July 2025

# HORIZON SUCCESS STORIES

*by IGLO Network*

IGLO

INFORMAL GROUP OF
RTD LIAISON OFFICES

# FOREWORD OF IGLO CHAIR 2024-2025

Lenka Procházková
Head of CZELO office

***Dear colleagues, dear friends of IGLO,***

*We are truly delighted that you joined us today to celebrate another successful year of the Informal Group of R&I Liaison Offices (IGLO). The IGLO Summer Reception is a cherished annual tradition — a time to share our knowledge, experiences, and fruitful discussions. Most importantly, it is an opportunity to spend time together and express our sincere thanks for your continued cooperation.*

*IGLO has been an integral part of the Brussels R&I ecosystem for over 30 years. This year, the Czech Liaison Office for Education and Research (CZELO) had the honour of serving as the IGLO Chair for 2024–2025. It has been an intense and rewarding year, during which we've witnessed the true value of this network — connecting diverse stakeholders, welcoming new colleagues, fostering exchange between experts and national representatives, and holding a meaningful role within the Brussels R&I community.*

*We extend our heartfelt thanks to all IGLO members for your active involvement and strong support.*

***#IGLOstrongtogether***

Michaela Hnízdilová
Deputy Head of CZELO office

*The EU Framework Programme for Research and Innovation remains one of Europe's most powerful tools to support excellence, tackle global challenges, and boost scientific progress. Behind every successful project is a story worth sharing and that is precisely what this brochure aims to showcase.*

*IGLO offices across Europe and beyond play an important role in helping these projects take shape, offering local expertise and facilitating access to EU opportunities through close cooperation with institutions and stakeholders.*

*A big thank you to all IGLO members who contributed their stories. It took a bit of chasing (and some creative calendar management), but in the end, we gathered a wonderful collection that truly reflects the strength and diversity of our network. We hope you enjoy reading it!*

IGLO
INFORMAL GROUP OF RTD LIAISON OFFICES

The **Informal Group of R&I Liaison Offices (IGLO)** in Brussels was founded in 1992.
As an informal network of Brussels-based non-profit R&I liaison offices, IGLO's primary aim is to facilitate and enhance the interaction, information exchange and co-operation between Members of IGLO, their national research systems and the European institutions on issues related to EU research and innovation actions, in particular, the EU-Framework Programme for Research and Innovation and education programmes like Erasmus+.

The Membership for IGLO is open to **non-profit research and innovation liaison offices with an official Brussels office** and a clearly **separated role** from the permanent representation or mission of their country to the EU.
The network is composed of different organisations with diverse interests. Therefore, the network cannot draft common positions or joint statements of a political nature.

**Core Principles of IGLO:**

- willingness for knowledge sharing and collaboration based on trust
- active and regular participation and contribution for the network by its members
- informal character for exchanging with EU institutions

IGLO is organized and structured into a core group of its head of offices **IGLO Core**, a yearly elected **Chair** (2024 - 2025 IGLO Chair is Czech Liaison Office for Education and Research) with a **Secretariat** and **R&I related Working Groups** which are open to all IGLO Members and their staff.
Once a month, open events on R&I topics in Brussels (IGLO Open) are organized by IGLO Members.

# IGLO MEMBERS

**AUSTRIA | FFG**
THE AUSTRIAN RESEARCH PROMOTION AGENCY

**BELGIUM | FWO**
RESEARCH FOUNDATION – FLANDERS

**BELGIUM | FNRS**
FONDS DE LA RECHERCHE SCIENTIFIQUE

**BULGARIA | BGLOR**
BULGARIAN LIAISON OFFICE FOR RESEARCH

**CYPRUS | EOC**
EUROPEAN OFFICE OF CYPRUS

**CZECHIA | CZELO**
CZECH LIAISON OFFICE FOR EDUCATION AND RESEARCH

**DENMARK | DANRO**
DANISH EU RESEARCH LIAISON OFFICE

**ESTONIA | ELO**
ESTONIAN LIAISON OFFICE FOR EU RTD

**FINLAND | FILI**
FINNISH LIAISON OFFICE FOR EU R&I

**FRANCE | MIFJC**
MAISON IRÈNE ET FRÉDÉRIC JOLIOT-CURIE, FRENCH SCIENCE AND INNOVATION PLATFORM IN BRUSSELS

**GERMANY | KOWI**
EUROPEAN LIAISON OFFICE OF THE GERMAN RESEARCH ORGANISATIONS

**HUNGARY | NRDIO**
BRUSSELS OFFICE OF THE NATIONAL RESEARCH, DEVELOPMENT AND INNOVATION OFFICE OF HUNGARY

**IRELAND | ENTERPRISE IRELAND**
BRUSSELS OFFICE

**ISRAEL | ISERD**
THE ISRAEL-EUROPE R&D DIRECTORATE

**ITALY | CNR**
NATIONAL RESEARCH COUNCIL OF ITALY

**ITALY | ENEA**
ITALIAN NATIONAL AGENCY FOR NEW TECHNOLOGIES, ENERGY AND SUSTAINABLE ECONOMIC DEVELOPMENT

# IGLO MEMBERS

## LATVIA | LAT.TECH
LATVIAN OFFICE FOR INNOVATION AND TECHNOLOGY IN BRUSSELS

## LITHUANIA | LINO
LITHUANIAN RDI LIAISON OFFICE IN BRUSSELS

## MOLDOVA | MOST
MOLDOVAN OFFICE FOR SCIENCE AND TECHNOLOGY

## THE NETHERLANDS | NETH-ER
NETHERLANDS HOUSE FOR EDUCATION AND RESEARCH

## NORWAY | NORCORE
NORWEGIAN CONTACT OFFICE FOR RESEARCH, INNOVATION AND EDUCATION

## POLAND | POISCA
POLISH SCIENCE CONTACT AGENCY OF THE POLISH ACADEMY OF SCIENCES

## ROMANIA | ROST
NATIONAL AUTHORITY FOR RESEARCH
ROST - ROMANIAN OFFICE FOR SCIENCE AND TECHNOLOGY TO EU

## SLOVAKIA | SLORD
SLOVAK LIAISON OFFICE FOR RESEARCH AND DEVELOPMENT

## SLOVENIA | SBRA
SLOVENIAN BUSINESS & RESEARCH ASSOCIATION

## SOUTH KOREA | KERC
THE KOREA-EU RESEARCH CENTRE

## SPAIN | SOST
SPANISH OFFICE FOR SCIENCE AND TECHNOLOGY

## SWEDEN | SWERI
SWEDEN'S RESEARCH AND INNOVATION OFFICE IN BRUSSELS

## SWITZERLAND | SWISSCORE
CONTACT OFFICE FOR EUROPEAN RESEARCH INNOVATION AND EDUCATION

## UKRAINE | GUARD
(GLOBAL PROMOTION OF UA R&D) - LIAISON OFFICE IN BRUSSELS FOR UA R&D COMMUNITY

## UNITED KINGDOM | UKRO
UK RESEARCH OFFICE

FFG
Promoting Innovation.

# FFG

## AUSTRIA

# DANUBE4ALL

## RESTORATION OF THE DANUBE RIVER BASIN FOR ECOSYSTEMS AND PEOPLE FROM MOUNTAINS TO COAST

DANUBE4all is a key project under the EU Mission "Restore our Ocean and Waters", aiming to restore freshwater ecosystems in the Danube River Basin (DRB). It is developing a comprehensive, scientifically grounded, and practice-oriented Restoration Action Plan to guide future interventions along the entire basin.

The project addresses gaps in knowledge, awareness, and participation by working closely with local communities, business stakeholders, and policy-makers. Its goal is to implement nature-based solutions (NBS) that enhance biodiversity, reduce flood and drought risks, and foster social and economic resilience.

**Strong Austrian involvement:** Coordinated by the University of Natural Resources and Life Sciences, Vienna (BOKU), DANUBE4all features the pristine "Paradeis Island" in the Upper Danube as a demonstration site. This location embodies the connection between cultural heritage, ecological potential and European cooperation.

**Key impacts and results to date:**

- A GIS tool was developed to support stakeholders in planning restoration efforts, focusing on connectivity, NBS, and ecosystem services.
- Scientific output includes publications in high-impact journals.
- Additional funding was secured to expand demo sites and improve river literacy.
- Restoration activities in the Danube Delta were extended due to strong local engagement.

**Policy relevance and outreach:**

- Seven local workshops across Danube countries
- Three Dam Removal Europe seminars in the region
- Two clustering events and three Multi-Actor Fora to engage citizens and river commissions
- Two policy briefs in preparation on freshwater and transitional water ecosystems

DANUBE4all demonstrates how river restoration can deliver measurable benefits for nature, communities, and regional policy – redefining the role of research and innovation in achieving environmental and societal goals.

More information

# QUTECHSPACE

## FROM LAB TO ORBIT: ADVANCING SPACE QUANTUM COMMUNICATION

**QuTechSpace** supports the EU's ambition to achieve sovereignty in space quantum communication. Coordinated by the Austrian QtLabs - Quantum Technology Laboratories GmbH, the project brings together research institutions, new space companies, quantum developers, and major system integrators to advance critical technologies from lab development to space application.

**Project objectives:**

- Develop and advance three key components:
  - Entangled Photon Source (EPS)
  - Prepare-and-Measure (P&M) source
  - Post-processing software for Quantum Key Distribution (QKD) protocols
- Improve performance (e.g. higher sending rates)
- Reduce Size, Weight and Power (SWaP) needs
- Achieve space qualification for all components

In addition to technological advancement, QuTechSpace plays a key role in supporting European standardisation, contributing to secure, interoperable, and scalable space quantum communication networks.

**Key outcomes and ambitions:**

- Advancement of components to TRL 6 through environment testing
- Successful lab demonstration of a full end-to-end quantum chain
- Enabling future applications such as space-based QKD and quantum internet infrastructure
- Delivery of strategic recommendations for the next generation of EU quantum systems beyond the project's end in October 2026

QuTechSpace is more than a research project – it is a cornerstone of Europe's secure digital future, translating fundamental research into strategic capability for the space domain.

More information

# EUH2STARS

## EUROPEAN UNDERGROUND $H_2$ STORAGE REFERENCE SYSTEM

EUH2STARS is a flagship demonstration project focused on large-scale underground hydrogen storage (UHS) in depleted natural gas reservoirs. Coordinated by RAG Austria AG and supported by the Clean Hydrogen Partnership, the project aims to bring hydrogen storage solutions to Technology Readiness Level 8 by the end of the decade.

Building on Austria's Underground Sun Storage 2030 (USS 2030) pilot – which reached TRL 6 – the project applies proven methods to a broader European context. The consortium includes gas storage operators, technology providers, utilities, research organisations, and public authorities working together to define a scalable and replicable model for UHS across Europe.

**Project objectives:**

- Demonstrate safe, efficient, and integrated UHS systems at TRL 8
- Define EU-wide guidelines and technical standards for UHS
- Convert existing underground natural gas storages into hydrogen-compatible systems
- Integrate UHS into a future European hydrogen infrastructure

**Key outcomes and ambitions:**

- Use of the greater Linz area (Upper Austria) as a real-world demonstration site, showcasing how green hydrogen can store summer solar energy for $CO_2$-free winter heating and year-round electricity
- Planned replication at additional sites in Hungary (HGS), the Netherlands (Shell), and Spain (TES)
- Development of stakeholder engagement strategies and infrastructure design in the early project phase

EUH2STARS addresses one of Europe's key energy challenges: seasonal storage of renewable energy. By converting existing gas infrastructure into hydrogen storage, the project provides a climate-neutral, secure, and scalable solution for the energy system of tomorrow.

More information

fwo

FWO

BELGIUM

# YOPA TESTIMONIAL BY THE INSTITUTE OF TROPICAL MEDICINE (ANTWERP)

A vast majority of teenagers do not meet guidelines for healthy movement behaviours (i.e. physical activity, sedentary behaviour and sleep), posing major risks for developing multiple non-communicable diseases (NCDs). Sustainable implementation of lifestyle interventions focused on teenagers is a key challenge.

The **YoPA** or Youth Participatory Action project, focuses on promoting health equity by engaging adolescents in urban settings in a co-creation process to implement community interventions that will improve their physical activity and well-being. The project obtained funding from Horizon Europe's Health Cluster, addressing the call topic **'Non-communicable diseases risk reduction in adolescence and youth**'.

Launched in 2023 and running for five years, YoPA proposes a participatory, youth-centred approach to four urban communities in Denmark (Aalborg), the Netherlands (Amsterdam), Nigeria (Osogbo), and South Africa (Soweto). Adolescents aged 12-19 year work alongside researchers, urban planners, policymakers, and community leaders to co-create evidence-based interventions addressing physical activity and other health-related issues.

YOPA applies a participatory and complex systems perspective in a youth-centred co-creation processes addressing the challenges of health inequities and physical inactivity.

The project is a collaboration between 10 partners, research institutes, municipalities and NGOs: Amsterdam University Medical Centre, Netherlands, Stichting Alexander, Netherlands, the City of Aalborg in Denmark, The University of Southern Denmark, the Universidade Lusofona in Portugal, Redeemer's University in Nigeria, the NGO VARCE, the University of Witwatersrand in Johannesburg, South Africa, Wits Health Hub, and the Institute of Tropical Medicine (ITM) in Antwerp, Belgium.

**The Institute of Tropical Medicine, Antwerp, Belgium (ITM)** is responsible for the application of the realist evaluation methodology, to better understand the mechanisms underlying the co-creation processes in the different settings. The complexity-oriented methodology of Realist Evaluation is ideally suited to better understand how the interaction between context and mechanisms underlying collective action generate outcomes. The aim is to better understand how co-creation in the different settings is being implemented by local actors and how the co-creation process contributes to adolescents' health and well-being.

Furthermore, YoPA will develop an open access Toolbox to share its approach with researchers and policymakers, fostering sustainable, youth-led solutions for healthier urban environments.

More information

# EITHOS TESTIMONIAL BY VUB – CDSL (BRUSSELS)

The **EITHOS** project aims to develop a **"European Identity Theft Observatory System" (EITHOS)**, empowering EU citizens, Law Enforcements Agencies (LEAs), and policy makers to further contribute to the prevention, detection, and investigation of crimes related to Online Identity Theft (OIDT) and identity related crimes online (IRCO). The project runs from October 2022 to September 2025.

The overarching goal of the EITHOS project is to **build a system for OIDT and IRCO information and intelligence** in Europe for both citizens and LEAs. To this end, the EITHOS consortium strives to achieve the following objectives:

**a. Inform and educate** European citizens through the observatory itself and via innovative awareness campaigns, regarding the safety of their personal data and identity.
**b**. **Identify and address challenges** that police authorities face against OIDT and IRCO, and **develop a robust software toolset** for detecting fake media to support them and enhance their investigations.

The proposed system will provide easy access to information and intelligence about previous and current identity theft related trends (such as the methods that fraudsters follow to steal information, personal data protection, or the ways that victims can be supported) through its front end, while offering a cutting-edge AI-based technological toolkit via its back end. Additionally, the project will analyse the societal impact of identity theft, as well as the legal framework under which the utilisation of AI remote technologies and e-evidence exchange can be achieved.

**The Cyber and Data Security Lab (CDSL)** is part of the internationally renowned research group on Law, Science, Technology and Society (LSTS), within the Faculty of Law and Criminology at **Vrije Universiteit Brussel** (VUB). VUB-CDSL is at the forefront of the rapidly growing field of cybersecurity and information security law and policy, investigating the relationship between EU laws and policy on cybersecurity, privacy and data protection and the use of cutting-edge technologies in the wider context of law enforcement and the criminal justice system.

The research group aims to set a new paradigm in the domain of information security, with legal and ethical considerations built-in as integral parts of the process, in line with the 'by-design' and 'by-default' principles, ensuring that citizens have confidence that technology not only achieves required security objectives, but doesn't undermine fundamental rights, societal values, or legal protections of privacy. Its role in the project entails: (i) ensure that research activities carried out by the partners adhere to legal requirements and ethical standards; (ii) examine current procedures of electronic evidence collection and exchange in the context of identity related crimes in online environments; (iii) identify and assess regulatory and ethical risks of the investigatory tools developed in EITHOS. Its contribution also includes the delineation of EITHOS' Data Management Policy, monitoring data processing activities and the identification of legal frameworks applicable to the investigation of OIDT related crimes.

More information

# UNCHAIN TESTIMONIAL BY STAD MECHELEN (PROVINCE OF ANTWERP)

The UNCHAIN or Urban logistics and plaNning: AntiCipating urban freigHt generAtion and demand including digitalisation of urbaN freight project, funded under Horizon Europe, aims to revolutionize urban logistics and space management by integrating data from various sources to create 12 city services that address congestion, safety, and environmental issues. It focuses on breaking down data silos and promoting public-private data exchange across a unified European mobility data space, enabling more informed decisions and greater efficiency.

Through collaboration between public authorities and logistics stakeholders, UNCHAIN will introduce a range of services, including decision support for land use strategy, Sustainable Urban Logistics Plans (SULPs), and Urban Vehicle Access Regulations (UVARs). These data-driven solutions will optimize the planning and operation of Urban Consolidation Centres (UCCs) and pick-up and drop-off zones, paving the way for sustainable urban logistics.
With UNCHAIN's innovative services, cities will be able to anticipate the impacts of policy measures, reduce freight transport's impact on the urban fabric, and work towards climate-neutral and smart cities. For logistics operators, alignment with sustainability goals will unlock mutually beneficial cooperation schemes, ensuring long-term collaboration and sustainable freight transport policies.

Ten European cities will serve as living labs and followers (incl. Mechelen), supporting the early adoption of UNCHAIN's results. Major players in the logistics industry, such as DHL and UPS, will contribute to the project's large-scale impact and feasibility.

Mechelen is a follower city within the UNCHAIN-project. These follower cities work alongside the primary demonstration sites to maximize the geographical coverage and replicability of solutions across Europe.

By cooperating in the UNCHAIN project, the city aims at addressing its current and future challenges in urban freight distribution:

1. Reduction in $CO_2$ emissions,
2. Reduction in number of vehicles,
3. Reducation in number of vehicles
4. Improvement of air quality,
5. Maintaining a balance between accessibility and liveability.

UNCHAIN is breaking the chains of traditional urban logistics, forging a path towards a more sustainable and efficient future. By harnessing the power of data, technology, and collaboration, UNCHAIN is unlocking the potential for change and creating a brighter, greener world for all.

More information

fnrs

LA LIBERTÉ DE CHERCHER

# FNRS

## BELGIUM

# RED-SPINEL

## RESPOND TO EMERGING DISSENSUS: SUPRANATIONAL INSTRUMENTS AND NORMS OF EUROPEAN DEMOCRACY

*Timeline: 2022-2026 - Coordinator: Université libre de Bruxelles, Belgium*

**A project born from urgency**

In recent years, Europe has witnessed increasing challenges to the foundations of liberal democracy: judicial independence, media freedom, and the rule of law are under pressure. RED-SPINEL was created to respond to this pressing issue. Its mission is to understand how the European Union can better protect its democratic values in the face of growing internal and external dissent.

Coordinated by the Institut d'études européennes (IEE) of the ULB, this research project brings together leading scholars, think tanks, and civil society actors to assess the EU's existing tools and offer concrete, evidence-based recommendations for action.

**Why it matters**

**RED-SPINEL** outcomes involve both scientific and policy-relevant deliverables. First and foremost, the project is a collaborative research effort working towards scientific innovation rooted in new theory building efforts and novel empirical data collection. RED-SPINEL's conceptual component focusses on a new interdisciplinary understanding and typology of 'dissensus' while its empirical work focusses on political and judicial venues at the EU, Member State and third-country levels. Building on its scientific innovations, RED-SPINEL also offers policymakers not only a diagnosis but a path forward, grounded in research and dialogue. Its findings can directly inform EU strategies in safeguarding democratic institutions and values for future generations.

Comparative studies on EU instruments in action – See HERE

- High-level policy recommendations to reinforce – See HERE
- Strategic input for reforming EU enlargement and conditionality tools – See HERE

A podcast series (Making Sense of EU) to broaden public dialogue Listen here:


Scheduled (by December 2026), among others:

- Several peer-reviewed articles and Special Issues scheduled over the coming 12 months, notably a Special Issue focused on the conceptual work accomplished within the project:

*Coman, R. and Brack, N. (2025), "Dissensus over liberal democracy: concept-building and typology", European Political Science.*

- Open Access Handbook on "The Palgrave Handbook of Dissensus over Liberal Democracy in Europe" to be published with Palgrave

- Open Access Foresight Report on "Prospects for Liberal Democracy and the Rule of Law in Europe"

More information

# BE-SAFE

## IMPLEMENTING A PATIENT-CENTRED AND EVIDENCE-BASED INTERVENTION TO REDUCE BENZODIAZEPINE AND SEDATIVE-HYPNOTIC USE TO IMPROVE PATIENT SAFETY AND QUALITY OF CARE

*Timeline: 2022-2027 – Coordinator: Université catholique de Louvain, Belgium*

**Benzodiazepines and sedative hypnotics (BSH)**, commonly known as "sleeping pills," or "sedatives," are medications mainly used for sleep difficulties and anxiety. Europe has the highest use of BSH worldwide. However, these drugs offer limited benefits and can cause significant adverse effects, such as falls, car accidents, and memory problems, especially in older people. They also incur substantial costs for patients and healthcare systems. Experts recommend limiting their use to a maximum of four weeks and suggest deprescribing them if used longer.


**Deprescribing** is a systematic process of identifying and discontinuing or reducing the dosage of medications when the harms outweigh the benefits. This process is patient-centred and supervised by a healthcare professional (HCP). Its implementation in clinical practice remains however limited.

The goal of BE-SAFE2 is to improve patient safety by addressing knowledge and practice gaps related to BSH deprescribing in Europe. The project aims to support patients and healthcare providers in reducing the use of sleeping pills and promoting safer ways to manage sleep problems.

To achieve this, BE-SAFE follows a structured approach: understanding the context, identifying barriers to deprescribing, and using scientific evidence to design practical tools for patients and healthcare providers.

The **interdisciplinary BE-SAFE consortium** brings together countries with diverse healthcare systems, clinical pathways, and socio-economic contexts from various parts of Europe (Belgium, Greece, Norway, Poland, Spain, Switzerland) and Canada. The project engages international experts in sleep medicine, geriatrics, guideline development, implementation science, health services research, and dissemination and communication. BE-SAFE aligns with international efforts like Choosing Wisely and other EU-funded projects working toward the same goal. It also actively involves patients and caregivers through its **Patients Partnership Advisory Council**.

Recently, the project published **a guideline on deprescribing benzodiazepines and sedative hypnotics (BSHs) for insomnia disorder, and the results of a European survey on physicians' barriers towards BSH deprescribing.** The project has finalized the development of a set of deprescribing tools for patients and healthcare professionals. These tools are currently being tested in a **Clustered Randomized Controlled Trial**. Ultimately, BE-SAFE will offer a European toolkit, adapted to each country's needs to support safer sleep practices.

More information

# DEEPHORIZON

## DEPLOYING ECOSYSTEMIC SOLUTIONS TO IMPROVE SOIL HEALTH AND UNCOVERING SUBSOIL FUNCTIONS IN THE CRITICAL ZONE

*Timeline: 2024-2028 – Coordinator: Université catholique de Louvain, Belgium*

Healthy soils are foundational to ecosystems and agriculture, but while topsoil has been extensively studied, subsoils (below 30 cm) remain under explored. This gap limits our ability to assess subsoil contributions to soil health, climate resilience, and sustainable land use. DeepHorizon targets this critical knowledge void, recognizing the vital role subsoil plays in providing ecosystem services, carbon storage, and agricultural productivity across Europe.

**How DeepHorizon addresses the challenge**

DeepHorizon is an ambitious EU-funded project that combines fieldwork, modelling, a multitude of cutting-edge analytical approaches, and stakeholder engagement to harness the full potential of deep soils. It aims to develop tools and strategies for accessing subsoil for sampling, assessing subsoil functions, and guiding sustainable soil management. The project will leverage a wide network of 40 sampling sites and over 100 test sites across continental Europe. A multi-actor approach involving farmers, scientists, and policymakers ensures viability and applicability of solutions.

**Key outcomes or benefits**

To date, a homogenised sampling campaign has been designed and is currently underway, with sampling teams expecting to generate approximately 8500 samples. Simultaneously, our analytical teams are preparing to receive and begin their pipeline of lab work to characterise subsoil biodiversity, structure, chemistry and more! This will paint a clearer picture of subsoils roles and capacities, and further work will aid in building decision-support tools for land managers and support EU-level policy recommendations. DeepHorizon will contribute to climate action by enhancing the understanding of deep carbon sequestration and will foster a new appreciation for subsoil importance among the public and scientific communities.

**Collaborations and funding**

The DeepHorizon project is coordinated by Université catholique de Louvain and involves 19 partners, including major research institutions, universities, and private entities from across Europe. The project is funded under the Horizon Europe programme (Project N° 101156701) and runs from October 2024 to September 2028.

Additional information

For more details, visit the project's page and follow our socials:

https://www.linkedin.com/company/deephorizon/

https://www.facebook.com/DeepHorizonProject

https://bsky.app/profile/deephorizonproject.bsky.social

More information

# BGLOR

## BULGARIA

# H2START

The **H2START** project stands as a pivotal initiative shaping the future of Europe's clean energy landscape. Funded under the European Union's flagship research programme, Horizon Europe, H2START is set to establish a cutting-edge Centre of Excellence for Hydrogen Technologies in Stara Zagora, Bulgaria, driving Europe's ambition to become a global leader in green hydrogen innovation and energy transition.

Hydrogen is widely recognized as a cornerstone for Europe's sustainable future, essential for decarbonizing hard-to-abate sectors such as heavy industry, transport, and power generation. H2START's development of advanced hydrogen research and innovation capabilities directly supports the European Green Deal's goal of climate neutrality by 2050. By positioning Bulgaria - and the wider Southeast European region - as a hub for hydrogen technology, the project strengthens Europe's strategic autonomy in energy and reduces dependence on fossil fuel imports.

The initiative's significance lies not only in technological advancement but also in its socio-economic impact. H2START will create high-skilled jobs, foster regional economic growth, and promote knowledge sharing across Europe. Its seven state-of-the-art laboratories will serve as innovation engines, accelerating the development, testing, and commercialization of green hydrogen solutions that can be replicated across the continent.

Stara Zagora's industrial heritage and favorable climate conditions provide an ideal foundation for large-scale green hydrogen production, potentially yielding up to 500 tonnes annually. This aligns with the EU's vision of creating "Hydrogen Valleys"—integrated ecosystems where hydrogen production, storage, and utilization are seamlessly connected to support sustainable industrial clusters. Such ecosystems are key to driving the energy transition and achieving Europe's ambitious carbon reduction targets.

H2START exemplifies the core values of Horizon Europe by fostering collaboration among academia, industry, and government across borders. This multidisciplinary, pan-European approach is crucial for overcoming technological and market challenges, ensuring that Europe remains at the forefront of global clean energy innovation.

In essence, H2START is not just a regional project - it is a strategic European investment in the future of energy, sustainability, and economic resilience. By harnessing hydrogen technologies, the project empowers Europe to lead the global transition to a low-carbon economy, secure energy independence, and build a greener, more competitive continent for generations to come.

More information

# AEGIS-IMB: STRENGTHENING EUROPES BIOMEDICAL FUTURE THROUGH EPIGENETICS

The **AEGIS-IMB** project, supported by the European Union's Horizon Europe programme, is a transformative initiative aimed at elevating the Roumen Tsanev Institute of Molecular Biology (IMB-BAS) in Bulgaria to the forefront of global research in epigenetics and chromatin biology. Launched in March 2023 and running through February 2028, the project aligns with Europe's strategic goals to foster scientific excellence and inclusiveness across all member states.

At the heart of AEGIS-IMB is the ambition to deepen understanding of epigenetics—the study of gene expression changes that do not involve alterations to the DNA sequence. This field is critical to unraveling the complexities of diseases such as cancer, metabolic syndromes, and neurodegenerative disorders. As Europe faces growing healthcare challenges from an aging population and rising disease burden, breakthroughs in epigenetic research are increasingly seen as vital for developing innovative diagnostics and therapies.

AEGIS-IMB is spearheaded by the establishment of an ERA Chair, held by Professor Stefan Dimitrov, a globally recognized leader in epigenetics. His leadership is central to building a vibrant, collaborative research environment that nurtures early-career scientists and promotes sustainable growth within the IMB-BAS. Through training programs, infrastructure upgrades, and international collaboration, the project aims to make IMB-BAS a nucleus for high-impact biomedical research in the region.

The project's broader significance lies in its ability to bridge research disparities within the EU. By strengthening Bulgaria's scientific capabilities and embedding the institute within international research networks, AEGIS-IMB supports the EU's mission of spreading excellence and widening participation. This not only curbs regional brain drain but also diversifies the sources of innovation across Europe.

Moreover, the advancements from AEGIS-IMB are expected to bolster Europe's competitiveness in the global life sciences arena. By focusing on emerging areas of epigenetics, the project complements EU goals in health, well-being, and digital transformation.

In conclusion, AEGIS-IMB is more than a scientific initiative—it is a strategic investment in Europe's future. It embodies the EU's commitment to inclusive innovation, capacity building, and collaborative research that transcends borders. As it progresses, AEGIS-IMB promises to shape a more resilient, research-driven European Union capable of addressing the health challenges of tomorrow.

More information

# DRONAMICS: PIONEERING EUROPE'S CARGO DRONE REVOLUTION

**Dronamics,** a Bulgarian startup, is at the forefront of transforming Europe's logistics landscape through its groundbreaking cargo drone technology. Supported by the European Union's Horizon Europe programme, specifically the European Innovation Council (EIC) Accelerator, Dronamics is developing a fleet of long-range, fuel-efficient drones designed to deliver cargo swiftly and sustainably across the continent.

The centerpiece of Dronamics' innovation is the "Black Swan," a fixed-wing, remotely piloted aircraft capable of carrying up to 350 kilograms of cargo over distances of 2,500 kilometers. Requiring only 400 meters of runway, the Black Swan can operate from small airstrips, enabling access to remote and underserved regions. This capability is particularly beneficial for areas where traditional logistics infrastructure is lacking, such as the numerous islands of Greece, where Dronamics plans to initiate its commercial operations.

Delivering Today
DRONAMICS

In May 2023, Dronamics achieved a significant milestone when the Black Swan completed its first successful flight, marking a pivotal step toward operational deployment. The company's vision includes establishing a network of droneports across Europe, starting in the Mediterranean, to facilitate same-day, cross-border deliveries. These droneports will serve as hubs for the Black Swan fleet, enhancing the efficiency and reach of cargo delivery services.

Environmental sustainability is a core component of Dronamics' mission. The Black Swan is designed to reduce carbon emissions by up to 60% compared to traditional air freight methods. Furthermore, Dronamics is exploring the development of a hydrogen-powered variant of the Black Swan, aiming to achieve net-zero emissions and further minimize the environmental impact of cargo transportation.

The European Union's support, including a €2.5 million grant from the EIC Accelerator, underscores the strategic importance of Dronamics' work. This funding facilitates the development of the drone fleet and the establishment of droneports, aligning with the EU's objectives to foster innovation, enhance connectivity, and promote sustainable transportation solutions.

Dronamics' advancements hold significant implications for Europe's future. By revolutionizing cargo delivery, the company addresses critical challenges in logistics, particularly in remote and underserved areas. The integration of drone technology into the supply chain enhances resilience, reduces environmental impact, and supports economic development across the continent.

As Dronamics continues to develop and deploy its cargo drone solutions, it exemplifies the transformative potential of innovation supported by Horizon Europe. The company's progress not only positions Europe as a leader in advanced logistics but also contributes to a more connected, sustainable, and inclusive future.

More information

European Office Cyprus

# EOC

## CYPRUS

# PREPARED - PROACTIVE PANDEMIC CRISIS ETHICS AND INTEGRITY FRAMEWORK

In times of crisis, accelerated research saves lives. The **PREPARED** project designed a framework to accelerate research without sacrificing ethics and integrity values.

The framework was built on the highly successful TRUST Code, which was adopted by the European Commission in 2018 and by further high-profile adopters around the world, e.g. NATURE, since.

For the new PREPARED Code, research was undertaken in 9 languages to guide researchers during pandemics. The new TRUST Code Supplement provides ethics and integrity advice for research in fragile settings. Both codes are short, jargon-free and have benefitted from extensive consultations, including with marginalized populations.

The project is funded under Horizon Europe and specifically the call: "HORIZON-WIDERA-2021-ERA-01-90 - The challenges of research ethics and integrity in response to crisis: the coronavirus pandemic and beyond".

PREPARED
RAPID. EFFECTIVE. ETHICAL.

The main outputs from PREPARED will be launched at the UNESCO in early June 2025. The PREPARED Code is currently available in 13 languages accompanied by a Springer book, and highly engaging training material.

Another very impactful output is the PREPARED mobile application on ethics and integrity in times of crises and the training materials researchers can use through the PREPARED App.

**Consorcium**:

UCLan Cyprus (COO)
European and Developing Countries Clinical Trials Partnership – EDCTP
UNESCO
European Network of Research Ethics Committees – EUREC
Amsterdam university medical center - Amsterdam umc
Partners for Health and Development in Africa – PHDA
Research and Information System for Developing Countries – RIS
Finnish National Board on Research Integrity – TENK
Fudan University – FDU
Vilnius University – VU
University of the Witwatersrand – WITS
Associated partner: University of Central Lancashire – UCLan
INTERDISCIPLINARY CENTRE FOR LAW, ALTERNATIVE AND INNOVATIVE METHODS – ICLAIM
Seoul National university – SNU
Foundations Global value Alliance – FGVA
Trilateral Research Ireland - TRI IE

More information

# FOSTERING F.A.I.R. DATA AND STANDARDS IN RARE HEMATOLOGICAL DISEASES (HEMAFAIR)

**HemaFAIR** strengthens Cyprus's role in rare haematological disease (RHD) research by promoting the adoption of FAIR principles for data management. Through a robust EU-wide network, it builds capacity in biomedical informatics, ethics, and patient-centred research. Key actions include training programmes, mentoring, staff exchanges, and collaborative research.

The FAIRification of two haemoglobinopathy platforms, highly relevant to Cyprus, demonstrates how structured data can accelerate innovation and societal impact.
The project is funded under the Twinning - HORIZON-WIDERA-2023-ACCESS-02 call.

HemaFAIR fosters digital innovation, FAIR data management, and ethical practices across patient-centred research in Cyprus health-system. The integration of PROMs into local and international registries supports better diagnostics and treatment strategies. The training programme addresses specific local needs while expanding outreach to Widening countries. These efforts yield immediate benefits—stronger research capacity, enhanced collaboration, and cost-effective health solutions—while building a foundation for long-term impact.

Horizon Europe Widening (Project: 101159589 — HemaFAIR — Twinning - HORIZON-WIDERA-2023-ACCESS-02)
Cyprus Institute of Neurology and Genetics, Cyprus – Coordinator
Amsterdam University Medical Center (AUMC), Netherlands
Leiden University Medical Center (LUMC), Netherlands
Vall'd Hebron Barcelona Hospital (VHIR), Spain
Fondazione Gianni Benzi ONLUS (FGB), Italy

More information

# STORYTELLING AS PHARMAKON IN PREMODERNITY AND BEYOND

## TRAINING THE NEW GENERATION OF RESEARCHERS IN HEALTH HUMANITIES



**StoryPharm** delivers an international, interdisciplinary, and intersectoral programme of doctoral training recruiting 19 fellows, who are trained to become highly skilled cultural historians specialising in premodern intellectual and healthcare worlds (Greco-Roman, Sasanian, Byzantine, Western Medieval, and Islamic). Acquiring interdisciplinary knowledge in Classics, Medieval Studies, Narrative Medicine, Health Humanities, and Medievalism, along with transferable skills, the fellows are trained to use, develop, and deploy cutting-edge approaches to storytelling and its ethical ramifications for scientific, professional, business, healthcare, and social purposes.

COVID-19 revealed the importance of storytelling and narrative medicine. It was through narrative that coronavirus clusters could be traced, while the exchange of individual coronavirus stories in interpersonal interactions and through the Internet provided consolation and relief to healthcare practitioners, patients and their families, as well as to the families of the diseased. The importance of narrative was also highlighted by the initial failure of the biomedical model to treat the new virus and grasp its bevaviour. However, the storytelling potential has yet to be exploited. As a timely project, StoryPharm capitalises on premodern storytelling to promote well-being and health in contemporary societies. To a general audience, stories have always been much more effective than technical explanation of diseases or other matters. StoryPharm trains a new generation of 19 highly skilled cultural historians, equipping them to explore the potential of premodern Medical Humanities for achieving scientific, economical, educational and societal impacts. StoryPharm creates a new paradigm of doctoral training, strengthening European innovation capacity by offering skills that are expected to be more and more in demand in the job market in humanities/social sciences, industry, and the healthcare sector, thus consolidating Doctoral Fellows' employability prospects in these and in Research & Innovation- and Research & Development-related sectors.

**Consortium**: University of Cyprus (coordinator), University of Bamberg, Lund University, University of Salerno, Cardiff University

More information

CZELO
CZECH LIAISON OFFICE FOR EDUCATION AND RESEARCH IN BRUSSELS

# CZELO

## CZECHIA

# CREATIC - CENTRAL EUROPEAN ADVANCED THERAPY AND IMMUNOTHERAPY CENTRE

*Personalised medicine as a key to treatment of rare diseases.*

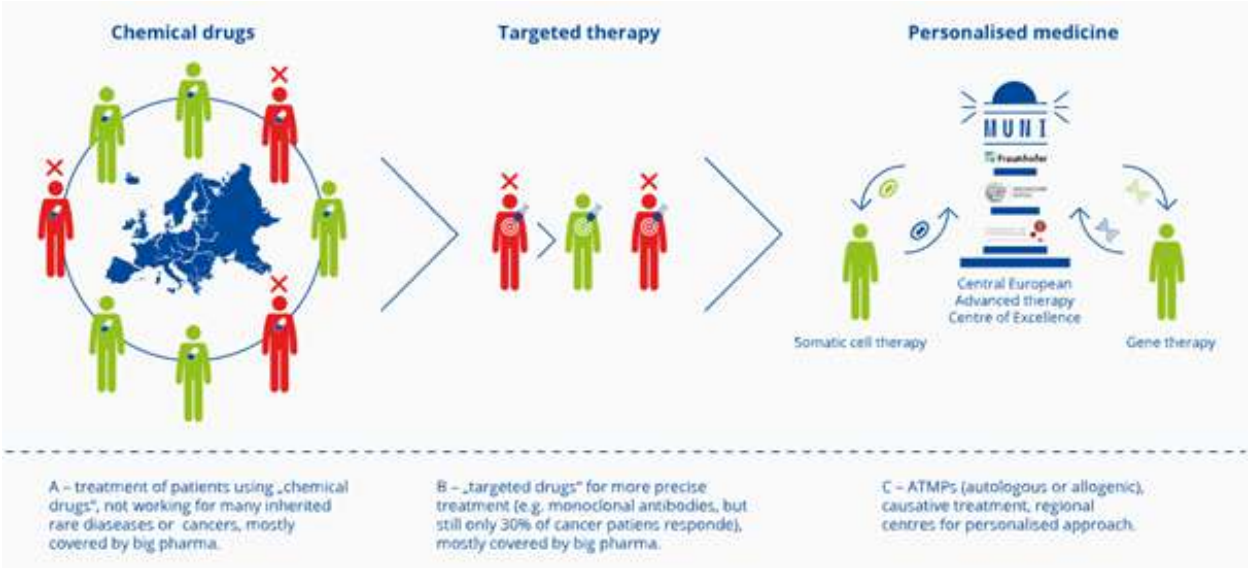
CREATIC

CENTRAL EUROPEAN ADVANCED THERAPY AND IMMUNOTHERAPY CENTRE

**CREATIC is Horizon Europe Teaming for Excellence project** submitted in 9/2022. Masaryk University has established a partnership with Fraunhofer Institute for Cell Therapy and Immunology IZI, Leipzig University and Copenhagen University to establish R&D centre of excellence focused on Advanced therapy medicinal products (ATMP). The strategic objectives of the project aim to use a grant of €15 million for 6 years in order to create an excellent facility for ATMP R&D focused on undiagnosed untreatable rare diseases, paediatric patients with high-risk tumours, and adult cancer patients suitable for **ATMP treatment.**

Traditional treatments based on chemical drugs do not always work for RARE DISEASES. They often focus on treating symptoms but fail to reverse the course of the disease itself. Personalised medicine using cell and gene therapies has the potential to reverse the negative prognosis of patients with unmet medical needs for whom there is no currently available conventional treatment.

More information



# MIWA TECHNOLOGIES

Czech company **MIWA Technologies,** which stands for Minimum Waste is redefining how everyday products are sold by offering a circular retail system that eliminates single-use packaging. Customers shop using smart, reusable containers, while retailers benefit from a fully digital, data-driven supply chain that streamlines logistics and reduces waste. MIWA's solution helps supermarkets meet growing sustainability demands and adapt to evolving European regulations on packaging.

To support its scale-up, in 2021 MIWA became the first Czech company to receive both grant and equity funding from the EIC Accelerator, including an investment from the EIC Fund. This support accelerated installations across Europe and helped transition MIWA from pilot projects to serial production. The EIC investment also strengthened MIWA's position ahead of a new €5 million investment round, targeting impact and venture capital investors.

MIWA's system is already in use in Czech Albert supermarkets and stores in the Netherlands, Portugal and Germany.

More information

# GAMEINDEX

**Many contemporary digital games and VR experiences – including the Assassin's Creed series of historical games – claim to provide realistic representations of places or people. But how is this realism achieved, and which places and people get included?**

To answer this question, GAMEINDEX focuses on indexical representations – traces of real-life objects or people in the simulated worlds of digital games and VR. Such indices include 3D scans of buildings or the likenesses and performances of actors who provide motion capture data. GAMEINDEX will investigate indexical representation in digital games and VR using the following methods:

1) Ethnographic on-site research of indexical techniques, such as motion capture and photogrammetry,

2) Qualitative analyses of selected games that represent peripheral locations or groups of people,

3) Analysis of the public discourse about indexical techniques.

Fig. 1. The Vang Church in the Polish town of Karpacz as photographed in real life (left, source: Wikimedia Commons) and in *The Vanishing of Ethan Carter* (The Astronauts 2014), where it is narratively "relocated" into the United States.

In the final step, the project will synthesize empirical findings into a theory that will chart the relationships between production practices, game content, and public discourse, elucidating political and aesthetic dimensions of indexicality.
Due to the pressures to succeed on the globalized market, games have underrepresented and misrepresented peripheral locations and underprivileged groups of people.

So far, studies of representation in games have focused on tropes and stereotypes within the games' content. Thanks to its focus on indexicality, GAMEINDEX will provide a breakthrough in the study of media representations by transcending close readings and content analysis and studying how representation arises in the production process. The resulting theory will serve as a tool for critique, helping us understand how real locations and people are being exploited and reconfigured into entertainment products. At the same time, it will provide inspiration for developers to create more diverse and just representations of real-world phenomena.

More information

Ministry of Higher Education and Science

Danish Agency for Science and Higher Education

# DANRO

## DENMARK

# E-FERRY: TO TRAVEL IS TO LIVE...

Across the world, municipal leaders dream of using digital tech to optimise everything from refuse collection to public space and local transport but few cities are living this dream. Making a city smart means connecting hordes of sensors and actuators to the Internet of Things, and then turning the resulting data into actionable insights. Deploying the necessary systems is both expensive and disruptive, particularly as every city tends to start from scratch.

The ambition of the project was to design, build and demonstrate that a 100% electrically powered passenger and car ferry can sail significantly further than previous e-ferries. And it worked! Named Ellen, she went from being an experimental protype to becoming a stable, fast, and economical ferry. Passengers enjoy sailing with her. The e-ferry makes less noise, pollutes less, and does not smell like an old diesel-powered ferry ...and she even sails faster.

One of the advantages of an e-ferry, is that the electric system utilises the energy exceptionally well. 85% of the energy supplied by the ferry's chargers actually ends up propelling her forward. This is both due to a very efficient electric motor, which is even mechanically quite simple, and the fact that they are very small and light for their power output level. Ellen relieves the global environment of 4000 tons of CO2 plus other climate gasses annually, compared to a diesel ferry. The local environment benefits from half a ton of toxic particles not emitted. The CO2 emissions from producing the battery were already saved again during only 3 months of operation. Since they are expected to last for 10 years, it is a really good deal for the climate that Ellen has taken to the seas.

It is estimated that 80% of Europe's ferry routes are not longer than Ellens. She has thus "paved the way" for greener routes in the future. Remember, to travel is to live!

More information

# PREVENT-NCOV

## PROMISING RESULTS FOR NEW GENERATION OF COVID VACCINES

Many Europeans have been vaccinated and boosted with shots from Pfizer-Biontech or Moderna. Both vaccines are based on so-called RNA technology. But soon we may see a new generation of COVID vaccines based on cVLP technology, which is showing promising results, both in terms of high levels of antibodies and the longevity of the protection against COVID compared to the currently approved vaccines. It is also expected to be more efficient against new variants of COVID.

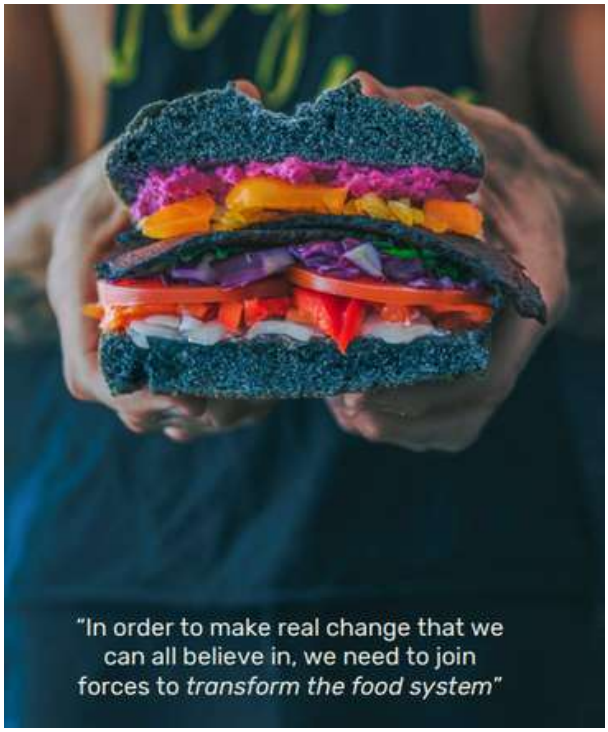
The new vaccine type was developed in the Prevent-nCoV project by an international team of researchers based in Denmark, the Netherlands, Germany and a Danish pharmaceutical company. Knowns as ABNCoV2, the vaccine is based on the so-called platform technology cVLP. cVPL is shorthand for Capid Virus-like Particle, which is a particle that mimics a virus. The vaccine is made up of an artificial virus shell, which is empty inside and thus cannot make humans sick. Spike proteins are fixed to the outside of the shell, which are identical to those, that the real virus uses to penetrate the body's cells. When injected into the human body, the immune system is activated and starts producing large quantities of antibodies against the virus.

While the researchers were not the first to emerge from the race for a vaccine, this new generation of vaccines is expected to be more effective against new mutations, something we will need in the future. Another advantage is that the vaccine is expected to be suitable for fridge storage. This will make it a very effective weapon in the global fight against future COVID epidemics.

More information

# FOODSHIFT2030

## TOMORROW'S GREEN KITCHEN




iCtizens in cities like Barcelona, Bari and Brasov are working full steam at creating tomorrow's green kitchen. They are central actors in a strong, international team comprising local authorities, SMEs, NGOs, universities, and network partners. Together they want to create a sustainable and lasting green transition, that goes all the way into our fridges. If it is up to the project, we will be eating many more plant-based meals based on resilient plants grown by local producers.

The target of the FoodSHIFT2030 project is to start an ambitious, citizen-led drive for change of the European food system towards a more circular, climate neutral future. This change necessitates that we more and more often eat e.g. a plant based burger instead of a meat-burger, that we increase our food safety and security, reduce the emission of greenhouse gases while maintaining our quality of life in both the cities and the countryside.

The key to create a citizen-driven transformation of the food system is the establishment of food laboratories in cities like Athens, Avignon, Barcelona, Bari, Brasov, Berlin, Copenhagen and Wroclaw. Each lab works on maturing, combining and upscaling existing innovations in production, distribution, consumption and recirculation of food. The door to the labs is open to anyone with an interest in and enthusiasm for the food system. They are welcome to collaborate to advance relevant food innovations, that contribute to tomorrow's climate neutral kitchen. The lab in Copenhagen focuses on innovations that deliver sustainable, healthy, and varied local food for professional kitchens while encouraging citizen engagement and job creation.

You and I are important co-creators of the strategies and plans for citizen-driven innovation of the food system – without us it will be hard to create real and lasting transformation. To support the effect for the environment, the economy and society of the innovations created, FoodSHIFT has developed a number of indicators. Hopefully they will all be in the green field by the end of the project in 2023. Bonne Appetit!

More information

Estonian Research Council

# ETAG

## ESTONIA

# UOP LAB

## A €32 MILLION ESTONIAN-FINNISH INITIATIVE DEVELOPS SMART CITY SOLUTIONS FOR EXPORT AROUND THE WORLD

Across the world, municipal leaders dream of using digital tech to optimise everything from refuse collection to public space and local transport but few cities are living this dream. Making a city smart means connecting hordes of sensors and actuators to the Internet of Things, and then turning the resulting data into actionable insights. Deploying the necessary systems is both expensive and disruptive, particularly as every city tends to start from scratch.

The new Finest Twins initiative, backed by €15 million from the EU Horizon 2020 programme and €17 million from the Estonian government (Ministry of Education and Research), is trying to change that paradigm by developing smart city solutions that can be applied anywhere in the world. Led by Tallinn University of Technology (TalTech), Aalto University, the Ministry of Economic Affairs and Communications of Estonia and Forum Virium Helsinki (an agency of the City of Helsinki), the initiative is looking to develop an "Urban Open Platform Lab (UOP Lab)"– an open and interoperable platform for connected sensors employed in smart city pilots: "There has been extreme fragmentation of technology applications in cities across Europe, and also across the world in general, and very often even the most basic services and solutions offered by cities do not work across borders," says Ralf-Martin Soe, the initiator of the project from TalTech. "Our focus is to facilitate a breakthrough of public services from being local to becoming cross-border." The project plans to support research and innovation across five domains – data, governance, mobility (transport), energy and the built environment.

The proposed UOP Lab will be based on open software and platform-standard solutions developed by the Fiware open source initiative. With a world-renowned digital government infrastructure based on open standards, Estonia is fertile ground for this kind of approach. Indeed, one of the key objectives of the Finest Twins initiative is to combine the smart city expertise of Aalto University and Forum Helsinki with Estonia's digital government knowhow. Helsinki is rebuilding an entire district of the city – Kalasatama – in line with smart city principles, at a cost of billions of euros, while Estonia's public sector offers a broad range of interoperable digital services underpinned by a robust electronic identification system. The Estonian government has "pretty much managed to fully transform from paper to digital, so there are no paper-based services left, if you exclude getting married and getting divorced," says Soe. Finnish and Estonian researchers will develop the UOP Lab at the new centre of excellence in Tallinn.

More information

# 5G-ROUTES

## ESTONIAN SCIENTISTS, INDUSTRY PARTNERS STRIVE FOR REGIONAL INTEROPERABILITY

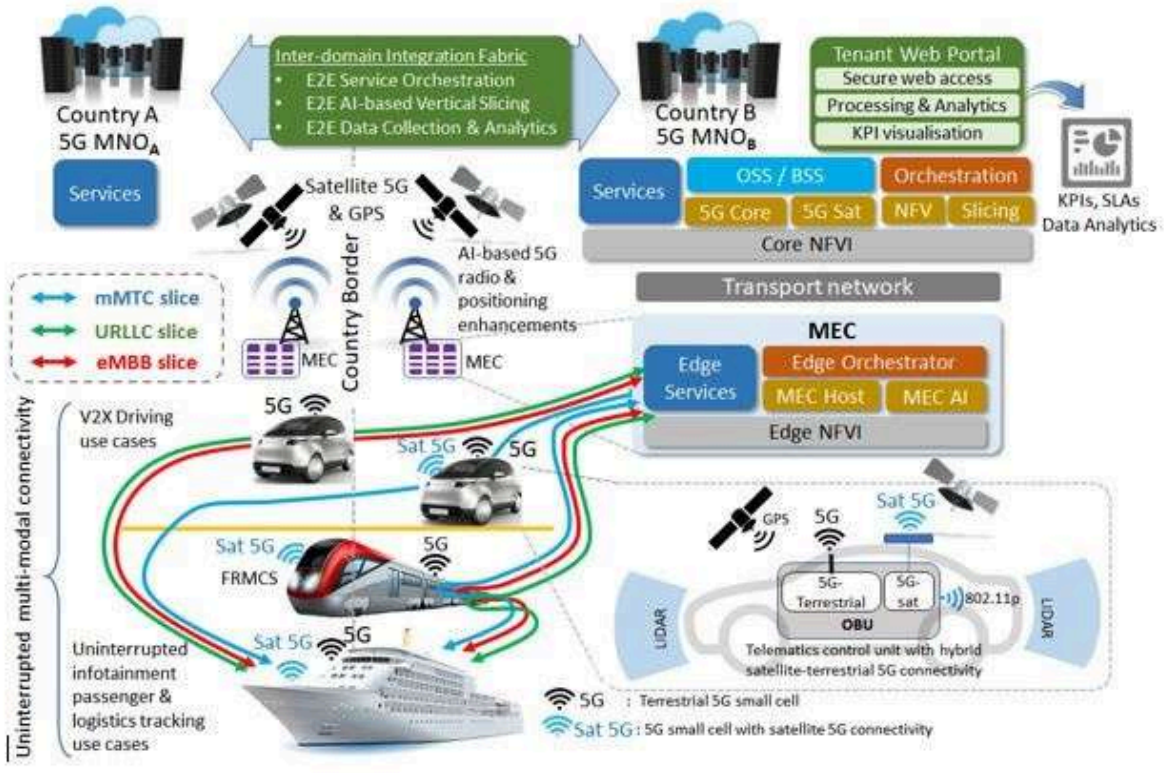
Estonian scientists are leading an ambitious project to test 5G network technology interoperability across Finland, Estonia, and Latvia, a cross-border corridor known as Via Baltica-North. The project's aim is to ensure zero interruption to services moving from one country to another, and avoiding any disruption.

The project, called 5G-Routes, has a substantial budget of €11 million, the bulk of which is funded through the European Commission, and is set to run through to August 2023. The 5G-Routes consortium has 22 members, among them Tallinn Technical University (TalTech).

The 5G-Routes consortium includes partners from around Europe from diverse disciplines. It involves enterprises, universities, research centres, and network providers. While there are numerous goals for 5G-Routes, a central theme is cross-border interoperability, particularly on the passenger ferries that connect Helsinki with Tallinn, but also at border crossings, where the national border runs quite literally through the centre of the city.

"For this project, we see that connected and automated mobility is one of the greatest potential use cases for 5G," says Margus Krupp, 5G program manager at Telia Estonia.

More information



# SYNBIOTEC

## SCIENTISTS MAKE FOOD SUPPLEMENTS FROM WOOD

*Senior Researcher and Team Leader, Petri-Jaan Lahtvee, showing his Tartu laboratory SynBioTEC. Photo credit: Marko Söönurm*

Engineering nature is not a distant future. Many of us have already tasted it. Coca-Cola Zero uses an extract from the stevia plant that has been converted into a sweetener. Engineered products such as food supplements, medicine, biofuel, paint, even food created by scientists already surround us, and this is just the beginning.

As scientists are working on finding solutions to a more sustainable and nature-friendly life, the big question is: how to replace the oil that is extracted from the ground? The solutions must be efficient, fast and cost-effective, because getting oil from the earth is easy. Too easy! Can bioengineering compete with the old traditional (and wasteful!) ways? Yes! By converting waste into value. Estonia has a significant wood processing industry. This makes Estonia a great place to experiment with this material, but also find ways to create more value. For example, Lahtvee's team ERA Chair found a way to make most of the wood that is already being processed anyway. The team collaborates with Europe's biggest wood pellet company Graanul Invest. This company is an Estonian firm based in the capital Tallinn. Instead of burning the pellet, they extract sugars from wood waste and use it as "food" for non-conventional yeast. Lahtvee's team is investigating options to turn them into oil that can be used in many ways – converted into biofuel, paint, lubricant, food or medicine. Otherwise these sugars would be lost without making use of them. Lahtvee's laboratory has partnered with top laboratories and universities around the world and also collaborates with companies. The main goal from the beginning has been to create solutions that can be used in real life and would not just stay within the white walls of their lab.

Written by: Marian Männi. This article was funded by the European Regional Development Fund through Estonian Research Council.

More information

FILI

FINLAND

FILI
Finnish Liaison Office
for EU R&I

BUSINESS
FINLAND

Research Council
of Finland

# NEW COTTON PROJECT: GOING BEYOND COTTON



The cost of 'fast fashion' is undeniable. The textile industry is sadly among the most polluting industries globally, generating a whopping 1.2 billion tons of CO2 per year, as huge amounts of textile waste are being landfilled or burned. Finnish engineers have the answer. This is the story of the pioneers who have a passion for problem-solving and practical solutions in making life better for us all: the people and nature. Imagine if there was a way to capture the value in waste by transforming it as a new and versatile textile fibre? Infinited Fiber is on a mission to make textile circularity an everyday reality.

In the EU-funded New Cotton project, their cutting-edge carbamate technology can process textile waste such as mixed fibre and other cellulose-based materials and give it a new life. In the future, circular and sustainable production and consumption can be a reality. Infinited Fiber shows us how post-consumer waste textiles can be recycled efficiently with lower environmental impact using the IFC technology. Working together with leading global brands, New Cotton project and Infinited Fiber works for a more sustainable fashion future for us all.

More information

# GRACE

## DETECTION, RESPONSE AND ENVIRONMENTAL IMPACT ASSESSMENT OF ARCTIC OIL SPILLS

Among many things, climate change has highlighted the search for new shipping routes in the Arctic. The problem is that increased shipping can lead to oil spills. As the area is remote, cold and icy, usual equipment may not suffice. This means that new solutions are needed for a more effective response.

This is the story of the innovative GRACE project for Integrated oil-spill response actions and environmental effects. GRACE has developed improved mitigation tools for better monitoring, response, and impact assessment such as the Environment & Oil Spill Response -analytical tool, a mechanism for environmental assessment to support oil response planning.

How do they do this, you may ask? They offer real-time, high-resolution data through a management system that uses web-based interfaces. The system creates alarms for potential oil spills while presenting data through graphs and tables. As a user, this helps you to calculate the statistical probabilities of oil spills occurring in the future: simple, yet efficient! According to Ms Kirsten Jørgensen, the project coordinator at the Finnish Environment Institute (SYKE), GRACE not only promotes the business potential for companies working in the industry, but also increases the public acceptance of offshore activities subject to thorough environmental assessments.

More information

# TOWARDS PLANT-BASED CARBON-NEGATIVE FUNCTIONAL MATERIALS




Think about textiles that could be used in your clothes or window shades, adapting their warming/cooling capacity based on the external temperature or solar illumination.

Protective covers that adapt to the weather could be made correspondingly to the needs of e.g., agriculture or other type of outdoor work.

The real advantage is that such functional textiles would indirectly decrease the need for heating/cooling many buildings and allow energy savings, thus providing an important economic opportunity. This reality could be closer than you thought.

In this EU funded project pioneering research is carried out with functional fibres. The study aims to develop smart materials that react to changes in their environment. It will clarify how, in response to changes in light or temperature, the soft materials could change colours or move. These kinds of fibres can be built into modular multifunctional textiles using traditional knitting and weaving techniques, leading also to more complex networks. In an interview, Assistant Professor Jaana Vapaavuori explained: "I am extremely eager to study functional materials, because by developing them it is possible to improve the environmental friendliness of buildings with material that autonomously change according to weather conditions. I am grateful to the EU for this funding, which enables research that is still in its initial stage, but which has potential to develop smart and energy-efficient applications which interact with their environment.". Materials that react autonomously could be used to develop solutions like blinds that react to temperature changes, or protective textiles for the needs of agriculture.

More information

MIFJC

FRANCE

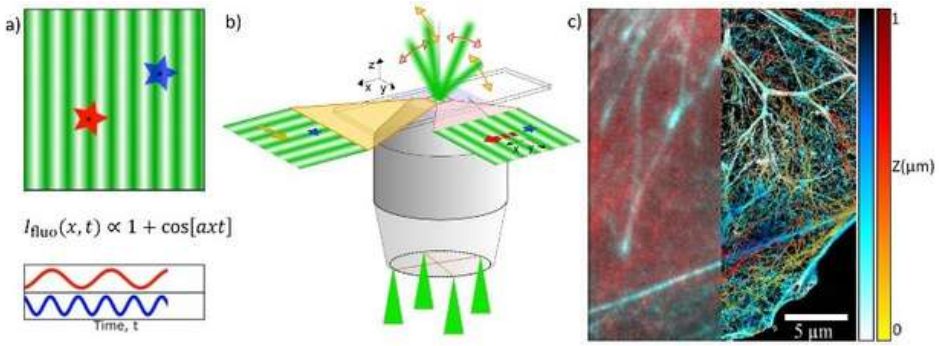
MAISON
IRÈNE ET FRÉDÉRIC
JOLIOT-CURIE

# TIMENANOLIVE

## TIME-BASED SINGLE MOLECULE NANOLOCALIZATION FOR LIVE CELL IMAGING

The TimeNanoLive project proposes a new concept for locating individual fluorescent molecules:

1. The position of a single molecule is coded by structured illumination with time-varying modulation that induces fluorescence modulation at a specific frequency for each point in the field of observation.
2. The position along x and y can be obtained by combining different illuminations. This principle can be extended to 3 dimensions.
3. The increased resolution and speed of acquisition will make it possible to observe the evolution of intracellular proteins in living cells and not just in fixed cells (diffraction-limited 3D images on the left and super-resolved images on the right of 2 components of the cytoskeleton (tubulin (red coding) and actin (blue coding).




**Sandrine Lévêque-Fort ERC Advanced Grant 2022**

Sandrine Lévêque-Fort is a research director at CNRS within Institut des Sciences Moléculaires d'Orsay (ISMO, CNRS / Université Paris Saclay). After a thesis on acousto-optical imaging at ESPCI, she did a post-doctorate on time-resolved fluorescence microscopy at Imperial College. In 2001, she joined the CNRS to develop innovative concepts in fluorescence microscopy applied to the observation of various biological problems. She proposed new approaches to super-resolved fluorescence microscopy, in order to reveal the organisation of proteins on a nanometric scale in cells or biological tissues. In 2016, together with her former PhD student Nicolas Bourg (CTO), Jean-Baptiste Marie (CEO) and Emmanuel Fort,

She co-founded **Abbelight,** a company offering a range of innovative solutions that use super-resolved fluorescence microscopy to quantitatively observe cellular organisation and gain a better understanding of the mechanisms behind various diseases. She was awarded the Irène Joliot Curie-Femme Entreprise prize in 2020 and was made a Knight of the National Order of Merit in 2022. She has been co-director of the ImaBio GDR since 2017.

More information

# EVERZOM

## EIC ACCELERATOR LAUREATE

Beyond academia, she co-founded EVerZom in 2019, a spin-off from CNRS and Université Paris Cité. EVerZom stands among the pioneers in exosome-based therapies, a significant revolution in the current therapeutic landscape of gene and cell therapies. Exosomes are biological nanoparticles secreted by cells that currently raise growing interest within the pharmaceutical industry due to their potent role in intercellular communication. They hold promising properties for treating a wide range of diseases with high unmet medical need.

Winner of the European EIC Accelerator Program in 2021, EVerZom aims to become the leading biotech in this field. The company has successfully developed an innovation platform protected by several patents, covering the entire technological value chain: cell sourcing, exosome generation, exosome loading, and formulation. By leveraging its platform, EVerZom aims to develop a pipeline of proprietary products in regenerative medicine, while establishing co-development partnerships in other therapeutic areas.

**Amanda Silva Brun - CNRS Research Director, EIC Accelerator 2021**

Amanda Silva Brun is a CNRS research director within the Matter and Complex Systems Laboratory at Université Paris Cité, specializing in nanomedicine, bioproduction, and regenerative biotherapies. Her research focuses on the development of technologies for producing and engineering extracellular vesicles (EVs), which are biological nanoparticles capable of regenerating damaged tissues. These innovations have significant applications in regenerative medicine and drug delivery. Laureate of an ERC grant in 2020, she was also awarded the CNRS Innovation Medal in 2021.

More information

# NEXTAIR

## MULTI-DISCIPLINARY DIGITAL ENABLERS FOR NEXT GENERATION AIRCRAFT DESIGN AND OPERATIONS

The NEXTAIR project funded under Horizon Europe programme (Cluster 5, HORIZON-CL5-2021-D5-01) and coordinated by ONERA brings together 16 partners from 6 European countries, including 4 leading aeronautical industries, 2 innovative SMEs and 9 renowned research organisations, to contribute to tackle the challenge of a more sustainable aviation, towards climate neutrality. NEXTAIR aims at developing innovative multi-disciplinary design methodologies, data-fusion techniques, and smart health-assessment tools to enable the digital transformation in aircraft design, manufacturing and maintenance required by the next generation of frugal aircraft and engines. In this framework NEXTAIR created methods and tools to:

1) improve and advance high-fidelity and multi-disciplinary modelling in design and optimisation processes, both using adjoints and gradient-free approaches.

2) account for all relevant sources of uncertainty by increasing the efficiency of uncertainty quantification and robust optimisation techniques

3) extend the usability of machine learning methods for smart health-assessment and digital twinning.

These capabilities are demonstrated on 4 technological streams based on today's most promising technologies for future aircraft:

1) high aspect-ratio wing and natural laminar flow;

2) next-generation of ultra-efficient large-size engines employing ducted fan or open-rotor concepts;

3) airframe/engine interactions which become more and more pronounced for integrating larger engines, with challenging aero-acoustic and aero-propulsive trade-offs;

4) specific internal engine components, with focus on turbine blades and heat-exchangers, taking into account manufacturing variations.

**Results achieved so far**

Results achieved so far step well beyond the state-of-art along several research directions. In the framework of advanced modelling and simulation capabilities, a new model for contrail microphysics, suitable for aircraft MDO has been developed and validated. This model provides a new discipline which was missing in the MDO framework of innovative aircraft design and engine integration although unavoidably needed (with other ones) to consider the physics of pollution in the development of new frugal concepts. New original adjoint capabilities have been developed as enablers for natural laminar flow design (thanks to continuous adjoint-to-turbulence transition models) and coupled aero-propulsive optimisations (thanks to adjoint body-force methods) that were missing in the literature while essential to prevent critical showstoppers due to inaccurate gradient prediction in the design of laminar wing shapes and innovative engine-airframe architectures. The use of Machine Learning (ML) techniques has shown a tremendous impact both for assimilation and characterisation of real data, as demonstrated on manufactured fan and turbine blades as well as at MDO level. Results obtained on representative design test cases have shown that smart DNN models can be used to replace high-fidelity physical models (e.g. turbulence, transition, heat transfer) and speed-up the resolution of MDO up to a factor 2 (also including the cost for DNN training) without damaging the accuracy of the final solution. ML models allowed to decrease by an order of magnitude (from days to hours) the time needed for digital reconstruction of in-service blades from either images or pointwise measurements, which enabled their analysis through high-fidelity CFD computations, thus, resulting in an end-to-end process for automated and fast performance characterization.

The impact on aircraft engine product development cycle is potentially huge, since digitally assessing the impact of manufacturing variation (deviated blade shapes from their design-intended one) on the engine performance early on the design stage, will reduce the amount of experimental testing needs. Similar considerations hold for automatic detection and segmentation of real blade damages that have been demonstrated by using CNN, which open the way towards smart maintenance technologies. Finally, the developments carried out on the top of the MDO engine GEMSEO strongly contribute to enable and facilitate the flexible integration of high-fidelity solvers in MDO chains as well as the management of distributed workflows, both on proprietary networks and exposed as web services. These developments ease the setup of MDO problem under uncertainty and the use of gradient-based and surrogate-based techniques for UQ through a multidisciplinary process in an efficient way, to adapt to the constraints of time-consuming industrial simulators. Therefore, the impact of these achievements could be considerable on the MDO community since these new capabilities in GEMSEO considerably reduce the MDO implementation effort (potentially from several weeks to a few days).

More information

KOWI

European Liaison Office of the
German Research Organisations

# KOWI

## GERMANY

# NEW PATHWAYS FOR EQUITABLE CLIMATE ACTION IN LINE WITH THE PARIS AGREEMENT AND SUSTAINABLE DEVELOPMENT


There is an urgent need to strengthen collective action to limit global warming to levels consistent with the long-term objective of the Paris Agreement. The Horizon Europe **NEWPATHWAYS** project, coordinated by the Potsdam Institute for Climate Impact Research, aims to inform solutions to strengthen action by developing and analysing next-generation Paris-aligned global and national low-emission transformation pathways for the next global stocktake in 2028.

The project objectives are to promote enhanced transparency, consistency, and clarity of GHG emission reduction commitments, identify opportunities to leverage equity and finance to strengthen collective climate action, and establish new national and global transformation pathways that limit temporary overshoot, rely on deep sectoral transformations, combine climate and nature protection, and are aligned with sustainable development and just transition objectives. The project will rely on a multi-level stakeholder dialogue to co-create knowledge and build user capacity to maximize relevance and uptake of its results. The NEWPATHWAYS consortium combines strong global and national pathway modelling capacity with expertise from the social sciences, economics and policy analysis. The robust global and diverse national modelling capabilities with simultaneous access to global and national policy debates will prove effective in providing critical information to global and national policymakers and stakeholders for strengthening climate action towards achieving the long-term objective of the Paris Agreement.

The international consortium launched its collaborative project at the beginning of January 2025, with the aim of completing it by the end of June 2028. The consortium includes renowned institutions from EU and associated countries (e.g. University of Oxford, Korea Advanced Institute of Science and Technology), as well as from non-EU countries such as the USA, Brazil, India, China, Vietnam, Saudi Arabia, and Kenya – highlighting the project's global reach and scientific diversity.

30 Years Leibniz Association

Advancing the scientific frontier on interdisciplinary climate impact research for global sustainability and contributing knowledge and solutions for a safe and just climate future– this is the twofold mission of the Potsdam Institute for Climate Impact Research (PIK), a member of the Leibniz Association and a leader in its field. The **PIK** integrates the latest understanding of the Earth system with the assessment of climate risks, and with the exploration of policies and pathways towards a manageable climate future. A **groundbreaking scenario study** in the top journal Nature is now looking far beyond today, presenting projections of the climate and environment up to the end of the century for different policy pathways.

More information

# WOKEGATE

## MINIMALLY INVASIVE ENDOSCOPES FOR NEURONAL ACTIVITY MONIMAGING ASSISTED SINGLE-CELL SPECIFIC ACTIVITY MONITORING AND OPTOGENETIC STIMULATION OF DEEP BRAIN STRUCTURES IN MOTILE AND AWAKEN ANIMAL MODELS

Severe neuronal disorders such as dementia affect more than 1 billion people globally and account for economic burden far exceeding that of cancer. The only chance of treating dementia is improving our understanding of how brains function at diverse levels of complexity. This will only be possible through better technologies, which already reflects in synchronised actions worldwide, such as the US Brain Initiative and EU Human Brain project.

The ERC Proof of Concept project, **WOKEGATE**, led by Professor Tomas Čižmár of the Leibniz Institute of Photonic Technology (IPHT), is a significant development of the original ERC project, LIFEGATE (H2020 Consolidator Grant). By extending the original concept of LIFEGATE, WOKEGATE enables the imaging-informed, single-cell specific activity monitoring and control of deep neuronal circuits in fully awake and behaving animals.

The Horizon Europe project successfully concluded at the end of April 2024 and has paved the way for a new opportunity through a subsequent EIC Transition grant. A European research team from Germany (including Tomas Čižmár of IPHT), the Czech Republic (The Institute of Scientific Instruments of the Czech Academy of Sciences) and Belgium (Neuro-Electronics Research Falnders, NERF) is now developing an innovative imaging technology to visualize neuronal processes in living organisms with high precision. The **NEUROGATE** project is working on a holographic endoscope that peers deep into the brain through an ultra-thin optical fiber – minimally invasive and with subcellular resolution. The European Innovation Council (EIC) is funding the development of this technology with €2.5 million to test its applicability to biomedical research.

Since 2017, **Tomas Čižmár** has been developing the technology of holographic endoscopes simultaneously at IPHT, a member of the Leibniz Association, and at the Institute of Scientific Instruments of the Czech Academy of Sciences (ISI, Brno). In 2024, this work has brought two important awards: the Czech Minister of Education's Prize and the Life Sciences award of the European Microscopy Society.

The **IPHT** conducts cutting-edge research in biophotonics, developing highly sensitive and precise optical technologies for applications in medicine, environmental analysis, energy, and security. Their work spans the full innovation chain—from fundamental research to practical solutions—guided by the principle "From Ideas to Instruments." A key focus is ensuring that their innovations benefit society through active knowledge and technology transfer.

More information

# IDERHA

## INTEGRATION OF HETEROGENEOUS DATA AND EVIDENCE TOWARDS REGULATORY AND HTA ACCEPTANCE

The IDERHA project, funded under the Horizon Europe partnership IHI, aims to transform the landscape of health data utilization across Europe. Coordinated by Fraunhofer Institute for Translational Medicine and Pharmacology ITMP, this ambitious initiative has received €23 million from the European Commission and involves 33 partners from academia, industry, and patient organizations, running from April 2023 to March 2028.

A key objective of IDERHA is to create a federated data space that enables the secure sharing and analysis of health data, facilitating improved clinical decision-making and patient access to innovative treatments.

IDERHA leverages advanced technologies to develop algorithms for risk profiling, diagnosis, and prognosis, particularly in oncology and positions Fraunhofer ITMP and its industrial partners at the forefront of health data innovation, including:

- **Enhanced research and development capabilities** through seamless, secure and fast access to diverse health data.
- **Advanced healthcare solutions** by fostering EHDS-compatible partnerships between academic and industrial entities working on electronic Health Data.
- **Effective translation of research outcomes into clinical practice** by shaping the regulatory landscape.
- **Improved patient outcomes** by development of performant risk profiling, diagnosis and prognosis AI/ML algorithms.
- **Sector-wide transformation** through platform interoperability.

This cross-border collaboration not only accelerates the development of innovative health solutions but also promotes harmonization of data practices across Europe, ultimately leading to a more integrated healthcare system.

IDERHA exemplifies how public-private partnerships can drive significant advancements in healthcare, paving the way for better health solutions for patients across Europe. As highlighted by the Industrial Project lead Johnson & Johnson, "IHI public-private partnerships enable cross-sector health research to develop innovations that would otherwise not be possible in this form."

More information

NATIONAL RESEARCH, DEVELOPMENT
AND INNOVATION OFFICE
HUNGARY

# NRDIO

## HUNGARY

# POC-TDM

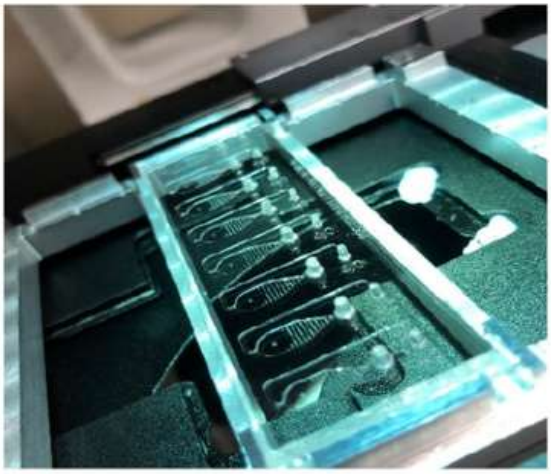
## DEVELOPMENT OF A POINT-OF-CARE MICROFLUIDIC DEVICE FOR THERAPEUTIC DRUG MONITORING IN CANCER TREATMENT

Chemotherapy remains the most widely used cancer treatment, yet its effectiveness is often compromised by a one-size-fits-all approach that overlooks individual patient differences. The POC-TDM MSCA project set out to change this paradigm by developing a cutting-edge microfluidic device capable of monitoring drug levels in patients' blood and mapping their unique pharmacokinetic profile. This personalized data serves as a novel biomarker, paving the way for tailored treatment protocols that optimize chemotherapy for each individual.

Cancer is one of the world's leading causes of death, claiming millions of lives annually. Alarmingly, an estimated 90% of cancer-related fatalities stem from drug resistance—cancer cells' ability to adapt and thrive despite treatment. One of the primary drivers of resistance is improper dosing; chronically low drug levels create an environment where cancer cells evolve and become more resilient. By personalizing chemotherapy through precise dosing protocols, the POC-TDM approach has the potential to make a profound impact on patient outcomes and, ultimately, global healthcare.

Throughout its course, the POC-TDM project attracted attention from various academic and professional circles. Surprisingly, high school students demonstrated remarkable enthusiasm, leading to multiple invitations to present the project at educational events. Today, the technology developed through POC-TDM is undergoing clinical testing, marking a crucial step toward real-world application.

The project's postdoctoral researcher benefited from invaluable support provided by the MSCA NCP at NRDIO. A specialized MSCA PF workshop offered strategic guidance, insights, and practical advice, contributing to a successful funding application on the first attempt.



More information

# FUTUREANTIBIOTICS

## ANTIBIOTICS OF THE FUTURE: ARE THEY PRONE TO BACTERIAL RESISTANCE?

Antibiotic-resistant bacteria pose a serious challenge. Despite new antibiotics in development, many could lose their effectiveness as bacteria adapt quickly. This threatens our ability to treat infections effectively, rolling back decades of medical progress. To confront this issue, the ERC-funded FutureAntibiotics project (2024-2029) aims to predict how well new antibiotics will work over time.

For this purpose, Principal Investigator Csaba Pál (HUN-REN Biological Research Centre Szeged) and his research team are seeking to establish the general principles shaping bacterial resistance to a wide range of antibiotic candidates currently in development. Relying on methods that Csaba Pál's Lab has recently developed, the project focuses on resistance evolution in a group of bacteria known for their ability to 'escape' the effects of antibiotics to map species-specific vulnerabilities, and is looking for answers to 4 specific questions:

1) what are the shared features of antibiotics which are less susceptible to resistance?

2) what are the species-specific differences in resistance evolution with implications on narrow-spectrum antibacterial therapies that could remain effective?

3) what can be inferred from the global biogeography and habitat-specificity of resistant bacteria about the clinical risks of resistance?

4) what are the potential links between resistance evolution and increased bacterial virulence?

Through addressing the above four issues, the project offers a ray of hope in the face of growing microbial resistance.

More information

# BEAMING

## THE BIOECONOMY EXCELLENCE ALLIANCE FOR STIMULATING INNOVATIVE AND INCLUSIVE GREEN TRANSITION

The bioeconomy is an economic system that aims the sustainable valorisation of renewable biological resources to produce a wide range of goods and services: think of it as using nature's renewable resources – plants, algae, and even organic waste – to create everything from food and materials to energy, instead of relying on oil and other resources that will eventually run out. While this sounds great in theory, making it work in practice faces some real challenges. Universities, businesses, governments, and communities need to work together much better to share knowledge and turn scientific discoveries into real-world solutions. We also need better policies and more collaboration across different fields of study to make this transition successful.


BEAMING is a Horizon Europe project that is working to solve these challenges. It brings together universities and research centres from multiple countries across Central and Southeastern Europe, including institutions in Serbia, Bosnia and Herzegovina, North Macedonia, and Albania, coordinated by Budapest University of Technology and Economics. By connecting Widening institutions with more established bioeconomy leaders,

BEAMING helps these regions build their innovation capacity and turn research results into practical applications that benefit their communities.

We focus on several key areas: training young researchers, improving how institutions work, encouraging different departments to collaborate, and promoting the open sharing of scientific knowledge. BEAMING also creates what we call Communities of Practice – ongoing collaboration networks where researchers, businesses, government officials, and community groups can work together on shared goals. Keeping the future in mind, we are developing joint research and innovation strategies to build a lasting alliance of partner organizations committed to driving an innovative and inclusive green transition.

The project is part of a broader EU effort to create a unified European Research Area. The ultimate goal is to help position Europe as a global leader in the bioeconomy – the shift toward using renewable biological resources instead of fossil fuels and finite materials. By strengthening research capabilities in regions that have traditionally had less participation in major European research programs, BEAMING contributes to making this green transition truly inclusive and sustainable across all of Europe.

More information

Enterprise Ireland

# ENTERPRISE IRELAND

IRELAND

# 20FIFTY PARTNERS: LEADING WATER STEWARDSHIP INNOVATION IN EUROPE

**Overview**:

As the world grapples with increasing water challenges, an Irish research and education organisation specialising in sustainability and climate action is making strides in delivering green programmes and world-class research. 20FIFTY Partners, a Limerick-based research and education organisation, is at the forefront of sustainability and climate action, with over 20 years of expertise in water stewardship, circular economy, and sustainable development. The organisation delivers evidence-based tools and programmes across Europe to both public and private sectors.


**Major Achievement:**

The company recently secured €1.2 million in Horizon Europe funding for two groundbreaking projects—Cornerstone and Resurgence—focused on water circularity, resource recovery, demand reduction, and decarbonisation of industrial water lifecycles. Remarkably, both of its submitted proposals were ccepted, a rare feat in such a competitive funding landscape.

**Project Highlights:**

**Cornerstone:**

- Involves 16 partners from 8 countries.
- Targets water, energy, and solute recovery in steel, paper, and chemical industries.
- Supports the EU's Processes4Planet objectives for sustainable industrial water management.

**Resurgence:**

- Aims to transform EU process industries into wastewater resource recovery hubs.
- Aligns with EU 2050 goals: climate neutrality, circularity, and competitiveness.
- Develops digital and treatment technologies to enhance water reuse and energy recovery.

**Strategic Impact:**

Both projects promote sustainable water use and aim to demonstrate 80% wastewater reuse by 2030. They will be piloted across seven industrial sites in Germany, Poland, France, and Spain, ensuring scalability and cross-sectoral impact.

**Legacy and Community Engagement:**

Since 2013, 20FIFTY has fostered a 400-member peer-to-peer network of industrial water users in Ireland, promoting best practices in water stewardship. Their work earned them the Water Governance Award from Water Europe in 2021.

**Support and Future Vision:**

Backed by the EPA and Enterprise Ireland, 20FIFTY is expanding its influence across Europe. The Horizon Europe funding validates their innovative approach and enables them to scale their impact, helping build water-resilient societies.

More information

# COLLINS AEROSPACE AND THE HECATE PROJECT: PIONEERING CLEAN AVIATION

**Overview**:

As the world seeks to tackle global warming, the search for a cleaner way to fly is in full flight, with one EU-funded project seeking to transform air travel by developing innovative hybrid-electric aircraft technology for regional aircraft.

As part of the EU's Clean Aviation Joint Undertaking, Collins Aerospace is leading the HECATE project (Hybrid-ElectriC regional Aircraft distribution TEchnologies), a Horizon Europe-funded initiative aimed at developing hybrid-electric propulsion systems for regional aircraft. This effort supports the EU's goal of achieving climate-neutral air mobility by 2050.


**Project Focus:**

HECATE targets regional flights (up to 1,000 km), which account for 36% of global flight hours. The project involves a consortium of 37 partners, including major aviation players like Safran, and focuses on:

- Developing high-power, high-voltage, certifiable electrical distribution systems.
- Creating lighter, more compact electrical components.
- Ensuring safety, power density, and efficient energy management.

**Key Impacts:**

**Environmental Impact:**

HECATE is expected to significantly reduce fuel burn and emissions in regional aviation, contributing to the EU's 2050 zero-emissions target.

**Technological Advancement:**

The project is advancing the maturation and integration of hybrid-electric technologies, including a copper-bird demonstrator, which serves as a testbed for new systems.

**Cross-Sector Influence:**

The technologies developed could also benefit urban air mobility (UAM) and short-to-medium range aircraft, broadening the project's impact across aerospace domains.

**Innovation Ecosystem:**

HECATE fosters collaboration between industry, SMEs, and academia, enhancing Europe's innovation capacity and accelerating the development of next-generation aerospace products.

**Collins Aerospace's Role:**

With a strong track record in EU-funded research, Collins Aerospace brings deep expertise and global collaboration networks. The Cork-based team plays a central role in steering the project and leveraging its outcomes for broader commercial application.

**Strategic Collaboration:**

The project exemplifies innovation through collaboration, supported by Horizon Europe and facilitated by Enterprise Ireland's National Support Network. This collaborative model is key to building impactful, scalable solutions for sustainable aviation.

More information

# SIRIUSXT AND THE CLEXM PROJECT: DRIVING INNOVATION IN CORRELATIVE MICROSCOPY

**Overview**:
SiriusXT, an Irish-based company and University College Dublin spinout, is leading the Horizon Europe-funded CLEXM project. This initiative brings together a consortium of seven organizations across four countries to train a new generation of doctoral candidates in correlative multimode imaging.


**Project Focus:**
CLEXM (Correlative Light, Electron, and X-ray Microscopy) aims to provide high-level training in correlative multimode imaging, advancing research into disease understanding and therapy development. The project received €2.48 million in funding, with €280,000 allocated to SiriusXT as the project leader.

**Key Impacts:**

**Networking and Partnerships:**
The CLEXM project offers SiriusXT an incredible opportunity to network with leading European research organizations. By leading the project, SiriusXT can place its high-resolution microscope, the SXT100, at the center of the research and collaborate with target customers like the Institut Pasteur and Soleil Synchrotron. "The advantage to the SME is not the money but the incredible opportunity (..) in terms of networking with leading European research organisations. The advantage is even greater if the SME can lead the project application and choose both the focus of the research project as well as the partners that are to be involved", says the company's chief executive officer Tony McEnroe

**Market Opportunities:**
The project has opened doors to new sales opportunities. EU grants have evolved from supporting product development to building target customer relationships. The involvement in CLEXM has significantly enhanced SiriusXT's credibility and market reach.

**Funding and Growth:**
EU support has been crucial for SiriusXT's growth. The company has received over €13 million in EU funding since 2016, with around half of this amount going directly to SiriusXT. This funding has been instrumental in the company's product development and market expansion.

**Strategic Collaboration**
The CLEXM project exemplifies the benefits of strategic collaboration. By working with a consortium of prestigious partners, SiriusXT can drive innovation in correlative microscopy and contribute to the advancement of scientific research.

**Conclusion:**
The CLEXM project and EU funding have had a substantial impact on SiriusXT, enabling the company to grow, innovate, and expand its market presence. The support from Horizon Europe has been pivotal in building valuable partnerships and advancing the field of correlative multimode imaging.

More information

# ISERD

## ISRAEL

המינהלת הישראלית למו"פ האירופי
Israel-Europe R&I Directorate

# MAYA SCHULDINER

In the complex world of biology, where countless molecular processes unfold in every cell, understanding the function of each cellular component remains a daunting challenge. Thanks to support from the European Research Council (ERC) through a prestigious 2020 Consolidator Grant, after ERC Starting Grant in 2010 and a first ERC Consolidator Grant in 2014, Professor Maya Schuldiner of the Weizmann Institute of Science is making groundbreaking strides in this realm.

Pr. Schuldiner is a leading cell biologist known for her innovative use of high-throughput microscopy and genetic screening to explore the inner workings of cells. Her work focuses on the least-understood parts of the cell- organelle proteins, the functions of many of which have remained a mystery despite decades of research. With her ERC-funded project, Pr. Schuldiner seeks to map this "tiny but highly complex mechanisms of human life: the thousands of poorly characterized proteins that are essential for life, but whose roles are still unclear.

Using yeast cells as a model system, her team combines cutting-edge microscopy with robotic automation and machine learning to systematically investigate these unknown proteins. The insights gained can help explain how cells maintain their health, adapt to stress, and communicate internally and externally, mechanisms that are fundamental not just to basic biology but also to understanding diseases such as cancer and neurodegeneration.

The ERC Consolidator Grant has empowered Pr. Schuldiner to expand her pioneering research and develop tools that could become the gold standard for cellular exploration, which may one day pave the way for novel medical therapies and a deeper understanding of how our bodies function at the cellular level. More broadly, her work exemplifies the ERC's mission to support curiosity-driven frontier research that can lead to unexpected and transformative discoveries.

The supportive policies of the ERC have benefited their recipient in multiple ways, aligning with both the grants' guiding philosophy and the broader goals of the European Union. Notably, the ERC has served as an enabler for her students and doctoral researchers: "Having the ERC enabled me not just to do fundamental science but, more importantly, to promote my PhD students and postdocs. Thanks to ERC funding, four of the postdoctoral students that trained in my lab now have independent positions in Europe. Moreover, many of the PhD students that trained on ERC support have gone on to perform their postdoctoral studies in Europe. So, ERC support has been strengthening European science at many levels." In addition to fostering the development of young scientists, the ERC also plays a key role in advancing equal gender opportunities, as reflected by Pr. Schuldiner: "Having given birth to three wonderful boys during the most formative years of my career and my group – the fact that the ERC acknowledged my career breaks has provided me with an equal opportunity of success."

# TRIPLE W'S SUCCESS STORY

## HARNESSING THE POWER OF THE CBE GRANT FOR INNOVATION AND IMPACT

Triple W, a trailblazer in the development of sustainable and cutting-edge technologies for water and waste management, has achieved remarkable success with the help of its CBE (Circular Bioeconomy) grant. Founded on the vision of transforming waste into valuable resources, addressing the environmental and financial challenges of waste management, Triple W specializes in advanced technologies that convert organic waste into high-value bio-based product, by treating abundantly available food waste as a 3rd generation renewable feedstock to produce pure lactic acid for personal care, home care, food and beverage, industrial applications and as a building block of polylactic acid (PLA bioplastic).

CIRCLE, the Circular Bio-based Europe Joint Undertaking (CBE JU) consortium led by TripleW, has been awarded in 2024 a whopping EUR 17M to scale up the groundbreaking technology. The consortium, which includes industry leaders Renewi, LG Chem, Volkswagen Group, Ecover + method, Sulzer Chemtech and Sulapac Ltd, is supported by Bio Base Europe Pilot Plant, Davines Group | Certified B Corp, TIPA® Compostable Packaging, FrieslandCampina, Fibenol, ETAM S.A., ICONS Innovation Strategies and ZER0-E Engineering.

"*With our incredible partners, we're transforming existing waste management infrastructure into biorefineries, reducing environmental impact and creating new revenue streams for waste management stakeholders. No need for completely new infrastructure. This project is a monumental step in tackling climate change. Our goal? To commercialize lactic acid for use in cleaning materials as well as to produce PLA bioplastic for the auto industry, food packaging, and cosmetics packaging*"

With its innovative approach, Triple W is helping tackle global challenges such as waste reduction resource efficiency. Their solutions are not only addressing environmental issues but are also contributing to the EU's Green Deal goals, particularly in promoting circular resource management and pollution reduction. The impact of Triple W's technology includes transforming the way food waste is processed on one hand, while making a vast range of everyday products, from cosmetics to toilet cleaners to car parts more sustainable.

More information

# ZUTACORE

ZutaCore has developed an innovative cooling solution for data centers. enabling sustainable, efficient and cost-effective operations. Founded in 2016, the company has an R&D center in Israel and offices in Europe, the US, India and Taiwan. ZutaCore employs more than 100 people. Industry leaders such as Mitsubishi Heavy Industries (MHI) have invested in the company, and it also has strategic partnerships across the ecosystem.

The demand for computing resources and power is growing rapidly. To meet this demand, chip manufacturers are developing more advanced and powerful chips. This trend is being further accelerated by the rise of AI technologies. As chips become more powerful, they generate more heat that needs to be removed. Consequently, data centers are generating more heat, creating the need for enhanced cooling solutions. Most data centers rely on air cooling, but this method is insufficient to support high-performance GPUs. This leads to increased energy consumption, higher costs, and environmental challenges, including concerns over water usage and carbon emissions.

ZutaCore has developed a unique cooling technology which removes the heat through a phase change of dielectric liquid, transitioning it from liquid to vapor and then condensing the vapor back to liquid in a closed system. This technology allows for more efficient heat dissipation, rack densification, reduced power consumption and an overall more sustainable and safe operation.

ZutaCore is one of the participants in HeatWise project which was selected for funding by the EU in July 2023 and started in January 2024. The project includes 12 partners from 8 different countries and aims to address waste heat integration and thermal energy management in building with significant IT load. Its goals are to minimize waste heat, maximize energy efficiency and generate additional value.

By participating as technology provider, ZutaCore is gaining access to funding, collaborative R&D, and a platform to validate and scale its unique data center cooling technology across Europe. Meanwhile, the EU benefits from fostering innovation that supports its digital and environmental goals, improving energy efficiency and sustainability in critical infrastructure. This synergy accelerates the deployment of cutting-edge solutions while strengthening Europe's technological sovereignty and climate resilience, supporting the broader goals of the EU Green Deal.

Despite the challenges of the war, ZutaCore's offices, located in the western Negev, quickly resumed normal operations and continued its activities. Due to the rise of AI, interest in the company is greater than ever.

More information

# LAT.TECH

## LATVIA

LAT.TECH
Latvian Office for Innovation & Technology in Brussels

# NGEAR 3D

## 3D GLASSES FOR MEDICAL EDUCATION


**LIGHTSPACE TECHNOLOGIES** is a global leader in multi-focal AR headset technology. The company has invented the world's first multi-focal technology that uses multiple screens for eye accommodation that comes as close to natural viewing as possible.

**When precision matters**

Multiple focal planes, the closest of them being 25cm from eyes, enables performing actions previously impossible with AR: surgeries, digital manufacturing, and other high-precision activities.

**No eye strain**

Lightspace AR headsets are multi-focal accommodating. It reduces eye strain, Vergence-Accommodation Conflict and allows objects to be viewed in near distance, with an unlimited use time.

**The project in brief**

Medical, digital manufacturing and professional 3D graphics require accommodating Augmented Reality Glasses that can visualize high-quality 3D images between 0.3-2.0m distance. The project's main activity is the development of next-generation Augmented Reality headset/glasses that provide required visualization quality and accommodation to professionals in healthcare and similar use areas. The prototypes of Augmented Reality headset and glasses are validated with strategic partners. Partners included a market-leading medical AR application company and cardio surgeons from two hospitals as well as a global leading car manufacturer. Dissemination of project results is expected at several marketing and technology events. Freedom of operation will be ensured by patent research and IP protection activities.

Lightspace Technologies has signed Grant Agreement No. 960828 with the European Commission to receive grant funding of 2.25 million EUR from the European Union's Horizon 2020 research and innovation programme on activity "Next Generation Enhanced Augmented Reality 3D Glasses for medical education, pre-procedural planning, intra-procedural visualization, and patient rehabilitation — NGEAR 3D."

More information

# VIOBOND

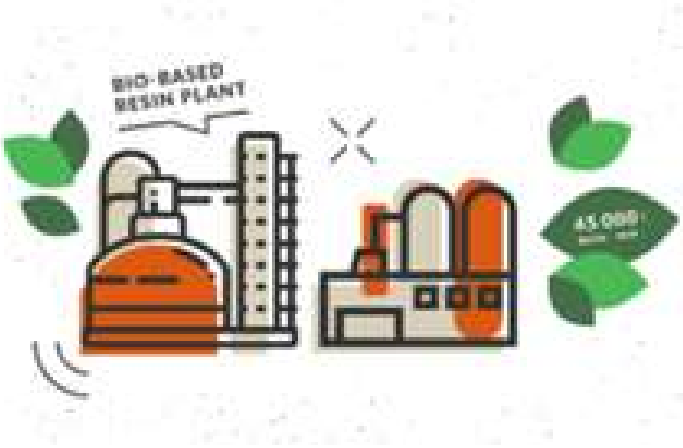
## REPLACING TOXIC WITH NATURAL

The VIOBOND consortium aims to take essential commercialisation steps based on the natural wood component lignin, creating industrial technologies to significantly reduce the share of fossil raw materials in phenol formaldehyde resin, which is widely used in various everyday products. The project was selected as part of a call under HORIZON 2020.

The main objective of the project is to build a new bio-based resin plant in Latvia, utilizing lignin from different biorefineries to partially replace phenol and formaldehyde in a variety of resin products. Lignin commercialization for higher value application is essential for commercial and sustainable biorefinery production and crucial to facilitating future investments for biorefineries.

**Replacing toxic with natural**

Nowadays, science and technology have developed to the point that people can divide wood into its components. Phenol and formaldehyde, which are the compounds of most commonly used resins, are harmful to humans, whereas lignin is a natural, sustainable by-product.

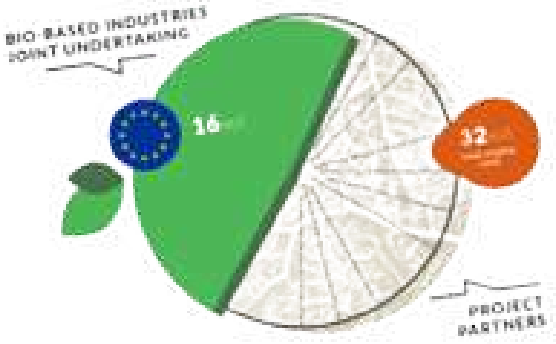



The bilateral research work with Latvijas Finieris has been in process for about a year, with the objective of examining and improving the potential of hydrolysis lignin grade for different resin products. The VIOBOND project will be an important continuation of this systematic co-operation leading to lignin-based resin commercialisation.

At present, focused research into valorising lignin is continuously growing globally, making it possible to predict a wide array of applications for lignin in the near future. The VIOBOND project's managing partner Latvijas Finieris has already taken an important step in this direction. In cooperation with the chemical and mechanical wood processing company Stora Enso, an adhesive has been developed in which pulp production-derived sulfonated Kraft lignin has been used as a partial substitute for the traditionally used fossil-based phenol, and birch plywood products RIGA ECOlogical are available on the market.

The challenge that needs to be overcome is to persuade customers that lignin is a sustainable, renewable alternative and is not inferior to traditional raw materials.

More information



# 5G-ROUTES

## 5TH GENERATION CONNECTED AND AUTOMATED MOBILITY EU TRIALS

To conduct advanced field trials of the most representative and innovative CAM applications seamlessly functioning across a designated 5G cross-border corridor ('Via Baltica-North'). The corridor spans 3 EU member states borders (Latvia-Estonia-Finland) in order to validate the latest 5G features and 3GPP specifications under realistic conditions. This will accelerate the widespread deployment of 5G E2E interoperable CAM ecosystems and services in digitised motorways, railways and shipways throughout Europe.


**Objectives**

- To develop innovative and commercially exploitable CAM use-cases for automotive, railway and maritime sectors within the cross-border context;
- To analyse the technical and business requirements for the use-cases to enable extensive large-scale CAM field trials in the 'Via Baltica-North' 5G corridor;
- To advance and optimise the enabling technologies using AI for the reliable, seamless and uninterrupted delivery of interoperable CAM services across borders;
- To leverage and upgrade key assets from previous results and commercial products; to integrate the technological enablers in an end-to end CAM ecosystem, to setup the 5G corridor and to facilitate lab and large-scale field trial validation;
- To demonstrate the potential and the user value in advanced CAM deployments at cross-border areas, by characterising and optimising 5G technologies at both lab tests and large-scale trials, so as to validate applicable standards and key target KPIs thus boosting the confidence for wide adoption of interoperable CAM services in Europe;
- To develop and validate the business models of advanced CAM use cases that can be offered on top of existing services in a multi cross-border 5G operator environment, demonstrating benefits from potential operational cost reductions and new revenue generation streams;
- To identify and validate applicable standards as well as provide rationalised contribution to key standardisation bodies so as to sustain standardisation in the telecom and automotive sectors within the CAM context;
- To ensure long-term success through wide dissemination of the project's results; to exploit synergies with other 5G-PPP projects and 5G CAM initiatives; to actively contribute to the 5G Action Plan strategic initiative with results from 5G technologies validation in CAM trials for the benefit of the European 5G, automotive, railways, maritime, transport & logistics industries, the university education and training of young and other professionals.

More information

# LINO

## LITHUANIA

LINO
Lithuanian RDI Liaison Office

RCL
Research Council of Lithuania

Co-funded by
the European Union

# FOSTERING CAPACITY BUILDING FOR CIVIC RESILIENCE AND PARTICIPATION:

## DIALOGIC COMMUNICATION ETHICS AND ACCOUNTABILITY

Digital communication enormously expands the number of ways people can interact and engage, but also challenges European societies by spread of conflict instigation, hate speech, and increasing amount of disinformation. The many initiators of destructive communication acts are various actors with diverse interests, who are not bound by either professional or ethical rules or obligations to distribute truthful information or stand for its reliability. The existing framework of public communication does not empower citizens to influence the ways the media institutions and actors operate in European democracies.

**DIACOMET** contributes to the advancement of ethical and accountable communication by fostering capacity building for civic resilience against information distortions and promoting civic accountability.

**Therefore, DIACOMET aims to generate a concept of dialogic communication ethics (DCE), which would provide a framework for an inclusive model of accountability mechanisms that combine media accountability (the level of organisations) with civic accountability (the level of citizens) and is guided by Principles of Good Communication Conduct (PGC).**

DIACOMET

The DIACOMET proposal explicitly addresses the aims of the Horizon Europe Culture, creativity and inclusive society Work Programme, the Topic, the Call and the European Democracy Action Plan through:

- Analysis of the role of dialogic communication in existing ethics codes and guidelines and formulation of the PGC.
- A novel concept of inclusive civic accountability bodies and a tested accountability mechanism.
- An interactive 'dilemma game' and a forum for learning and discussion.

DIACOMET proposes to establish a European network of civic accountability bodies for supporting individuals, groups and organizations to implement the PGC, and to assist in managing ethical issues emerging in public communication.

More information

# GREEN INNOVATION FOR FUTURE OF GLASS TECHNOLOGY



The EU, a global glass production leader, generated 39.12 million tonnes in 2021, a 6.1% increase from 2020. However, the energy-intensive nature of the industry, consuming 4.5 billion cubic meters of natural gas annually (4% of Europe's industrial consumption), poses environmental challenges. The high temperature melting process alone accounts for over 75% of energy requirements, emitting 17 Mt of CO2 in 2021. GIFFT aims to address these issues.

- GIFFT focuses on developing a sustainable, hybrid, and biofuel-flexible heat production technology for industrial glass manufacturing, leveraging plasma-assisted combustion and gasification systems
- Develop an integrated heat production technology using biomass/waste and renewable electricity for syngas production in glass manufacturing
- Develop and validate at Technology Readiness Level 5 (TRL5) the key enabling technologies required for realising the GIFFT process
- Verify the techno-economic feasibility and environmental impact of the innovative GIFFT technology and process applications in the European glass manufacturing process

GIFFT

Sustainable Glass Industry

**GIFFT aims to revolutionize the glass manufacturing industry by developing and validating key enabling technologies, including plasma-assisted gasification and combustion. This forms the basis for a low-cost and flexible process that integrates biomass and other energy sources.**

The methodology includes technical and concept development, biomass ash handling, and validation of key technologies through industrial testing. Techno-economic and site-specific analyses assess the feasibility, competitiveness, and optimization of the GIFFT process.

More information

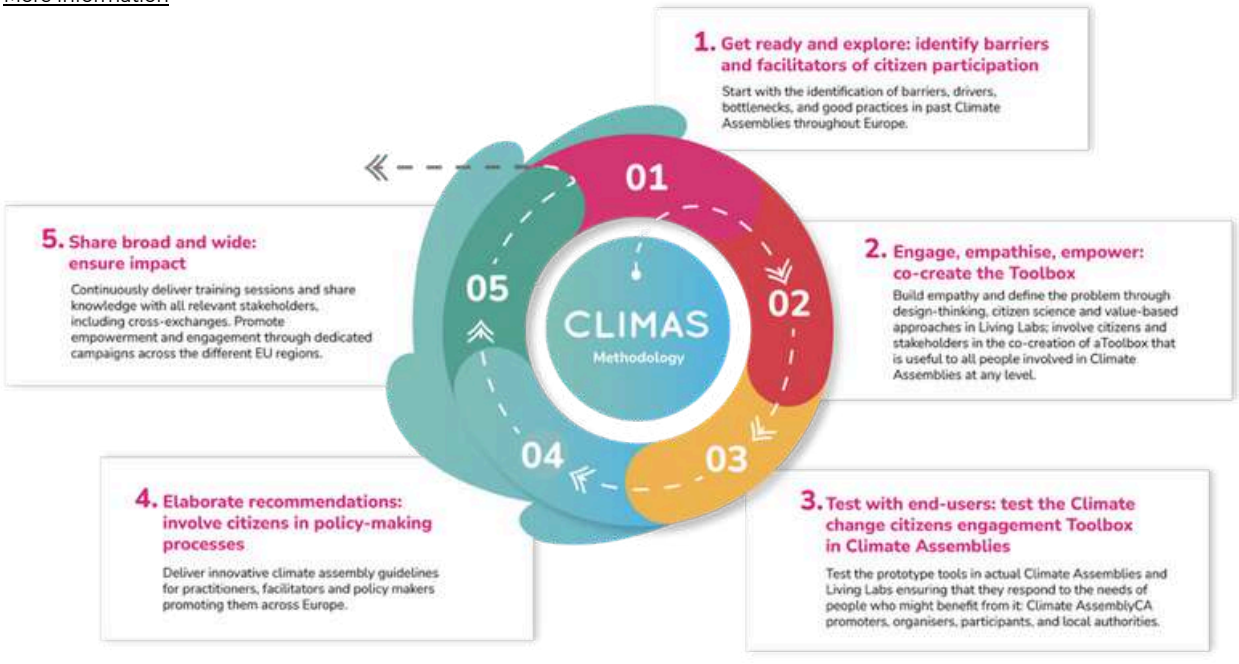
# CLIMAS – CLIMATE CHANGE CITIZENS ENGAGEMENT TOOLBOX FOR DEALING WITH SOCIETAL RESILIENCE

Climate Assemblies and Living Labs are considered sustainable and effective tools to foster deliberative democracy in climate policymaking. The CLIMAS project aims to support the transformation towards climate resilience by providing an innovative problem-oriented climate adaptation Toolbox, co-designed with stakeholders using a value-based approach, design thinking methods, and citizen science mechanisms. Our research will be carried out with a gender and diversity-sensitive approach, ensuring inclusivity and equity. The Toolbox will proactively address possible tensions, points of controversy, and dilemmas related to the adaptation to resilience. By doing so, the Toolbox aims to enable empowerment and engagement strategies that promote a society "resilient by design".

- Identify citizen engagement mechanisms and tools, including bottlenecks, barriers, and drivers
- Co-design and co-create a climate change citizen engagement Toolbox
- Develop innovative actions empowering citizens in deliberation processes
- Analyse data through a citizen science approach
- Increse stakeholders' skills and knowledge, fostering acceptance and long-term sustainability of solutions

The project will adopt an iterative process of design-thinking in Living Labs and Climate Assemblies to develop a portfolio of alternative empowering and engaging mechanisms and tools. These mechanisms and tools will be accessible to diverse actors, who can adapt and deploy them to best suit their socio-cultural contexts through a process of "indigenization".

More information



# MOST

## MOLDOVA

Moldovan Office for
Science and Technology

# CONNECT MOLDOVA-EU:

## CREATING OPPORTUNITIES FOR NETWORKING AND NEIGHBOURHOOD ECONOMIC COOPERATION, TECHNOLOGICAL AND INNOVATIVE GROWTH BETWEEN THE REPUBLIC OF MOLDOVA AND EUROPEAN UNION

Small and medium-sized enterprises (SMEs) in Moldova face mounting challenges—from post-pandemic recovery and regional instability to energy crises and disrupted supply chains. To help Moldovan businesses thrive in this complex environment, the EU-funded CONNECT Moldova-EU project is building new bridges for economic cooperation, technological advancement, and innovation between Moldova and the European Union.

CONNECT Moldova-EU brings together five key partners: the Chamber of Commerce and Industry of the Republic of Moldova, the Organization for Entrepreneurial Development, the National Agency for Research and Development, the Moldova Technology Transfer Network, and the Moldovan Association of ITC Companies.

Building on the successful legacy of the previous Enterprise Europe Network (EEN) project, this new initiative is designed to boost the internationalization and innovation capacity of Moldovan SMEs, aligning them more closely with EU standards and opportunities.

enterprise europe network

*Business Support on Your Doorstep*

Through a tailored package of business support, networking, and innovation services, CONNECT Moldova-EU empowers SMEs to adapt to digitalization, sustainability, and resilience goals set out in the EU's Single Market Programme and SME Relief Package. The project offers Moldovan entrepreneurs access to expert guidance, cross-border partnerships, and practical tools to compete and grow in the European marketplace.

More information

# FLOURISH PROJECT

## FAMILY-FOCUSED ADOLESCENT & LIFELONG HEALTH PROMOTION

Adolescents in Eastern Europe face increasing health risks due to violence, poverty, inequality, and the ongoing conflict in Ukraine. The EU-funded FLOURISH project (Family-Focused Adolescent & Lifelong Health Promotion) addresses these challenges with a budget of €2.5 million.

FLOURISH adapts and implements the Parenting for Lifelong Health (PLH) Teens program for adolescents aged 10–14 and their caregivers in Moldova and North Macedonia. The project integrates additional components such as adolescent mental health tools, peer support, and participation boosters, specifically considering the needs of Ukrainian refugees and ethnic minority families.


By strengthening adolescent skills, improving family relationships, and supporting caregivers, FLOURISH aims to prevent mental health issues and risky behaviors, and reduce future non-communicable diseases. The project also evaluates cost-effectiveness and develops strategies for scaling up evidence-based, open-source family programmes in low-resource settings.

Through collaboration with stakeholders and rigorous evaluation, FLOURISH supports healthier futures for adolescents and families in the region and beyond.

More information

# CVDLINK

## A FEDERATED PARADIGM OF REAL-WORLD DATA SOURCES UTILIZATION FOR THE EMPOWERMENT OF DIAGNOSIS, PROGNOSIS AND RISK ASSESSMENT OF CARDIOVASCULAR CONDITIONS

Cardiovascular diseases (CVDs) are the leading cause of death in Europe, but the potential of real-world data—such as electronic health records, registries, and wearable devices—remains largely untapped due to data fragmentation and privacy concerns. The EU-funded CVDLINK project is designed to overcome these barriers by developing a federated, privacy-preserving platform that enables secure integration and analysis of distributed cardiovascular data across Europe.

Involving 19 partners from 13 countries, CVDLINK brings together expertise in biomedicine, data science, and clinical practice. The project leverages advanced federated machine learning and AI tools to harmonize heterogeneous data sources, allowing for the development of robust clinical decision-support systems without moving sensitive patient data outside hospital environments.


CVDLINK's platform will enable clinicians and researchers to access actionable insights for early diagnosis, prognosis, and personalized risk assessment of CVDs, while strictly adhering to GDPR and FAIR data principles.

By transforming fragmented data into a unified, privacy-aware resource, CVDLINK aims to empower healthcare providers, accelerate research, and improve outcomes for patients with cardiovascular conditions across Europe.

More information

Neth-ER | Netherlands house for Education and Research

# NETH-ER

## THE NETHERLANDS

# SPIDERR

## UTILIZING AI AND DATA FOR BETTER RHEUMATIC CARE

**Transforming knowledge into practical AI-tools in order to improve the diagnosis and treatment of rheumatic diseases. This is what the SPIDeRR project, part of Cluster Health in Horizon Europe, aims to achieve. A consortium led by Leiden University Medical Centre is developing three AI tools for different phases of the patient journey, using integrated European data to improve healthcare efficiency. Neth-ER spoke with Dr. Rachel Knevel about the project.**


The first tool, Rheumatic, is an online survey designed to support early identification of rheumatic diseases and to help rule out other conditions. The survey is accessible to everyone who wants to investigate their symptoms. Based on the responses, the tool makes a risk assessment for various conditions, giving users a first insight into their healthcare needs.

This data is then also used for the second tool, Modular-SPIDeRR, which advises on further diagnostic steps. It assists the general practitioner by combining and stratifying datasets about the patient's clinical picture. The third tool, Digital Twin, can be used by doctors to predict disease progression in patients exhibiting symptoms of inflammatory rheumatism. This will enable doctors to make better-informed risk assessments and more targeted diagnoses. The goal of this tool is to improve the current heterogeneity in disease classification within rheumatology.

The SPIDeRR project stands out for its innovative approach, combining expertise from multiple scientific disciplines for the integration of datasets. However, more guidance from the EU is needed in order to make a bigger impact. For instance, while project partners established a shared datasystem to facilitate the exchange of medical data, its implementation was hampered by legal challenges. Although all partners were subject to the same GDPR regulation, each local department still had to navigate their own distinct legal procedures. More European guidance on safe data sharing standards and infrastructures would be helpful.

More information

# HOW INTERCONNECT POWERS SMART, CONNECTED HOMES AND ENERGY SYSTEMS

**The InterConnect project connects 50 partners from 11 European countries with one goal: making the energy sector more digital and integrating it with smart devices, homes and buildings. The project started in 2019 and ran for 4,5 years.**

InterConnect focuses on interoperability, aiming to make different devices communicate seamlessly. You might recognize this idea from your living room, for example lights that automatically turn off when you start a movie. InterConnect sought to extend this idea beyond the living room: enabling homes, buildings, and energy systems, such as smart grids, to interact with each other. With 50 partners from 11 different countries, the project brought together a diverse group of stakeholders. This diversity required the development of a flexible core technology that is adaptable to different national requirements.


Following the Russian invasion of Ukraine and the resulting shifts in Europe's energy landscape, the European Commission asked the consortium to already deploy some of the results of the project. In response, the project created a Common European Reference Framework for energy-saving applications. This enables countries to create apps that allow citizens to check real-time EU grid conditions, monitor energy use, and receive personalized energy-saving tips.

Another important result of the project was the creation of a Code of Conduct (CoC) for energy smart appliances. The CoC provides a definition of the principles of data sharing amongst appliances and makes use of an open standard for interoperability known as SAREF. The first version of the CoC was released in April 2024 and eleven manufacturers have committed to it. Appliances that comply to the CoC are marked as "interoperable" on the European Product Registry for Energy Labelling (EPREL).

More information

# HOW SOILCRATES CONNECT FARMERS, POLICYMAKERS AND SCIENTISTS

**How can we learn together and care for healthy soils across Europe? This is the central question driving SOILCRATES, an ambitious project within the European Soil Mission. By setting up four living labs in four different European regions, the project aims to increase soil literacy and strengthen collaboration between knowledge institutions, farmers, governments, and society.**

Sixty percent of European soil is experiencing quality degradation due to unsustainable use and pollution. The SOILCRATES projects wants to tackle this challenge and focuses on restoring and preserving the soil quality across Europe. Funded by Horizon Europe, four living labs have been set up in four different regions in the Netherlands, Ireland, France and Spain. These labs are the driving force of the project. Here, researchers, farmers, citizens and policymakers work together on soil-related challenges. They focus on four themes: diversification of crops, optimising the use of water in agriculture, making more efficient use of fertilizer, and soil biology.

In the Netherlands, SOILCRATES operates across three provinces in the northern part of the country, each hosting a lighthouse. These lighthouses are physical meeting spots for the living labs. Here, farmers, researchers and policymakers convene to discuss soil issues and collaborate. They also offer a platform to demonstrate innovative technologies and share best practices. Farmers are at the helm of the lighthouses: they can share their insights and experiments while also receiving guidance and support from other participants. This creates a shared learning environment where practice and theory reinforce each other.

The involvement of farmers extends beyond the lighthouses: they participate in various project activities both in the Netherlands and abroad, and they receive financial support for their contributions. Furthermore, to understand the real impact of the project on farmers and society, a socio-economic work package has been set up. This explores the impact of new products and services, including AI tools to support farmers. In Ireland, for example, expertise in remote sensing and machine learning is already helping farmers assess the effects of new measures on their land.

More information

# NORCORE

## NORWAY

NORCORE
Norwegian Contact Office for Research \ Innovation \ Education

The Research Council of Norway
Innovation Norway
Norwegian Directorate for Higher Education and Skills

# ADVANCING AIRBORNE WIND ENERGY (AWE)

**The Norwegian company Kitemill believes that tethered kites can make an important contribution to Europe's energy mix. High-altitude wind offers better land use efficiency and lower material consumption than conventional wind power using kites harnessing at high-altitude.**

Compared to conventional solutions, including conventional wind and solar power, Kitemill's KM2 system is more efficient and sustainable. The module consists of a kite connected with a tether to a ground station.

The KM2 project is a pioneering initiative to advance Airborne Wind Energy (AWE) technology as a sustainable and efficient renewable energy solution. By leveraging winds at higher altitudes, AWE systems can achieve significant material savings and high energy capacity factors, positioning them as a key technology to address challenges in Europe's energy transition.

AWE uses less material to produce more stable energy output, in turn reducing both costs and the environmental footprint. Further advantages include simplified installation and maintenance processes with the possibility to easily relocate, wider range of areas suitable for wind energy, greater social acceptance as it is barely visible from the ground, among others.

The AWE-KM2 project aims to validate AWE systems through thorough testing, while demonstrating their potential to reduce material compared to traditional wind and solar technologies. The project also explores how AWE can strengthen renewable energy systems by addressing intermittency and improving grid stability. Finally, it assesses the environmental benefits of AWE, such as a lower carbon footprint and reduced resource use, in line with EU sustainability goals.

The AWE-KM2 project has received funding from the The European Innovation Council (EIC) through the competitive EIC Accelerator programme.

More information

# DECARBONISING EUROPEAN GLASS AND ALUMINIUM INDUSTRY

**Decarbonising energy-intensive industries is crucial for Europe to achieve its climate goals of becoming the first climate-neutral continent by 2050, and EU has identified hydrogen (particularly renewable hydrogen) as a key element of its strategy for the energy transition, net-zero, and sustainable development.**

The **H2GLASS** project kicked off in 2023 and is expected to lead to a significant reduction of CO2 emissions in the glass and aluminium industries by completely replacing natural gas with clean hydrogen (as there is no emission of CO2 when burning hydrogen with oxygen). Furthermore, clean hydrogen will be supplied by water, which contributes to significantly reducing CO2 emissions. The developed technology stack will be combined with Digital Twins, which makes the approach a first-of its kind, crucial for risk-based predictive maintenance, optimised production control.

The H2GLASS technology has already been successfully employed by two industrial demonstrators, Hrastnik1860 in Slovenia and Owens Corning in France. With over 60% hydrogen fuel content used for glass melting, Hrastnik1860 has reduced its direct carbon footprint of the melting process by more than 30% compared to standard procedures. The new technologies developed by H2GLASS will totally be implemented and tested on a large scale in five industrial demonstrators in the European glass manufacturing industry and one in the aluminium sector.

The project is implemented by a consortium of 23 partners under the coordination of SINTEF in Norway. SINTEF is one of Europe's largest independent research organisations.

The project is funded by Horizon Europe under a Processes4Planet call.

More information

# A POTENTIAL NEW TREATMENT FOR LEUKEMIA

Acute lymphoblastic leukemia is a type of blood cancer in the bone marrow where cancer cells multiply rapidly and displace the normal cells in the blood and bone marrow. There is a significant unmet need for new and effective treatments for this type of cancer.

A research project called Targeting Acute Leukemia with TdT-TCR-T-cell therapy is led by Professor Johanna Olweus at the University of Oslo and Oslo University Hospital. Her team is working on a new type of immunotherapy—an innovative treatment that uses the body's own immune system to fight cancer.

**Teaching the Immune System to Find Cancer**

In earlier studies, Olweus and her team were able to cure mice with advanced leukemia using this new approach. The treatment uses T cells, a type of immune cell, that are genetically modified in the lab. These modified cells are given a special receptor that helps them recognize and attack a molecule called TdT, which is found in high levels in leukemia cells.

Because TdT is common in patients with acute lymphoblastic leukemia, it's a promising target for treatment.

The researchers are now testing this therapy in a clinical trial for both children and adults with the disease.

**Could Help More Patients in the Future**

The team is also investigating whether this approach could work for some patients with another type of blood cancer called acute myeloid leukemia. This cancer also starts in the bone marrow and leads to the uncontrolled growth of immature blood cells.

To bring the treatment closer to real-world use, the researchers have developed a method for preparing the modified T cells so they can be safely used in patients. This is a crucial step toward offering new treatment options to Norwegian cancer patients who currently have few alternatives.

The project has received an ERC Proof of Concept grant.

More information

# POISCA

## POLAND

PAN | Brussels
Polish Science Contact Agency
Polish Academy of Sciences

# TRIO-VI COE

## TRANSLATIONAL RESEARCH AND INNOVATION IN OPHTHALMOLOGY - VISION - CENTRE OF EXCELLENCE

**Widening instruments, especially Teaming for Excellence, are vital for Polish Academy of Science (PAS) to build strategic partnerships and transform its institutes into centres of scientific excellence that retain/attract talents in Europe and contribute to EU competitiveness. They enable institutional development, mobilise international and intersectoral cooperation, and strengthen Poland's R&I landscape. With approx. 42% of Poland's Widening funds secured by PAS, including 3 Teaming CoE, these instruments are key to advancing scientific excellence and integration into the European Research Area.**

TRIO-VI CoE sets new standards in ophthalmic research through innovative technologies and therapies. Located in Warsaw and led by Prof. Maciej Wojtkowski, ICTER bridges fundamental and clinical research, accelerate the development of advanced technologies in eye care, and drive innovation in health-related fields such as photonics, AI, and bioinformatics. With the support of advanced partners - Institut de la Vision (IdV) and University College London (UCL) - TRIO-VI will enhance ICTER's R&I capacity, implement best practices, and foster high-impact international collaboration.

"*TRIO-VI CoE marks a significant milestone in our mission to advance ophthalmic research and innovation. By fostering a dynamic ecosystem of collaboration, we aim to deliver meaningful impact for patients across Europe and beyond*", says Prof. Maciej Wojtkowski, Project Coordinator.


Powered by a unique ecosystem of interdisciplinary teams ICTER is preparing to lead the next decade of breakthroughs in vision science and beyond. With plans to launch a dedicated innovation hub and expand into biocybernetics, ICTER is building a platform for long-term scientific and societal impact.

TRIO-VI project directly supports EU priorities, including Horizon Europe Pillars I & II, the EU4Health Programme, the European Digital and Industrial Strategies, and the UN Sustainable Development Goals (SDG 3). By aligning with national (KIS, AI Strategy) and regional (Mazovia RIS) development policies, TRIO-VI strengthens Poland's position in the European Research Area and boosts its potential to attract future EU funding. Related Horizon Europe Projects: CREATE - The CREAtion of the Department of Physical Chemistry of Biological SysTEems, GA 666295.

More information

# MARBEFES

## MARINE BIODIVERSITY AND ECOSYSTEM FUNCTIONING LEADING TO ECOSYSTEM SERVICES

**Cordinated by the Institute of Oceanology of the Polish Academy of Sciences (IO PAN),** MARBEFES develops an innovative framework to understand and value marine biodiversity across Europe's coastal seas. Based on the concept that biodiversity is a continuous and interconnected system, the project moves beyond compartmentalized views of ecosystems - such as estuary, coast, or offshore - highlighting the need for adaptive and holistic approaches to ocean governance.

The project aims to establish clear links between biodiversity, ecosystem functioning, and societal benefits by deploying a suite of ecological, economic, and socio-cultural tools. This enables the comprehensive valuation of marine systems, recognizing both their monetary and intrinsic ecological and cultural value. MARBEFES also emphasizes that biodiversity shifts bring complex, context-dependent outcomes - both beneficial and adverse - thus requiring flexible and locally informed policy responses

Institute of Oceanology
Polish Academy of Sciences

Working with 23 expert partners, MARBEFES applies a multidisciplinary and co-creation methodology, combining biology, genomics, oceanography, economics, and the humanities. The use of the "Double Diamond" design process guides the project through problem definition, solution development, and stakeholder validation - ensuring relevance and usability of results across diverse sectors.

By actively engaging a wide array of actors, including non-experts, MARBEFES promotes mutual learning and the production of practical, stakeholder-informed solutions that are cost-efficient and broadly applicable. The project equips policymakers and local communities with the tools needed to sustainably manage and protect marine biodiversity for current and future generations.

Related Horizon Europe projects: MARBEFES complements IO PAN's broader research portfolio, including participation in OceanICU, BIOcean5D, Blue-Cloud2026, and BlueMissionBANOS - projects focusing on ocean sustainability, ecosystem services, and climate adaptation.

More information

# MITGEST

## A DOCTORAL NETWORK TACKLING MITOCHONDRIAL DISEASE

Coordinated by **Dr. Carlo Vascotto** (IMol), **MITGEST** is an ongoing Marie Skłodowska-Curie Doctoral Network funded by Horizon Europe. The project focuses on **quality control of mitochondrial gene expression** and its role in human health and disease. MITGEST brings together world-class researchers in mitochondrial DNA (mtDNA) maintenance and expression, along with private sector leaders in nucleic acid chemistry and mitochondrial therapies. Their shared goal is to push the frontiers of mitochondrial research and foster therapeutic innovation. The project consists of 7 members (academics and industrial) and 13 associated partners (including universities, biotech companies, company for training and management, and charities) from 10 different countries.

**Training Tomorrow's Research Leaders**

Currently, 11 doctoral candidates (DCs) are:

- Investigating mechanisms of mtDNA maintenance and expression.
- Developing novel tools to study mitochondrial RNA and DNA metabolism.
- Participating in a comprehensive scientific and skills-based training programme.

Through this interdisciplinary approach, MITGEST equips young scientists to lead future breakthroughs in biomedical research.

More information

**International Institute of Molecular Mechanisms and Machines Polish Academy of Science** (IMol PAS) in Warsaw, founded in 2020, is the youngest institute of the Polish Academy of Sciences. Within just a few years, it has become a vibrant, internationally connected research hub, successfully attracting competitive funding and positioning itself as a key player in the European Research Area.

The Institute carries out research projects focusing on molecular mechanisms underlying the regulation of cell functions, especially those related to the response to stress resulting from diseases.

The Institute received several projects in both national and European competitions, e.g.: four EMBO Installation Grant and four projects under the Marie Skłodowska-Curie Actions as well as almost thirty nationally funded scientific grants.

In addition, IMol cooperates with a number of scientific institutes, sharing knowledge and experience: University Medical Centre in Göttingen (Germany), Institute of Organic Chemistry and Biochemistry of the CAS (Czech Republic), or Weizmann Institute of Science (Israel).

Romanian Office for
Science and Technology

# ROST

## ROMANIA

# NERVEREPACK

## INTELLIGENT NEURAL SYSTEM FOR BIDIRECTIONAL CONNECTION WITH EXOPROSTHESES AND EXOSKELETONS

**NerveRepack** is a Horizon Europe research initiative co-funded by the European Union under the Chips Joint Undertaking (Chips-JU). The consortium comprises 27 partners, including research institutions, universities, and industry leaders from 10 European countries, coordinated by the National Institute for R&D in Microtechnologies (IMT) in Romania.

Launched in 2023, the project develops pioneering neural interfaces for enhanced mobility and sensations through bidirectional implantable electrodes connecting the human nervous system with external mechatronic aid devices such as exoskeletons and exoprostheses. The project aims to help people with arm amputations or leg paralysis regain both motor and sensorial functions.

**Main Objectives:**

- Design and implement implantable neural interfaces, including electrodes and electronic modules, to facilitate seamless integration with prosthetic devices.
- Develop robust, patient-centric protocols ensuring safety and optimal clinical outcomes, with contributions from multidisciplinary medical teams specializing in neurosurgery, orthopedics, and rehabilitation.
- Foster collaboration between engineering and medical experts to optimize device design, biocompatibility and data integration.

The project promises significant social, economic, medical, and technological impact. NerveRepack will ignite a paradigm shift in the field of prosthetic implants, offering hope and a better future for people with disabilities.
By bridging the gap between neural signals and prosthetic control, NerveRepack aspires to enhance the quality of life for individuals requiring limb replacements. The project's innovations are expected to lead to more responsive and intuitive prosthetic devices, facilitating better mobility and independence for users. Additionally, the collaborative framework sets a precedent for future interdisciplinary research in neuroprosthetics.

More information

NerveRepack

# TRIP

## TRAINING IN TRANSLATIONAL PROTOCOLS FOR MINIMAL INVASIVE DIAGNOSIS AND THERAPY IN PANCREATICO-BILIARY CANCERS

Romania's medical research landscape will be transformed with the support of the EU Commision, through the TRIP project. TRIP fosters knowledge transfer in the field of minimally invasive endoscopic interventions for pancreatico-biliary diseases, reinforcing the scientific and administrative infrastructure of the University of Medicine and Pharmacy Carol Davila Bucharest (UMFCD) with the strategic collaboration with the Copenhagen University Hospital Herlev, Stichting Amsterdam UMC and University College London.

By focusing on cutting-edge techniques such as endoscopic ultrasound-guided fine needle biopsy (EUS-FNB), the project enables the generation of pancreatic organoid cultures—miniaturized, lab-grown tumor models used to test drug responses. This newly innovative approach represents a critical step toward personalized therapies for pancreatic cancer patients, one of the most lethal oncological diseases in Europe.

TRIP builds on two decades of collaborative clinical research among the project's partners and is now scaling up with a structured programme of joint research, staff mobility, summer schools, workshops, and doctoral training. The project's central aim is to train a new generation of early-stage researchers (ESRs) and PhD students in advanced endoscopic procedures and cancer biology, significantly increasing both the innovation capacity and scientific visibility of University of Medicine and Pharmacy Carol Davila Bucharest (UMFCD).

A key deliverable of TRIP is the establishment of a multicentre research protocol, which will bring Romanian clinicians and scientists to the forefront of personalised oncology. The project will also lead to the upgrading of UMFCD's research management unit, ensuring long-term sustainability and impact.

What you're seeing here under the microscope isn't just a cluster of cells—it's a glimpse into the future of personalized cancer care. These tiny, 3D structures are pancreatic organoids: lab-grown mini-tumors created from patient samples using advanced techniques like endoscopic ultrasound-guided fine needle biopsy (EUS-FNB). TRIP is about advancing personalised medicine in pancreatic cancer through endoscopic innovation.

More information

# ROMANIA PARTICIPATES IN THE NANOIC PILOT LINE PROJECT THROUGH CSSNT- UPB

**The NanoIC project** is a pioneering European initiative designed to establish a state-of-the-art pilot line for next-generation System-on-Chip (SoC) technologies, advancing beyond the 2nm node. The pilot line will support the development and integration of cutting-edge solutions in advanced logic (AL), such as nanosheet (NS), complementary FET (CFET), and high numerical aperture extreme ultraviolet lithography (HNA EUV); advanced memory (AM), including spin-orbit torque magnetic RAM (SOT-MRAM), embedded DRAM (eDRAM), and 3D DRAM; as well as advanced interconnect (IC) technologies, such as die-to-wafer (D2W) bonding, redistribution layers (RDL), and laser-based integration techniques.


By accelerating innovation in these key technological domains, the project aims to position Europe at the forefront of global semiconductor development. NanoIC will play a strategic role in reinforcing European leadership across critical industrial sectors, including high-performance computing, telecommunications, smart mobility, energy efficiency, and next-generation healthcare systems.

The NanoIC pilot line project, coordinated by imec (Belgium) and supported by five leading European research institutions, has secured a total investment of approximately €2.5 billion. This ambitious initiative aims to strengthen Europe's technological sovereignty in the field of advanced semiconductors.

The National University of Science and Technology POLITEHNICA Bucharest, through its Center for Surface Science and Nanotechnology (CSSNT-UPB, Romania), is proud to be one of the core partners of the NanoIC pilot line. Alongside CSSNT-UPB, the consortium includes CEA-Leti (France), Fraunhofer-Gesellschaft (Germany), VTT Technical Research Centre of Finland, and Tyndall National Institute (Ireland), forming a robust alliance to accelerate research, innovation, and industrial deployment in the next generation of integrated circuits. The participation of CSSNT-UPB in the NanoIC pilot line underscores Romania's strategic commitment to advancing semiconductor research and development. This involvement not only reinforces national capabilities in a critical technological domain but also facilitates active collaboration within a cutting-edge European innovation ecosystem, promoting knowledge exchange, technological integration, and increased competitiveness at the European level.

**CSSNT-UPB participates as a METROLOGICAL partner in all 3 TECHNOLOGICAL PILLARS of the NanoIC project. CSSNT-NUSTP's main targets are:**

1. to provide added capacity to imec in the form of FIB sample preparation as required for TEM samples, followed by TEM imaging (AL, AM, and IC)
2. to collaborate with imec on specific exploratory research and development activities with particular challenges, defined based on some of the unique capabilities available at CSSNT-UPB, namely cryo-TEM and IR-AFM (AL and AM);

More information

*The acquisition and operation of the Chips JU pilot line are jointly funded by the Chips JU, through the European Union's Digital Europe and Horizon Europe programs, as well as by the participating states, Belgium, France, Germany, Romania, and Ireland.*

SLORD

Slovak Liaison Office
for Research and Development

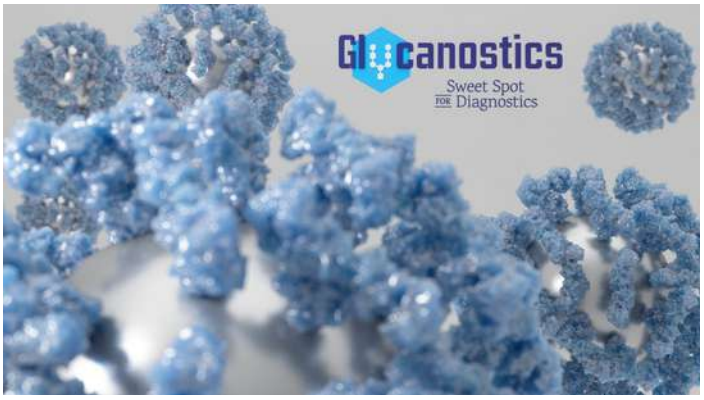
# SLORD

## SLOVAKIA

# SAVING LIVES THROUGH A REVOLUTION IN EARLY-STAGE PROSTATE CANCER DIAGNOSIS – FROM ERC TO SCALE-UP

**Prostate cancer is the second most frequent cancer in men, with 1.4 million new cases and nearly 400,000 deaths worldwide in 2020. The incidence of prostate cancer is expected to rise to 2.2 million cases and 700,000 annual deaths by 2040. Statistics show that 1 in 8 men will be diagnosed with prostate cancer in their lifetime.**

Jan Tkáč, a Slovak scientist, is an excellent example of how EU Framework Programmes deliver innovation to the market. His journey began during the 6th Framework Programme, where he participated in a Marie Curie Sklodowska action grant at the Institute of Chemistry of the Slovak Academy of Sciences. However, his major breakthrough came in 2013, when he became the first-ever Slovak recipient of an ERC grant. His research into glycans —molecules responsible for coding the "commands" that cells follow to stay healthy and fight off pathogens—led to another ERC grant.




Through the ERC Proof of Concept grant, he designed and validated a clinical kit for the accurate early diagnosis of prostate cancer. Building on the results of this research, he co-founded the company Glycanostics, which was successfully funded through the EIC Accelerator in 2021. Their patented technology enables potential diagnostics of 11 different types of cancer by detecting changes in glycans attached to proteins in the blood.

Their first product based on this technology, the Glycanostics Giasay® Prostate Test, is an affordable, highly accurate, and—most importantly—non-invasive alternative to 1.6 million avoidable biopsies conducted worldwide each year. The company is currently focused on collecting robust clinical evidence to have the Giasay® Prostate Test included in standard diagnostic procedures and reimbursed by public health insurance.

In 2024, Glycanostics was selected as one of 12 European biotech companies to participate in the EIC Scaling Club, which supports their growth journey toward global markets.

**Funding source:** EIC Accelerator

More information

# VIGILANT

## A NEW TOOL TO HELP STOP HARMFUL ONLINE LIES

**Disinformation—false or misleading information shared on purpose—is a growing threat to our societies. It can stir up fear, spread hatred, damage trust in public institutions, and even put lives at risk. Because it spreads so quickly on social media and other online platforms, it's often hard for authorities to keep up.**

Identifying, tracking and investigating online disinformation and other problematic content is an extremely complex problem. Some of the better equipped Police Authorities are using unsuitable off-the-shelf products that were designed to enable commercial companies to monitor social media chatter about their brands and products or to track the success of advertising campaigns. Such products are not capable of dealing with the complexities of disinformation nor do they provide advanced analysis tools and technologies tailored to the PAs needs.

This is where the VIGILANT project comes in. VIGILANT is creating a smart, easy-to-use tool that helps public authorities like the police find and understand disinformation and other harmful online content. The system collects information from the internet, including social media, blogs, and news websites, and uses advanced technology to detect patterns and alert authorities to potential risks.


The tool doesn't just focus on text—it can also analyze videos, images, and audio.

It helps officers see how harmful messages spread, who might be behind them, and how to respond.It's designed to be ethical, secure, and user-friendly.

While VIGILANT is focused on disinformation, it can also be used to detect and analyse other forms of harmful content such as hate-speech, radicalisation, incel, extremist, violent separatist, nationalist, or paramilitary movements and terrorist related content.

**Funding source**: Cluster 3: Civil security for society
**Partners**: IE, ES, SK, BG, NL, DE, CZ, GR, MD, EE, GB

More information

# SAV

## USING VIRTUAL REALITY AND GAMING TO IMPROVE HEARING IN NOISY PLACES

**Hearing clearly in noisy places—like a crowded restaurant or a busy train station—is something many of us struggle with. But for people with hearing impairments, these situations can be especially frustrating and isolating. They often have trouble focusing on one speaker, following conversations, or understanding speech when background noise is present.**

Traditional hearing tests, usually done in quiet labs, don't reflect these real-world challenges. That's where the **SAV project**, supported by the Marie Skłodowska-Curie Actions, comes in. SAV uses **virtual reality (VR)** and **gaming technology** to recreate real-life listening environments in a fun and engaging way. This helps researchers better understand how people—especially those with hearing loss—perceive sound in complex situations.


SAV will study how to improve **spatial and speech perception** (the ability to tell where sounds are coming from and understand what's being said), and how our brains shift attention in noisy settings. For people with hearing impairments, this could lead to **more accurate diagnoses** and better, personalized hearing support.

The project will test new training methods that use gamified tasks in virtual environments. **These could help people with hearing loss retrain their brains to adapt more easily to noisy situations.**

Importantly, SAV aims to make these tools widely available, while also training a new generation of scientists to continue improving hearing support technologies.

In short, SAV is creating smarter, more human-centered ways to help people with hearing impairments thrive in the real world, not just pass a test in a quiet lab.

**Funding source:** MSCA Staff Exchanges
**Partners:** SK, GR, FR, AT, SI, USA, AU

More information


# SBRA

## SLOVENIA

# E-CODUCT

## FAST-RESPONSE ELECTRICALLY HEATED CATALYTIC REACTOR TECHNOLOGY FOR $CO_2$ REDUCTION

**Project goals**

The e-CODUCT project adresses a critical environmental challenge of industrial decarboisation. Its main objective is to develop cutting-edge technology that simultaneously reduces two common industrial pollutants, carbon dioxide ($CO_2$) and hydrogen sulfide ($H_2S$) by converting them into valuable chemicals such as cabon monoxide (CO) and elemental sulfur (S). The latter is hydrogenated into methanol ($CH_3OH$). The project supports the industry's transition to cleaner, electrified processes and contributes to the broader goals of the European Green Deal.

**Innovative approach or methodology**

At the heart of e-CODUCT's technology is a pilot reactor operating at Technology Readiness Level 6, designed and built under the leadership of the Center for Low-Carbon Technologies and the Department of Catalysis and Chemical Reaction Engineering at the National Institute of Chemistry. This is the world's first electrothermal fluidized bed (ETFB) reactor, capable of delivering heat locally and efficiently at temperatures up to 1200°C. In the initial stage of the process, $CO_2$ and $H_2S$ are converted into carbonyl sulfide (COS), which is then broken down inside the ETFB reactor into CO and sulfur. The CO is subsequently pressurized and transformed into green methanol, while the sulfur is recovered as a commercially viable product.

**Key achevements and results**

To date, the pilot reactor has been successfully designed, built, and commissioned. It is located at the Podgorica Reactor Center, part of the Jožef Stefan Institute. Extensive experimental work has confirmed both the technical feasibility and economic viability of the process, and a complete process design has been finalized, including safety assesments sucha as Hazard and Operability Study (HAZOP) and Process and Instrumentation Diagram (P&ID). The reactor is capable of breaking down COS at a rate of 1 kg per hour, laying the groundwork for downstream methanol synthesis. The launch of this innovative pilot system marks a significant milestone in the development of sustainable solutions to cut greenhouse gas emissions and represents a meaningful step forward in Europe's efforts to decarbonize industry in line with the European Green Deal.

**Impact of the project**

e-CODUCT delivers major scientific and technological advances in electrothermal catalysis and industrial decarbonization. The pilot-scale electrothermal catalytic fluidized bed reactor is the first of its kind that can simultaneously electroreduce $CO_2$ and $H_2S$, converting them into valuable industrial raw materials such as CO and elemental sulfur, before their final transformation into methanol. This innovation not only reduces greenhouse gas emissions but also harnesses renewable energy, as the system is fully electric and responsive to variable energy availability.

The pilot reactor represents the first technology of its kind that can replace a conventional Claus unit for sulfur recovery and simultaneously enables the electroreduction of $CO_2$. By 2035, this could cut energy use for acid gas treatment by up to 50% in over 130 refineries across Europe. The technology is scalable and applicable to other processes, such as fluid catalytic cracking (FCC), steam cracking, and dehydrogenation, and could be deployed at up to 18,000 biogas plants and gas power plants throughout Europe.

Beyond its technical merits, the project also carries strong societal and environmental significance. It directly supports the goals of the European Green Deal and opens the door to new sustainable economic opportunities in the industrial sector.

*The e-CODUCT project is funded under Horizon Europe Grant Agreement n°101058100*

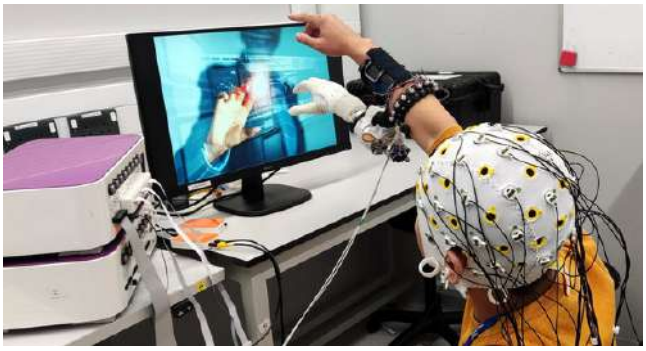
More information

# HYBRIDNEURO

## REVOLUTIONIZING MOTOR REHABILITATION

HybridNeuro is a European project coordinated by the University of Maribor, Slovenia, focused on developing next-generation human-machine neural interfaces. The project aims to enhance motor rehabilitation and understanding of neuromuscular disorders by combining brain (EEG) and muscle (EMG) electrophysiologic signals.

Leveraging expertise in decoding neural codes, HybridNeuro introduces hybrid neurotechnology. This involves synchronously monitoring muscle activity, spinal pathways, and brain centers to create integrated muscle-machine and brain-machine interfaces. These technologies are implemented through wearable solutions like robotic arms and exoskeletons, with future plans for epidermal electronics and smart clothing, enabling real-time processing and thought-driven control.



**Key achievements** include a strong consortium of leading institutions (Universities of Maribor, Catalonia, Imperial College London, and Chalmers), a pilot clinical study with the Guttmann Neurorehabilitation Institute for stroke rehabilitation, and extensive capacity building through workshops and summer schools. The project also emphasizes knowledge transfer, research management, and soft skill development.

HybridNeuro's **impact** is significant:

- **Scientific**: Advances neurophysiology and hybrid neurotechnology.
- **Technological:** Develops novel non-invasive interfaces for clinical and consumer use.
- **Economic**: Fosters innovation in health tech and smart environments.
- **Social:** Improves quality of life for those with motor impairments and augments capabilities for healthy users.

By the end of 2025, the **international HybridNeuro Hub** will launch, fostering long-term cooperation and driving the adoption of neural technologies across Europe and beyond.

*HybridNeuro is a Twinning CSA project funded under the European Union's Horizon Europe Research and Innovation Programme (Grant No. 101079392) and the UK Research and Innovation (UKRI) government's Horizon Europe funding guarantee scheme (Grant No. 10052152).*

More information

# OPTFORESTS

## HARNESSING FOREST GENETIC RESOURCES FOR INCREASING OPTIONS IN THE FACE OF ENVIRONMENTAL AND SOCIETAL CHALLENGES

To achieve this, OptFORESTS integrates cutting-edge developments in phenotyping, quantitative and population genetics, silviculture, breeding, and modelling with insights from social science research. Together, these approaches deliver nature-based solutions for forest recovery and restoration. Operating at the intersection of multiple scientific disciplines, OptFORESTS aims to deliver eight key results:

1.Recommendations for the deployment of adaptable forest reproductive material

2.A European network of 28 next-generation common garden trials, serving as a novel and lasting resource for future research

3.Low-input breeding strategies to optimize the use of genetic diversity in undomesticated trees

4.Demonstration plots showcasing restoration activities and genetic enrichment planting

5.A genetic module for training software to simulate the impact of silviculture on genetic diversity

6.Strategic proposals—based on sector analysis and demand forecasting—to expand nursery capacity and enhance cooperation among nurseries

7.Socially acceptable adaptive solutions that prioritize biodiversity and ecosystem services through the use of forest genetic resources

8.Integration of FOREMATIS and EUFGIS information systems, including recommendations to improve traceability of forest reproductive material

Beyond its scientific contributions—including the development of a breeding-with-silviculture concept, and new models, genetic resources, and data—OptFORESTS also delivers technological advances such as innovative seed quality testing.

In the long term, OptFORESTS aims to generate significant societal and biodiversity benefits, including:

- Conservation of unique tree lineages for ecosystem restoration
- Sustainable use of forest genetic resources under climate change
- Enhanced biodiversity and ecosystem service delivery in forestry
- Broader access to a genetically diverse range of forest reproductive materials
- Improved understanding of the factors required for transformative change in the conservation and sustainable use of forest genetic resources

More information

Funded by the European Union

*OptFORESTS receives funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101081774. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.*

KERC
Korea-EU Research Centre

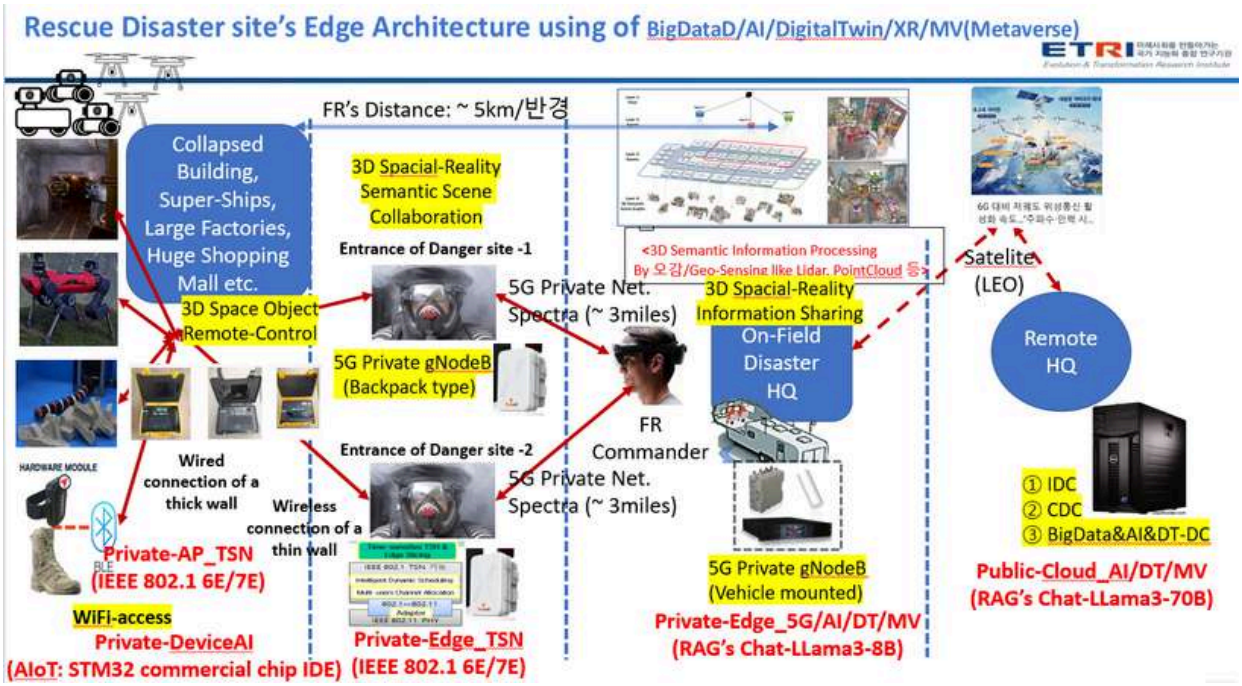
# KERC

## SOUTH KOREA

# KOREA TEAM (ETRI AND VIRNECT) ACTIVITY IN HORIZON-EUROPE SYNERGISE PROJECT

From 2023, the European Horizon-Europe SYNERGISE International Joint Study ('23.09. ~ '27.02, 3 years and 6 months) provides a mobile disaster AR emergency communication platform of ETRI and VIRNECT in Korea that remotely collaborates with {extreme risk disaster site ↔ unmanned intelligent vision-tracking robots ↔ rescue commander/leader (in a disaster field rescue truck) ↔ remote control station (remote HQ)} in a wide range of extreme disaster risk areas (a radius of 5 km).

In current activities, Toxic gas sensing, Wifi Repeater connected with Ethernet cable to StarLink (ASTRIAL) and on-site video surveillance flying drone (NTNU), walking robot dog (ETH), building collapse exploration snake robot (TOHOKU), indoor positioning electronic anklets (SYSNAV), rescue personnel's bio-protection intelligence suit (WEARIN) will be deployed to the rescue team at the extreme disaster site, and safety-XAI (CERTH Research Institute), human-machine teamwork (TNO Research Institute), C3I/IMS Disaster Site Management (ASTRIAL), and AR education and training / video-call / assisted role with smart glasses of Meta Quest-3 (VIRNECT), emergency rescue personnel who do not know communication are developing a private-5G & Spin/Leaf/AP nodes in ETRI that can install emergency communication kits and communicate with unmanned intelligence AR robots within 30 minutes after deploying Plug&Play communication connecting cables and then power-on the systems.

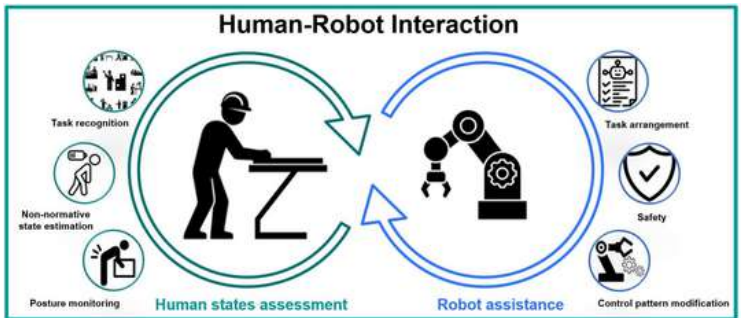



In my point of views to enhance SYNERGISE project, 3D space mapping autonomous flying within the collapse tunnel, automatic and autonomous situations of damage in golden-time before the arrival of rescue personnel (30% short, 50% escape, 30% disaster sensing/position, 90% risk detection/classification/prediction rate, SYNERGISE KPI goal) and on-device and on-Sensor AI-Hub edge (3D space) computing are required, and an emergency rescue system and a damage prediction digital twin system (e.g., analysis of the risk of crushing the evacuation crowd turbulence collision and emergency route instruction for safety evacuation) need to be provided in the XR emergency medical system for further research themes. Korea's ETRI and VIRNECT co., ltd. would be needed to collaborate for a time-sensitive edge device communication kits that integrates edge XR communication intelligence computing and RAG-based small-scale ChatGPT (eg. LLama3-8B, etc.), which can support remote XR collaboration in a 5km disaster area.

More information

# AI-PRISM

AI-PRISM is an industrial-end-user driven project that will provide a human-centred AI-based solutions ecosystem targeted to manufacturing scenarios with tasks difficult to automate and where speed and versatility are essential. The result will be an integrated and scalable ecosystem with installation-specific solutions for semi-automated and collaborative manufacturing in flexible production processes and for which specific robotic programming skills will not be required, thanks to its programming-by-demonstration modules.




The ecosystem will be composed by four main pillars including
1) Human Centred Collaborative Robotic Platform,
2) Human Robot Cooperation Ambient,
3) Social, Human-Agent-Robots Teams Collaboration and
4) Open Access Network Portal. In order to facilitate the assessment of the performance, transferability, scalability and large-scale deployment of these solutions,
the demonstrations will be conducted under real operational environments in four pilot involving key manufacturing sectors - Furniture (ES), Food/Beverage (GR), Built-in Appliances (TR) and Electronics (PL) , plus one generic demonstration facility (AT).

The project is not just aiming at quantitative improvements in a specific sector, but to use technology innovation to support a change of paradigm where AI, robotics and Social Sciences and Humanities (SSH) integrated in the manufacturing domain for the improvement of flexible production processes, become a feasible and widespread alternative for European factories, especially SMEs.

To achieve this, the project relies on a strong consortium of 25 partners from 12 countries. **This includes international cooperation with Korea, through the participation of the Electronics and Telecommunications Research Institute (ETRI) and A&G Technology Co. Ltd.**

The consortium brings together all the actors of the Human Robot Collaboration (HRC) value chain including relevant competence centres, technology providers, equipment providers, integrators, and manufacturers/end users; and involves key expert partners in SSH, standardisation, exploitation, and dissemination.

More information

# INPACE

## INDO-PACIFIC EUROPEAN HUB FOR DIGITAL PARTNERSHIPS

**INPACE is a Coordination and Support Action funded by the European Commission's Horizon Europe Programme. Launched in January 2024, INPACE supports the implementation of Digital Partnerships between the European Union and Japan, South Korea, Singapore, and the Trade and Technology Council with India.**

Powered by a consortium of 21 European and Asian partners, the initiative establishes a multi-stakeholder Hub for collaboration in digital technologies between Europe and the Indo-Pacific region and fosters long-term cooperation in key digital technologies by bringing together experts and stakeholders from both regions.

By tackling joint priorities from the EU and its strategic Asian partners, INPACE aims to create a more inclusive, sustainable, and prosperous digital future for both regions. INPACE seeks to establish a robust network of high-level experts from the 16 Thematic Working Groups (TWGs), collaborating with professionals engaged through our involvement in key strategic events across South Korea, Japan, Singapore, and India.

**INPACE Symposium October 2024**

INPACE organised the **International Symposium on Digital Technologies and Policies: Supporting the Indo-Pacific-European Digital Partnerships, at the Daeyang AI Center, Sejong University,** in Seoul, Republic of Korea, on 21-22 of October 2024. The event addressed the intersections of technology and policy, fostering dialogues between experts from both regions to strengthen digital partnerships with the Republic of Korea, Japan, Singapore, and the cooperation with India in the TTC context. The Symposium aimed to delve into the latest advancements in digital technologies and transformative applications in the Indo-Pacific Region and in Europe.


The event offered a platform to discuss groundbreaking technologies and their impacts, including:

- Trusted AI: Unlocking the potential of AI while ensuring reliability and ethics
- Chips of the Future: Discovering breakthroughs in semiconductor technology
- Future Networks: Exploring the evolution of connectivity and communication
- Cybersecurity: Delving into strategies for safeguarding our digital world

Significant progress was made in strengthening connections with Korean stakeholders, with this strategic engagement unlocking new opportunities for EU-Korea digital collaboration and knowledge sharing. The symposium enabled the consortium to develop targeted pilot project strategies, helping to turn proposed frameworks into practical implementation plans. For example, INPACE Partners EGM and Sejong University have initiated global standardisation efforts to develop data quality metrics for assessing AI data trustworthiness. Through in-depth discussions and expert insights, participants identified concrete pathways to advance digital partnerships.

The INPACE Hub is an innovative digital platform that brings together technology and policy convergence with validated resources, collaboration opportunities, and expert connections. Join the INPACE Hub to create synergies with your own projects and initiatives, access funding opportunities, foster impactful digital initiatives, and advance trusted digital technologies for sustainable well-being!

More information

GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES
CDTI INNOVACIÓN
SPAIN OFFICE FOR SCIENCE AND TECHNOLOGY
SOST-BRUSSELS

# SOST

## SPAIN

# AMADIX

## EARLY CANCER DETECTION IN BLOOD

AMADIX is a leading molecular diagnostics company focused on liquid biopsy, developing innovative diagnostic tests for early cancer detection in blood. The mission of the company is extending people´s lives, developing disruptive technologies to detect tumours years in advance before symptoms appear. This is a different way of diagnostics versus invasive procedures like colonoscopy or biopsies.

The company develops products addressing healthy individuals, for early cancer detection in a blood draw, avoiding the complications of existing invasive procedures, such as tumour biopsies.

The most advanced product is PreveCol, an innovative and highly accurate blood-based test for colorectal cancer diagnosis based on a unique combination of cutting-edge molecular biomarkers. These biomarkers identify healthy individuals from tumour and precancerous polyps before the symptoms appear and with higher accuracy than current alternatives.

PreveCol detects premalignant lesions as precancerous polyps, which will be malignant in a few years, at a stage when it is still possible to remove them. It is indicated to screen healthy population 50 to 85 years old. The proof of concept has been demonstrated over 1000 patient samples – all colonoscopy verified – and it has been validated in additional 3300 patient samples from a European perspective study in Germany and Poland, with the support from the European Commission through a grant of €2,8M (H2020 programme).

The non-invasive nature of PreveCol, combined with its high accuracy, will change the paradigm of colon cancer screening programs, ensuring better compliance and improving the survival and quality of life of patients. PreveCol counts with the regulatory approval CE mark since May 2022 and has been recently launched into the market. The company continues to go further exploring the combination of clinical records and patient lifestyle through the latest Artificial Intelligence (AI) and Advanced Data Analytical Tools, to identify new risk factors to develop cancer. The objective is identifying individuals at risk of developing cancer in the future, to prevent it and extend their lives. For this accomplishment, AMADIX has secured the support of the EIC. The company's test pipeline includes – besides PreveCol - two blood-based tests for early detection of lung and pancreatic cancer.

More information

# SMOWLTECH

## IMPROVING THE QUALITY OF ONLINE EVALUATIONS

Nowadays, people study in a very different way than in the past. And if we can be trained 100% online, why can't we be evaluated similarly? Now you can take courses, selection processes and university degrees remotely so that students and users can flexibly manage their studies and carry them out without travelling. Smowltech replies to this need with its SMOWL proctoring software.


A remote monitoring tool allows companies and educational institutions to take online exams. It will enable people to demonstrate that they have obtained the knowledge reliably. SMOWL is designed to be easily integrated into educational centres' and companies' different virtual campuses so users can complete their entire training process online.

What do we achieve with this? A more effective way to facilitate access to quality education, avoid unnecessary travel and allow people to reconcile their work, family, and academic life. The planet also appreciates it since, besides those unnecessary travels, taking online exams avoids a significant waste of paper and CO2 compared to traditional exams. All this is possible thanks to Smowltech's selection for phase 2 of the Horizon 2020 SME Instrument.

Do you want to learn how SMOWL works? Visit our website and discover it!

More information

# THE BLUE BOX

## TESTING KIT TO DETECT BREAST CANCER

If dogs are able to smell cancer, why can't we? Designed after a dog's olfactory system and olfactory neurons, The Blue Box is an under-development AI-powered medical device aimed at breast cancer testing in a non-invasive, non-irradiating, inexpensive, specific and user-friendly way... just by introducing a urine sample in a box!

This innovative method has been designed by 25-year-old Spanish woman: Judit Giró Benet. During her studies, Giró observed that a dog is able to sniff out lung cancer through a patient's breath. Her fascination with this discovery took her to replicate a dog's olfactory system for her undergraduate final project. After joining the UC Irvine's Master of Embedded and Cyber-physical Systems programme, she incorporated artificial intelligence into her platform and obtained a device that now detects over 95 percent of late-stage breast cancer! This achievement made her the winner of the 2020 James Dyson International Award.

It can be said that The Blue Box is a change in the way society fights breast cancer, because it has the potential to make cancer screening a part of daily life. As opposed to the current painful and inconvenient procedure that sometimes leads to anxiety, this method enables women to get easily self-tested at home without any pain. This not only improves the living conditions of women but can also save many lives in the long term.

More information

# SWERI

## SWEDEN

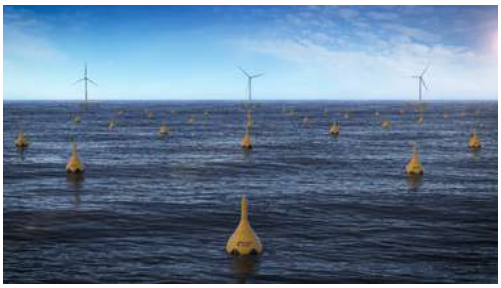
Vetenskapsrådet
Swedish Research Council

VINNOVA
Sweden's Innovation Agency

# CORPOWER OCEAN

## CORPACK - TURNKEY BUILDING BLOCK FOR SCALING NOVEL WAVE ENERGY TECHNOLOGY INTO COMPETITIVE UTILITY-SCALE WAVE FARMS

Global electricity demand is set to double by 2050, with 90% expected to be generated by RES. Solar PV, wind, and storage are essential but will be insufficient alone to achieve net-zero. With 60% of the global electricity generation today being still dependent on fossil fuels, accelerating the transition to net-zero requires a RES diversification able to supply 24/7 demand for electricity with 100% clean power.



Wave energy could supply 10% of the world's electricity demand, playing a crucial role in a balanced and cost-effective RES mix. However, this potential remains untapped. Historically, wave technologies have either broken in the harsh ocean conditions or have been too large and costly compared to their power output. This has resulted in setbacks related to perceived risk and bankability. Informed by 40 years of hydrodynamic research, CorPower Ocean developed and proven at TRL 7 a unique Wave Energy Converter (WEC) technology that makes devices naturally protected in storms and uses novel control technology that strongly amplifies the power capture in regular waves. This allows to deliver more than 5x as much power per amount of equipment compared to the previous state-of-the-art. High structural efficiency enables simple installation and effective O&M methods, providing a very competitive LCOE-curve to make wave energy a mainstream energy source in the coming years.

**CorPower designs,** manufactures, and delivers its technology as CorPack wave clusters with 10-30MW capacity. CorPacks are building blocks that are laid out side-by-side to form utility-scale wave farms (100s of MW to GW-scale). The blended support from the EIC enables standardization of the core WEC technology so it can scale up into wave farms and to develop the engineering package of the CorPack product. The EIC support helps CorPower to become a turnkey supplier of wave energy systems, reach FID on the first wave farm projects, and support CorPower's ambitious target of installing 600MW of clean wave energy by 2032.

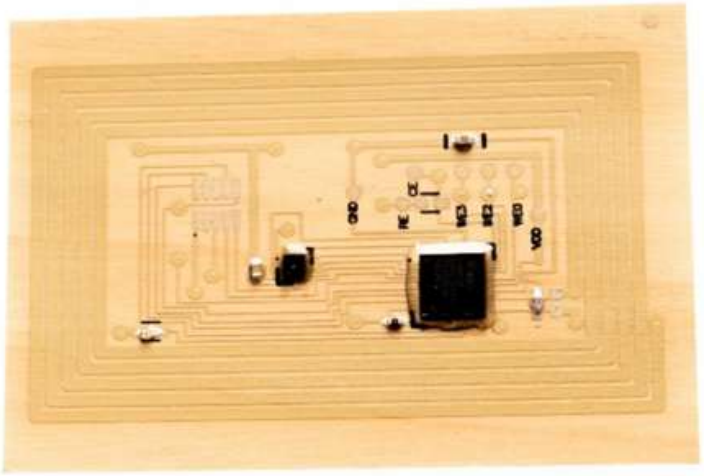

More information

# HYPELIGNUM

## EXPLORING WOODEN MATERIALS IN HYBRID PRINTED ELECTRONICS: A HOLISTIC APPROACH TOWARDS FUNCTIONAL ELECTRONICS WITH NET ZERO CARBON EMISSIONS

Electronics and their manufacturing still have a significant impact on our environment through the use of critical resources, high energy consumption during manufacturing and, due a large disposal rate, wastes. Therefore, rethinking the existing electronics paradigm, from materials to their end-of-life, is key to achieving a more environmentally and economically sustainable economy.

The HyPELignum project, coordinated by the RISE Research Institutes of Sweden AB (www.ri.se), aims to demonstrate that manufacturing of electronics with net zero carbon emissions can be achieved by holistically combining: (i) material and energy efficient additive manufacturing processes, (ii) low impacting biogenic materials including wood and lignocellulosic polymers, (iii) low-impact metals and (iv) novel highly integrated and energy efficient electronic components. To prove the viability of the developed materials and processes for the manufacturing of electronics and sensors, 4 demonstrators will be realised:



1) electronics boards (ecoPCB) based on plywood (Fig.1) and lignocellulosic engineered board,
2) implementation of sensors and actuators on a large area wooden construction elements,
3) a sensorised furniture and
4) polymers having a covalent adaptable network, allowing separation of electronics from polymeric substrates.

In its three years of activities, the project has (i) synthesised novel bio-derived polymers, functional monomers and highly stable nano-particles, (ii) formulated bio-based inks, adhesives and coatings, (iii) engineered stated of the art lignocellulosic boards (iv) and developed processes for the additive manufacturing of electronics and sensors on plywood and lignocellulosic board Furthermore, novel sensors, energy storage units and a novel highly integrate and power efficient microchip have been also realised. Last but not least, the *HyPELignum* project has founded the EU Green Electronics Working Group with the scope, together with other 13 EU funded projects, to harmonize and disseminate "green electronics" to society and policy makers.

**The team:** *HyPELignum* consortium includes 11 partners (8 RTO/universities and 3 industrial partners) from 6 countries (Slovenia, Sweden, Spain, Netherland, Austria and Switzerland); these encompass all the needed expertise needed to successfully implement the project such as wood/cellulose science, organic/inorganic synthesis, additive manufacturing, sensor science, microelectronics and environmental assessment.


The financial support: European Union's Horizon Europe research and innovation program (Grant Agreement no.101070302) and the Swiss State Secretariat for Education, Research, and Innovation (SERI, Ref. Nr. REF-1131-52302).

More information

# MODI

## PIONEERING THE FUTURE OF AUTONOMOUS FREIGHT

MODI is a European cross-border flagship initiative accelerating the introduction of Connected, Cooperative and Automated Mobility (CCAM) solutions to significantly improve logistic chains. The project has a total budget of approximately € 28 Million and consists of a 34-organisation public-private partnership from 8 countries to test and validate the implementation of CCAM solutions for real-logistics operations.


Innovative, connected, cooperative and automated mobility has the potential to create a safer, more sustainable and efficient global transport system. Unlike private transport, logistics faces a unique mix of driver shortages, cost pressures, and high vehicle utilization—making profitable use cases for automated vehicles not just possible, but essential.

**Einride's autonomous electric vehicle**

As a key contributor to the EU-funded MODI project, the Swedish company, Einride, is shaping the next generation of freight transport. Through a powerful combination of autonomous electric vehicles and strategic collaborations, Einride demonstrates why autonomy is at the core of the transformation of the logistics sector.

Collaborating with leading suppliers and operators in the MODI project, Einride is demonstrating how automation can make logistics safer, more efficient, and sustainable by streamlining charging, gate access and loading and unloading processes. Einride and its partners conducted a series of demonstrations throughout 2025 that highlight practical automation solutions across the supply chain. These innovations represent a significant step toward fully autonomous and digitalized logistics, reducing manual intervention and increasing operational reliability.

MODI A LEAP TOWARDS SAE L4 AUTOMATED DRIVING FEATURES

Furthermore, in the autumn of 2025 Einride's autonomous electric truck will complete the first-ever cabless autonomous vehicle border crossing between Sweden and Norway. This historic journey will not only prove the technology's readiness but also address regulatory and cross-border operational challenges.

The MODI project's success is rooted in its strong public-private partnerships, which provide a safe and structured environment for experimentation and innovation. Einride is proud to contribute to this model, helping advance Europe's leadership in technology development while aligning with EU values on safety, sustainability, and responsible innovation.

Einride's work in MODI showcases a future where logistics are not only automated but integrated, efficient, and sustainable. Through collaborative innovation and real-world testing, the project offers a blueprint for how autonomous freight can scale across borders and supply chains—setting new standards for the industry.

More information

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SwissCore

Contact Office for European Research
Innovation and Education

# SWISSCORE

## SWITZERLAND

# ARTCAST4D

## BLENDING IMMERSIVE TECHNOLOGY AND THE ARTS

Artcast4D is a Horizon Europe project aiming to revitalise Europe's cultural landscape, particularly in the aftermath of the COVID-19 pandemic, by integrating immersive technology into artistic expression and cultural spaces. The project is funded under the Cultural Heritage section of Horizon Europe and under the New European Bauhaus umbrella. Switzerland's contribution comes through the IFAAR Institute in Bern, which participates as an associated partner in the New European Bauhaus umbrella, with funding support from the Swiss State Secretariat for Education, Research and Innovation (SERI)-

At its core, Artcast4D is developing a global framework to create "efficient, cost-effective, multi-site, multi-platform, non-invasive, immersive and interactive user experiences designed as global social sculptures for the European Cultural Creative industries. These experiences aim to strengthen public engagement and enhance the sustainability of cultural heritage sites.


As part of creating a framework for effective and experiences, Artcast4D examined the development of immersive experiences, finding that the success of such experiences is not only dependent on the quality of the technology itself but also on the content and the interaction with the visitors. Furthermore, one of the project's most vital outputs has been the 2D/3D real-time engine, that is now available as an open-source programme to further expand the reach of the innovative idea of involving immersive technology to boost engagement in other areas such as the cultural industry.

Ensuring long-term impact, the project also prioritises commercial viability and the broader adoption of immersive technologies. A major output of the project is the AAASeed, a versatile 2D/3D real-time engine that is openly available as an open-source tool, enabling broader access to immersive innovation.

To test and refine its framework, Artcast4D has launched pilot programmes across France, the United Kingdom, Spain and Greece. These pilots demonstrate how immersive technology can be used in diverse settings, from interactive public artworks and dance performances to cultural heritage simulations.

Looking ahead, Artcast4D will continue developing its plans to expand the reach of its pilots, deepen stakeholder engagement, and promote its open-source tools to cultural institutions across Europe (see SwissCore article).

More information

# LUMI

## A NEW GENERATION OF EUROPEAN SUPERCOMPUTER

For a long time, Europe lagged behind the USA and China in high performance supercomputing (HPC). In response, the EU scaled up its computing capacities through the launch of the Large Unified Modern Infrastructure (LUMI) at the IT Center for Science (CSC) in Kajaani, Finland. Officially accepted in January 2023, LUMI is Europe's most advanced HPC project, ranking third globally in computing power and energy efficiency. The initiative was co-funded by EuroHPC Joint Undertaking (EuroHPC JU) under Horizon Europe and the eleven consortium countries, including Switzerland. The wider EuroHPC supercomputing network includes six more supercomputers in Italy, Spain, Slovenia, Luxembourg, Czech Republic, Bulgaria and Portugal.

Switzerland's involvement in the consortium is represented by Thomas Schulthess, ETH Professor and Director of the Swiss National Supercomputing Centre (CSCS) who is part of LUMI's Strategic Committee. Switzerland joined the EuroHPC JU in 2018, building on its previous leadership in European HPC through the Partnership for Advanced Computing in Europe (PRACE).


Located in Kajaani, Finland, LUMI benefits from an energy-efficient environment using hydropower and innovative cooling techniques. This reduces energy costs by up to 40 per cent and significantly cuts carbon emissions

The system comprises a Cray EX supercomputer by Hewlett Packard Enterprise, delivering 375 petaflops of processing power, vast storage capacity and ultra-fast data transfer speeds. Selected users from the consortium used LUMI as part of the second pilot phase in August 2022, including two Swiss projects by researchers from the University of Basel and the University of Zurich, who are working on molecular modelling. Since becoming available for users in December 2022, 50% of the LUMI supercomputer's resources are accessible through EuroHPC JU calls open to eligible European users, including Switzerland, while the remaining 50% are allocated to consortium countries. Switzerland's national share, managed by the CSCS, accounts for approximately 5% of the total resources. A key new development under the EuroHPC JU and part of the Commission's AI Continent Action Plan are EU AI Factories, which aim to leverage Europe's supercomputing capacities for the development of trustworthy artificial intelligence (see SwissCore article). The LUMI AI Factory, launched in April 2025, is one of the first of its kind and is hosted at CSC in Finland with a consortium including Czechia, Denmark, Estonia, Finland, Norway and Poland. While Switzerland is not part of the LUMI AI Factory consortium, ETH Zurich and EPFL have launched the Swiss AI Initiative, within which the Alps supercomputer, operational since 2024 and among the world's most powerful AI-capable systems, supports advanced AI research and applications.

More information

# LIVESEEDING

## ORGANIC PLANT BREEDING SPREADS THROUGH EUROPE


LiveSeeding is a 4-year Innovation Action focusing on enhancing organic seed and plant breeding to promote sustainable and diverse food systems in Europe. Launched in October 2022, LiveSeeding is coordinated by the Research Institute of Organic Agriculture (FiBL), with FiBL Europe managing the overall project coordination and FiBL Switzerland responsible for the project's scientific coordination. LiveSeeding is co-funded by the European Commission under Horizon Europe, the Swiss State Secretariat for Education, Research and Innovation (SERI) and UK Research and Innovation (UKRI), showcasing strong international collaboration.

Despite the increasing demand for organic products, Europe's organic seed sector remains underdeveloped. Many organic farms still rely on conventional seeds through derogations, limiting the sector's sustainability and resilience. LiveSeeding addresses this by enhancing the availability of organic seeds and cultivars that are well suited to organic farming, and by strengthening the seed sector through improved technical, socio-economic and regulatory conditions.

To address the complexity of the current lock-ins in the organic breeding and seed sector, LiveSeeding uses a "PUSH-PULL-ENABLE" model: pushing innovation in seed and breeding, pulling demand through market development, and enabling the right policy framework. The project also aims to improve skills and knowledge creation, promote the competitiveness of the organic seed and breeding sector and ensure efficient scaling out and scaling up of organic seed and breeding initiatives. LiveSeeding has adopted a multi-actor, multi-stakeholder participatory approach to achieve these goals, involving 17 Living Labs and three networks of organic breeders, seed savers and cities engaged in sustainable urban food policies across 16 countries. The project also implements innovative ICT-based citizen-science methodology, with social innovation as a key component of all its innovation activities.
Building on the success of the previous LiveSeed coordinated by **IFOAM Organics Europe** and under the Scientific coordination of FiBL Switzerland, LiveSeeding aims to scale up best practices and innovations, improve seed availability across Europe and develop a harmonised regulatory framework. The project has already supported new breeding initiatives, market access tools and policy recommendations.

More information

GUARD
Global promotion of UA R&D

# GUARD

## UKRAINE

# BIOMETHAVERSE

BIOMETHAVERSE project aims to diversify the technological basis for biomethane production in Europe, increasing cost-effectiveness and contributing to the uptake of biomethane technologies. To this end, five innovative biomethane production pathways will be demonstrated in five different European countries: France, Greece, Italy, Sweden and Ukraine. In the BIOMETHAVERSE demonstrators, CO2 effluents from anaerobic digestion or gasification and other intermediate products will be combined with renewable hydrogen or renewable electricity to increase the overall biomethane yield. All demonstrated production routes consider a circular approach for energy and material use. The demonstrated technologies will reach TRL 6-7.


BIOMETHAVERSE's research and pilot technologies set out to boost the production of biomethane in Europe, thus contributing to energy independence and competitive sustainable growth, whilst creating green jobs. All demonstrated production routes go beyond conventional technologies, with a circular approach for the use of energy and materials, while aiming to reduce the overall biomethane production costs and increase biomethane production.

To maximise the impact of BIOMETHAVERSE's innovations, all partners are committed to ensure the replicability and upscaling of the demonstrated production pathways whilst guaranteeing swift market access to the technologies.

Expected Impacts

- Increase biomethane production potential by 66% by 2030
- Create 294000 jobs by 2030
- Enable 113 Mt CO2eq GHG savings by 2030
- Reduce biomethane production costs up to 44%

More information

# HYDEA

**Ukraine is proudly represented in the groundbreaking HYDEA aviation project by National Aerospace University "Kharkiv Aviation Institute".**


The HYDEA project, which stands for "HYdrogen DEmonstrator for Aviation", proposes a robust technology maturation plan to develop an H2C (Hydrogen Combustion) propulsion system compatible with an Entry Into Service of a zero-CO2 low-emission aircraft in 2035, consistently with the expected timeframe of the European Green Deal and CA SRIA objectives.

The project aims to address fundamental questions related to the use of hydrogen as an aviation fuel, concentrating on the development and testing in relevant conditions of an H2 combustor and H2 fuel system, also including emission studies and further technologies which will serve as an outlook to future engines, i.e. NOx optimization studies, potential contrails emissions and investigating integration aspects between engine and aircraft.

HYDEA results will be core for the ZEROe technology exploration project, launched by Airbus in 2020. The revolutionary technologies in scope call for an early engagement and dialogue with EASA (European Union Aviation Safety Agency) within HYDEA, starting from phase 1.

More information

# GR4FITE3

**Graphite Resilience for lithium-Ion battery anodes**

Project traces a greener path from Zavalievsky Graphite LCC (Ukraine), the largest operating natural graphite mine in Europe, through to the laboratories where lithium-ion battery materials are characterised. Three prominent UA beneficiaries in the consortium share a total EU funding of 2,6 mil €.

The project GR4FITE3 aims to reach graphite resilience for lithium-ion battery anodes through a sustainable European end-to-end supply chain. This supply chain includes environmentally responsible mining of natural crystalline flake graphite from Europe's largest natural graphite resource, and innovative, continuous, and low energy input upgrading of the mined ore.
GR4FITE3 will not only source battery-grade graphite with a lower environmental impact, but it will also deliver novel silicon-based composites made from natural and recycled graphite materials.

Partners will ultimately compose a unique anode active material's particle architecture, make the high-density anodes, create the cells, develop battery modules, and certify the lithium-ion batteries for safety and viability.
This will lead to the development and commercialisation in Europe of more sustainable, improved batteries for use in electric vehicles and energy storage applications for solar and wind facilities.

The GR4FITE3 project supports and aligns with the introduction of the EU Battery Passport by developing a sustainable supply chain for industrial carbon products and enhancing Europe's resilience in critical raw materials.

More information

**The Informal Group of R&I Liaison Offices IGLO**

IGLO Chair 2024-2025

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