

AMULET: Clean and high-performance machining of composite and light metal alloy stacks

Summary

Profile type	Company's country	POD reference
Research & Development Request	Slovenia	RDRSI20220606010
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Tomaz Lutman	6/6/2022 6/6/2023	06/06/2022

General Information

Short summary

Slovenian university active in machining processes is looking for SMEs to apply to AMULET call and provide solution to the following challenge. The new carbon fibers reinforced plastics, ceramic matrix composites and Ti/Mg alloys are bringing with also challenges how they can be more sustainably machined. The solution has to meet higher performance, higher quality in combination with more health and environmental acceptable solutions – no oil-based emulsion usage.

Full description

The new carbon fibers reinforced plastics (CRFP), ceramic matrix composites (CMC) and Ti/Mg alloys are bringing with also challenges how they can be more sustainably machined, in individual or stack applications. The solution has to meet higher performance, higher quality in combination with more health and environmental acceptable solutions – no oil-based emulsion usage.

Research group at the Slovenian university is specialized in dynamic behaviour of machining processes, cryogenic machining, sustainable development, diagnostics and control in machining. They are looking for two or three SMEs which would address the following scopes and objectives.

Scope:

- Higher productivity
- Lower machining/manufacturing costs

- Substitution of oil-based emulsion
- Clean and dry machining process (especially in CRFP materials this improves the functionality of the produced parts)

Objectives:

- Find the solution for novel machining/processing of light weigh metals (Ti alloys, Mg alloys, Al alloys)
- Find the solution for novel machining/processing of CMC materials (C/C–SiC) and stuck structures with metals (i.e. Ti)
- Find the solution for novel machining/processing of CFRP materials and stuck structures with metals (i.e. Ti)

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Advantages and innovations

Stage of development

Concept stage

Sustainable Development goals

• **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

With the support of AMULET matchmaking activities or on their own, interested SMEs have to form micro-consortia of 2 or 3 SMEs, to prepare the solution to the specific innovation challenge and submit it through the AMULET application form.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **SME 11-49**
- **SME <=10**
- **SME 50 - 249**

Dissemination

Technology keywords

- **02007003 - Ceramic Materials and Powders**
- **02007005 - Composite materials**
- **02007010 - Metals and Alloys**

Targeted countries

- **World**

Market keywords

- **08001004 - Fibre-reinforced (plastic) composites**
- **08001006 - Processes for working with plastics**
- **08001015 - Other speciality materials**
- **08001013 - Ceramics**

Sector groups involved

- **Materials**

AMULET: Modular battery pack for Li-Ion technology

Summary

Profile type	Company's country	POD reference
Research & Development Request	Slovenia	RDRSI20220606013
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Tomaz Lutman	6/6/2022 6/6/2023	06/06/2022

General Information

Short summary

Slovenian producer of Li-Ion battery packs is looking for solution to the following challenge. Main purpose of the new modular battery pack is to design a product, that will provide a strong and lightweight base for modular battery pack assembly.

Call: H2020 AMULET cascade financing, budget 120.000 EUR, deadline 30.6.2022

Full description

Slovenian company stands for durable, powerful and innovative batteries for industrial and automotive sectors. The company is looking for two or three SMEs which would address the following scopes and objectives within AMULET Open call.

The company is developing new modular battery packs for Li-Ion technology and for this purpose, and is looking for new designs with advanced materials, that could improve the quality and durability of the battery housing.

- The new housing design will be used in different applications, ranging from material handling batteries, to stationary applications for energy storage.
- To ensure longevity for the product and to extend its life expectancy, the new housing must fulfil special requirements, that are described in objectives.
- The battery housing must fulfil requirements described in Ecodesign directive (2009/125/EC).
- The company is looking for SMEs, that have extensive knowledge in advanced materials and product design.

Objectives:

- New product design, that fits required dimensions.
- Lightweight product.
- Easy assembly and disassembly.
- Product must sustain 300kgf on prismatic cell walls.
- Thin side walls for easy cells insertion.
- Product design prepared for automatic assembly.
- Use of recyclable or reusable materials is advantageable.

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Advantages and innovations

Stage of development

Concept stage

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

With the support of AMULET matchmaking activities or on their own, interested SMEs have to form micro-consortia of 2 or 3 SMEs, to prepare the solution to the specific innovation challenge and submit it through the AMULET application form.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **SME 50 - 249**
- **SME 11-49**
- **SME <=10**

Dissemination

Technology keywords

- **02007014 - Plastics, Polymers**
- **02007005 - Composite materials**
- **02002005 - Forming (rolling, forging, pressing, drawing)**

Targeted countries

- **World**

Market keywords

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

Sector groups involved

- **Materials**

AMULET: Electric double layer capacitors with anodized aluminum foil

Summary

Profile type	Company's country	POD reference
Research & Development Request	Slovenia	RDRSI20220606015
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Tomaz Lutman	6/6/2022 6/6/2023	06/06/2022

General Information

Short summary

Slovenian producer of electric double layer capacitors (EDLC) is looking for solution to the following challenge. Challenge is to develop EDLC capacitors with anodized aluminum foil. In combination with a suitable electrolyte, it has a higher specific surface area, which in turn allows us to have higher capacitance values. By achieving higher capacitance values with less material, we are bringing lightweighting to the field.

Full description

Slovenian company is a globally recognized provider of intelligent industrial solutions and cutting-edge electrotechnical products. The company is looking for two or three SMEs which would address the following scopes and objectives within AMULET Open call.

The basis of this challenge is to create a product, an electric double layer capacitor (EDLC) capacitor that has an anodized aluminum foil. However, we must not forget that the capacitor is made from several different components and not just an anodized aluminum foil, and all components work together simultaneously to get the best capacitance values. Among these components, high importance is given to the cohesion between the anodized aluminum foil and electrolyte. Challenge is to develop EDLC capacitors with anodized aluminum foil. In combination with a suitable electrolyte, it has a higher specific surface area, which in turn allows us to have higher capacitance values. By achieving higher capacitance values with less material we are bringing lightweighting to the field of capacitors as well by reducing the materials and implementing new modern material CO2 emissions are reduced as well as new production

technologies with aiming to reduce CO2 emissions will be developed and implemented.

The company has chosen the material for the heart of the capacitor - the capacitor roll as aluminum. The metal itself is very reactive and spontaneously forms a thin transparent oxide layer, which provides great stability. The oxide layer has the properties of a dielectric, and its surface is porous, which increases its active surface. Therefore, the company wants to use it as a dielectric, and with its properties significantly increase the capacitance of the capacitor at the same dimensions. It is possible to form an oxide layer to the correct thickness and porosity by various electrochemical processes. This allows us maximum capacity per unit volume. Therefore, in the field of technology, it will be necessary to develop the process of anodizing the aluminum foil to gain the required specific active surface needed.

In the presence of a layer of aluminum oxide formed on the anode foil and acting as a dielectric, a capacitor with a high capacitance value is obtained. In this case, the electrolyte has a cathode function. The basic properties of the electrolyte are electrical and ionic conductivity, chemical stability and compatibility with other capacitor components, superior impregnation characteristics, low viscosity and good surface tension.

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Advantages and innovations

Stage of development

Concept stage

IPR Status

No IPR applied

Sustainable Development goals

• **Goal 9: Industry, Innovation and Infrastructure**

Partner Sought

Expected role of the partner

With the support of AMULET matchmaking activities or on their own, interested SMEs have to form micro-consortia of 2 or 3 SMEs, to prepare the solution to the specific innovation challenge and submit it through the AMULET application form.

Type of partnership

Type and size of the partner

Research and development cooperation agreement

- SME 11-49
- SME <=10
- SME 50 - 249

Dissemination

Technology keywords

- **02007015 - Properties of Materials, Corrosion/Degradation**
- **02007010 - Metals and Alloys**

Targeted countries

- **World**

Market keywords

- **08001012 - Speciality metals (including processes for working with metals)**
- **08001023 - Other chemicals and materials (not elsewhere classified)**
- **08001020 - Electronic chemicals**

Sector groups involved

- **Materials**

AMULET: Contact pads in low voltage switchgear products

Summary

Profile type	Company's country	POD reference
Research & Development Request	Slovenia	RDRSI20220606017
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Tomaz Lutman	6/6/2022 6/6/2023	06/06/2022

General Information

Short summary

Slovenian producer of electric switchgear is looking for solution to the following challenge. Improving the balance of conductivity in low voltage switchgear products by improving existing or providing alternative materials (metal or ceramics).

Call: H2020 AMULET cascade financing, budget 120.000 EUR, deadline 30.6.2022

Full description

Slovenian company is a globally recognized provider of intelligent industrial solutions and cutting-edge electrotechnical products. The company is looking for two or three SMEs which would address the following scopes and objectives within AMULET Open call.

The company wants to improve the materials (currently used are AgSnO₂ and AgW) with which it achieves the mechanical properties required in low voltage switchgear, especially by improving the balance of transportability by changing the hardness, strength, resistance of contact surfaces to welding in electric arcs, weight and CO₂ friendliness.

Scope: When we are switching load, contact pads hit with each other and electric arc is created. This electric arc burns out contact pads and lifespan of the switch is shortened.

The company wants to develop materials that will be more resistant to contacts, while the company wants to meet the new market requirements for the implementation of new advanced materials and internal and external needs to

reduce CO2 footprint.

The standards IEC/EN 60947-4-1 and IEC 62955 specify:

- short-circuit tests (3000 A with pre-fuse): At short-circuit tests very high temperatures are generated which can melt or evaporate copper and the contact material/pads.
- switch on test at full load (high switching currents, high inrush current): electric arcs are created burning down the contact material.
- allowable heat on the contacts: Contact material such as AgW can have higher contact resistance causing non-conduction through the pole and overheating.
- switches' mechanical durability: 3 million cycles with no load.

Objectives:

- Improving the balance of conductivity mechanical properties (hardness, strength, resistance of contact surfaces to welding in electric arcs and CO2 emissions)
- Improving technology of production targeting CO2 footprint reduction
- utilization with standard category AC-1 and category AC-3

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Advantages and innovations

Stage of development

Concept stage

IPR Status

No IPR applied

Sustainable Development goals

• Goal 9: Industry, Innovation and Infrastructure

Partner Sought

Expected role of the partner

With the support of AMULET matchmaking activities or on their own, interested SMEs have to form micro-consortia of 2 or 3 SMEs, to prepare the solution to the specific innovation challenge and submit it through the AMULET application form.

Type of partnership

Type and size of the partner

Research and development cooperation agreement

- SME <=10
- SME 11-49
- SME 50 - 249

Dissemination

Technology keywords

- **02007015 - Properties of Materials, Corrosion/Degradation**
- **02007010 - Metals and Alloys**
- **02007003 - Ceramic Materials and Powders**
- **02007011 - Non-ferrous Metals**
- **02002008 - Jointing (soldering, welding, sticking)**

Targeted countries

- **World**

Market keywords

- **08001013 - Ceramics**
- **08001012 - Speciality metals (including processes for working with metals)**

Sector groups involved

- **Materials**

AMULET: Lightweight active grid for replacement of lead alloy grids

Summary

Profile type	Company's country	POD reference
Research & Development Request	Slovenia	RDRSI20220606019
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Tomaz Lutman	6/6/2022 6/6/2023	06/06/2022

General Information

Short summary

Slovenian producer of batteries is looking for solution to the following challenge. Replacement of lead alloy grid with lightweight material with better conductivity and resistant in dilute sulfuric acid. Seeking for lightweight material for active grid with electrical conductivity and resistant in dilute sulfuric acid.

Call: H2020 AMULET cascade financing, budget 120.000 EUR, deadline 30.6.2022

Full description

Slovenian company stands for durable, powerful and innovative batteries for industrial and automotive sectors. The company is looking for two or three SMEs which would address the following scopes and objectives within AMULET Open call.

Replacement of lead alloy grid with lightweight material with better conductivity and resistant in dilute sulfuric acid. Seeking for lightweight material for active grid with electrical conductivity and resistant in dilute sulfuric acid. Achieving adhesion with active material to collect electrons from chemical reactions in active mass in batteries electrodes.

Objective is to develop a new lightweight active grid for battery electrodes with:

- Higher energy density (weight reduction)
- Reduce the use of lead
- CO2 emissions reduction

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project (financed within the Horizon 2020 INNOSUP-01-2018-2020 call). If an organization (eligible are SMEs only) expresses interest before the closing date, it will be guided towards the AMULET project website (<https://amulet-h2020.eu/>), where all additional information and guidelines for submission are published. With the support of AMULET matchmaking activities or on their own, interested SMEs have to form micro-consortia of 2 or 3 SMEs, to prepare the solution to the specific innovation challenge and submit it through the AMULET application form.

Advantages and innovations

Stage of development

Concept stage

IPR Status

No IPR applied

Sustainable Development goals

• **Goal 9: Industry, Innovation and Infrastructure**

Partner Sought

Expected role of the partner

With the support of AMULET matchmaking activities or on their own, interested SMEs have to form micro-consortia of 2 or 3 SMEs, to prepare the solution to the specific innovation challenge and submit it through the AMULET application form.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **SME 11-49**
- **SME 50 - 249**
- **SME <=10**

Dissemination

Technology keywords

- **02007015 - Properties of Materials, Corrosion/Degradation**
- **02007003 - Ceramic Materials and Powders**
- **02007005 - Composite materials**

Market keywords

- **08001013 - Ceramics**
- **08001020 - Electronic chemicals**
- **08001015 - Other speciality materials**

Targeted countries

- **World**

Sector groups involved

- **Materials**

AMULET: Self-healing mortar for external thermal insulation composite facade system

Summary

Profile type	Company's country	POD reference
Research & Development Request	Slovenia	RDRSI20220606020
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Tomaz Lutman	6/6/2022 6/6/2023	06/06/2022

General Information

Short summary

Slovenian producer of building materials is looking for solution to the following challenge. If facade final coats are cracked rain water penetrates inside the facade system, which reduces thermal insulation properties of the external thermal insulation composite facade system and can damage also the buildings load-bearing structure. The developments of new materials, like self- healing materials, are highly needed to prolong facade service life.

Full description

Slovenian company is successful international corporation with tradition in the production of paints, coatings, mortars and insulation materials, which comprises twelve subsidiaries and operates in more than thirty markets.

External thermal insulation composite facade system (ETICS) is assembled from different materials and each has its own specific function. Basic function of Base coat is to bear stresses due to thermal expansions and possible impacts (e.g. hail, ball...). Usually base coat is made by cementitious mortars in thickness 3 to 5 mm and reinforced with glassfibre mesh. Quite common cracking of base coat occurs (up to 0.5 mm) together with decorative top coat before end of life, which is usually considered to be 25 years.

Concrete self-healing solutions are already on the market, but self-healing solutions for cement-based mortars are still not well defined. From literature the known self-healing solutions are: superabsorbent polymers (SAPs), shape memory polymers (SMP), bacteria- based self-healing, encapsulated healing agents (macro and microcapsules), engineered fibres, which provide crack closures for crack widths greater than 0.15 mm; while shape memory composites (SCMs) seal smaller cracks widths (< 0.15 mm).

Scope of the project would be to develop self-healing mortar for base coat that in the case when cracking occurs cracks up to 0.2 to 0.3 mm would self-filled and prevent water to penetrate deeper into the facade system. The company prefers the solutions with microencapsulated agent, which is present in mortar and it is released when crack occurs. Solution with SCMs and expansive minerals as fly ash, silica fume, BFS, CSA, bentonite clay or any other material which make a strong bond between the crack faces... It would be desired using waste material from local productions, that the company can contribute to circular economy and also, the company would like to contribute to reducing pollution. The company is seeking self-healing solution for achieving crack-free mortars in normal conditions (without further heating or compressing). The know how should include the knowledge about the effect of self-healing additive on the properties of cement mortar especially durability improvements. Challenge-giver would provide basic formulation of the mortar.

Objectives:

- To develop formulation of mortar with self-healing properties.
- To quantify properties of developed mortar (chemical, mechanical, applicable, healing).

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Advantages and innovations

New self-healing formulation of a base coat for ETICS to enable sealing of cracks and prevent penetration of water into the insulation layer.

Stage of development

Concept stage

Sustainable Development goals

• **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

With the support of AMULET matchmaking activities or on their own, interested SMEs have to form micro-consortia of 2 or 3 SMEs, to prepare the solution to the specific innovation challenge and submit it through the AMULET application form.

Type of partnership

Type and size of the partner

Research and development cooperation
agreement

- SME 50 - 249
- SME <=10
- SME 11-49

Dissemination

Technology keywords

- **02007003 - Ceramic Materials and Powders**
- **02007002 - Building materials**
- **02007005 - Composite materials**

Targeted countries

- **World**

Market keywords

- **08001015 - Other speciality materials**
- **08001007 - Coatings and adhesives manufactures**
- **08001013 - Ceramics**

Sector groups involved

- **Materials**

Italian regional airport willing to participate in a Sesar3 project proposal to develop tools to digitalize airport process

Summary

Profile type	Company's country	POD reference
Research & Development Request	Italy	RDRIT20220608006
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Daniela CENA	8/6/2022 8/6/2023	06/08/2022

General Information

Short summary

An Italian regional airport is willing to participate as a partner in projects answering SESAR call to develop research and integration between airport operations and ATC. The Airport has developed a tool to manage ICAO "Global Report Format" methodology and intends to develop a new tool to digitalize airport processes such as: Industrial Research & Validation for Connected and Automated ATM or Fast Track Innovation and Uptake Multi-modality and Passenger Experience. Research cooperation sought.

Full description

The company is the management firm of a regional airport (4 million passengers per year) that is part of a network strongly committed to environmental protection and to climate change fighting. The airport is part of a European project funded by Horizon2020 call "Green Airports and ports as multimodal hubs for sustainable and smart mobility".

The other strong research field activity is related to digitalization.

The Airport is furthermore strongly committed to quality improvement processes, aiming at confirming and improving the level of services offered in accordance with the technical, infrastructural and safety requirements provided in the current airport regulations and standards, in order to meet the expectation of airport stakeholders.

The European Union Aviation Safety Agency (EASA) applies strict standards to provide European citizens with the safest and most environmentally friendly aviation systems in the world. EASA is responsible for setting up the rules,

guidelines and standards for all safety and environmental aspects of civil aviation.

EASA constantly adapts to the demands of new technologies and the latest trends in particular for aviation strategy integration.

In this framework, airports must be connected to the ATM in a standardized way in order to comply with the European Air Traffic Management (ATM) Master Plan within the framework of the EU aviation strategy and Single European Sky (SES) . Moreover, the Global Reporting Format (GRF) for the assessment and reporting runway surface conditions entered in force in EU on August 12nd 2021 and will be globally applied from November 04, 2021.

The Airport has developed a tool to manage ICAO (International Civil Aviation Organisation) "Global Report Format" methodology (called "AirportGRF") with own investment; the tool has been adopted already by 30 airports, thus it is on the market and already validated by the Italian Civil Aviation Authority.

This process copes with the new demanding EASA regulation, allows to perform researches on collected data and guarantees quality of aeronautical data, reducing human errors.

Based on the knowledge acquired during the Airport GRF project, the company now intends to develop a new tool to digitalize airport processes inside the framework of Horizon Europe SESAR coming calls (deadline October 13th) as for instance, but not limited to: Industrial Research & Validation for Connected and Automated ATM or Fast Track Innovation and Uptake Multi-modality and Passenger Experience.

These are in fact the main purposes of SESAR3 JU, aiming at creating a more efficient, secure and environmentally friendly management of air transport in Europe, enabled by the digital transformation.

The Airport would like to be partner of a consortium in order to contribute to develop tools to interface ground activities with ATM, ensuring safety and efficient regulation of ground traffic, the provision of the necessary information to flight crews for the efficient management of ground and airspace.

There is already another partner involved in the potential project; it is an innovative start-up developing autonomous guiding systems for drones through AI, which are used to monitor the de-icing operations.

The airport is interested to Research cooperation agreement to participate as partner in:

TOPIC ID: HORIZON-SESAR-2022-DES-IR-01-WA3-1

TOPIC ID: HORIZON-SESAR-2022-DES-IR-01-WA5-1

Advantages and innovations

The development of GRF tools responds to the requirements set by European new regulations to connect airports to the ATM in a standardized way.

The GRF tool is easily scalable and adaptable for airports from any country and it is in particular suitable for any airports.

Other advantages:

- Share clear information with all the stakeholders involved;
- Reduce errors in data filing and transmission to ATS and AIS;
- Alert operators for specific conditions (e.g. SNOWTAM update needed);
- Guarantee data quality and integrity;
- Reduce work load for operators during winter operations;
- Define a suitable standard for data sharing with ATS and AIS for ATIS and SNOWTAM;
- Easily handle additional information in SNOWTAM (e.g. contaminant type and depth on TWY and APRON).

Already approved by the Italian Civil Aviation Authority, it has been adopted by 30+ airports.

Stage of development

Under development

Sustainable Development goals

• **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

The Airport is looking for partners to develop a tool to connect airports to the ATM in a standardized way as requested by European regulations. Preferably other airports, but partners can also be SMEs, companies, research organisations. A coordinator is sought.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **Big company**
- **SME 11-49**
- **SME 50 - 249**

Dissemination

Technology keywords

- **02011007 - Guidance and control**
- **02011001 - Aeronautical technology / Avionics**
- **02008001 - Air Transport**

Targeted countries

- **World**

Market keywords

- **09001001 - Airlines**
- **09001006 - Airfield and other transportation services**

Sector groups involved

- **Aeronautics, Space and Dual-Use Technologies**
- **ICT Industry and Services**

Wet lay-up - vacuum bag process optimization sought for lightweight aircraft structures

Summary

Profile type	Company's country	POD reference
Research & Development Request	Hungary	RDRHU20220608011
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	
Contact Person	Term of validity	Last update
Gergely CSÁSZÁR	8/6/2022 8/6/2023	06/08/2022

General Information

Short summary

A Hungarian aircraft producer company is looking for wet lay-up/vacuum bag process optimization for lightweight aircraft structures, comparing different carbon fiber fabrics and core materials regarding weight and mechanical properties. This research and development request is part of an AMULET innovation challenge.

Full description

The Hungarian company is present in almost all of the continents. Based on acknowledged Hungarian aeronautical expertise and modern technologies they create attractive and economic aircraft to enable the widest range of people to find their personalized joy in flying.

Within the framework of this research and development request the company is searching for the followings.

Scope:

- Production optimization of carbon fiber reinforced epoxy parts for light-weight air-craft by wet lay-up/vacuum bag process to achieve maximal mechanical performance (tensile-, compressive-, flexural strength, modulus etc.)

Objectives:

- Objective 1: Producing test panels (monolithic and sandwich) for mechanical testing with wet lay-up technology, materials to be used:

- o 200 gsm carbon fiber woven fabric (aero grade)
- o 160 gsm carbon fiber woven fabric (aero grade)
- o 200 gsm carbon fiber biaxial non-woven fabric
- o 80 gsm UD carbon fiber fabric
- o 300 gsm UD carbon fiber fabric
- o Airex C-70 PVC foam (or equivalent) with 5 mm thickness
- o AHC-Hex-48 aramid paper honeycomb, 48 kg/m³ – 3,2 mm cell size, 8 mm thickness
- o MGS LR285 + MGS LH287 resin system
- Objective 2: Tests to be performed
 - o ASTM D3039, ASTM D6641, ASTM D3518, ASTM D5379, ASTM D790, ASTM D7249
- Objective 3: Comparing fiber volume fraction, mechanical properties according to standards above.
- Objective 4: Based on results, define optimal process parameters and lay-up.

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Advantages and innovations

Stage of development

Concept stage

IPR Status

Secret know-how

Sustainable Development goals

• **Goal 9: Industry, Innovation and Infrastructure**

Partner Sought

Expected role of the partner

With the support of AMULET partners' matchmaking activities or on their own, interested SMEs have to form micro-consortia of 2 or 3 SMEs, to prepare the solution to the specific innovation challenge and submit it through the AMULET application form.

Type of partnership

Type and size of the partner

Research and development cooperation agreement

- **SME 11-49**
- **SME 50 - 249**
- **SME <=10**

Dissemination

Technology keywords

- **02001 - Design and Modelling / Prototypes**
- **02011001 - Aeronautical technology / Avionics**
- **02011002 - Aircraft**

Targeted countries

Market keywords

- **08001001 - Plastic fabricators**
- **08001004 - Fibre-reinforced (plastic) composites**
- **08001018 - Polymer (plastics) materials**

Sector groups involved

Partner search for an Erasmus Plus project to foster strategic design skills development: clusters, business associations or any entity representing enterprises

Summary

Profile type	Company's country	POD reference
Research & Development Request	Spain	RDRES20220615001
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Jana Vavrinova	15/06/2022 15/06/2023	15/06/2022

General Information

Short summary

A Spanish regional public body is preparing an Erasmus Plus project aimed to create training resources for strategic designer profiles and the promotion of its incorporation in companies and organisations. It is searching for partners able to identify skills and training needs, to define new courses and extracurricular activities and test them through testing labs or pilots.

Full description

Based on an innovative co-creation methodology developed during a previous EU project, this proposal aims at working with public administration, vocational training centres, universities and business organisations from different regions of Europe to identify skills and training needs, taking into account current experiences, such as good practices that will be identified along all Europe. New courses and extracurricular activities will be designed and tested within the existing study programmes and dissemination activities will be organised to raise awareness of the profile among students, the business world and design professionals. A platform for sharing resources will be created.

Objectives:

- To complete the existing training offer, promoting a new and multidisciplinary approach to teaching and learning to

address current and future needs and to tackle the economic and social challenges of educational centres and companies.

- To contribute to recognise the relevance and role of the strategic designer profile, as well as its implementation in companies and organisations.
- To facilitate the co-creation of knowledge between higher education and vocational education and training, between the public sector and the business sector.
- To reduce barriers in the communication and interrelation between academic and professional spheres.
- Create new employability opportunities for young people and design professionals.
- To facilitate the exchange of experiences between entities from different regions.

Advantages and innovations

Stage of development

Sustainable Development goals

- **Goal 4: Quality Education**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

The consortium is looking for the following profiles to complete the partnership:

- Labour market actors: clusters, business organisations or any organization representing companies

The partners will participate in the different project tasks. They will collaborate in the context research (definition of the strategic designer profile, identification of good practices, identification of training needs by explaining companies' point of view). They will also cooperate in the design of innovative training resources together with the educational organizations to guarantee that needs and interests of companies are taken into account. Labour market actors will have an active role in the testing labs with the organization of training activities in the different regions and including an exchange of students. The whole consortium will organize different dissemination and communication activities.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **Other**

Dissemination

Technology keywords

- **11002 - Education and Training**
- **11008 - Creative services**

Targeted countries

- **World**

Market keywords

- **09003007 - Other services (not elsewhere classified)**

Sector groups involved

Spanish company is looking for a industrial partner to apply Mind4Machines Open call

Summary

Profile type	Company's country	POD reference
Research & Development Request	Spain	RDRES20220615002
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Yaneiza Mendez	15/06/2022 15/06/2023	15/06/2022

General Information

Short summary

Spanish company offer a modular plug&play solution to be able to bring logistics traceability to all levels, from industrial production to distribution, also facilitating collaboration and transparency between the different actors in the supply chain, combining IoT and Blockchain technology. They are looking for a industrial partner to apply Mind4Machines open call

Full description

Spanish company has developed a new technology called Blockchain of thing combining blockchain and internet of thing technology, adapting to multiple blockchains, avoiding the lock-in tactics of most of the current implementations.

Following the blockchain philosophy of independency and self-management, this solutions is "trustless": only the clients is in possession of their signature identity giving them full control and responsibility of the records they write in blockchain. This solution also provide different levels of privacy filters, protecting the data at any time and sharing the information only with the stakeholders of interest. All these features are integrated in a modular plug&play solution bringing logistics traceability to all levels, from industrial production to distribution, also facilitating collaboration and transparency between the different actors in the supply chain, guaranteeing the authenticity of the product or service and minimizing deployment costs.

They are looking for industrial partner for apply to Mind4Machines open call and help them to reduce the financial risk that involves integrating this type of disruptive technologies in their processes.

Advantages and innovations

Stage of development

Already on the market

IPR Status

Secret know-how

Sustainable Development goals

• **Goal 9: Industry, Innovation and Infrastructure**

Partner Sought

Expected role of the partner

The partner is going to include the technology as part of their digitalization process

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **SME 11-49**
- **Big company**
- **SME 50 - 249**

Dissemination

Technology keywords

Targeted countries

- **World**

Market keywords

- **08002003 - Process control equipment and systems**
- **08002006 - Numeric and computerised control of machine tools**
- **08002007 - Other industrial automation**

Sector groups involved

- **Mobility**
- **ICT Industry and Services**
- **Maritime Industry and Services**
- **Intelligent Energy**

The Lithuanian company is looking for a partnership to develop an in vivo implantable arterial blood pressure biosensor.

Summary

Profile type	Company's country	POD reference
Research & Development Request	Lithuania	RDRLT20220617006
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Deividas Zubrickis	17/06/2022 17/06/2023	17/06/2022

General Information

Short summary

A Lithuanian company specializing in medical devices is looking for a partner to create an implantable prototype of a medical device for continuous measurement of arterial blood pressure. Company is looking for industrial R&D partners under cooperation sought

Full description

Idea and conceptualization:

1. Minimally invasive implantable biosensor.
2. The physical dimensions of the sensor prototype already have been achieved, which are optimal for biological use, and an original in vivo implantation procedure has been developed.
2. During implantation, be individually calibrated with a reference invasive blood pressure measurement.
3. Biocompatible materials for in vivo implantation are used for the prototype.

Biosensor prototype development stage. The functionalized biosensor prototype is already manufactured using 3D printing technology (functional sensor parts are the size of dozens of microns) and are used elements of AM. Prototype is tested (> 1000K) in hemodynamic laboratory circuitry.

The sensor prototype has an energy harvesting feature.

The aim of the current stage is to perform a sensor prototype in vivo implantation and constantly to measure blood pressure (sheep) up to 1 month time.

An external microcontroller is prepared for the experiment, which will not be further developed.

In vivo experiment is scheduled in September- October 2022 in a project with the Biological Research Center of the

Lithuanian Health Sciences University.

During the experiment required by partner parameters of prototype sensor could be registered that would be serve in design and development of a prototype microcontroller with the NFC feature and extending to IoT.

Advantages and innovations

In the developed world, arterial hypertension is estimated to affect one in 4 men and one in 5 women. Often, patients with arterial hypertension do not feel symptoms, so the disease remains undiagnosed or is diagnosed late with complications. However, due to insufficient or inadequate monitoring of blood pressure, without taking into account changes in blood pressure during exercise and emotional exercise, the correction of blood pressure remains inadequate and insufficient. Looking at the recent epidemic-quarantine period, and the risk of recurrence when access to a doctor's consultation may be limited, remote arterial blood pressure monitoring and treatment correction may be effective and efficient in a variety of settings. The development of a implantable blood pressure measurement medical device would provide one of the most important human physiological parameters in real time. In the future, the treatment of hypertension could be objectively individualized.

Stage of development

Sustainable Development goals

- **Not relevant**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

The partner intends to contribute to the development of the technology.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **R&D Institution**

Dissemination

Technology keywords

• **06001013 - Medical Technology / Biomedical Engineering**

Market keywords

- **05004001 - Electromedical and medical equipment**
- **09003006 - Media related services**
- **05005021 - Medical computer sciences**
- **02007012 - Medical/health software**
- **05004004 - Medical instruments**

Targeted countries

- **World**

Sector groups involved

Italian company seeks partners specialized in audiovisual production and partners with expertise in education for participating in the call for proposal: Creative Europe - Innovation Lab.

Summary

Profile type	Company's country	POD reference
Research & Development Request	Italy	RDRIT20220617007
Profile status	Type of partnership	Targeted countries
PUBLISHED	Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Luca Picariello	17/06/2022 17/06/2023	20/06/2022

General Information

Short summary

An Italian company has developed an interactive app that aims to bring the new generations closer to classical music. The app wants to enable young users to intuitive learning and offers school teachers an innovative learning tool for distance and face-to-face lessons with interactive teaching materials. To participate in the Creative Europe – Innovation Lab call, the company is looking for partners specialized in audiovisual production and partners with expertise in education. Deadline: 07/09

Full description

To date, the world market for classical music education programs (both offline and online) is completely underdeveloped, and professional orchestras and opera houses are overwhelmed by the costs incurred in the education departments. Fortissimo responds to this market need with an online tool that consists of a digital app, a web portal with teaching materials and a digital concert hall, which once a year enables child-friendly moderated concert experiences even for schools that are far away from a concert hall. The first version of Fortissimo starts for the age group 6-7 in English, German, Italian, Polish and Croatian (soon will be added French and Spanish); other European languages and other age groups (3-5/8-10/11-15) will follow.

Fortissimo tries to reach its users via the education ministries and school authorities as well as via teachers, orchestras, opera houses and parents. A low-price license model guarantees the accessibility and at the same time the development of a sustainable business model.

Fortissimo is the first education project of this magnitude and is only possible through intercultural cooperation – the project is far too expensive for a single partner. To date, they have 14 partner institutions. With Fortissimo contributes to a future where children have full access to digital tools that enable them to learn differently, and in a playful way. Who does Fortissimo aim to?

Cultural institutions:

All European professional orchestras and opera houses have started to set up their own education departments in recent years because investing in young audiences has become indispensable for the future. The cultural institutions have recognized that they can only win this young audience with appropriate educational programs. However, the necessary financial resources are lacking for their implementation. A look into statistics gives a frightening picture: A European survey shows that only 33% of the population are interested in traditional cultural offers. Only a few are frequent visitors, more than half are non-visitors. According to the majority opinion, theaters should also take on social tasks, offering programs for children and young people (89%). Digital activities are missing.

Teachers:

The teaching staff, especially in elementary schools, is not trained in music education. Rather, German teachers, for example, often take on the subject of music. These teachers want to introduce the children to music and therefore need appropriate innovative teaching material that they can hardly or not find on the market. Unfortunately, the importance of music in the context of education is declining: Poland e.g. has not had music lessons for four years, or Italy has no school books for music.

Fortissimo responds to these needs and connects cultural and educational institutions with the aim of combining technological innovation, multimedia learning and live concerts. The target groups are divided into four areas: 3-5/6-7/8-10/11-15 years. At the launch 5 different programs will be available. This way the theatres can offer professional education tailored to a child-friendly musical experience without incurring any costs and teachers get professional teaching material that can be used for face-to-face teaching or distance learning.

In order to participate in the Creative Europe – Innovation Lab call, the LP is looking for organizations specialized in education as well as companies with skills in audiovisual production.

- Education partners: They will focus on bringing teachers and classes in contact with Fortissimo and disseminate the tool or include it in the own portfolio of teaching lessons.
- Audiovisual partners: They will focus on developing of audio-visual content in the app as well as in the teachers area (digital concert hall: recorded concerts with animated characters which explain and interact with the children who are assisting to the concerts at school; video tutorials for the teachers; etc.).

Advantages and innovations

The originality of the project lies in the fact that the content, skills and competences to be taught at school, primarily in the subject of music, are translated into digital instruments (specifically into an app and a web portal). Apps have not been used in the classroom to date. One of the main challenges of the project is therefore to bring innovation into schools: In the web portal the teachers have easy access to qualified teaching materials. The students, on the other side, learn skills in a playful way, associating learning with a positive experience, and they incorporate efficient learning strategies into their repertoire while playing (they can then easily transfer them to other areas). The parents, at least, have a sensible tool if they "quiet" their kids with their smartphones while visiting a cafe (these habits are now part of our social life and it is better if the kids play meaningful games). Comparable digital solutions on the market are missing. The project is built on three major pillars: content development is one of them; the technical feasibility and the usability in various school scenarios is the second (desktop vs mobile versions, outdated devices, social inclusion, needs and technical know-how of the teachers, etc.); and the third important area of innovation is the digital implementation of scientifically researched learning mechanisms (from brain research, neurolinguistics, behavioral sciences, hypnosis) and their wide-ranging application from childhood onwards. Implementing this in relation to the content and the technical requirements is a challenge.

They also pursue an innovative business model: in addition to the schools, which, with the exception of textbook publishers, are hardly ever present in any business model, we also create, for the first time, a (digital) education program that can be used by all cultural institutions (without any additional costs). After 2-3 years they have a wide range of different programs to choose from.

Stage of development

Available for demonstration

IPR Status

IPR granted

Sustainable Development goals

• **Goal 4: Quality Education**

Partner Sought

Expected role of the partner

Project partners will include organizations specialized in education as well as companies with skills in audiovisual production.

- Education partners: They will focus on bringing teachers and classes in contact with Fortissimo and disseminate the tool or include it in the own portfolio of teaching lessons.
- Audiovisual partners: They will focus on developing of audio-visual content in the app as well as in the teachers area (digital concert hall: recorded concerts with animated characters which explain and interact with the children who are assisting to the concerts at school; video tutorials for the teachers; etc.).

The consortium has already 14 partners for the project:

- 9 creative partners (opera houses, companies)
- 1 European umbrella organization for dissemination
- 1 technical company (app development)
- 1 communication company (design, wireframes)
- 1 energy company (to use the app framework for other contents)
- 1 project management support company (experienced in EU projects)

Type of partnership

Type and size of the partner

Research and development cooperation agreement

- **SME 11-49**
- **SME <=10**
- **Other**
- **SME 50 - 249**
- **Big company**

Dissemination

Technology keywords

- **01003004 - Computer Games**
- **01005001 - Cultural Heritage**
- **11002 - Education and Training**

Targeted countries

- **World**

Market keywords

- **02007007 - Applications software**
- **02007010 - Education software**

Sector groups involved

- **Creative Industries**

Media

Images



[fortissimo.png](#)

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