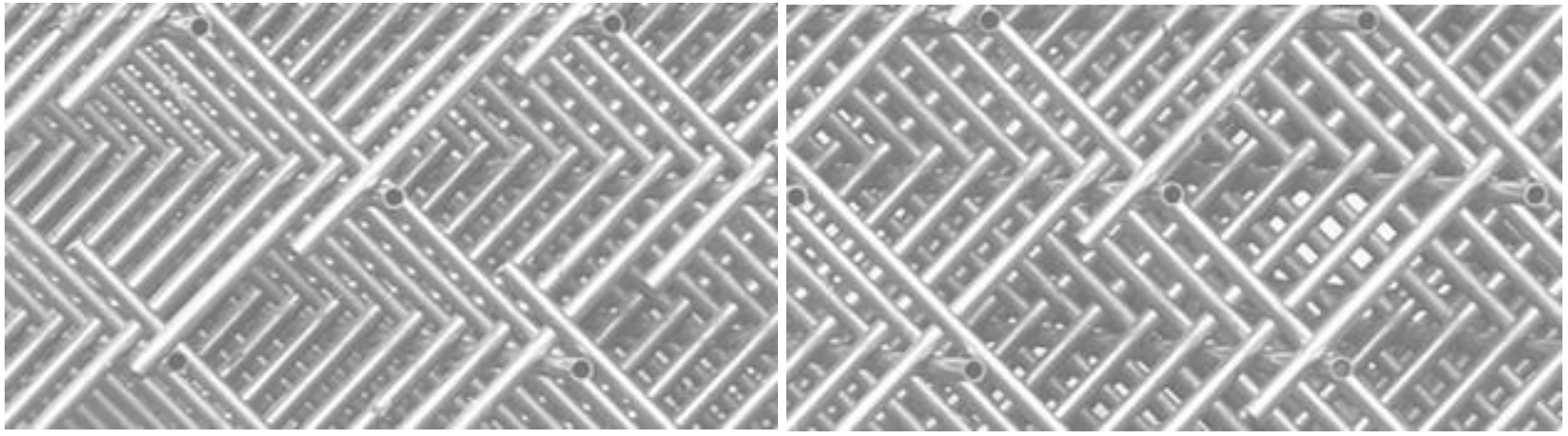
Lightme

Introduction to OITB - LightME and its Open calls

April 29th 2021

https://lightme-ecosystem.eu/



European Commission

Horizon 2020
European Union funding
for Research & Innovation

LightMe Project Consortium

25 partners

48 months

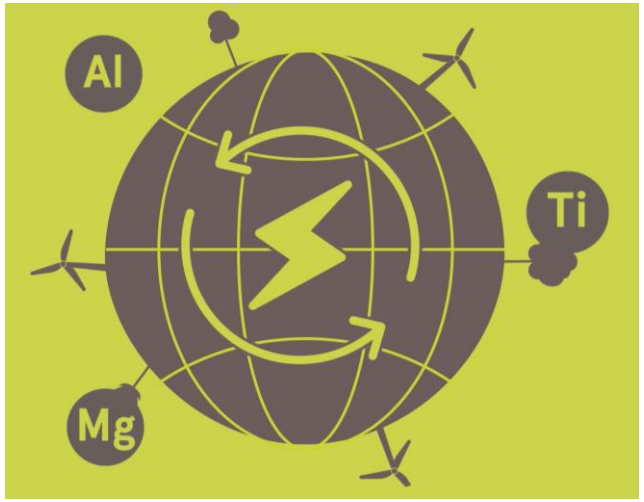
15 countries

Total budget:
13,073,423.75 €

Project Coordinator

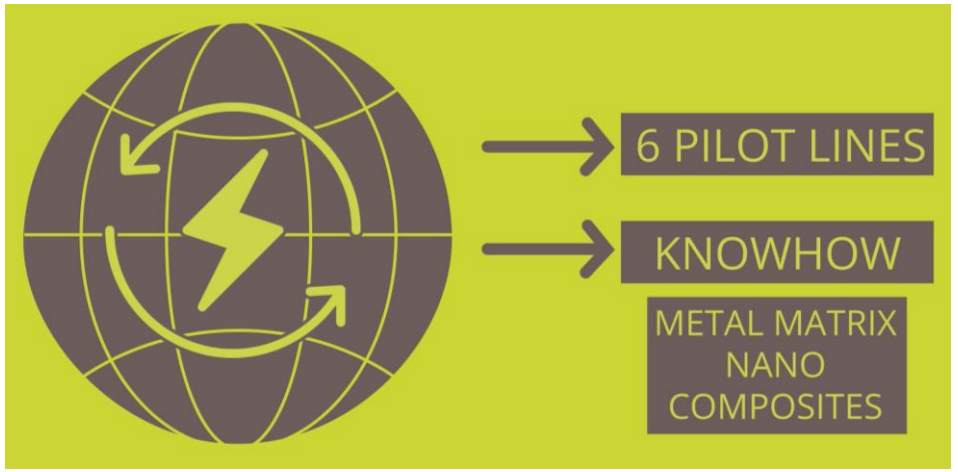
POLITECNICO MILANO 1863

LightMe Aim & Offer



Set up and operate a fully sustainable ecosystem for the upscaling of industrial processes concerning lightweight metal alloys composites (Al, Mg, Ti) from TRL4 or 5 to TRL7.

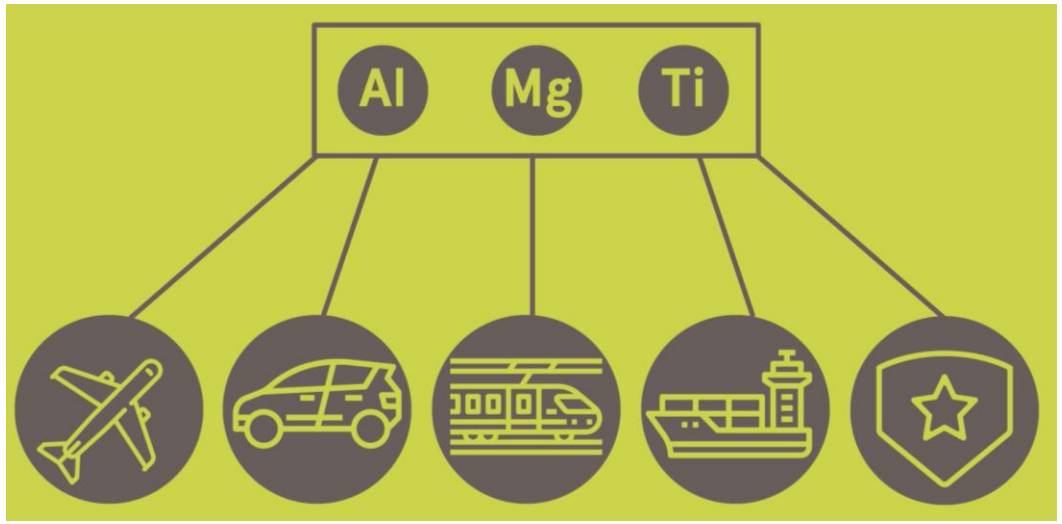
The LightMe Ecosystem will provide the necessary infrastructure and knowhow for upscaling the new materials concepts related to lightweight metal matrix nanocomposites and advanced materials in a cost-effective and sustainable way.



LightMe OITB Specific Goals

- Open facilities (Pilot Lines) at the EU level accessible to users across Europe
- Improved industrial process parameters and faster verification of materials performance for highly promising applications
- Improvement in industrial productivity, reliability, environmental performance, durability, and reduction of life-cycle costs of these materials
- Indirect reduction in energy consumption across sectors using lighter materials in their products and processes
- Access to various funding schemes (for SMEs in particular), for investing in these materials or in applications using them, accompanied with tailor-made business plans

Why LightMe?



Lightweight materials have become increasingly critical for producing components for aircrafts, cars, trains, ships and defense equipment.

Lightweight metals and alloys possess high strength to weight ratios and low density.
Example: lighter vehicles consume less fuel and emit less harmful gasses and provide a better performance

LightMe Services

Upscaling

- 3 Casting Lines
- 2 AM Lines
- 1 Powder Metallurgy/Extrusion Line

Monitoring

- Process Control
- Process Monitoring

Testing

- Structural Characterization
- Functional properties testing
- Field tests

Modelling

- Process Optimization
- Simulation
- Predictive modelling

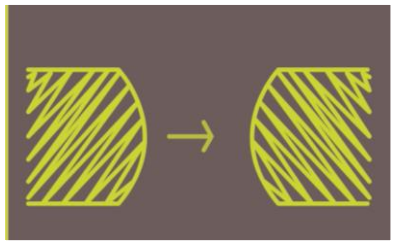
Innovation Management

- Business plan
- Marketing
- Technology transfer
- Training

Market Uptake

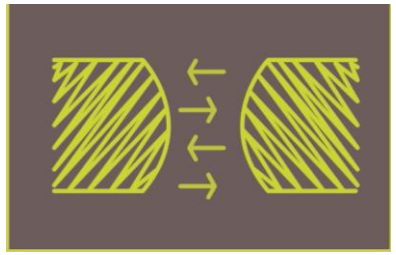
- Regulation
- Standardization
- H&S
- Nano-Safety
- Environmental Impact (LCA)

LightMe Services – Pilot Lines



1 Low Pressure Die Casting

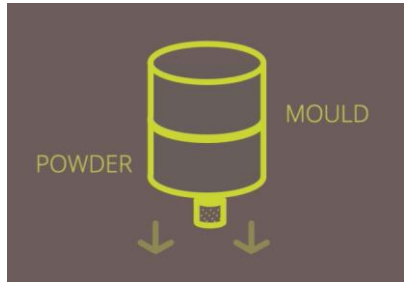
1 Metal Wire Additive Manufacturing (MWAM)-DED-LB Process



1 High Pressure Die Casting

1 Metal Additive Manufacturing with Powder DED-LB Process

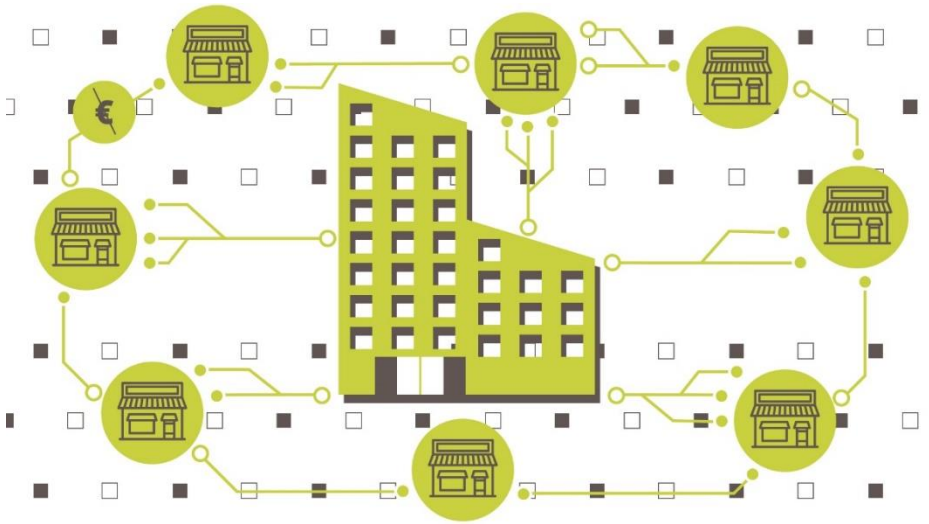
1 Green Sand Casting



1 Sintering Extrusion

How can LightMe help SMEs?

- Upscaling and development of novel lightweight Metal Matrix nano-Composites (MMnC), with advanced functionalities.
- Foster the adoption of MMnC by the market.
- Provide services that will ensure technology transfer to the market.
- LightMe can function as a bridge between upstream (material developers and knowhow suppliers such as Universities and Research Centers) and downstream (end users) industries.



Open Call

lightme

LightMe Open Call – Aim & Offer

Aim

Attract and engage SMEs and other stakeholders around Europe operating in the field of lightweight metal alloys and/or metal alloys composites eager to develop novel concepts within the lightweight metal products value chain.

Offer

An open access innovation environment, in which SMEs or other stakeholders will be able to proceed in technological innovation in a fast and low-cost way.

Selected applicants will:

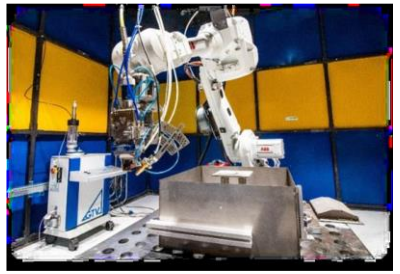
- have **free of charge** access to all services of the ecosystem
- have the opportunity to **innovate and develop** their business idea in a one-stop shop
- receive **mentoring and support** of industry experts for their concept
- be **part of a wide network** establishing long-term relationships with key industry players

Available Services: Access to 6 upgraded Pilot Lines

- **High Pressure Die Casting** – Brunel University London, UK
- **Low Pressure Die Casting** – ÖGI, Austria
- **Green Sand Casting** - ÖGI, Austria
- **Metal Wire Additive Manufacturing** – AIMEN, Spain
- **Powder Deposition Additive Manufacturing** – IRIS, Italy
- **Powder Metallurgy – Spark Plasma Sintering** – INOP, Poland







Available Services: Other Services

Technical Services:

- Monitoring of Pilot Lines
- Testing and Characterization
- Modelling and process optimization

Non-Technical Services:

- Environmental Impact – LCA/LCC
- H&S – Nanosafety
- Regulation compliance & Standardization
- Innovation management
- Access to Funding

Eligibility Criteria

The following types of entities are eligible to participate in the call:

- SMEs (Small and medium-sized enterprises) as defined in the EU recommendation 2003/361
- LEs (Large enterprises)
- Research & Development organizations

The entity must be:

- legally established in an EU Member state or a third country
- operating in the field of advanced lightweight metal alloys
- interested in the concept of open innovation

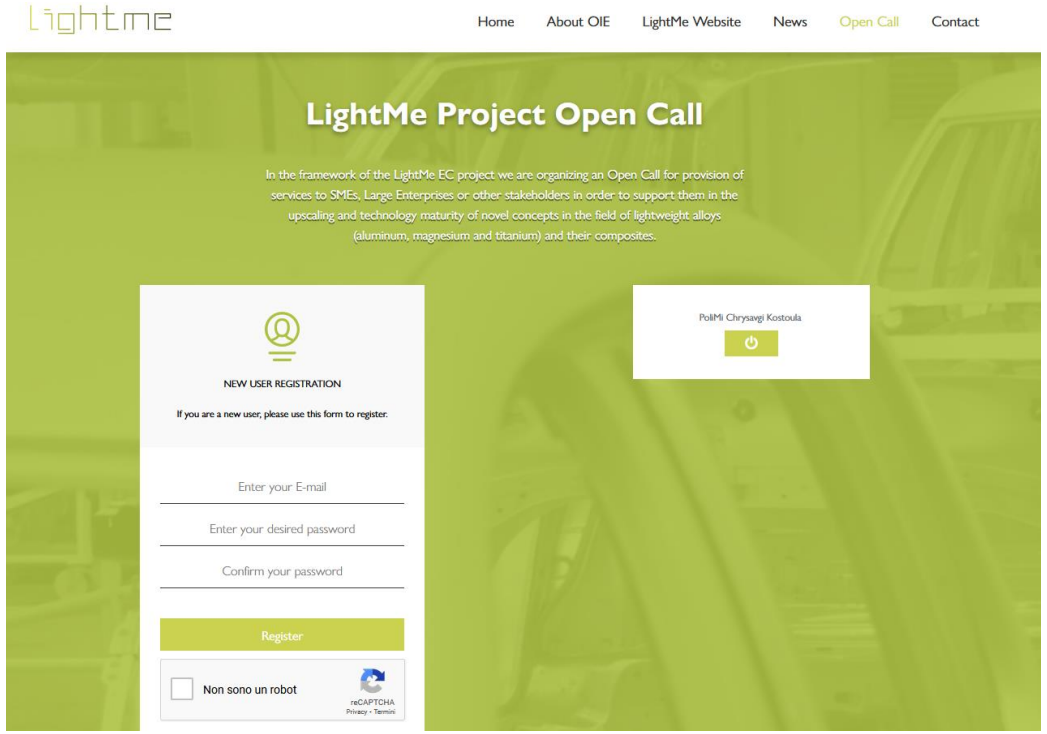
Eligibility Criteria

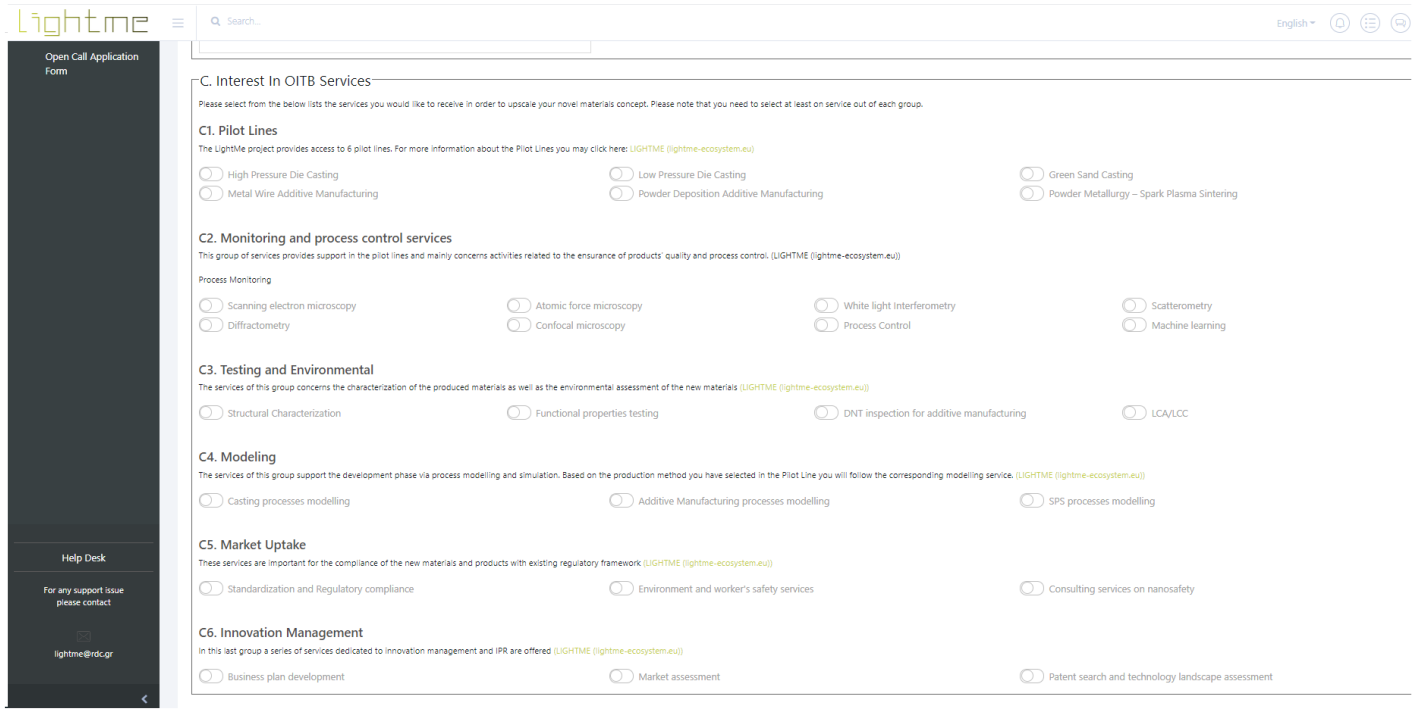
- The Legal Entity should be established in one of Member States of EU or the associated countries. UK partners are eligible for the Open Call
- There should be no conflict of interest which might affect the objectivity of the proposal's evaluation.
- The Legal Entity is not under liquidation or it is not an enterprise under difficulty accordingly to the Commission Regulation No 6512014 art. 2.18.
- The propose project is based on original works and going forward any foreseen developments are free from third party rights, or they are clearly stated.
- All statements embodied in the Information and Consent Forms, included as annexes, considering the ethical issues that might arise concerning the gathering of personal data, during the application process.

LightMe Open Call - Proposal

- **Application Form** (admin data, basic aspects of the concept and selection of OITB services)
- **10 pages proposal** (technical and market approach and innovation aspects)

LightMe Open Call platform at:
https://www.lightme-oie.eu/en/normal/Open_Call





LightMe Open Call - Proposal

C1 Pilot Lines:

The LightMe project provides access to 6 pilot lines. More information about the Pilot Lines can be found here: LIGHTME (lightme-ecosystem.eu)

- *High Pressure Die Casting*
- *Low Pressure Die Casting*
- *Green Sand Casting*
- *Metal Wire Additive Manufacturing*
- *Powder Deposition Additive Manufacturing*
- *Powder Metallurgy – Spark Plasma Sintering*

C2. Monitoring and process control services

This group of services provides support in the pilot lines and mainly concerns activities related to the ensurance of products' quality and process control. (LIGHTME (lightme-ecosystem.eu))

Process Monitoring

- *Scanning electron microscopy*
- *Atomic force microscopy*
- *White light Interferometry*
- *Scatterometry*
- *Diffractometry*
- *Confocal microscopy*
- *Process Control*
- *Machine learning*

C3. Testing and Environmental

The services of this group concern the characterization of the produced materials as well as the environmental assessment of the new materials (LIGHTME (lightme-ecosystem.eu))

- *Structural Characterization*
- *Functional properties testing*
- *DNT inspection for additive manufacturing*
- *LCA/LCC*

C4. Modelling

The services of this group support the development phase via process modelling and simulation. Based on the production method you have selected in the Pilot Line you will follow the corresponding modelling service. (LIGHTME (lightme-ecosystem.eu))

- *Casting processes modelling*
- *Additive Manufacturing processes modelling*
- *SPS processes modelling.*

C5. Market uptake

These services are important for the compliance of the new materials and products with existing regulatory framework (LIGHTME (lightme-ecosystem.eu))

- *Standardization and Regulatory compliance*
- *Environment and worker's safety services*
- *Consulting services on nanosafety*

C6. Innovation management

In this last group a series of services dedicated to innovation management and IPR are offered (LIGHTME (lightme-ecosystem.eu))

- *Business plan development*
- *Market assessment*
- *Patent search and technology landscape assessment*

Applicants should select at least one service from each Building Block

A. Excellence

a. Industrial need and challenges to overcome: Describe the motivation for developing the new product/material and the main challenges that need to be overcome for achieving the scale up. (~1 page)
b. Objectives: Provide the objectives of the project in a quantifiable manner. (~half page)
c. Background of the concept – technological insight: Provide details on the maturity of the technology and the main milestones that have been achieved so far. Please not the technology should be already in TRL 4-5. (~1,5 page)
d. Role of LightMe OITB service: Describe the main services of the LightMe OITB that needs to be received for the upscale of the technology as well the desired output. Please note that at least one service from each group of services should be selected. (~1 page)

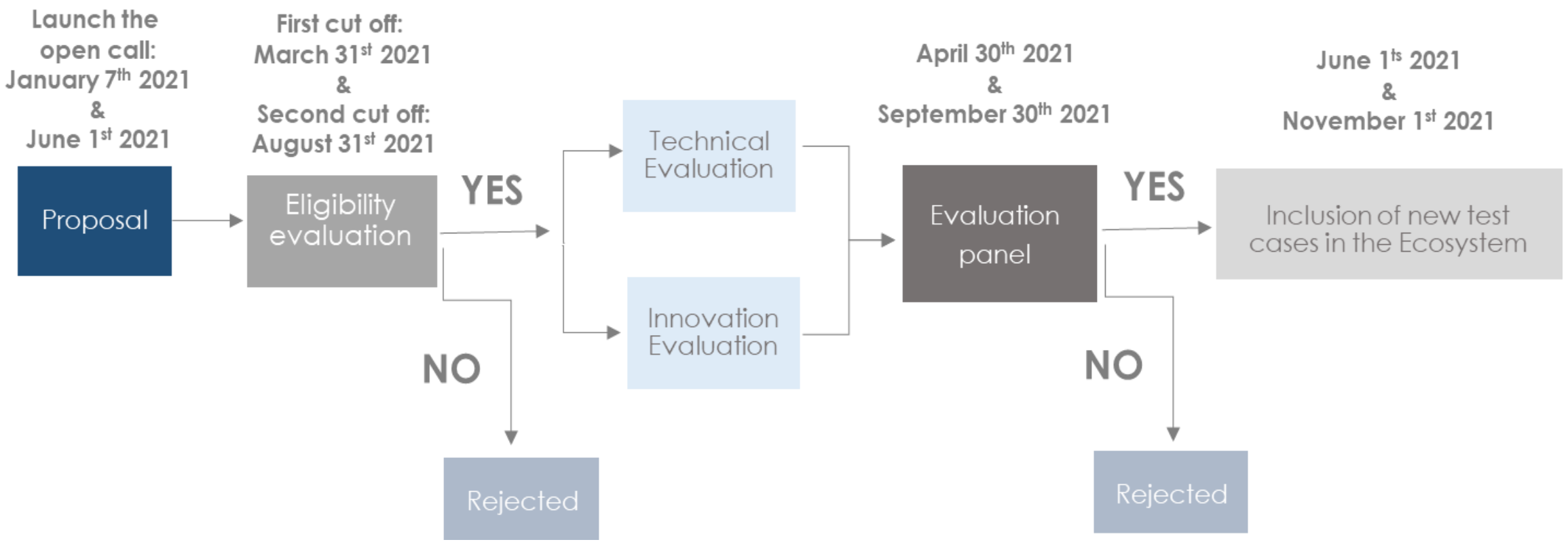
B. Implementation

a. Technical Workplan: Describe the main steps for the technical upscaling of the product/material in reference to the available services of the OITB. Moreover, describe the necessary tests for the validation of the product/materials (~1,5 pages).
b. Expertise and resources to be utilized: Mention the main expertise and background knowledge required for the development of the project as well as briefly the resources (e.g. materials, equipment etc). (~1 page)
c. Risk management: Provide the main risks for the proper implementation of the project (~half page).

C. Impact

d. Key Exploitable Results: Describe the main expected results of the projects that can be exploited (~half page).
e. Market positioning: Briefly provide the unique selling points of the new products/materials, the addressed markets and the market expectations. (~1,5 page)
f. Other expected impacts: Describe other social, environmental, and technological impact of the new product/material. (~half page).

LightMe Open Call - Evaluation Process



Evaluation Criteria

- Technical advance
- Relevance on the call objectives
- Feasibility of the project to progress in the TRL scale from 4-5 to TRL 6-7
- Feasibility to be carried out by the LightMe Ecosystem alone or with external contribution from other Ecosystems clustered under Lightweight, nano-enabled multifunctional composite materials and components
- Feasibility regarding research and development and innovation (R&D&I)
- Business viability
- Expertise and resources

LightMe Open Call - Implementation

What we offer

- Access to the selected pilot line(s) and upscaling of the product
- Support with technical services (e.g. modelling, testing & characterization)
- Consultancy and mentoring in non-technical services
- Networking in the framework of OITB Ecosystem
- Success story promotion

What we don't offer

- No cascading funding from the project
- Cost and origin of raw materials should be analyzed in the proposal

Cost Estimation of Services: 80.000 – 150.000€

Intellectual Property Rights (IPR) – Confidentiality

- All parties (including both the LightMe OITB partners and the Open Call applicants) will exhaustively identify their background knowledge assets that will bring to the project and will provide access rights for the cooperative implementation of the project.
- Ownership of project results (including joint results generated by two or more partners) will belong to the parties having generated them.
- Successful applicants will sign an NDA with the LightMe OITB partners covering all aspects of confidentiality.

LightMe Open Call - Dates

Important dates

- **7th January 2021:** Announcement of the Open Call.
- **31st March 2021:** First cut off
- **30th April 2021:** Evaluation and Selection of 4 new test cases
- **1st June 2021**: Inclusion of 4 new test cased in the Ecosystem
- **31st August 2021:** Second cut off
- **30th September 2021:** Evaluation and Selection of 4 additional new test cases
- **1st November 2021:** Inclusion of 4 additional new test cases in the Ecosystem

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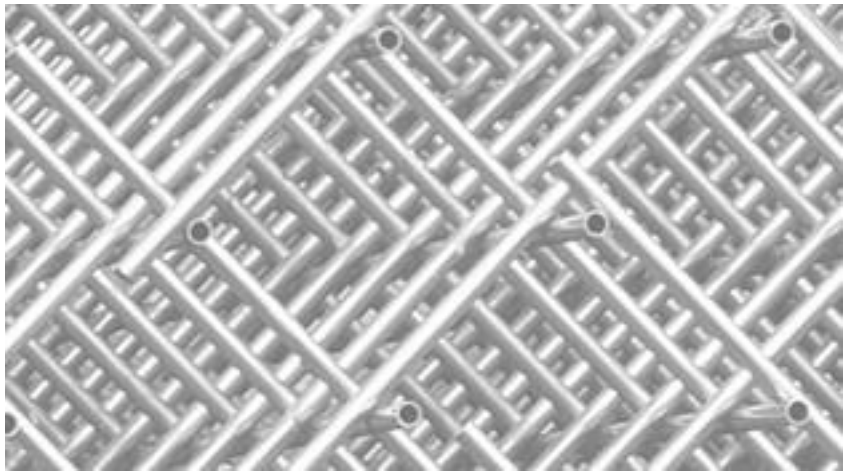

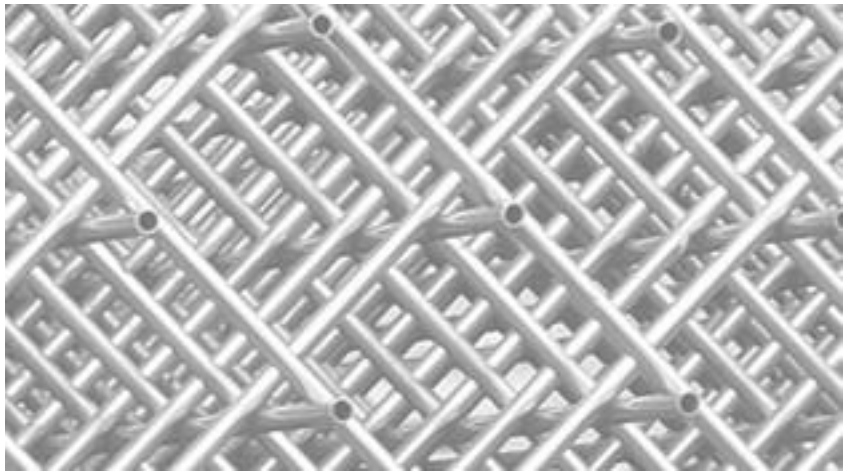

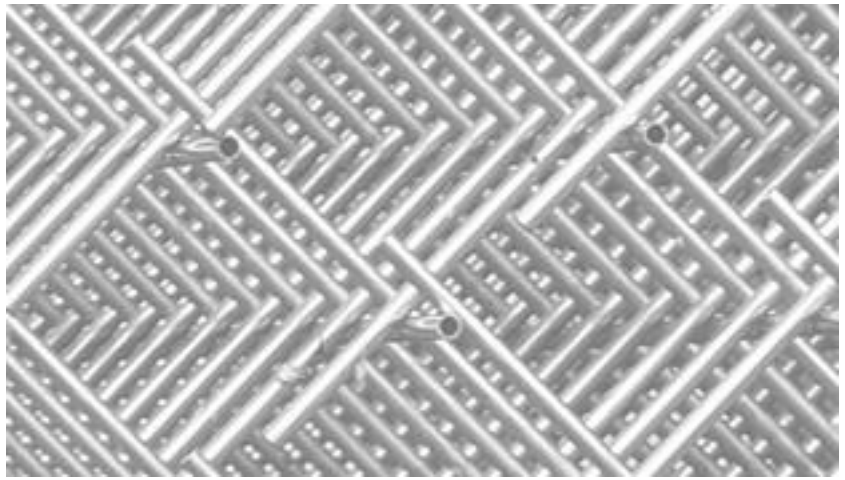

Thank you for your attention

Coordination contact: ***Prof. Luca Magagnin***

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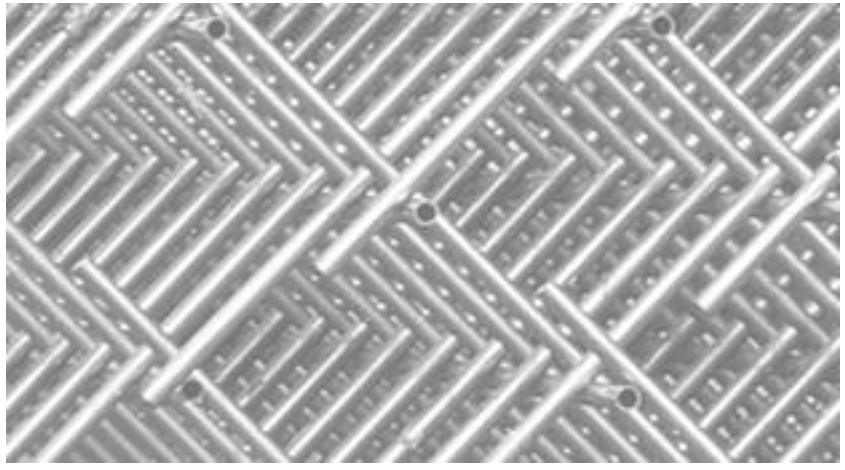
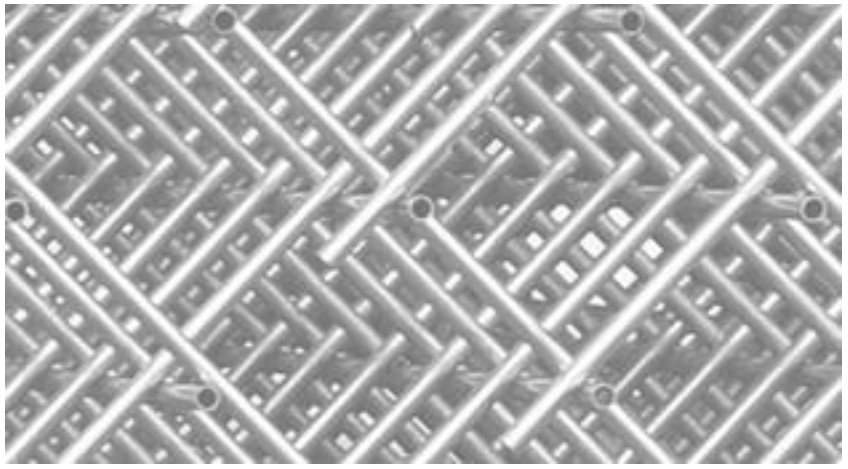
https://lightme-ecosystem.eu/





This project has received funding from the Industrial Technologies **Advanced Materials and Nanotechnologie**s under the European Union's Horizon 2020 innovation programme under the grand agreement number **814552.**

European Commission | Horizon 2020 European Union funding for Research & Innovation