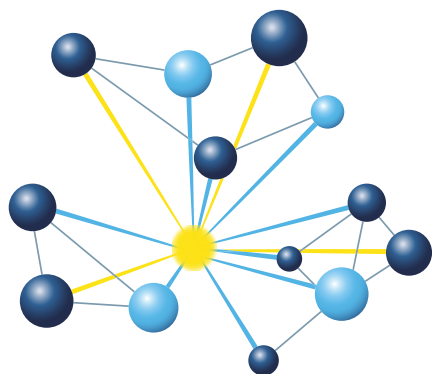


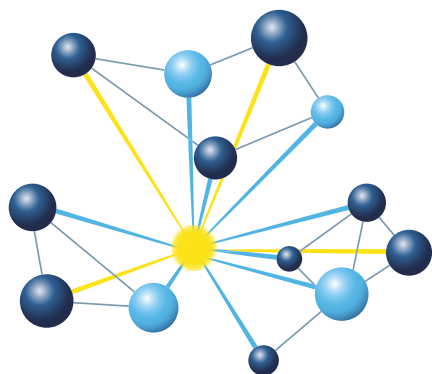


VANGUARD INITIATIVE

New growth through smart specialisation

VINNOVATE PROJECTS

Call 2024



VANGUARD INITIATIVE

New growth through smart specialisation

Blades Tidal Energy Mill 2.0 (BLATEM 2.0)

**The deployment of the next generation
of tidal stream turbine blades**

**A Vinnovate Call 2024 project,
funded by Wales and Galicia**

About the project

The BLATEM 2.0 project will improve the efficiency, durability and overall performance of tidal energy blades. It will refine the design and manufacturing processes for advanced control and monitoring systems of tidal mill blades. This project has the potential to transform the tidal energy industry, stimulate sector growth, strengthen supply chains, and provide new business opportunities within Europe. It aims to extend the lifespan and improve the reliability of tidal blades, reduce environmental impact by contributing to renewable energy growth.

Key activities include research in materials science, CFD simulations for blade design optimization, and utilizing Tidal Bladed software for load case analysis. The project will also develop a torque limiting system for blade protection and integrate smart sensors and IoT technologies for real-time monitoring and predictive maintenance. A core objective is establishing an efficient and scalable manufacturing process for tidal energy modules and blades, including a testing phase to confirm technology readiness for large-scale deployment.

VI Pilots covered: ADMA Energy

Organisations

Three SMEs and two research centres extending the lifespan of tidal blades



Magallanes Renovables specializes in developing floating platforms to harness tidal currents for electricity generation. Their primary technology is the "ATIR," a floating energy generation platform equipped with two open-bladed counter-rotating rotors.



D3 Applied Technologies specializes in providing advanced engineering and technology solutions. Their expertise spans various sectors, including the development of simulators and specialized applications in the marine industry, such as for the America's Cup and T-Foiler 35 projects.



Menter Môn, based on Anglesey, is an enterprise that delivers a range of schemes throughout Wales and runs Morlais, a tidal stream energy project. It manages an area of 35Km² of the seabed near Ynys Cybi (Holy Island), Ynys Môn (Anglesey).



The University of Sheffield AMRC Cymru is a state-of-the-art research centre in North Wales, part of the larger University of Sheffield Advanced Manufacturing Research Centre (AMRC) and a member of the High Value Manufacturing Catapult.



The Offshore Renewable Energy (ORE) Catapult

is the UK's leading innovation center for offshore renewable energy, including wind, wave, and tidal power. As part of the Catapult Network, it bridges the gap between academia, government, and industry to accelerate the development, commercialization, and deployment of new technologies.



Regions

Galicia

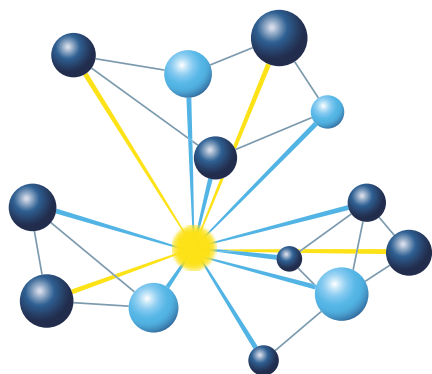
The project directly aligns with Galicia's Smart Specialisation Strategy (RIS3). Its focus on tidal energy addresses the "Biomass and Marine Energy" priority under the challenge of innovative management of natural resources. Additionally, the project's advanced manufacturing and technology integration contribute to Galicia's goal of a competitive, knowledge-based industrial model.

Wales

The project directly aligns with Wales' Smart Specialisation Strategy (S3). Its focus on advancing tidal energy directly supports Wales' priorities for Net Zero and Decarbonisation. Furthermore, the project's activities in Materials and Manufacturing, such as cutting-edge materials research and developing scalable manufacturing processes for tidal blades, are central to Wales' innovation strategy. The integration of smart sensors and IoT technologies also contributes to Wales' drive for Digital Transformation.

Why a cross-regional cooperation?

Regional cooperation is necessary due to the strategic partnership among Wales and Galicia, which brings together a unique blend of expertise in renewable energy. Wales offers experience in tidal energy sites and Galicia contributes pioneering work in tidal platform technology. This alliance facilitates knowledge exchange and future innovation in renewable energy, benefiting both regions.



VANGUARD INITIATIVE

New growth through smart specialisation

Aerocare

Advanced and sustainable dressing materials for chronic wound applications

**A Vinnovate Call 2024 project,
funded by Galicia and Norte**

About the project

The project aims to create advanced and sustainable dressing materials for chronic wounds (CW). It will utilize bioactive aerogels and smart textiles, integrating biodegradable matrices, natural antibacterial agents, and textile-based biosensors. AeroCare aims to advance biomedical materials in the Spain-Portugal Euroregion by developing innovative products and methods for chronic wound treatment. Objectives include enabling technological transfer in aerogels for the CW sector, adapting material processing to circular economy principles with prototype development, and fostering public-private interrelation to launch innovations and provide skilled personnel. Expected impacts are significant scientific, technological, and social advancements, elevating the region's standing in biomedicine. This includes generating knowledge in smart health, implementing new aerogel processing methods, and integrating 3D-printing and AI tools for high-performance, sustainable production, ultimately improving patient quality of life.

Key activities: The project covers the development of energy-efficient and environmentally friendly technologies, prototyping, and digitalization. This includes creating innovative aerogel products with tailored components for chronic wounds, adapting material processing to circular economy principles with prototype development, and combining academic and industrial knowledge for new materials, green technologies, and digital breakthroughs for wound management. The project will utilize bioactive aerogels and smart textiles, incorporating biodegradable matrices, natural antibacterial agents, and textile-based biosensors. It will also employ low-carbon technologies and digital innovations for efficient resource management, integrate bacteriophages into aerogels, and combine 2D/3D-printing with aerogels through custom light-based bioprinting technologies.

VI Pilots covered: Smart Health, New Nano-Enabled Products, 3DP, Artificial Intelligence, ESM

Organisations



Health Biolux, S.L. is a 3D biofabrication company, specializing in producing pioneering 3D bioprinted tissues and organs that mimic human biology and disease, focusing on recreating functional organs with vascular networks and complex tissue architecture. Health Biolux develops customized light-based bioprinting technologies for tissue engineering and regenerative medicine, creating high-resolution (1-10 microns) systems with multimaterial bioprinting heads and software for precise bioink deposition and natural cell growth.



The Universidade de Santiago de Compostela (USC) is a highly-ranked university from Galicia, known for its significant research activity in various domains. Specifically, its AerogelsLab possesses solid knowledge in supercritical fluid, 3D-printing, and aerogel technologies for biomedical applications, including wound healing.



Centre for Nanotechnology
and Advanced Materials

CeNTI is a technology and innovation centre providing applied R&D for disruptive technologies, product engineering, and upscale based on Nanotechnology, Advanced Materials, and Smart Systems. With extensive experience in integrating sensors into textile structures, CeNTI maintains long-term partnerships with companies. It has participated in projects focused on developing technologies for medical and well-being devices, including wearables designed to monitor biometric parameters.



Tintex Textiles is a reference in the textile industry in Portugal, specializing in the dyeing and finishing of knits. Since its beginning, Tintex has been a pioneer in working with natural and eco-friendly fibers, like Lyocell and organic cotton.

By collaborating with partners across the supply chain as well as with technology and innovation centres, Tintex is committed to developing processes and products with sustainability and innovation at their core.



Regions

Galicia

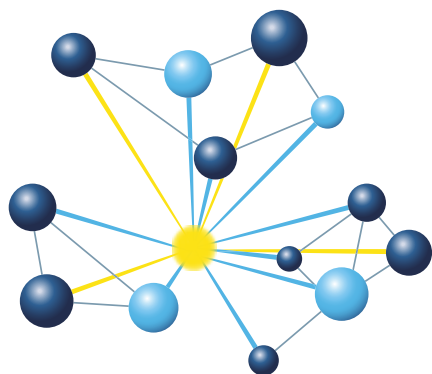
The project aligns with Galicia's S3 priorities by focusing on the biomedical sector, particularly advanced materials for chronic wound applications. The project's emphasis on advanced and functional products for chronic wound management using green technologies and digital breakthroughs directly contributes to the region's health and innovation objectives. The involvement of the Universidade de Santiago de Compostela (USC) and Health Biolux, both located in Galicia, further strengthens this link, as they contribute expertise in aerogel technologies and 3D bioprinting for biomedical applications, which are key areas for regional development. The project aligns with Galicia's S3 priorities by consolidating the biomedical sector's scientific-technological capabilities and bringing advanced materials for chronic wound treatment to market, leveraging local expertise from USC and Health Biolux in aerogels and 3D bioprinting.

Norte

Similarly, for Norte's S3, the project addresses chronic wound care as a public health concern, fostering collaboration to transfer research to market within the biomedical sector. The involvement of Norte-based CENTI and Tintex Textiles S.A. in advanced materials, smart systems, and sustainable textiles for health further supports the region's intelligent specialization and promotes cross-border technological potential.

Why a cross-regional cooperation?

Interregional cooperation is essential for AeroCare as it leverages the long-standing R&D&I collaboration between Galicia and Norte, Portugal. This relationship provides greater complementarity in expertise and infrastructure for chronic wound healing, fostering a robust network by consolidating talents across universities, research institutes, and industry. Such cross-border public-private partnerships will facilitate the mobility and training of researchers, establish new interregional skills and jobs, and stabilize a competitive cluster of excellence that drives economic growth in line with the EU agenda.



VANGUARD INITIATIVE

New growth through smart specialisation

Catalytic structures

**Integration of resistive heating and
consequent design optimization of
3D printed catalytic structures**

**A Vinnovate Call 2024 project,
funded by North Brabant and
Flanders**

About the project

Every day, factories across Europe release polluted air that must be cleaned before it reaches our communities - but current purification systems are often energy-intensive, bulky, and expensive to run. This project tackles that problem by developing a new generation of 3D-printed catalysts that can clean industrial air far more efficiently, using much less energy and space.`

The solution innovates catalysts using 3D metal printing to significantly improve the process for air purification. This project aims to integrate the heating functionality directly into the 3D printed catalytic structure itself, rather than using a separate heater. This integration helps ensure more efficient and uniform heating, reducing energy consumption and leading to a more compact overall design. The project's main objectives are to experimentally evaluate the printability of various wall thicknesses and unit cells, improve downfacing surfaces in 3D printed catalytic structures, and use Finite Element (FE) modelling to optimize resistive heating for uniform temperature distribution and minimized energy consumption. These objectives will be combined to manufacture and test sample geometries for their thermal and electrical properties, and then produce full-scale demonstrator parts with an assessment of their thermal behaviour.

Key activities: Key activities include experimental evaluation of printability and downfacing surface improvements, Finite Element (FE) modelling for optimizing heating uniformity and energy consumption, and subsequent manufacturing and testing of demonstrator parts. The project aims to reduce energy consumption and reactor size by 20% while improving catalytic efficiency by 20%. This will contribute to a more sustainable industry in Europe and combat climate change.

VI Pilots covered: 3DP

Organisations



AddCat innovates catalysts through 3D metal printing, intensifying the purification processes for air cleaning and providing a low-cost, super-efficient emission reduction solution. Their expertise lies in applying catalytic materials, increasing catalytic efficiency, functional validation and testing, and scaling results towards functional products. They are a frontrunner in combining 3D metal printing and catalysis.

KU LEUVEN

KU Leuven is a university with broad expertise in 3D printing, having been a pioneer in the field since 1990. They will leverage this expertise in 3D printing and lattice structures to optimize the design and manufacturing process of the innovative electrically heated catalysts. Their contributions include improving printability, conducting simulations for thermal and electrical properties, and ensuring efficient energy use, aligning with goals for a smarter and more sustainable industry.



Regions

North Brabant

The project directly aligns with North Brabant's S3 priorities by fostering an internationally-competitive, sustainable, and innovative economy. Its focus on energy transition and safe environments through reduced emissions and lower energy consumption in industrial air purification directly supports the region's objectives.

Flanders

The project aligns with Flanders' S3 priorities by contributing to a smarter and more sustainable industry. KU Leuven's activities, such as improving the AM process for efficient material use, optimizing designs, and simulating temperature distribution, directly support a smarter industry. Furthermore, their focus on efficient energy use of the catalyst with an integrated heater contributes to a more sustainable industry, a core objective for Flanders.

Why a cross-regional cooperation?

Interregional cooperation is deemed necessary for the project because the diverse range of required competencies cannot be found within a single organization or region. These crucial competencies include expertise in design for Additive Manufacturing (AM) to fully exploit lattice structure design, specialized AM process knowledge for lattice printability and quality, and proficiency in heat transfer within complex heat exchangers. Additionally, the project requires specific knowledge of catalyst design and requirements, such as surface area per volume fraction, and comprehensive catalytic process knowledge, encompassing aspects like flow regime and temperature. The distribution of specialized skills across different entities and regions underscores the necessity and added value of interregional collaboration for the project's success.

Organisations



Magallanes Renovables specializes in developing floating platforms to harness tidal currents for electricity generation. Their primary technology is the "ATIR," a floating energy generation platform equipped with two open-bladed counter-rotating rotors.

The ATIR is designed for high output with low capital and operational costs, leveraging technology from the wind and naval industries. Magallanes Renovables has tested its full-scale prototype at the European Marine Energy Centre (EMEC) in Orkney, Scotland, and aims to commercialize its tidal energy technology.



D3 Applied Technologies specializes in providing advanced engineering and technology solutions. Their expertise spans various sectors, including the development of simulators and specialized applications in the marine industry, such as for the America's Cup and T-Foiler 35 projects. They also have a focus on renewable energy technologies and offer a range of other engineering services, aiming to provide innovative solutions across these diverse fields.

Organisations



Menter Môn is an enterprise that delivers a range of schemes throughout Wales and aims at unlocking the potential of our people and resources to secure the future of our communities.

Menter Môn is undertaking to protect the planet and tackle climate change. Working on creating clean energy, boosting the local and regional economy, providing opportunities for young people and benefits to communities. Menter Môn has identified great potential for renewable energy on Anglesey and are responsible for pioneering green energy projects including Holyhead Hydrogen Hub, MCRP and Morlais.

Organisations



The University of Sheffield AMRC Cymru is a state-of-the-art research center in North Wales, part of the larger University of Sheffield Advanced Manufacturing Research Centre (AMRC) and a member of the High Value Manufacturing Catapult.

Funded by the Welsh Government, it focuses on advanced manufacturing sectors such as aerospace, automotive, renewable energy, and food and drink. The center helps businesses, particularly small-to-medium enterprises, improve productivity, quality, and sustainability by providing access to advanced technologies, conducting research, and offering training in areas like additive manufacturing, automation, digital manufacturing, and composites. They also play a role in developing solutions for decarbonization and sustainable manufacturing practices.

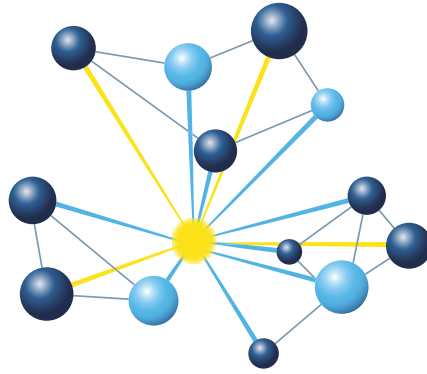
Organisations



The Offshore Renewable Energy (ORE) Catapult

is the UK's leading innovation center for offshore renewable energy, including wind, wave, and tidal power. As part of the Catapult Network, it bridges the gap between academia, government, and industry to accelerate the development, commercialization, and deployment of new technologies.

As part of the Catapult Network, it bridges the gap between academia, government, and industry to accelerate the development, commercialization, and deployment of new technologies. ORE Catapult provides research, engineering, and testing facilities, along with market intelligence and advisory services, to help companies innovate, reduce costs, and de-risk investments in offshore renewable energy, ultimately aiming to drive economic growth and achieve net-zero targets.



VANGUARD INITIATIVE

New growth through smart specialisation

Digital Assets Platform for Additive Manufacturing

Innovative and highly secure logistic 3D data platform ensuring the delivery of high-quality original (spare) parts

A Vinnovate Call 2024 project,
funded by East NL and Wales



Co-funded by
the European Union



Programme East Netherlands 2021-2027
European Regional Development Fund



Llywodraeth Cymru
Welsh Government



About the project

The project aims to advance the Digital Assets Platform for Additive Manufacturing (DAP3D) from TRL 5/6 to TRL 7/8, transitioning it into a complete product/service. Key activities include finalizing technological development, real-world validation through pilot programs, and preparing for market launch. Expected impacts are enhanced productivity via on-site 3D printing, leading to reduced downtime, lower costs, and streamlined logistics. The platform also promotes sustainability, increases resilience, and ensures cyber-physical security for intellectual property. Ultimately, it seeks to improve operational efficiency, cost savings, and sustainability for industries.

Key activities: Activities include the advancement of the DAP3D Demonstrator from TRL 5/6 to TRL 7/8, including finalizing technological development through advanced prototyping, testing, integration, and system optimization. It also involves validation in real-world conditions via pilot programs and regulatory certification. Further activities include scaling and market preparation by developing infrastructure for the licensing model, and market launch and deployment through comprehensive market testing and marketing strategies. Continuous improvement and innovation based on data from pilot programs and market testing are also covered.

VI Pilots covered: 3DP

Organisations



SENOVI BV is an engineering company, specializing in advanced fabrication technologies, including 3D Design, printing, and security, to build trust in additive manufacturing solutions. They use proprietary large-format industrial multi-material 3D print systems with their additive injection manufacturing (AIM) technology. A key focus is DAP3D, a secure logistics platform for managing additive manufacturing files, enabling licensed 3D print data and end-to-end traceability.



The University of Sheffield AMRC Cymru is a state-of-the-art research center in North Wales, part of the larger University of Sheffield Advanced Manufacturing Research Centre (AMRC) and a member of the High Value Manufacturing Catapult. Funded by the Welsh Government, it focuses on advanced manufacturing sectors such as aerospace, automotive, renewable energy, and food and drink.



RAPLAS Technologies Ltd. is a UK-based company specializing in industrial additive manufacturing equipment, primarily focusing on large-format 3D printing solutions. They develop and manufacture robust, high-performance machines for various industrial applications, including tooling, patterns, and direct parts. RAPLAS aims to provide cost-effective and efficient solutions for rapid prototyping and production, catering to industries such as aerospace, automotive, and general manufacturing.



Regions

East NL

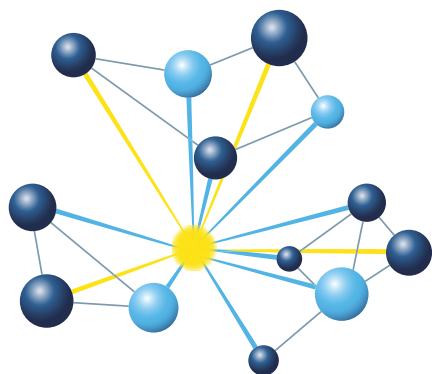
The project strongly aligns with the S3 priorities of East Netherlands. The East Netherlands Innovation Agenda for 2021- 2027 identifies "Digital Industry & Technology" as a key innovation theme. The DAP3D project, which focuses on advancing digital assets and additive manufacturing for secure and efficient 3D printing of spare parts, directly contributes to this priority. By enabling on-site 3D printing, the project supports the region's aim for a "smart and clean economy," fostering enhanced productivity, reduced costs, and improved sustainability through digital transformation in manufacturing.

Wales

The project strongly aligns with Wales' S3 priorities. It contributes to "Digital Transformation" and "Materials and Manufacturing" through its focus on advancing digital assets and additive manufacturing solutions. The project's goals of enhancing productivity and resilience via on-site 3D printing also support Wales' aim for a "stronger, more resilient economy" and its "Net Zero" objectives by reducing waste and transport.

Why a cross-regional cooperation?

Interregional cooperation is necessary as AMRC Cymru will develop technology for digitally connected supply chains in Wales, upskill engineers, and disseminate learnings. RAPLAS Technologies Ltd. will integrate the DAP3D system into their 3D printers, testing it in real-world scenarios and eventually offering DAP3D-ready printers to customers, contributing to a secure 3D printing solution. This partnership allows the DAP3D solution to mature with AMRC Cymru's API development expertise and RAPLAS's end-use case.



VANGUARD INITIATIVE

New growth through smart specialisation

HYBROS

Hybrid Osteochondral Scaffold

**A Vinnovate Call 2024 project, funded
by Emilia-Romagna, Norte & North
Brabant**



Provincie Noord-Brabant



About the project

Millions of people suffer from joint damage caused by injuries, ageing, or diseases like osteoarthritis - yet current treatments often fail because they can only repair either cartilage or bone, but not both. This project tackles the issue by developing a new type of scaffold that can regenerate both cartilage and the underlying bone at the same time, offering a more complete and natural form of healing.

The project aims to produce a novel osteochondral scaffold that demonstrates superior mechanical properties and effective biological integration. By addressing both bone and cartilage regeneration within a single scaffold, this project provides a more comprehensive and effective treatment option compared to existing methods, setting a benchmark in regenerative medicine. The successful development of such a scaffold could significantly advance regenerative medicine, providing improved treatment options for patients with osteochondral defects. It has the potential to achieve significant breakthroughs in scaffold technology, leading to enhanced healing outcomes and offering new hope for patients with joint damage. One of the key innovations of this project is its potential to serve as a model for future studies, potentially reducing the need for animal testing. By developing a scaffold that closely mimics the natural osteochondral environment, researchers can obtain more accurate and relevant data from in vitro studies, which can accelerate the translation of laboratory findings into clinical applications.

Key activities: GreenBone will coordinate the project, provide a business plan, and supply ceramic scaffolds for hydrogel deposition. SBMC will handle the biological characterization of the hybrid scaffold, conducting in vitro studies, monitoring for adverse reactions. Stematters will focus on optimizing their hydrogel formulation, producing it in a cGMP environment, and establishing a regulatory plan for approval by notified bodies. CBQF-UCP will focus on creating a reliable procedure for combining the two products, optimizing physical and chemical conditions for seamless integration, as well as perform rigorous testing.

VI Pilots covered: Smart Health/Personalized medicine

Organisations

GreenBone®

GreenBone Ortho is an orthopaedic company focused on bone regeneration, providing innovative, safe, and effective solutions. Their team of scientists and chemists developed an innovative, nature-inspired, biomimetic, and bioactive bone substitute from rattan wood, which mimics human bone structure. This proprietary technology, perfected for global delivery, positions GreenBone Ortho as a lead innovator in bone healing, aiming to improve patient lives worldwide.

Stemmatters

Stemmatters is a Contract Development and Manufacturing Organization (CDMO) specializing in regenerative medicine. They focus on product and process development, cGMP production, and the clinical translation of medicinal products, including advanced therapy medicinal products (ATMPs) and biologicals. Their mission is to enable innovative product development, provide competent manufacturing, and deliver impactful therapeutic products, with a vision to realize tomorrow's medicines.



Smart BioMaterials Centre (SBMC) accelerates the journey from lab to life for smart biomaterials and regenerative medicine. Based in the Brainport region, a leading biomaterials hub, SBMC shortens clinical translation through contract R&D, cleanrooms rental for pilot production and strong quality management, while connecting innovators within a powerful biomaterials network.



The Centre for Biotechnology and Fine Chemistry - Universidade Católica Portuguesa (CBQF-UCP), operating under the Universidade Católica Portuguesa, focuses on contributing to a sustainable Bioeconomy through innovation in Food and Nutrition, Environment, and Health. Under the CBQF umbrella, the Biomaterials and Biomedical Technology (BBT) group focuses on the valorization of natural-based resources into advanced functional biomaterials and therapeutic solutions. The group develops and applies innovative processing strategies to fabricate gels, fibers, membranes, and three-dimensional porous constructs, while also biofunctionalizing established materials and medical devices to enhance their biological performance.



Regions

Emilia - Romagna

The project aligns directly with Emilia-Romagna's Smart Specialisation Strategy (S3) for 2021-2027. This strategy identifies "Health and Wellness Industries" as a key strategic specialization area, making the project's scope highly relevant to the region's priorities for optimizing investments in research and innovation.

North Brabant

Strongly aligns with the S3 of North Brabant, which identifies "Life Science and Health" as a key innovation ecosystem and top cluster. Furthermore, the strategy is centered around five major transitions, including "health transitions." The project's aim to develop innovative solutions for bone and cartilage regeneration directly contributes to the advancements within the life sciences and health sector, addressing key challenges and opportunities identified in North Brabant's S3 priorities.

Norte

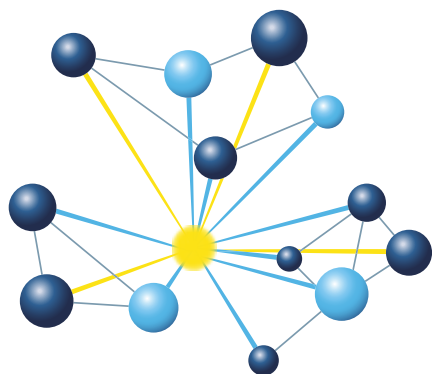
NORTE's S3 for the 2021-2027 programming period explicitly lists "Life Sciences and Health" as one of its key strategic domains. This indicates a strong regional focus on advancements in healthcare, research, and innovation within this sector. The project's objectives of developing innovative solutions for traumatic injuries and degenerative conditions directly contribute to the outlined priorities.



Regions

Why a cross-regional cooperation?

This interregional cooperation is essential as it leverages each partner's distinct strengths and expertise—from GreenBone's scaffold technology to Stematters' hydrogel development and SBMC's biological characterization—facilitating knowledge sharing and accelerating groundbreaking advancements in osteochondral regeneration. GreenBone Ortho spa leads the project by supplying and adapting their innovative, nature-inspired ceramic scaffolds. Stichting Smart BioMaterials Centre (SBMC) provides critical biological characterization expertise, assessing biocompatibility and efficacy, aligning with their regional focus on regenerative medicine. Stematters and the Centre for Biotechnology and Fine Chemistry at Universidade Católica Portuguesa (CBQF-UCP) contribute to advanced biomedical research through complementary expertise; Stematters is responsible for optimizing hydrogel formulation and cGMP - compliant production, while UCP develops integration procedures and conducts comprehensive mechanical characterization.



VANGUARD INITIATIVE

New growth through smart specialisation

ORoLoC3D

Optimized Routing with 3D Loading Constraints

**A Vinnovate Call 2024 project, funded by
Emilia-Romagna & North-East Romania**

About the project

The ORoLoC3D project will develop an AI-based platform to optimize logistics by jointly addressing routing and 3D loading with real-world constraints. Its main objective is to minimize travel distance, maximize order delivery, and satisfy vehicle constraints. The project aims to reduce execution time from overnight to under 10 minutes, advance the technology to TRL-8, and integrate it into commercial systems. Expected impacts include enhanced market competitiveness, cost savings (fuel, labor, maintenance), reduced reliance on human experts, and automation of data flow. It will also promote resource efficiency, decrease greenhouse gas emissions, and increase operational resilience through automated logistics optimization.

Key activities: The project includes activities to advance the ORoLoC3D prototype from TRL-7 to TRL-8, including optimizing system design, reducing 3D-loading computational costs with advanced AI, improving execution time via parallel computing, comprehensive testing, preparing for large-scale production and commercial integration, and disseminating research findings and promoting the product.

VI Pilots covered: Artificial intelligence

Organisations



OptiMathR Computing Solutions S.R.L. is a company with expertise in mathematical optimization, software development, and AI, offering innovative solutions that address real operational needs. With a strong focus on analyzing business processes, digitizing and automating key operations, the team creates systems that make data-driven decisions easier and more reliable. Their key product, ORoLoC3D, is a software solution that optimizes the transportation of rectangular packages for multiple destinations, improving loading efficiency and simplifying logistics planning. Additionally, OptiMathR is developing Robo Adapt-a-Pal, a robot-agnostic AI system for adaptive mixed palletizing in logistics centers that uses advanced 3D optimization and virtual-to-real validation to generate stable, collision-free palletizing plans, easily configurable to diverse customer requirements and compatible with a wide range of industrial robots and equipment.



UNIMORE

UNIVERSITÀ DEGLI STUDI DI
MODENA E REGGIO EMILIA

The Artificial Intelligence Research and Innovation Center (AIRI) at the University of Modena and Reggio Emilia (UNIMORE) is an inter-departmental research center focused on applied research, industrial activities, and technology transfer in the ICT sector, with a specific emphasis on AI-based technologies and related business models. It is an accredited laboratory of the High Technology Network of the Emilia-Romagna region and a leading laboratory of the Technopole of Modena. The group working on the project has high-level scientific publications in Operations Research and recognized experience in optimization algorithms for real-world applications.



Regions

North-East Romania

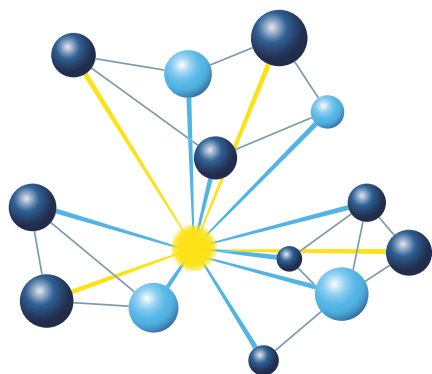
The project aligns with Priority 1 of the regional program in North-East Romania. This priority focuses on supporting research, innovation, and the adaptation of advanced technologies. Furthermore, through interregional collaboration, the project boosts the growth and competitiveness of SMEs and supports the development of competencies for smart specialization and industrial transition, directly addressing key aspects of North-East Romania's regional program. Specifically, the project falls within one of the region's RIS3 smart specialization areas, namely ICT.

Emilia - Romagna

The project aligns with Emilia-Romagna region's intelligent specialization strategies, specifically "digitalization, artificial intelligence, and big data". By incorporating advanced optimization and AI algorithms into an industrial solution, the project supports the development of competencies for smart specialization and industrial transition within the region.

Why a cross-regional cooperation?

Interregional cooperation is crucial because UNIMORE AIRI's scientific expertise in AI and Operations Research complements OptiMathR's product development experience, addressing broader industrial constraints and making the optimization tool adaptable across regions. This collaboration also leverages UNIMORE's academic network for wider dissemination and provides OptiMathR's real-world data to refine theoretical models, fostering future collaborations and funding.



VANGUARD INITIATIVE

New growth through smart specialisation

REACT: Recycling, Eco-design and Circular Traceability

A circularity-driven Digital Product Passport (DPP) system for workwear

**A Vinnovate Call 2024 project, funded by
Emilia-Romagna & North-East Romania**



Co-funded by
the European Union

About the project

The project aims to introduce a comprehensive recycling and traceability system within UtilDeco Group's workwear production processes. Its core objective is to implement a Digital Product Passport that documents product characteristics, maintenance history, safety instructions, customer data, and the number of washes performed, enabling circular lifecycle management. The project establishes mandatory eco-design requirements that ensure durability, reparability, fibre-to-fibre reusability and end-of-life recyclability. Expected impacts include the digitalisation and automation of textile maintenance workflows, improved resource efficiency, and the anticipation of future EU requirements for traceability in the textile sector. By extending product lifespans, enhancing recyclability, and reducing waste, the project directly contributes to a more sustainable industrial transition.

Key activities: Developing and implementing a QR-based Digital Product Passport; defining mandatory eco-design criteria (materials, treatments, durability, reparability); redesigning products to enable reuse and high-quality recycling; collecting and structuring traceability data (maintenance records, wash cycles, user information); testing DPP tools within real operational environments; applying eco-design methodologies; and validating recycling pathways using product-level data.

VI Pilots covered: Efficient and Sustainable Manufacturing

Organisations



UtilDeco Group is an SME active in the production of high-quality work clothing and textile services. The company is expanding into digitalised maintenance, washing, recycling and storage services for corporate clients. Through REACT, UtilDeco integrates traceability and eco-design into its operations, strengthening competitiveness and supporting the region's smart specialisation priorities in textiles and advanced technologies.



Centro Qualità Tessile is an SME specialised in textile testing, eco-design methodologies and digital traceability solutions. The organisation brings expert knowledge in Digital Product Passport design and circular textile innovation. Its involvement ensures the integration of advanced eco-design tools and supports regional strategies on sustainable and efficient manufacturing.



Regions

North-East Romania

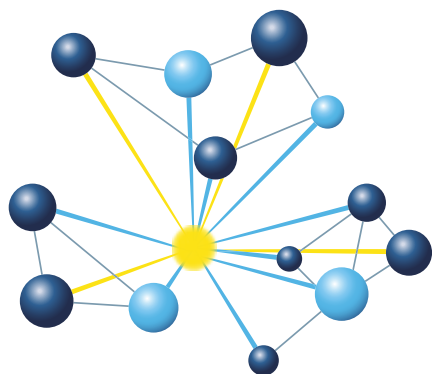
The project aligns with Priority 1 of the North-East Romania Regional Programme, which supports research, innovation, digitalisation and the adoption of advanced technologies. It enhances SME competitiveness through the introduction of DPP-based traceability and eco-design practices and contributes to workforce skills linked to smart specialisation. The project also fits within the regional RIS3 area of Textiles, advancing sustainability and industrial transition.

Emilia - Romagna

The region of Emilia-Romagna prioritises sustainable manufacturing, circular economy and digital transformation within its intelligent specialisation strategies. REACT directly contributes to these goals by implementing eco-design techniques, traceability tools and digital lifecycle management for textiles. The project supports the region's industrial transition toward circular and resource-efficient production systems.

Why a cross-regional cooperation?

Interregional cooperation enables the combination of UtilDeco's operational needs and real-world production environment with Centro Qualità Tessile's technical expertise in eco-design and Digital Product Passport methodologies. This exchange strengthens knowledge transfer, accelerates the testing and validation of tools in different regional contexts, and ensures that the resulting solutions are applicable across European textile value chains. The partnership allows both organisations to refine technologies, gain access to complementary skillsets, and position themselves within broader EU-level circular textile initiatives.



VANGUARD INITIATIVE

New growth through smart specialisation

PROPEL

Photonic Integrated Circuits for Personal Health Management

**A Vinnovate Call 2024 project, funded by
East Netherlands & Wales**



Llywodraeth Cymru
Welsh Government



About the project

The PROPEL project develops an innovative hybrid Photonic Integrated Circuit (PIC) that combines a GaAs gain-chip with a silicon nitride (Si_3N_4) waveguide to produce a tuneable, ultra-narrow linewidth laser source at 1 μm . This wavelength enables optimal light penetration into human tissue, supporting next-generation wearable devices for non-invasive personal health monitoring.

The main objective is to design and demonstrate a highly stable, tuneable PIC laser emitting at 1 μm with an ultra-narrow linewidth (<10 kHz), enabling precise laser absorption spectroscopy for health monitoring. The project aims to hybrid-integrate advanced material platform to build a compact, vibration-insensitive, non-mechanical laser source. Key impacts include establishing a new European capability in PIC-based tuneable lasers, enabling cost-effective production far below the price of mechanical free-space systems. Economically, the solution could reduce current laser costs (20–50 k€) to below 10 k€, unlocking scalable markets ranging from wearables to satellite communication. Environmentally and technologically, the project supports a smarter, more sustainable, and more autonomous European photonics industry.

Key activities: Development of epitaxial growth and fabrication processes to produce the GaAs gain-chip; material characterisation and device specification; fabrication of the Si_3N_4 waveguide platform; hybrid integration to form the extended cavity PIC; tuning and stability testing; production of test data and demonstrator specifications; feasibility and process optimisation for future commercialisation.

VI Pilots covered:

Nano-/Microsystems & High-Tech Materials for Industrial Transformation Pilot
Smart Health

Organisations



Compound Semiconductor Centre (CSC) is part of the CSconnected cluster, the world's first compound semiconductor ecosystem. It specialises in epitaxial growth and fabrication of advanced GaAs-based semiconductor devices and provides a full chain from R&D to large-scale manufacturing through the IQE global network. CSC employs ~70 experts in compound semiconductor materials and supports innovation from prototype to industrial integration.



Chilas is an SME specialising in high-performance tuneable laser systems based on silicon nitride PIC technology. It has strong expertise in PIC design, layout, assembly, and hybrid laser integration, with a portfolio of lasers for quantum, sensing, and telecom applications. Its infrastructure includes electronic drivers, software control, and interface modules enabling turn-key laser products.



Institute for Compound Semiconductors (ICS) is a leading UK research hub in compound semiconductor technologies with a £100M cleanroom facility. It supports R&D on epitaxial materials, device fabrication and advanced characterisation, enabling innovation across photonics, sensing, and communication technologies.



Regions

East Netherlands

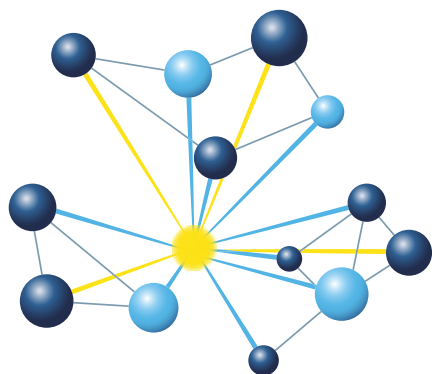
The project fits closely with the Smart Specialisation Strategy (S3) of the East Netherlands, especially Priority 1: A smarter East Netherlands through innovative and smart economic transformation. It contributes to several regional crossovers: Health-Food-Tech (Prevention & MedTech) through health monitoring applications; Tech-Food-Materials (Sustainability & FoodTech) through advanced photonic components; and Cleantech-Materials-Tech (Manufacturing & MaterialTech) by enabling scalable chip-based manufacturing. The project aligns with the region's integrated photonics ecosystem.

Wales

The project aligns with Wales' SMART Flexible Innovation Support (FIS) Programme, supporting the creation of new products, strengthening RD&I capacity, and enabling sustainable economic growth. It reinforces the regional semiconductor cluster (CSconnected) and contributes to strategic investments in photonics and advanced manufacturing.

Why a cross-regional cooperation?

Interregional cooperation is essential because the PROPEL laser can only be realised by combining two unique European capabilities: CSC's expertise in GaAs epitaxial growth and semiconductor device fabrication, and Chilas' expertise in silicon-nitride-based PIC platforms and hybrid laser assembly. No single region holds both capabilities. Joint collaboration ensures optimal material integration, accelerates innovation, and strengthens Europe's position in advanced photonics. Moreover, access to shared facilities, cleanrooms, and complementary industrial ecosystems (Wales and East NL) enables scalable, cost-effective development and supports future commercial pathways across multiple markets.



VANGUARD INITIATIVE

New growth through smart specialisation

ONI-One Orthosis

Advancing Personalized Drug Delivery for Onychomycosis

**A Vinnovate Call 2024 project, funded by
North Brabant & Galicia**

About the project

Fungal nail infections affect millions of people and are notoriously difficult to treat because medicines struggle to penetrate the hard nail surface. The ONI-One project tackles this everyday medical problem with a personalised 3D-printed nail device that helps the medicine reach exactly where it's needed: making treatment faster, more effective, and far more comfortable for patients. The project delivers a first-in-class personalized nail orthosis that enhances topical drug delivery for onychomycosis. Using 3D scanning, additive manufacturing, and optimized pharmacological performance, the device increases antifungal permeation through the nail while ensuring comfort, safety, and user adherence. The project advances the prototype into a fully validated, market-ready medical device.

It focuses on validating safety and biocompatibility for prolonged contact, refining quality assurance, and optimizing scalable 3D-printed manufacturing workflows. The USC team will strengthen IVPT assay performance, broaden pharmaceutical compatibility, and improve predictive accuracy. A clinical user study will assess cosmetic appeal, convenience, and usability to support therapy adherence. Expected impacts include a validated drug delivery device, strengthened regional leadership in smart health and 3D printing, and the introduction of a novel ectopic drug delivery platform with strong economic potential.

Key activities: The project advances the ONI-One orthosis from validated prototype toward market readiness through biocompatibility and safety testing of materials and adhesives, optimization of 3D-printing and quality-assurance processes for consistent production, and scalability assessment of additive manufacturing workflows. It also includes refining and upscaling the IVPT assay to broaden pharmaceutical compatibility and improve predictive accuracy, producing custom 3D-printed assay components, preparing safety, compatibility, and cosmetic documentation, and conducting a clinical user study evaluating cosmetic appeal, convenience, and overall usability to support therapy adherence.

VI Pilots covered:

Smart Health

High-Performance Production through 3D Printing

Organisations



Onicor is an SME specialized in personalized health solutions, 3D scanning, and additive manufacturing. It leads the development, design, and product requirements of the ONI-One orthosis, ensuring technological, manufacturing, and regulatory readiness. The company's expertise aligns strongly with smart health and advanced 3D-printing applications in medical devices.



The Department of Pharmacology, Pharmacy and Pharmaceutical Technology and the PARAQUASIL Research Group at the **University of Santiago de Compostela** (USC) provides expertise in in vitro permeation testing, drug delivery studies, and pharmacological model refinement. USC will enhance and upscale the IVPT assay, extend pharmaceutical compatibility testing, and support predictive performance modeling for personalized dosing—reinforcing the scientific foundation of the ONI-One device.

Etnogal brings specialized capabilities in user validation, cosmetic testing, and safety assessments for health and self-care products. It will lead the cosmetological and convenience evaluation through a clinical study with healthy volunteers and contribute to biocompatibility, safety, and treatment adherence analysis.



Regions

North Brabant

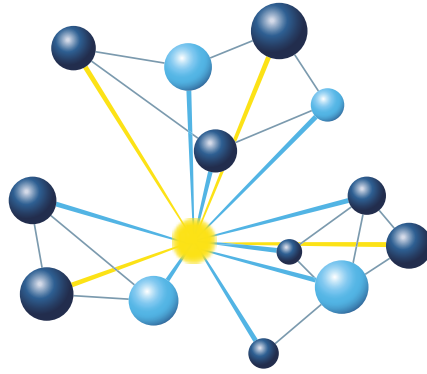
The project supports North Brabant's strategic focus on high-tech systems, medical technologies, and digital innovation. By integrating 3D printing, digital personalization, and advanced health technologies, the project contributes to smart health innovation, regional industrial competitiveness, and the advancement of data-driven, patient-centered medical solutions.

Galicia

The project aligns with Galicia's RIS3 priorities on smart health, advanced manufacturing, and biotechnological innovation. Through additive manufacturing, medical device validation, and pharmacological research, the project strengthens Galicia's capabilities in personalized medicine and health technology development.

Why a cross-regional cooperation?

Interregional cooperation leverages the complementary strengths of Onicor (NL), USC (Galicia), and Etnogal (Galicia). Onicor provides advanced 3D-printing and product-design expertise, USC contributes deep pharmacological scientific knowledge, and Etnogal offers user validation and cosmetic testing capabilities. Combining these competencies accelerates product readiness, improves scientific robustness, expands market relevance, and ensures that the ONI-One orthosis meets both medical and user-experience standards. The collaboration builds upon proven proof of concept success and enables cross-regional innovation, scaling, and future technology transfer.



VANGUARD INITIATIVE

New growth through smart specialisation

Driving Sustainability in Manufacturing

Digital and AI Tools for Waste and Carbon Reduction

**A Vinnovate Call 2024 project, funded by
Wales & Galicia**

About the project

The project delivers a modular digitalization suite integrating AI, Digital Twins, and sustainability tools to reduce material waste and carbon emissions in manufacturing. It combines production planning optimization, AI-driven process analysis, and Digital Twin simulations to enhance efficiency and sustainability, enabling factories to monitor KPIs in near real-time, simulate processes, and implement energy-efficient load-shifting strategies. The suite aims to reduce material waste by 10–30% and significantly lower carbon emissions while advancing TRL6 digital and AI modules toward a fully validated, deployable industrial toolkit.

Real-time dashboards allow managers to make data-driven, sustainability-focused decisions, while load-shifting tools align energy-intensive processes with periods of lower emissions. Expected impacts include cost reduction, improved production quality and flexibility, enhanced regulatory compliance, and wider adoption of sustainable manufacturing practices. The project supports a greener transition, strengthens regional industrial capabilities, and promotes competitiveness.

Key activities: The project advances the digitalization suite from TRL6 prototypes toward validated deployment. Activities include developing AI-based sustainability tools for production planning, creating real-time dashboards and KPIs, implementing temporal and geographical load-shifting strategies, and designing a Digital Twin module to simulate factory operations. The project also involves evaluating and validating all modules in real manufacturing environments and disseminating results to support commercialization. The consortium will refine algorithms, integrate tools into existing workflows, and ensure scalability across different manufacturing contexts.

VI Pilots covered:

Efficient Sustainable Manufacturing
Artificial Intelligence

Organisations



Nightingale HQ is an SME based in Wales, specializing in AI-based optimization platforms for sustainable manufacturing. It leads the development of the sustainability tools, dashboards, and load-shifting modules, providing real manufacturing use cases to ensure production and market fit. The company brings expertise in carbon-aware computation and AI-driven process optimization, supporting factories in reducing waste and carbon emissions while improving efficiency.



The **Automotive Technology Centre of Galicia** (CTAG) is a leading research and technology centre in Galicia, Spain, focused on automotive and industrial innovation. It leads the development of the Digital Twin and AI modules, offering expertise in simulation, process modeling, and digital validation of manufacturing systems. CTAG provides TRL6 solutions for factory process simulations and AI-based analysis, contributing deep manufacturing knowledge and applied research capabilities to ensure the project's tools are robust and effective.



OVEUN is an SME based in Galicia, Spain, specializing in software engineering, IoT, and Industry 4.0 solutions. The company develops AI systems and predictive analytics for manufacturing processes and leads the AI module of the project. OVEUN contributes scalable software infrastructure and expertise in real-time factory data analysis, ensuring the integration of digital tools into the sustainability suite.



Regions

Wales

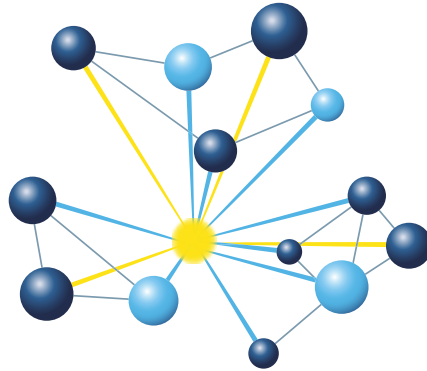
In Wales, the project supports digital transformation, Industry 4.0, and sustainability initiatives. Nightingale's AI-based optimization tools reinforce regional strengths in deep tech and digital industrial solutions, promoting energy-efficient, intelligent, and sustainable manufacturing practices.

Galicia

In Galicia, the project aligns with regional priorities in advanced manufacturing, ICT, and sustainable production. CTAG's expertise in Digital Twins, AI, and factory process optimization directly supports Galicia's RIS3 smart specialization strategy, contributing to industrial innovation and the adoption of green technologies.

Why a cross-regional cooperation?

Interregional cooperation is essential because Galicia contributes deep manufacturing and R&D expertise, while Wales provides advanced AI and software capabilities. OVEUN adds scalable software infrastructure and real-time data analytics. Combining these complementary strengths enables the creation of integrated, market-ready digital tools for sustainable manufacturing, accelerates development, ensures cross-regional applicability, and enhances knowledge exchange to foster industrial competitiveness and environmental impact reduction across Europe.



VANGUARD INITIATIVE

New growth through smart specialisation

EcoPrint

Adding Value to Recycled Materials via Additive Technologies – Special Tool Carrier Manufacturing

**A Vinnovate Call 2024 project, funded by
Wallonia & East Netherlands**



Co-funded by
the European Union



Programme East Netherlands 2021-2027
European Regional Development Fund



Wallonie



idea
consult
moving society

About the project

The EcoPrint project develops advanced additive manufacturing solutions that utilize recycled thermoplastics and short fibers to produce large, high-precision carriers for mold and tooling applications. It identifies and evaluates AM techniques leveraging recycled materials, focusing on thermoplastics and 100 μm fibers, and benchmarks these materials against current technologies to demonstrate cost and material property advantages.

By combining material benchmarking, process optimization, iterative testing, and proof-of-concept printing, EcoPrint aims to improve dimensional accuracy of large-scale printed carriers (1000–1500 mm) for Aeromoulding while meeting industrial quality requirements. Expected impacts include reduced material costs, enhanced production efficiency, better fiber cohesion in recycled materials, and environmental benefits through circular economy adoption. The project also promotes industrial sustainability, supports the green transition, and accelerates market readiness for recycled-material AM solutions.

Key activities: Testing and benchmarking recycled thermoplastics and fibers, developing AM process parameters, refining dimensional accuracy in large-scale printing, proof-of-concept printing with standard materials, validation and optimization for end-user specifications, and dissemination of results.

VI Pilots covered:

Efficient Sustainable Manufacturing

High-Performance Production through 3D Printing

Organisations



Aeromoulding specializes in protection solutions for industrial parts, especially for the aerospace and high-tech industries. They design and produce high-performance protection tools, silicone masks, and industrial containers, offering a full service from design to production. Their engineering team supports prototype making, small and large series production, and ensures high quality through EN 9100 and ISO 9001 certifications.



Sirris is a non-profit technological collective centre founded in 1949, with around 150+ experts and hightech labs across Belgium. It supports companies (especially SMEs) in innovation through applied R&D, prototyping, testing, and adoption of advanced technologies. Its expertise spans additive manufacturing, materials science, digital transformation, and sustainability.



Reprocover specializes in recycling thermosetting plastic waste (e.g., epoxy, Bakelite) and converting it into engineered composite products. They granulate, characterize, and reprocess waste into high-quality recycled materials for sectors like infrastructure (railways, roads), while promoting a circular economy.



Opiliones designs and manufactures large-scale “Delta” FDM/FFF 3D printers with low total cost of ownership. Their printers use a patented magnet-ball hinge system for robustness and minimal backlash, and they support a wide range of materials. They also developed a “MAKEITMETAL” concept: cost-effective metal 3D printing using standard MIM (Metal Injection Moulding) granulate, enabling on-demand metal part production with low cost per unit.



Regions

Wallonia

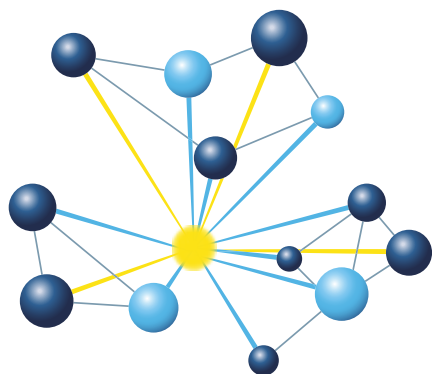
The project aligns with Wallonia's Smart Specialisation Strategy, specifically DIS1: Circular Materials and DIS3: Agile & Safe Production. DIS1 promotes recycling, industrial symbiosis, and circular economy approaches, while DIS3 focuses on advanced manufacturing and digitalized production methods. By integrating recycled thermoplastics and optimizing additive manufacturing processes, EcoPrint contributes to sustainable production, resource efficiency, and industrial innovation in Wallonia.

East Netherlands

The project aligns with East Netherlands' RIS3 strategy, which prioritizes sustainable materials, advanced manufacturing, and digitalization. Opiliones' expertise in large-scale additive manufacturing ensures the project develops scalable, industrially viable processes for recycled materials, directly supporting regional goals for efficient, sustainable production technologies.

Why a cross-regional cooperation?

Interregional cooperation is essential because each region brings complementary expertise. Wallonia offers strong knowledge in circular materials and process innovation (Sirris, Reprocover, Aeromoulding), while East Netherlands contributes scalable AM hardware and process know-how (Opiliones). This partnership enables the development of industrial-scale, high-precision, recycled-material AM solutions, ensuring technical excellence, market readiness, and wider applicability across regions.



VANGUARD INITIATIVE

New growth through smart specialisation

VAL2FOOD

Valorisation of Agricultural Crop Processing Waste for Sustainable Packaging and Food Shelf-Life Extension

**A Vinnovate Call 2024 project, funded by
North-East Romania & Wales & Norte**

About the project

The VAL2FOOD project develops a circular bioeconomy solution that transforms fruit and vegetable processing residues from sea buckthorn, apples, and tomatoes into bioactive compounds and fibre-based packaging materials. It aims to create natural shelf-life extenders and sustainable packaging alternatives, extracting antioxidant molecules, integrating them into biodegradable packaging, and producing moulded pulp components from cellulose fibres.

The project will demonstrate these technologies at TRL6 through interregional collaboration among Romania, Wales, and Portugal. Expected impacts include reduced food waste and single-use plastics, lower waste disposal costs, increased productivity for SRA through new added-value products, improved environmental performance, enhanced SME innovation capability, and promotion of resource-efficient industrial processes.

Key activities: The project includes activities to demonstrate a biorefinery approach at TRL6, using green extraction technologies such as supercritical CO₂ to isolate antioxidant-rich bioactive molecules from fruit and vegetable processing residues. These compounds will be encapsulated and incorporated into biopolymer films to develop functional, biodegradable packaging capable of extending food shelf-life. The project will also convert stems, vines and woody residues into cellulose fibres to produce moulded pulp food packaging as a sustainable alternative to single-use plastics. In parallel, the consortium will conduct Life Cycle and Cost Assessments to identify environmental impacts and optimise resource efficiency. Together, these activities support the development, validation and demonstration of new biobased products derived from agricultural waste within a circular bioeconomy model.

VI Pilots covered:

Bioeconomy

Organisations



Bangor University's Bio Composites Centre is a leading research institution specialising in biopolymer materials, moulded pulp packaging, and biomass valorisation. Bangor brings extensive expertise in applied research for TRL 4–6 technologies and contributes to developing sustainable packaging prototypes.



INOVA+ is an innovation consultancy SME with expertise in sustainability assessments, internationalisation strategies, and support for R&D-driven growth. In VAL2FOOD, it conducts LCCA analyses and supports the transition towards cost-effective and environmentally optimised processes.



Within the **University of Porto's** Faculty of Engineering, the LSRE-LCM research group provides advanced expertise in green extraction of bioactive compounds, antimicrobial agents and natural additives. It contributes to developing antioxidant-rich extracts and supports scaling biorefinery technologies in alignment with sustainable industry goals.

Silver Rom Agro specialises in producing natural food products and juices using a full processing line, generating significant biomass residues that the project will valorise. The company aims to reduce waste, improve sustainability, and introduce new bio-based food and packaging products.



Regions

North-East Romania

The project aligns with Priority 1 of the North-East Regional Programme by strengthening SME innovation, promoting circular bioeconomy solutions, and enhancing collaboration between industry and research. By transforming agro-food residues into biobased products, VAL2FOOD aligns with the region's RIS3 focus on agriculture, food, and bioeconomy.

Wales

VAL2FOOD aligns with Welsh innovation priorities, particularly those promoting R&D excellence, sustainable materials, and product innovation. By developing moulded pulp and biopolymer-based packaging, the project builds on regional expertise at Bangor University and contributes to Wales' goals for eco-innovation and reduced dependence on fossil-based plastics.

Norte

The project fits the Norte region's priorities to expand R&D capacity, support biotechnology and circular economy sectors, and foster internationalisation. Through the University of Porto and INOVA+, the region contributes expertise in green extraction, bioactive compounds, and sustainability assessment.

Why a cross-regional cooperation?

Interregional cooperation is essential because each partner brings complementary expertise that no single region could provide alone. Wales contributes advanced know-how in biobased and moulded pulp packaging, while Portugal provides leading capabilities in green extraction technologies and sustainability assessment. These strengths combine with the Romanian SME's real industrial setting and access to agro-food residues, enabling a full biorefinery value chain to be developed and demonstrated.