

# Partnering Opportunity

Profile status : Published

## Research Development Request

### H2020 M-ERA.NET call 2020 – Development of strong and light weight pallets from sustainable composite materials

#### Summary

*University research institute from Latvia is seeking partners for M-ERA.NET project. Objective of the project will be development of pallets from sustainable composite material, produced from renewable (flax or hemp fibres) and recycled (thermoplastic polymers) resources, progressing from TRL2 to at least TRL4. Partners are sought for production of fibre mats/compounds, mathematical modelling, optimisation of pallets, coordination of the project, and eventually final product manufacturer.*

Creation Date	04 May 2020
Last Update	07 May 2020
Expiration Date	05 June 2020
Reference	RDLV20200504001
Public Link	<a href="https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/af2b1859-fdfd-4466-862b-90866a25e5cc">https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/af2b1859-fdfd-4466-862b-90866a25e5cc</a>

#### Details

##### Description

The pallet market size in Europe has the potential to grow by 407.4 million units during 2020-2024 with accelerating growth momentum [<https://www.technavio.com/report/pallet-market-in-europe-industry-analysis>]. Preliminary feasibility study demonstrated that replacing the traditional pallet materials such as wood by bast fibre/polymer matrix composite would markedly reduce the weight of a pallet while retaining the strength and durability. Thus, both cost and energy efficiency of transportation industry would be enhanced.

In the project is planned the development of design and manufacturing technology for a new type of transport pallet. It is expected that the pallet will be produced by hot pressing in of a commingled/compounded natural fibres (flax or hemp) and recycled thermoplastic polymer. Optimization of the pallet shape and composition of the fibre/matrix system will be performed based on micromechanical modelling by numerical finite element method (FEM) and mechanical tests of the composite material and pallet prototypes. The pallet developed will be tested also for compliance with the EU standards.

The research institute from Latvia performs research in the fields of mechanics of materials - deformation processes, including long-term deformation, mechanical integrity of materials, applications of composite materials in mechanical engineering and construction, composite structures, effects of external environmental factors on the mechanical properties of materials, prediction methods for long-term properties, non-destructive testing methods, and technologies of composite materials. In the field of composite materials, the institute has long term traditions from the design and development of composite shells for airspace applications to the development and prototype designing of multi-layer composite roadside barriers.

The consortium of the planned project will consist of the project coordinator, technology developer (this activity will be performed by the institute from Latvia), provider of commingled/compounded bast fibre/recycled polymer materials, performer of mechanical (static, fatigue, creep) structural testing of pallets, provider of material, structural modelling, and eventually - the potential product manufacturer, who will work further with the technology developer.

It is planned to submit a pre-proposal of the project to M-ERA.NET program Call 2020 in the thematic area "High performance composites" by the deadline of 16 June 2020.

Deadline for expression of interest – 5 June 2020.

Duration of the project – 36 months.

## Advantages and innovations

The bast fibre/recycled thermoplastic composite material pallets being lighter and more sustainable than analogues will save a lot of resources and lessen environmental footprint of transport industry / community.

## Stage of development

Proposal under development

## IPR Status

Secret Know-how

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## Keywords

### Technology

01003016	Simulation
02002005	Forming (rolling, forging, pressing, drawing)
02007005	Composite materials
02007014	Plastics, Polymers
02007020	Biobased materials

### Market

08001004	Fibre-reinforced (plastic) composites
08001006	Processes for working with plastics

08003007

Other industrial equipment and machinery

09001007

Other transportation

**NACE**

M.72.1.9

Other research and experimental development on natural sciences and engin

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**Network Contact**

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**Issuing Partner**

ZACHODNIOPOMORSKI UNIWERSYTET TECHNOLOGICZNY W SZCZECINIE

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**Open for EOI:**     **Yes**

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**Dissemination**

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**Relevant sector groups**

Bio Chem Tech  
Materials

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**Client**

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**Type and Size of Organisation Behind the Profile**

University

**Year Established**

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## Already Engaged in Trans-National Cooperation

Yes

## Languages Spoken

English  
Latvian

## Client Country

Latvia

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## Partner Sought

### Type and Role of Partner Sought

The type of partner sought - any organisation eligible for participation in M-ERA.NET Call 2020: <https://m-era.net/joint-calls/joint-call-2020/participating-countries-regions-call-2020>.

One of the following tasks to be performed by the partner sought:

- provider of bast fibre/thermoplastic polymer commingled/compounded materials;
- numerical modelling of composite material and shape optimization of the pallet;
- testing (static, fatigue, creep) of pallets;
- eventually - producer of the final product.

### Type of Partnership Considered

Research cooperation agreement

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## Program - Call

### Framework Program

H2020

### Call title and identifier

M-ERA.NET Call 2020

### Submission and evaluation scheme

Two-stage submission scheme.

### Coordinator required

Yes

### Deadline for EOI

05 Jun 2020

**Deadline of the Call**

16 Jun 2020

**Weblink to the call**

<https://m-era.net/joint-calls/joint-call-2020>

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**Attachments**

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