherlands	Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO)	Name: Ivo Ridder Phone: 070 344 06 83 (-5 56 secr.) e-mail: i.ridder@nwo.nl
Norway	RCN The Research Council of Norway	Name: Aase Marie HUNDERE Phone: +47 41422058; +47 22 03 73 05 e-mail: amh@forskningsradet.no amh@rcn.no
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Portugal	FCT-Funadção para a Ciência e a Tecnologia	Name: Dina Carrilho Phone: +351 213 924 381 e-mail:Dina.Carrilho@fct.pt
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Russian Federation	Foundation for Assistance to Small Innovative Enterprises (FASIE)	Name: Olga LEVCHENKO Phone: +7 495 231 38 51 e-mail: levchenko@fasie.ru
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Slovakia	SAS Slovak Academy of Sciences	Name: Jan BARANCIK Phone: +421 2 577510 137

Country/Region	Funding organisation involved	Contact person:
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Spain	MINECO Ministry of Economy and Competiveness	e-mail: era-mat@mineco.es Severino Falcón Morales Phone: +34 916037959 Federico Mompeán Phone: +34 916037990 Maja Kolar Phone: +34 916037269
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Taiwan	MOST Ministry of Science and Technology	Name: Ting-Kuo LEE Phone: +886-2-27896750 e-mail: tklee@phys.sinica.edu.tw
Turkey	TÜBİTAK The Scientific and Technological Research Council of Turkey	Name: Burcu Koc HASKILIC Phone: +904685300 e-mail: burcu.haskilic@tubitak.gov.tr

Commitment per funding organisation 2015:

M-ERA.NET Call 2015		Integrated Computational Materials Engineering	New Surfaces and Coatings	High performance synthetic and biobased composites	Sustainable and Affordable Low Carbon Energy Technologies	Tailoring of bioactive materials surfaces for health applications	Additive Manufacturing	Estimated public funding (M€)
Austria	FFG-BP	A	A	A	A	A	A	2
Austria	bmvit/FFG-TP	A	A	A	A	A	A	1
Belgium Flanders	FWO	B	B	B	B	B	B	0.2
Belgium Flanders	IWT	A	A	A	A	A	A	1.75
Belgium Wallonia	DGO6	A	A	A	A	A	A	1
Brazil Sao Paulo	FAPESP	A+B	A+B	A+B	A+B	A+B	A+B	0.4
Cyprus	RPF	A	A	A	A	A	A	0.2
Estonia	ETAG		A+B		A+B			0.05
Finland	Tekes	A	A	A	A	A	A	1
France Limousin	CR-Limousin	A	A	A	A	A	A	0.3
Germany	PTKA						A	**
Germany	VDI-TZ		A°		A°		A°	*
Hungary	OTKA	B	B	B	B	B	B	0.3
Iceland	RANNIS	A	A	A	A	A	A	*
Israel	MOST	A+B	A+B	A+B	A+B	A+B	A+B	0.5
Korea	KIAT		A	A	A	A	A	3
Lithuania	RCL	A+B*	A+B*	A+B*	A+B*	A+B*	A+B*	0.6
Latvia	LAS	A+B	A+B	A+B	A+B	A+B	A+B	0.4
Luxembourg	FNR	A+B	A+B	A+B	A+B	A+B	A+B	0.5
Netherlands	NWO	***	***	***	***	***	***	**
Norway	RCN		A+B	A+B	A+B		A+B	2
Poland	NCBIR		A	A		A	A	0.5
Portugal	FCT	A+B	A+B	A+B	A+B	A+B	A+B	0.75
Romania	UEFISCDI	A	A	A	A	A	A	1
Russian Federation	FASIE	A	A	A	A	A	A	0.5
Slovakia	SAS	A+B	A+B	A+B	A+B	A+B	A+B	0.23
Slovenia	MIZS	B	B	B	B	B	B	0.63
Spain	MINECO	A+B*	A+B*	A+B*	A+B*	A+B*	A+B*	0.8
Spain Analusia	IDEA	A+B	A+B	A+B	A+B	A+B	A+B	0.5
Spain Asturias	IDEPA	A***	A***	A***	A***	A***	A***	0.4
Spain BasqueCountry	Innobasque	A	A	A	A	A	A	*
Switzerland	SERI	A	A	A	A	A	A	*
Sweden	VINNOVA	A	A	A			A	1
Taiwan	MOST	A+B	A+B	A+B	A+B	A+B	A+B	1
Turkey	TÜBITAK	A**	A**	A**	A**	A**	A**	2

A applied research eligible
B basic research eligible

* photonic materials and/or photonic technologies only
* only R&D institution eligible
** only companies eligible
*** max. project duration 24 month

* flexible budget
** budget not defined
*** participation to be confirmed

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

Evaluation Criteria, Scoring, Thresholds

- **1. Scientific and technical quality (max. 5.0 points)**
 - 1.1 Soundness of concept and quality of objectives (max. 1.5 points)
 - 1.2 Progress beyond the state-of-the-art (max. 1.5 points)
 - 1.3 Quality and effectiveness of the S & T methodology and associated work plan (max. 2.0 points)
- **2. Implementation (max. 5.0 points)**
 - 2.1 Appropriateness of the management structures and procedures (max. 1.0 points)
 - 2.2 Quality and relevant experience of the individual participants (max. 1.0 points)
 - 2.3 Quality of the consortium as a whole (including complementarity, balance) (max. 1.0 points)
 - 2.4 Appropriate allocation and justification of the resources to be committed (budget, staff, equipment) (max. 2.0 points)
- **3. Impact (max. 5.0 points)**
 - 3.1 Contribution at the European or international level to the expected impacts listed in the work programme under the relevant topic (max. 2.5 points)
 - 3.2 Appropriateness of measures for the dissemination and/or exploitation of project results and management of intellectual property (max. 2.5 points)
- **Ethical issues**

Ethical issues: Full Proposal includes FP7 “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.

Additional Information

- Sub criteria have individual maximum scores with a resolution of 1 decimal point. There are no thresholds for sub criteria. The awarded scores for each sub criterion have to be justified with written statements by the evaluators.
- Each criterion will be scored between 0 and 5 representing the sum of the scoring of the individual sub criteria. The threshold for individual criteria will be 3.
- 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 will be compared as follows for the elaboration of M-ERA.NET ranking list: compare scoring of criterion 1, if still equal compare scoring of criterion 2, if still equal compare scoring of criterion 3, if still equal sub-criteria are compared (1.1, 1.2,3.2)

Annex 5: Checklist for Proposers*

The proposal conforms to the call guidelines.	<input type="checkbox"/>
Every project partner has been in direct contact with his/her national or regional funding organisation and has checked that their collaboration and their project contribution is eligible for funding.	<input type="checkbox"/>
All partners who are not eligible for 100% funding are able to provide financial resources for their own contribution.	<input type="checkbox"/>
The consortium is aware of the necessity to have a consortium agreement, including amongst others the agreements on intellectual property rights (IPR) and publication rules for a funded project (to be signed before the first payment)	<input type="checkbox"/>
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. <i>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.</i>	<input type="checkbox"/>

<p>Please go https://www.m-era.net/joint-call-2015 to submit the:</p> <ol style="list-style-type: none"> 1. Pre-proposal form online. Deadline for submission: 9 June 2015, 12:00 noon Brussels time 2. Full-Proposal form online. Deadline for submission: 10 November 2015, 12:00 noon Brussels time
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For further information on M-ERA.NET: please go to <http://www.m-era.net>