

Proposal Evaluation Form

	EUROPEAN COMMISSION Horizon Europe Framework Programme (HORIZON)	Evaluation Summary Report - Doctoral Networks
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Call:	HORIZON-MSCA-2022-DN-01
Type of action:	HORIZON-TMA-MSCA-DN
Proposal number:	101119738
Proposal acronym:	MetacMed
Duration (months):	48
Proposal title:	Acoustic and mechanical metamaterials for biomedical and energy harvesting applications
Activity:	ENG

N.	Proposer name	Country	Total eligible costs	%	Grant Requested	%
1	UNIVERSITA DELLA CALABRIA	IT	0	-	518,875.2	23.74%
2	THE UNIVERSITY OF WARWICK	UK	0	-	307,785.6	14.08%
3	INSTYTUT MASZYN PRZEPLYWOWYCH IM ROBERTA SZEWALSKIEGO POLSKIEJ AKADEMII NAUK - IMP PAN	PL	0	-	226,512	10.36%
4	UNIVERSITA DEGLI STUDI DI MESSINA	IT	0	-	259,437.6	11.87%
5	UNIVERSITY OF LEEDS	UK	0	-	307,785.6	14.08%
6	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS	FR	0	-	565,387.2	25.87%
7	InnoSpina SA	CH	0	-	0	0.00%
8	EIDGENOSSISCHE MATERIALPRUFUNGS- UND FORSCHUNGSANSTALT	CH	0	-	0	0.00%
9	POLITECNICO DI BARI	IT	0	-	0	0.00%
10	AMAZEMET SP. Z O.O.	PL	0	-	0	0.00%
11	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	CH	0	-	0	0.00%
12	UNIVERSITE DE LILLE	FR	0	-	0	0.00%
13	Sofia Maria Facal Belli	ES	0	-	0	0.00%
Total:			0		2,185,783.2	

Abstract:

MetacMed aims to link basic research on acoustic and mechanical metamaterials (MMs) to health and well-being issues. MMs have some remarkable properties, though to make them properly applicable to the targeted applications, their design must be carefully tailored. This will be achieved by bringing together a range of supervisory expertise and creating a network of 10 doctoral candidates (RESs), some of whom will work in the industry. The team includes beneficiaries and associated partners who, if working separately, would not be able to make the planned advances in research and innovation. RESs will each consider ways in which human health can be improved using MMs, e.g. improvement in the resolution of biomedical ultrasound imaging for e.g. cancer diagnostics, the design of better spinal implants, monitoring of bone healing, the use of insoles to aid human walking. Another area of interest is to develop MMs that can be used for energy harvesting, to better power e.g. medical devices and reduce reliance on conventional power sources. These are all backed up by fundamental studies into the MMs themselves to provide the background to achieve these tasks. The balance of the network has thus been carefully considered in terms of basic science and applications, with input from industry in areas such as MMs fabrication and exploitation. Associated with the above is a strong set of training events, where the basic features of acoustic and mechanical MMs and their applications will be considered, together with soft-skills training such as writing, presenting, entrepreneurship, gender balance issues, stress management. Regular meetings of the RESs at various member locations will foster collaboration, and this will be reinforced by a carefully-selected set of secondments. A proper management system for both running the network effectively and properly monitoring and supporting PhD progression is built into the proposal, ensuring that successful outcomes are achieved by RESs.

Evaluation Summary Report

Evaluation Result

Total score: 95.60% (Threshold: 70/100.00)

Score: **4.80** (Threshold: 3/5.00 , Weight: 50.00%)

- **Quality and pertinence of the project's research and innovation objectives (and the extent to which they are ambitious, and go beyond the state of the art).**
- **Soundness of the proposed methodology (including interdisciplinary approaches, consideration of the gender dimension and other diversity aspects if relevant for the research project, and the quality and appropriateness of open science practices).**
- **Quality and credibility of the training programme (including transferable skills, inter/multidisciplinary, inter-sectoral and gender as well as other diversity aspects).**
- **Quality of the supervision (including mandatory joint supervision for industrial and joint doctorate projects).**

Strength(s)

- *The project's research and innovation objectives are clear and precise.*
- *The proposal specifies precisely how the individual projects integrate and contribute to the overall programme and how they link with the overall research objectives.*
- *The objectives are clear and realistically achievable.*
- *The originality with respect to the state-of-the-art is clearly evidenced.*
- *The interdisciplinary of the projects is clearly demonstrated. Relevant KPIs are provided for monitoring scientific progress.*
- *The open science practices are clearly formulated.*
- *The structure and content of the doctoral training programme is clearly specified and in line with the proposed methodology and objectives.*
- *The proposed network-wide training activities and local training are outstanding and very complete including hand-on sessions, workshops and an international conference.*
- *The role of the non-academic sector is clear and relevant. This includes training, hosting events, secondments and guidance on manufacturing.*
- *Transferable skills are excellent and comprehensive including sustainability issues and ethical responsibility and entrepreneurship.*
- *Lead supervisors have strong and relevant supervisory experience.*
- *Each researcher will have a dedicated primary supervisor from the host university, supported by a secondary supervisor from a different institute and a referee. This is considered good practice.*
- *The gender aspects of the proposed research work are well identified and considered.*

Weakness

- *The AI-based methods are insufficiently described with regard to technical robustness, in particular the ability to deal with and inform about possible failures, inaccuracies and errors, proportionate to the assessed risk posed by the AI-based system.*

Score: **4.80** (Threshold: 3/5.00 , Weight: 30.00%)

● **Contribution to structuring doctoral training at the European level and to strengthening European innovation capacity, including the potential for:**

a) **meaningful contribution of the non-academic sector to the doctoral training, as appropriate to the implementation mode and research field**

b) **developing sustainable elements of doctoral programmes.**

● **Credibility of the measures to enhance the career perspectives and employability of researchers and contribution to their skills**

● **Suitability and quality of the measures to maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities.development.**

● **The magnitude and importance of the project's contribution to the expected scientific, societal and economic impacts.**

Strength(s)

- *The proposal provides excellent detail on how EU innovation capacity will be strengthened and how the network will contribute towards structuring doctoral training at the European level. Bridging the gap between industry and academia as well as entrepreneurship aspects are highly considered.*

- *The contribution of the non-academic sector to the research and the transferable skills is very well identified and detailed, including involvement in hiring, secondments, training, transferable skills and patenting.*

- *The measures to maximize expected outcomes and impacts in the dissemination activities are very well planned, precise, and complete including target audience, timelines and KPIs.*

- *The public engagement activities are clear, with well identified target audiences and specific KPIs.*

- *The expected scientific impacts are significant and clearly identified, including improvements in clinical methods and devices, and new structures for biomedical applications and energy harvesting.*

- *The strategy for managing of IP is sufficiently defined.*

- *There are concrete convincing examples regarding both societal and economic impact of the project outcomes.*

- *The sustainable elements of doctoral programmes are very good and convincing, e.g. the network will help to increase cooperation with non-academics, create start-ups, and add new devices to the market.*

Weakness

- *The exploitation plan is not sufficiently detailed. In particular, the link between the research outcomes and possible product commercialization is not sufficiently clear.*

Criterion 3 - implementation

Score: **4.70** (Threshold: 3/5.00 , Weight: 20.00%)

● **Quality and effectiveness of the work plan, assessment of risks and appropriateness of the effort assigned to work packages.**

● **Quality, capacity and role of each participant, including hosting arrangements and extent to which the consortium as a whole brings together the necessary expertise.**

Strength(s)

- *The work plan is effective with well identified work package tasks and objectives.*

- *The effort assigned to the work packages is very well balanced and credible.*

- *Major deliverables and scientific milestones are clear and in line with the work package content.*

- *There are meaningful secondments which will take place at other relevant beneficiaries and partners.*

- *There is a clear risk management plan including scientific, technical and management risks with appropriate mitigations measures.*

- *The supervisors are very well qualified in the field of the proposal, with a strong track record.*

- *The participating organisations have in place appropriate infrastructures and capacity to carry out the project.*

Weakness

- *Management, recruitment and dissemination milestones are insufficiently identified.*

Scope of the proposal

Status: **Yes**

Comments (in case the proposal is out of scope)

Not provided

Exceptional funding

A third country participant/international organisation not listed in [the General Annex to the Main Work Programme](#) may exceptionally receive funding if their participation is essential for carrying out the project (for instance due to outstanding expertise, access to unique know-how, access to research infrastructure, access to particular geographical environments, possibility to involve key partners in emerging markets, access to data, etc.). (For more information, see the [HE programme guide](#))

Please list the concerned applicants and requested grant amount and explain the reasons why.

Based on the information provided, the following participants should receive exceptional funding:

Not provided

Based on the information provided, the following participants should NOT receive exceptional funding:

Not provided

Use of human embryonic stem cells (hESC)

Status: No

If YES, please state whether the use of hESC is, or is not, in your opinion, necessary to achieve the scientific objectives of the proposal and the reasons why. Alternatively, please state if it cannot be assessed whether the use of hESC is necessary or not because of a lack of information.

Not provided

Use of human embryos

Status: No

If YES, please state how the human embryos will be used in the project.

Not provided

Activities excluded from funding

Status: No

If YES, please explain.

Not provided

Do no significant harm principle

Status: Yes

If Partially/No/Cannot be assessed please explain

Not provided

Exclusive focus on civil applications

Status: Yes

If NO, please explain.

Not provided

Artificial Intelligence

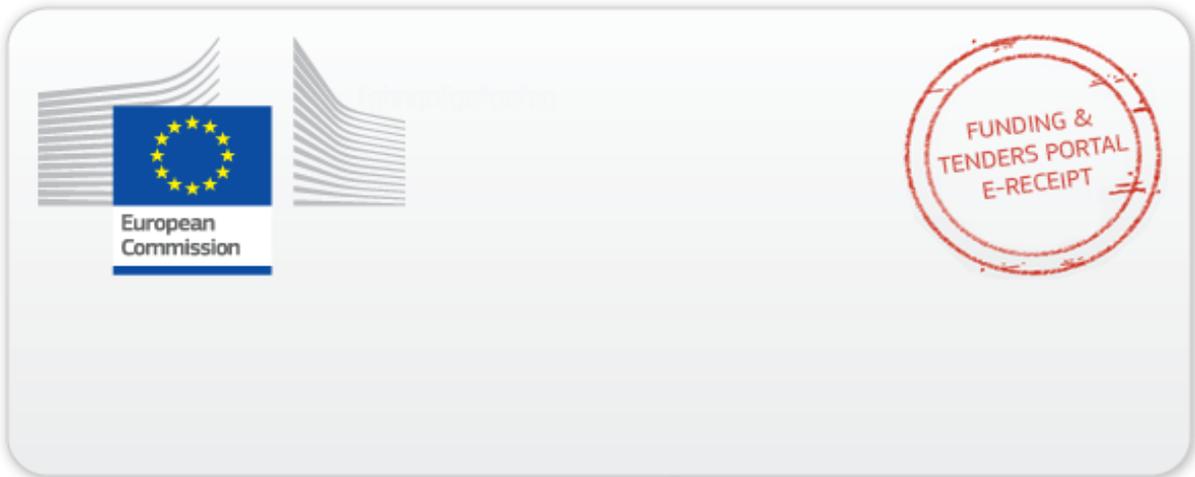
Status: Yes

If YES, the technical robustness of the proposed system must be evaluated under the appropriate (excellence?) criterion.

 Associated with document Ref. Ares(2023)1550684 - 03/03/2023

Overall comments

Not provided



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