
List of Ulysseus Joint Research and Innovation Groups



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Introduction

Joint Research & Innovation (R&I) Groups are transnational, challenge-driven teams bringing together researchers from across the Ulysseus partner universities, often in close collaboration with associated partners and external stakeholders. Anchored in the Ulysseus Innovation Hubs, these groups are built around shared thematic priorities aligned with European, regional and societal challenges, particularly those linked to the green and digital transitions. Their primary purpose is to foster long-term, trust-based scientific cooperation by connecting complementary expertise, strengthening interdisciplinary approaches, and creating a fertile environment for co-creation across education, research and innovation. Joint R&I Groups act as incubators for new ideas, joint publications, and competitive project proposals, while also serving as entry points for early-career researchers into European research networks.

For Ulysseus, Joint R&I Groups are a strategic instrument to operationalise the alliance's vision of an integrated European University and a shared innovation ecosystem. They translate institutional cooperation into concrete scientific collaboration, reinforcing the alliance's capacity to generate impact at European and global levels. By linking academic excellence with regional ecosystems and societal needs, Joint R&I Groups help bridge research and innovation, enhance the visibility and attractiveness of Ulysseus as a research partner, and contribute to the sustainability of the alliance beyond project-based funding. Ultimately, they strengthen Ulysseus' role as a driver of knowledge creation, innovation-driven transformation and European competitiveness.

The first Joint Ulysseus R&I Group was established in 2024 while most of the groups were established thanks to the pilot call of the Ulysseus Seed Funding Programme for Joint R&I Groups launched in 2025. In total 50 R&I Groups, currently 45 groups are in operation (enlisted in the list). The R&I Groups in the list are structured in the 6 thematic clusters defined by Ulysseus International Project Office: 1. Digital & AI Transformation for Society, 2. Sustainability, Energy & Climate Action, 3. Health, Ageing & Life Sciences, 4. Culture, Heritage & Creative Societies, 5. Social Inclusion, Citizenship & Education and 6. Advanced Materials & Industrial Engineering

Definitions

USE	University of Seville (Spain)
UniCA	University Côte d'Azur (France)
UniGE	University of Genoa (Italy)
TUKE	Technical University of Košice (Slovakia)
MCI	MCI The Entrepreneurial School® (Austria)
HH	Haaga-Helia University of Applied Sciences (Finland)
UM	University of Münster (Germany)
UoM	University of Montenegro (Montenegro)

1. Digital & AI Transformation for Society

AI&T4H

AI&Tech4Human: Emerging Technologies for Societal Wellbeing

Group ID: 251036	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Juan Luis Blanco Guzmán (USE)	Supported by Seed Funding: yes
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Researchers:

USE 5	UniCA	UniGe	TUKE	MCI	HH 4	UM	UoM 2	Associated Partners/Stakeholders
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Topic: Applied Artificial Intelligence for Business & Education	Keywords: Artificial Intelligence; Extended Reality; Eye Tracking; Social Innovation; Wellbeing
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The AI&Tech4Human group aims to explore and promote the use of emerging technologies—such as artificial intelligence, extended reality (XR), and eye-tracking—to improve quality of life across different areas, including education, health, tourism, and civic engagement. The group will conduct interdisciplinary research to investigate how these technologies can be applied in real contexts to generate positive social outcomes. It will also consider their ethical and psychological implications, promoting a human-centered approach to innovation. Our specific objectives are:

- 1) To investigate use cases where AI, XR, and eye-tracking can foster inclusion, accessibility, engagement, or wellbeing.
 - 2) To pilot technological applications and assess their feasibility, usability, and potential societal impact.
 - 3) To establish a strong network of researchers and stakeholders from at least three Ulysseus partner universities and associated partners.
 - 4) To organize workshops, collaborative seminars, and open events for dissemination and knowledge exchange.
 - 5) To generate outputs that can support new proposals under programmes such as Horizon Europe or Erasmus+, ensuring continuity and sustainability.
- By integrating expertise from multiple fields, our group will contribute to Ulysseus Innovation Hub goals and act as a catalyst for applied research in emerging technologies aligned with social good, innovation, and European values.

AI4BIS

Applied Artificial Intelligence for Business Information Systems

Group ID: 251029	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Dmitry Kudryavtsev (HH)	Supported by Seed Funding: yes
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Researchers:

USE 4	UniCA	UniGe	TUKE	MCI	HH 4	UM 4	UoM	Associated Partners/Stakeholders
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Topic: Applied Artificial Intelligence for Business & Education	Keywords: information systems; AI applications; business process management; industry-university cooperation; research methods
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The Ulysseus Applied AI for Business and Education Innovation Hub (based at Haag-Helma UAS) has strong positions in applied AI-related projects. Examples of projects: Finnish AI Region EDIH (FAIR EDIH), AI DRIVER!, AI Forum, Generative AI-enhanced Knowledge Management (GAIK), EUSAir: EU Regulatory Sandboxes for AI.

We anticipate a significant potential for improving the current applied research and development practices at the hub by leveraging the deep information systems expertise of the University of Münster (ERCIS leadership) and the University of Seville (Information Systems team at the SCORE lab). More specifically, by adding business process management, digital transformation and methodological knowledge to applied AI projects.

To make research and innovation efforts within the group relevant to industry, the Economic Development division of the City of Helsinki will be involved as an associated partner.

Objectives of the suggested group:

1. New strong funding applications at the intersection of information systems and AI (Horizon, Digital Europe, Interreg, Erasmus+)
2. Increase the business impact and academic value of AI-related RDI projects at the Ulysseus Applied AI for Business and Education Innovation Hub
3. Strengthen institutional cooperation across the Ulysseus alliance in the area of applied AI for business information systems (including business process management and digital transformation of organizations)

AIBIZ

Applied AI for Business

Group ID: 251040	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Lili Aunimo (HH)	Supported by Seed Funding: yes
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Researchers:

USE 1	UniCA 1	UniGe	TUKE 1	MCI	HH 1	UM	UoM 1	Associated Partners/Stakeholders
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Topic: Applied Artificial Intelligence for Business & Education	Keywords: AI for business; predictive analytics; natural language processing; data science; AI agents
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The Ulysseus Joint Research Group on Applied AI for Business conducts research on the application of AI methods in various fields and systems.

We investigate the applicability of machine learning, knowledge discovery, natural language processing, intelligent automation and other AI methods for solving digitalization challenges of various organizations. Additionally, we conduct research on trustworthy and humane AI in business contexts. AI adoption in organizations and AI-driven business transformation are central topics in our research.

The expertise of the research group focuses at the intersection of Information Technology and Business, and we believe in the power of interdisciplinary collaboration.

We partner with businesses, startups, other research institutions and our students to solve various challenges through AI-driven solutions.

For more information, see <https://www.haaga-helia.fi/en/applied-ai-business>

AIL(H)E

Artificial Intelligence and digital Literacy in Higher Education

Group ID: 251020	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Pilar Gómez-Rey (USE)	Supported by Seed Funding: yes
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Researchers:

USE 2	UniCA	UniGe	TUKE 3	MCI 3	HH 3	UM	UoM 3	Associated Partners/Stakeholders
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Topic: Applied Artificial Intelligence for Business & Education	Keywords: AI skills; AI literacy; Digitalization; Academic Performance; Higher Education
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This project aims to explore, assess, and enhance the integration of Artificial Intelligence (AI) and digital literacy within higher education (HE), with a specific emphasis on their relevance to academic and job performance of their members. This consortium consists of universities with expertise in different fields and a strong commitment to interdisciplinary, equality, inclusion and diversity, ensuring that partners will have a positive approach to diversity of all kinds at all stages of the project lifetime and provide high quality tools to foster the competences of all target groups. Other secondary objectives are to promote equitable access to digital education and AI for the different university profiles. Also to improve the digital and AI, social and work skills of students and HE staff through continued and adaptive training that complements and goes beyond traditional active employment policies. The main research questions are: what are the main barriers (technological, pedagogical, social) to integrating AI in university settings? What impact does an AI-based training intervention have on students' self-confidence and academic performance? Which digital and social skills are most valued by the labour market in the context of digital transformation?

BEXR

Behavioural Economics in eXtended Reality Research Group

Group ID: 251041	Type of the Group: Thematic Research Group	Lead Researcher: Manuela Chessa (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
	3	2						

Topic:

Technological Sciences

Keywords:

Virtual Reality; eXtended Reality; Human-Computer Interaction; Decision Making; Strategic and Cooperative Interaction

The interdisciplinary Behavioural Economics in eXtended Reality Research Group brings together leading and first-stage researchers from two main research areas: Computer Science, specifically Human-Computer Interaction (HCI), from the University of Genoa (UniGe), and Behavioural Economics, from the Université Côte d'Azur (UniCA). The group's main objectives are to exploit HCI technologies, specifically the use of eXtended Reality (XR), to test and validate behavioural economics models and to advance the development of new economics models exploiting field tests conducted in XR. The UniGe group has strong expertise in developing XR in multidisciplinary contexts (from healthcare to learning), specifically tailoring the development to the specific use case. Moreover, the University of Genoa has a strong background in the study of perceptual and cognitive aspects of XR, which is crucial for using this technology in behavioral economics experiments. The UniCA group, in particular members from the Laboratory of Experimental Economics of Nice (LEEN), have well-established expertise in behavioral and experimental economics. UniCA group has a strong background in designing experiments to study and guide human decision-making, at both individual and group level.

DAAE

Digital and AI literacy at Applied AI for Education

Group ID: 251015	Type of the Group: Thematic Research Group	Lead Researcher: Ari Alamäki (HH)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
2			1		3			

Topic:

Pedagogy

Keywords:

Artificial intelligence applications; AI literacy; Pedagogy; Higher Education; Innovations

This research initiative belongs to Applied AI for Education research group. In this initial research project, we will focus on Digital and AI literacy and its supporting pedagogical methods, taxonomies, and AI tools. This project is in co-operation with Sevilla's project idea where we have joined. The final focus area (where to integrate, apply and research AI literacy) is not yet selected, and it needs more research and collaboration as well as concrete framing of the research contribution and positioning. AI Driver-project we already started this research and we would like to continue this research approach at Ulysseus. This could be an excellent topic for new Erasmus+ applications or even Horizons. Ulysseus Erasmus+ Metacog project focuses on AI literacy from disinformation and fake news perspective, but there are several other research focuses and context to develop AIED pedagogies, practices and technologies.

The research questions are:

- How to develop the higher level AI literacy skills in higher education?
- What are the most critical application areas/subjects?
- How metacognitive skills should be educated in the era of AI?

DRAGLab

Decision Automation for Strategic Sourcing and Innovation

Group ID: 251033	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Gabriel Demeter (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
			2		2			

Topic: Applied Artificial Intelligence for Business & Education	Keywords: Artificial Intelligence; Decision Automation; Big Data; Supply Chain; Innovation sourcing
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The objective of this R&I group is to explore and develop new interdisciplinary approaches using Artificial Intelligence and Big Data for decision automation, aimed at enhancing risk management and decision-making in market intelligence, supply chain and procurement processes in both public and commercial domains.

The group will focus on:

- Detecting and predicting supplier risks (financial, behavioral, collusive)
- Applying AI models such as knowledge graphs, large language models (LLMs), and causal inference
- Supporting procurement strategies, including market research, auction design, negotiation, and contract creation
- Investigating the use of AI in procurement innovation and R&I sourcing
- The initiative also aims to:
 - Build a shared research infrastructure, including data assets and collaborative tools
 - Strengthen the international ecosystem of TUKE's Living Lab to co-create methods and use cases with practitioners and stakeholders (based on professional platforms like ProcurementBoard with 50+ spend management EU leaders), and to deploy innovative services in practice through various business models
 - Publish high-quality scientific papers in leading international journals
 - Support the development of future projects (e.g., Horizon Europe or Erasmus+) and related publications

By integrating digital, economic, and ethical perspectives, the group supports the Ulysseus mission to foster applied, excellent, and open science that addresses complex societal and industrial challenges through collaborative research.

GAIA

Generative AI and Assessment in Higher Education

Group ID: 251008	Type of the Group: Thematic Research Group	Lead Researcher: Davide Parmigiani (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
		4			2	2		

Topic: Pedagogy	Keywords: Generative Artificial Intelligence; Transformation of Higher Education; Assessment Practices; Self-regulated learning; Students' agency
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The research group aims to investigate how the integration of GenAI is transforming assessment in higher education, how this changes the roles and practices of students and teachers: how it will change the learning culture?

The group will explore co-chosen AI-driven tools and methods that support continuous feedback, self-regulation, and student engagement across diverse disciplines. The objective is twofold: first, to critically examine how AI is changing pedagogical practices in the field of assessment, and second, to design and test innovative assessment approaches capable of supporting higher education teachers and students, combining the perspectives of both.

A central dimension of the inquiry will concern to explore whether and how can GenAI transform the pedagogical mindset of teachers and students on assessment. It will be focused on three main aspects: self-regulated learning, students' agency and students' and teachers' empowerment. The research will also define the digital and data literacies required by academic staff and learners to meaningfully engage with AI-enhanced practices.

The overarching goal is to generate actionable knowledge and develop guidelines to support the transformation in higher education, with regard to the assessment practices supported by GenAI across university settings.

LIFU

LinguaFutures

Group ID: 251038	Type of the Group: Thematic Research Group	Lead Researcher: Kirsi Korkealehto (HH)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic:

Linguistics

Keywords:

language learning; digital pedagogy; AI in language learning; multilingualism; global competence

The LinguaFutures research group aims to explore and advance language education and global competence in various disciplines, such as business administration and economics, technology, hospitality and journalism by incorporating innovative pedagogical solutions including digitalisation and artificial intelligence within the framework of the Ulysseus European University alliance. Rooted in a vision for inclusive, innovative, and student-centred higher education, we focus on developing theoretical insights as well as best practices to enhance language learning and teaching as well as to develop global competence. Key objectives cover research and development of language education including language learning enriched by digitalisation, AI-driven tools and innovative pedagogy. We aim to bridge the possible competence gap in the field of language pedagogy between partner universities and improve the quality of language education. LinguaFutures contributes to the development of modern and future-proof language education policies and practices. The research group examines and develops innovative pedagogical solutions for language teachers in terms of language skill and global competence learning, thus supporting multilingualism in Europe. The innovative learning solutions benefit students' employability, lifelong learning capacity, and career development providing the learners with language skills and global competences needed as future employees and active citizens in the modern society.

MathML

Mathematics for Machine Learning

Group ID: 251006	Type of the Group: Thematic Research Group	Lead Researcher: Vladimir Jačimović (UoM)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
1	1	1				1	2	

Topic:

Mathematics

Keywords:

optimization; mathematical modeling; technology transfer; neural networks; data representations

The group consists of six researchers with the common interest in mathematical foundations of machine learning (ML). The main objective of this initiative is twofold: a) obtaining novel mathematical results which are relevant for ML and b) applications of mathematical techniques to real-life problems. The focus will be set on recent advances in ML based on sophisticated mathematical approaches. Researchers will exchange their results in various mathematical fields, such as optimization, game theory, stochastics and geometry. They will discuss recent conceptual trends in ML, novel ML architectures and methods for training artificial neural networks. In parallel, members of the group will share their experience on specific real-life problems coming from industrial sector, as well as from interdisciplinary research projects. Some of the fields of applications which are going to be discussed are: optimization of large language models (LLM), graph representation learning with applications in life sciences, game-theoretic design of reinforcement learning algorithms with applications in robotics.

2. Sustainability, Energy & Climate Action

AGROFOOD

Agroecology and Sustainable Food System Transformation

Group ID: 251026	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Steinhäuser Cornelia (UM)	Supported by Seed Funding: yes
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Researchers:

USE 2	UniCA	UniGe	TUKE	MCI	HH	UM 3	UoM	Associated Partners/Stakeholders
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Topic: Socio-ecological Sustainability	Keywords: Food systems change; Value chains; Land relations; Ecosystem analysis; Food-Water-Energy-Nexus
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Agroecology is increasingly seen as a transformative approach to foster regenerative, socially just and biodiversity-oriented agri-food systems in line with the Sustainable Development Goals (SDGs). This agroecological transformation recognizes that eco-efficiency strategies (focused on incremental input optimizations) are insufficient to resolve systemic issues. Key challenges also persist along the food value chain – including lack of transparency, low farmer earnings, weak societal appreciation of food, and rampant food waste. In response, the AGROFOOD R&I Group pursues stakeholder-driven social innovations to redesign value chains that reconnect producers with consumers in rural and urban areas. The group leverages Agroecology Living Labs, co-design, and design thinking to co-create context-specific, community-based solutions (e.g. participatory guarantee systems, community-supported agriculture networks, local food policy councils) that embody agroecological principles. These innovations emphasize short supply chains, rebuild producer–consumer trust, and establish integrated rural–urban food governance models – ultimately facilitating the agroecological transition toward regenerative, equitable, and biodiversity-supportive food systems.

CleSuP

Clean and sustainable processes

Group ID: 251010	Type of the Group: Thematic Research Group	Lead Researcher: Cristina Moliner Estopiñán (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE 5	UniCA	UniGe 5	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic: Technological Sciences	Keywords: chemical engineering; biomass; hydrogen; process design; sustainability
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The CleSuP group includes researchers from UNIGE and USE and focuses on the design and testing of innovative process solutions for the energy and chemical industry. Key areas of interest include the valorization of wastes (e.g., sewage sludge, MSW, agricultural, plastic waste), the production of advanced biofuels and biochemicals (e.g., biobutanol) and low-carbon hydrogen (e.g., electrolysis, gasification and pyrolysis, and integration into existing industries). All these activities are in alignment with sustainability criteria considering economic, environmental and social pillars, and using existing tools for process development and experimental research (e.g., data mining). Normative and governance aspects will also be integrated.

The group aims to strengthen the recently started collaboration between researchers from UNIGE and USE and to expand it to additional potential academia and industrial partners beyond Ulysseus. Joint PhDs and applications for EU funding calls are foreseen.

DASA

Digital approaches to sustainable architecture and design

Group ID: 251039	Type of the Group: Thematic Research Group	Lead Researcher: Tomáš Boroš (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE 2	UniCA	UniGe	TUKE 3	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic:

Technological Sciences

Keywords:

Sustainable architecture; Parametric design; AI-assisted design; Digital tools in architecture; Sustainable materials

The research group comprises five members—architects affiliated with the Technical University of Košice and the University of Seville. The team is gender-balanced, consisting of three women and two men.

Our collaborative objective is to investigate both the distinctions and shared practices in architectural design within our institutions. We seek to develop unified methodologies for architectural creation and the education of architecture students.

In an era defined by rapid digital transformation and the escalating challenges of climate change, our aim is to prepare students to navigate and respond to the multifaceted demands facing contemporary architectural practice.

Our goals are:

1. To explore sustainable strategies in architectural design
2. To advance the study and application of parametric architecture and urbanism
3. To integrate parametric evaluation and simulation into the architectural design process
4. To employ advanced digital tools, including Rhinoceros, Grasshopper, Karamba 3D, and Computational Fluid Dynamics (CFD)
5. To innovate in the field of data visualization for architectural analysis
6. To examine the role of artificial intelligence in supporting and enhancing the design process
7. To promote interdisciplinary collaboration, with a particular emphasis on material research and experimental design methods

Through this international partnership, we aspire to contribute to the development of a forward-thinking, resilient framework for architectural education and research.

ENERGEUS

Efficient Networks & E-mobility Research for Green Electrified Upcoming Solutions

Group ID: 251013	Type of the Group: Thematic Research Group	Lead Researcher: Stefano Bracco (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE 5	UniCA	UniGe 5	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic:

Sustainable Energy, Transport, Mobility for Smart Cities

Keywords:

Energy Management; Sustainability; Smart Mobility; Microgrids; Energy Communities

The electrical power system is a key element for modern societies: its capacity and reliability have an impact on life quality and country's development. Energy management is key for supporting the deployment of renewable energy sources, energy storage, and electric mobility while extracting their maximum potential. ENERGEUS brings together multidisciplinary expertise in smart grids, Renewable Energy Communities (RECs) and electric mobility to design resilient energy systems and solutions for smart grids. In this sense, we focus on developing Energy Management Systems for microgrids, RECs and positive energy districts; we investigate scheduling algorithms to optimize renewable energy production and consumption, optimization and simulation models for hybrid electric-thermal generation assets and demand-response strategies; we also study smart charging of electric vehicles (EVs), the impact of EV charging infrastructures on distribution networks and Vehicle-to-Everything technologies, considering flexibility markets. ENERGEUS aims to bridge research and real-world deployments, fostering citizen-centric smart cities: to this aim, the Microgrid SPM of the University of Genoa and the Microgrid CATEPS of the University of Seville will be fundamental. The active use of new technologies and digitalisation is also key in the research activities of ENERGEUS, including new optimization techniques, algorithms, data analysis, artificial intelligence applications, and machine learning.

GREAT

Green Research in Environmental and Advanced Technologies

Group ID: 251042	Type of the Group: Thematic Research Group	Lead Researcher: Martina Laubertová (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE 2	UniCA	UniGe	TUKE 7	MCI	HH	UM	UoM 2	Associated Partners/Stakeholders
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Topic: Technological Sciences	Keywords: International Cooperation; Green Deal, Critical Raw Materials; Recovery Metals; Research Project;
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Our research group, GREAT (Green Research in Environmental and Advanced Technologies) applies an interdisciplinary approach to mineralogy, wastewater treatment processes, and engineering technology. The GREAT focuses on the development of sustainable methods for processing and utilizing critical raw materials (CRMs) for the European Union, such as rare earth elements (REEs), which are essential for green technologies and digital innovations in line with the Green Deal. The goal is to develop innovative, environmentally friendly strategies for the efficient extraction and recycling of REEs from secondary sources. Key to this is the collaboration between the academic sphere and industrial partners for the exchange of knowledge and the practical application of our research. Our scientific objectives include identifying new sources of raw materials, new separation techniques in TRL4, optimizing resource extraction processes, and assessing the environmental impacts of processing CRMs. The GREAT, consists of 11 applicants from 3 member universities: TUKE (7), UCG (2), and USE (2), while two of them is a young researchers. Relevance and quality of group members are guaranteed by the leading researcher R4(1), who has experience from leading the Horizon projects; established researchers R3(6), a recognized researcher R2(1), and first-stage researchers R1(3) with extensive experience and high recognition.

PQRise

Power Quality for Resilience, Innovation, and STEM Education

Group ID: 251007	Type of the Group: Thematic Research Group	Lead Researcher: Daniele Mestriner (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE 4	UniCA	UniGe 3	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic: Technological Sciences	Keywords: Power quality; STEM education; instrumentation; machine learning; climate resilience
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The PQRise team brings together two complementary research groups with strong expertise in power systems engineering, power quality, lightning protection, and climate resilience. The first group has a long-standing background in signal processing, electrical disturbances, smart grids, and the impact of power quality events on infrastructure reliability. The second group specializes in atmospheric hazards, lightning detection, and risk mitigation strategies, with experience in both experimental field campaigns and community-based resilience.

Scientifically, PQRise aims to explore how climate-driven events affect power quality in European electrical systems. Key research questions include:

- How do climate volatility influence power disturbances in low- and medium-voltage networks?
- What early-warning indicators can be extracted from real-time monitoring systems (weather stations, voltage sensors)?
- How can open data and sensor networks be used to educate and empower communities to respond to electrical risks?

Innovation goals include the development of educational toolkits that integrate real scientific data, the creation of an open-access digital platform for students and citizens, and the design of a scalable monitoring and awareness system. By uniting science, education, and resilience, PQRise contributes to both academic advancement and societal preparedness.

REFUGE

REfuge Forests as Urban Guards against climate changE

Group ID: 251012	Type of the Group: Thematic Research Group	Lead Researcher: Paolo Giordani (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE 3	UniCA	UniGe 1	TUKE	MCI	HH	UM 3	UoM	Associated Partners/Stakeholders
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Topic: Life Sciences	Keywords: Forest; Climate change; microrefugia; Citizen science; bioindicators
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Our group is composed of researchers from three Ulysseus partner universities who share a common background in ecology and environmental sciences, yet bring complementary expertise spanning forest and urban ecology, soil ecology, invertebrate biodiversity, lichenology, and environmental monitoring. This diversity of specialisations enables a comprehensive approach to studying forest ecosystems. The group also includes several early-career researchers, fostering collaboration across career stages and supporting Ulysseus' commitment to inclusion, training, and capacity building. A central aim of our project is to investigate the role of urban and rural forests as microclimatic refugia—ecosystems that buffer temperature and moisture extremes—while exploring the functional contributions of individual biotic components. These insights are vital for advancing nature-based strategies to address climate adaptation challenges. In line with Ulysseus' emphasis on socio-ecological sustainability, our project also prioritizes outreach and public participation, translating scientific findings into citizen science events and open-access platforms. By bridging rigorous ecological research with societal engagement, these goals are strongly aligned with Ulysseus' strategic priority of Socio-ecological Sustainability, reinforcing the role of science in shaping environmentally informed, participatory, and sustainable European societies.

ReSIG

Regional Sustainability and Innovation Group

Group ID: 251014	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Tomáš Bakalár (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE 1	UniCA	UniGe 3	TUKE 6	MCI	HH	UM	UoM 4	Associated Partners/Stakeholders
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Topic: Socio-ecological Sustainability	Keywords: regional development; sustainable land reclamation; questionnaire survey; university-municipality collaboration; european values
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The group will consist of researchers and PhD students from the Technical University of Košice, the University of Montenegro, the University of Genova, and the University of Seville, and members from the associated partner City of Košice. The innovation goals will include

- optimization of remediation techniques by developing and validating cost-effective, scalable methods for ecological recovery that balance environmental integrity with economic viability,
- quantification of socio-economic outcomes by identifying key indicators and metrics to evaluate how reclamation of devastated areas influences property values, job creation, and community well-being,
- streamlining of environmental-health monitoring by designing novel assessment tools – integrating soil, water, biodiversity, and public-health data- to track remediation impacts,
- innovation of decision-support systems by guiding municipalities in planning, funding, and stakeholder coordination,
- modernization of education and capacity by co-developed teaching modules and experiential formats that bridge academic research with municipal practice,
- embedding European values by integrating sustainability, solidarity, and inclusion into policy frameworks and cross-border collaborations.

SMART-RES

Sustainable Management and Advanced Research on Technologies for Renewable Energy and Storage in Smart Cities

Group ID: 251032	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Francisco Javier Pino Lucena (USE)	Supported by Seed Funding: yes
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Researchers:

USE 3	UniCA	UniGe	TUKE 2	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic: Sustainable Energy, Transport, Mobility for Smart Cities	Keywords: Smart Cities; Renewable Energies; Energy Storage; Sustainable Systems; Energy Management
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The SMART-RES research group aims to develop innovative strategies for the efficient integration of renewable energy sources and energy storage systems in smart cities, contributing to sustainable, resilient, and intelligent urban infrastructures. The group evaluates the potential of solar, wind, hydrogen and biomass technologies, and assesses energy storage solutions based on efficiency, scalability, and environmental impact.

A core focus is battery safety, addressing risks such as thermal runaway and fire hazards in lithium-ion systems. Research seeks to develop safer chemistries and thermally stable designs. In parallel, work on hydrogen technologies targets safe transportation, distribution, and storage to support the decarbonisation of the gas sector.

The group also investigates advanced nanostructured materials to enhance energy storage performance and safety. By applying nanotechnology, novel nano/microstructured battery materials are developed to improve capacity, stability, and control of chemical reactions at the nanoscale.

Collaboration with local governments, innovation centres, industry, and academia supports pilot projects, knowledge transfer, and training activities. The group brings together expertise in electrochemistry, control, thermal management and materials compatibility with hydrogen, safety, and advanced material development for clean, secure and sustainable energy systems.

WITZ

Web of innovation for sustainable transition and zero-carbon finance in smart cities

Group ID: 251035	Type of the Group: Thematic Research Group	Lead Researcher: Jelena Jovović (UoM)	Supported by Seed Funding: no
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Researchers:

USE	UniCA 2	UniGe	TUKE	MCI	HH	UM	UoM 1	Associated Partners/Stakeholders
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Topic: Sustainable Energy, Transport, Mobility for Smart Cities	Keywords: Zero-carbon finance; Smart cities; Sustainable transition; Urban innovation ecosystems; Climate awareness
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This proposal envisions a European-wide “web of innovation” to support the sustainable transition of smart cities through the integration of zero-carbon finance. The initiative will address challenges in urban energy, mobility, and infrastructure by fostering interdisciplinary collaboration among universities, municipalities, startups, and financial institutions. Key activities include the production of peer-reviewed papers on topics such as green finance models, climate-resilient infrastructure, and the integration of emerging technologies (mainly AI and blockchain) in urban planning. In parallel, the project will lay the groundwork for a larger project proposal (a COST Action or a Horizon EU project) by identifying strategic partnerships, shared research agendas, and potential pilot sites.

Public engagement is central to the initiative, with activities designed to raise awareness on zero-carbon pathways, encourage citizen participation, and disseminate research outcomes to diverse audiences. Through open seminars, digital campaigns, and stakeholder workshops, the project will ensure wide-reaching impact and policy relevance. This initiative aligns with Ulysseus’ mission to foster innovative, inclusive, and sustainable European cities prepared for climate-neutral futures, particularly with the R&I hub established in this purpose.

3. Health, Ageing & Life Sciences

AI2D

Artificial Intelligence for Drug Design

Group ID: 251004	Type of the Group: Thematic Research Group	Lead Researcher: Oliver Koch (UM)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
	1					2		

Topic: Technological Sciences	Keywords: Artificial Intelligence; Interactive Evolutionary Computation; Multiobjective Optimization; Drug design; Representation Learning
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The main objective of this research is twofold. First, we aim to investigate the advantages and limitations of different algorithmic strategies, specifically evolutionary computation (genetic algorithms, differential evolution...) and machine learning (neural networks, SVM...), for identifying promising molecules in the context of drug design. This includes evaluating various molecular representations, such as graph-based structures, neural network-learned embeddings, and traditional formats like SMILES. We will also explore hybrid approaches that combine these algorithmic paradigms to enhance performance.

Second, we seek to integrate eye-tracking technologies to involve human users in guiding the molecular search process. By capturing visual attention patterns, we aim to steer the exploration of the vast search space toward regions more likely to contain optimal solutions. To support this, we plan to use population-based metaheuristics inspired by swarm intelligence, combined with machine learning (including deep learning when appropriate), to generate novel molecules that satisfy multiple objectives and are simultaneously optimised.

CSCH

Cell stress and cholesterol homeostasis (NSFH Non Canonical Functions of the Hedgehog signaling pathway)

Group ID: 251018	Type of the Group: Thematic Research Group	Lead Researcher: Kay Grobe (UM)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
	2					2		

Topic: Life Sciences	Keywords: Cholesterol homeostasis; cell stress; biomedicine; cholesterol-related morbidities; ageing and well-being
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The research groups of Pascal Théron in Nice, and Kay Grobe in Münster, share a long-standing interest in the functions of so-called secreted morphogens (i.e., solubilized molecules that define cell and tissue fate). Initiated by a previous Ulysseus mobility experience grant in 2024, the Grobe and Therond groups decided to join forces to specifically address a newly discovered role of the Hedgehog morphogen in aging and well-being, which we have strong evidence for is mediated through cholesterol homeostasis in cells and tissues. This exciting and unexpected link between developmental regulators and cholesterol biology in the adult provides a unique opportunity for immediate collaboration in line with the Ulysseus goals, and will greatly benefit the surrounding ecosystem of research groups, educational activities, and manufacturing and analytical facilities at both Ulysseus universities. Furthermore, the collaboration to be initiated through the Ulysseus seed funding program will strengthen the international reputation and standing of both universities in the medium term, because it has great potential to lay the groundwork for future biomedical applications related to cholesterol-mediated diseases. This proposal will also help to outline the future work program, to establish future collaborators at both universities, and to enable joint publications in high impact journals.

CSI - Ulysseus

Cellular Senescence and Immunosurveillance

Group ID: 251037	Type of the Group: Thematic Research Group	Lead Researcher: Julien Cherfils (UniCA)	Supported by Seed Funding: yes
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Researchers:

USE 2	UniCA 2	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic: Life Sciences	Keywords: Cellular senescence; Immunosurveillance; Cancer and aging; Translational research; European research collaboration
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This initiative, led by the University Côte d'Azur and the University of Seville, aims to establish a joint research group focused on the interaction between cellular senescence and immunosurveillance, a key frontier in cancer and aging research. While senescence acts as a tumor-suppressive mechanism, the failure of immune clearance can promote tumor progression and resistance to therapy—an urgent and underexplored issue.

The first objective is to organize a focused mini-symposium that brings together researchers, clinicians, and students to exchange knowledge, identify shared scientific interests, and stimulate collaboration. The second objective is to host a strategic project discussion session to define a common research agenda and prepare the groundwork for future joint funding applications, such as Horizon Europe and COST Actions.

This collaboration will serve as a foundation for a broader Ulysseus-wide network on senescence and immunology, with long-term goals of supporting transdisciplinary research, innovation, and training. The group will foster sustained collaboration across Ulysseus partner institutions and help position them at the forefront of biomedical advances in cancer and aging.

FoMW

Future of meaningful work

Group ID: 251005	Type of the Group: Thematic Research Group	Lead Researcher: Galiere Sophia (UniCA)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA 5	UniGe	TUKE	MCI 4	HH 2	UM	UoM 2	Associated Partners/Stakeholders
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Topic: Other	Keywords: Future of work ; meaningful work ; alternative organization and work practices ; human-centred process design ; digitalization and AI
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The Future of Meaningful Work research group aims to expand an existing local research team—the Alter-organizing research team (CNRS-GREDEG, Université Côte d'Azur)—by integrating new members from Ulysseus partner universities. This international collaboration unites scholars in management and organization studies to explore work practices fostering meaningfulness amidst critical developments at work. Innovations like Artificial Intelligence and management trends such as remote working are reshaping traditional understandings of work. The group's aim is to examine how work can remain or become meaningful, focusing on work that provides dignity, social utility, personal growth, and recognition. To achieve this, the group will explore both mainstream sectors (ex tourism, arts) and alternative fields (social economy, freelancing, etc.), with a specific focus on current stakes and opportunities at work such as algorithm management, IA, self-managed organization, slashing (etc.). Key research questions include:

- What are the promises and pitfalls of the current managerial trends (i.e, free-form organizations, remote working) for meaningful work?
- How do technology innovations (i.e, algorithm management, IA) reshape purpose, control and autonomy in contemporary workplaces?
- What can alternative organizations and workers offer to mainstream business in terms of meaningful ways of working?

NeuroEpigenetics group

Epigenetics of Brain Aging

Group ID: 251019	Type of the Group: Thematic Research Group	Lead Researcher: Aida Platero Luengo (USE)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
2	2							

Topic:

Life Sciences

Keywords:

neural cells; epigenetics; rejuvenation-by-reprogramming; aging; neurodegeneration

We are a newly formed interdisciplinary research group composed of two teams based at the University of Seville (US) and Université Côte d'Azur (UCA), led respectively by Dr. Aida Platero-Luengo (expert in neural physiology and rejuvenation by partial reprogramming) and Dr. Simona Sacconi (specialist in epigenetic regulation). Our collaboration bridges distinct but complementary methodologies to investigate a central question: how epigenetic mechanisms influence aging and rejuvenation in glial cells of the nervous system. While the Sacconi Lab brings advanced expertise in chromatin remodeling, transcriptional dynamics, and epigenomic profiling, the Platero-Luengo Lab contributes with in vivo models of neural rejuvenation and in vitro glia cultures. Our aim is to integrate these approaches to uncover the molecular basis by which rejuvenation by reprogramming reverse aging signatures in glial populations, a largely underexplored territory. The group also includes Dr. Ángela Moya, a predoctoral researcher in Platero's group, who plays a key role in bridging experimental expertise. This collaboration aims to lay the foundation for a robust, long-term, transnational research platform focused on the epigenetic basis of brain aging and rejuvenation.

TCR-Age

Translational Clinical research - Age

Group ID: 251024	Type of the Group: Thematic Research Group	Lead Researcher: Barbara Seitz-Polski (UniCA)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
1	2	1		1		1		

Topic:

Medical Sciences

Keywords:

Clinical Research; Ageing; Wellbeing; Translational research

Create a dedicated network of researchers within the Ulysseus alliance who are actively engaged in translational research—a specific and often underrepresented niche that bridges the gap between basic and clinical science. While initially centred on ageing, the group's scope and methodology are broadly applicable and designed to foster cross-cutting collaboration.

The group's objectives are to:

- Bring together a core community of translational researchers from different Ulysseus institutions to exchange knowledge, practices, and challenges.
- Organise a dedicated meeting on translational research, focusing on networking, showcasing ongoing work, and identifying shared priorities.
- Develop the groundwork for a COST Action proposal, positioning the group for wider European engagement and funding.
- Explore mechanisms for sharing clinical samples, data, and resources, with attention to legal, ethical, and technical challenges.
- Initiate discussions on interoperability and future harmonisation of research practices across institutions.
- Contribute meaningfully to the Ulysseus Innovation Hub on Ageing and Wellbeing, while also supporting interdisciplinary interaction beyond ageing.
- Integrate physical activity as a major part of achieving and maintaining wellbeing and physical & mental health.

Women In Transit, WIT

Migrant Women's Experiences in Relation to Healthcare Provision during Their Journeys of Displacement

Group ID: 251030	Type of the Group: Thematic Research Group	Lead Researcher: Fátima Morales Marín (USE)	Supported by Seed Funding: no
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Researchers:

USE 6	UniCA	UniGe	TUKE	MCI	HH 1	UM	UoM	Associated Partners/Stakeholders
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Topic:
Medical Sciences

Keywords:
Migrant women; displacement; healthcare; access; barriers

The group aims at analysing the experiences of migrant women in respective countries (Spain and Finland) of accessibility and provisions of healthcare during their journey of displacement: beginning at the country of origin, through the crossings of several countries, until reaching the country of final destination. The group will pose a research question: How do women migrants experience their journey of displacement, and what is the impact of being displaced migrant on physical and mental health? As the group members come from different research areas (healthcare, psychology, social sciences) the insights of their research will bring open-mindedness and a holistic vision of health. This will ensure varied and multiperspectival approach to researching lived experiences of vulnerable populations.

4. Culture, Heritage & Creative Societies

CORHIS

Conservation and Restoration of Cultural Heritage: Innovation and Sustainability (Cultural Heritage SmartLab: multidisciplinary innovation hub for sustainable conservation practices)

Group ID: 251001	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: M. Elena Pérez López (USE)	Supported by Seed Funding: yes
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Researchers:

USE 2	UniCA	UniGe 3	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic:

Socio-ecological Sustainability

Keywords:

Archaeometry; Cultural Heritage; Multidisciplinary research; Conservation; Sustainability

This project aims to establish a transdisciplinary research hub – the Cultural Heritage SmartLab – focused on the digital transformation and sustainable management of European cultural heritage. By bringing together experts in humanities, materials science, AI, and conservation, the initiative will develop new methodologies for non-invasive diagnostics, digital modelling, and preventive conservation. Activities include joint research, pilot testing with cultural institutions, training for early-career researchers, and community engagement through open science. Through this, the project contributes to Ulysseus' mission of shaping future innovation leaders and enhancing research excellence across its alliance.

Digital CCI

Digital Culture and Creative Industries

Group ID: 251044	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Richard Kitta (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE 5	UniCA	UniGe 1	TUKE 4	MCI	HH 2	UM	UoM 1	Associated Partners/Stakeholders
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Topic:

Digital Transformation of Industry

Keywords:

digital innovation; interdisciplinary collaboration; AI and creativity; sustainable design; creative economy

The Digital Culture and Creative Industries (CCI) research/innovation group within Ulysseus project connects faculties, departments, research labs, and creative ecosystems across selected partner universities. It focuses on fostering interdisciplinary collaboration in fields such as digital and media art, design, architecture, multimedia, eco-art, creative technologies and applied arts. The aim is to bridge social and cultural practices with innovative and creative digital approaches.

Key thematic areas include the Digitalization of Culture and Arts, where digital tools and platforms enhance creative production, access, and preservation. The group explores AI in Creative Fields, applying artificial intelligence to artistic expression, design processes, and media generation.

Coeducation and Inclusive Creative Learning is another focus, blending artistic, technical, and humanistic disciplines. Sustainable and Eco-Cultural Innovation promotes ecological awareness through artistic and design-led practices.

The group studies e.g. Gamification and Human-Centred Design, using game mechanics in arts, museums, and cultural tourism to boost engagement and learning. Transdisciplinary Innovation encourages collaboration between technology, arts, humanities, and social sciences to tackle societal challenges.

Finally, it evaluates Creative Economics—how CCI drives employment, entrepreneurship, and innovation—and aligns its work with Policy, Strategy, and Regional Development. Also we will be in a close cooperation with our associated partner CIKE (Creative Industry Kosice) based in Kosice, Slovakia.

EMGEN

Euro-Mediterranean Gender Network

Group ID: 251017	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Karine Lambert (UniCA)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
1	2	2				2	3	

Topic:
Other

Keywords:
gender studies; empowerment; intersectionality; equality; R&I

EMGEN R&I group is a thematic research group focused on Gender studies as an interdisciplinary field of scientific research. Gender is treated as a cross-cutting theme. Transcending traditional fields, Gender Studies Programme brings together researchers across Ulysseus and forges new interdisciplinary and transdisciplinary approaches.

This R&I group aims at 1/ structuring gender research; 2/ enhance, and 3/ strengthen visibility for Gender studies within Ulysseus.

To achieve such goals, EMGEN will rely on a set of 3 workshops in 1 year. Each workshop will work as an incubator to foster scientific networking and innovation around a specific question:

- WP1: Sharing Good practices: How do we build and structure Gender studies networks within local and national disciplinary ecosystems?
- WP2: Sharing Research practices: How do we operationalise gender concepts and methods within our fields of research?
- WP3: Identifying our strengths: What are the key interdisciplinary skills at stake within the R&I group?

These workshops, and the related work before and after their implementation, will lead to a visual map (ontology) as a public deliverable that will eventually build even more attractiveness to EMGEN. Identifying our innovation strengths will lead to a solid consortium in capacity of applying to research grants.

ISCH

Innovation Strategies for Cultural Heritage

Group ID: 251027	Type of the Group: Thematic Research Group	Lead Researcher: Cristina Chiaiso (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
		2	2		1			

Topic:
Other

Keywords:
Interdisciplinary Innovation Strategies for Cultural Heritage; Digital innovation tools; Cultural Heritage Management; Cultural Communication Strategies; Technologies for Cultural Heritage

The "Innovation Strategies for Cultural Heritage" joint R&I group is focused on an interdisciplinary approach to the innovation in the Cultural Heritage field, set in the framework of the "Tourism and Heritage Innovation Hub" that the University of Genoa is developing within the European Alliance Ulysseus, enhancing the cooperation within partner Universities.

The joint R&I group integrates competences on research topics as cultural management, business models for cultural heritage, entrepreneurship in the Cultural and Creative Industries (CCI) field, museums and cultural institutions strategic plan, communication strategies for cultural heritage, advanced technologies in cultural heritage, ICT Tools for cultural heritage, restoration and architectural innovation.

Emphasis lies also on innovative business models, digital heritage, AI-driven diagnostics, 3D scanning, VR/AR for immersive reconstructions and sustainable material innovations, best practices on Equity, Diversity and inclusion in the cultural heritage field.

The R&I group aims to contribute in the development of a network of Research, cultural and territorial Institutions, as Museums and other cultural institutions, international organisation in the field, technological partners, innovative companies and startup in the cultural field to experiment innovative strategies and tools.

A particular attention is paid to the dissemination with the aim of developing cooperation and audience engagement among Universities, stakeholders and communities.

MIRA

Marginality and inclusion in Roman antiquity

Group ID: 251016	Type of the Group: Thematic Research Group	Lead Researcher: Biagio Santorelli (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE 3	UniCA	UniGe 6	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic:

Anthropology

Keywords:

Marginality; inclusion; memory; mobility; ancient history

The project investigates how socially marginalized groups in the Roman world expressed their identity and sought to be recognized as part of the communities around them. It focuses on funerary inscriptions left by individuals at the edges of ancient society—slaves and freed persons, women and minors, immigrants and foreigners—to understand the strategies they used to assert their presence and achieve some form of social inclusion. Drawing on evidence from different regions and time periods, the project addresses three key research questions:

1. What rhetorical strategies were used to construct a memory that legitimized an individual and their group in the eyes of a community that had excluded them?
2. How did the mobility of individuals and groups affect their chances of being included or integrated?
3. What can we learn from these ancient experiences to better understand the challenges of inclusion today?

The research team includes scholars with expertise in Latin epigraphy, literature, rhetoric, and Roman social history. Their combined approach will enable a contextual and interdisciplinary analysis of the selected material, shedding light on how marginal voices sought visibility, legitimacy, and connection in the ancient world.

MuSeScape

Regenerative Münster-Seville Scapes

Group ID: 251045	Type of the Group: Thematic Research Group	Lead Researcher: Rocio Arregui-Pradas (USE)	Supported by Seed Funding: yes
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Researchers:

USE 2	UniCA	UniGe	TUKE	MCI	HH	UM 1	UoM	Associated Partners/Stakeholders
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Topic:

Life Sciences

Keywords:

arts-based and arts-inspired methodologies; participation; urban spaces; climate change; social-ecological transformations

The group combines expertise from the arts and from social-ecological sustainability research. The objective of the group during the first year is to get to know each others work better, to share strategies and methodologies of each others work related to topics of social-ecological transformation processes, with a focus on collaborating with non-academics in participatory and transdisciplinary research formats such as real-world laboratories/living labs and with arts and artistic methods.

The main idea is to design methodologies that cover different dimension of engagement with the arts (through art / in arts / with art), to (1) analyse urban scapes as assemblages of people and nature in the past and the present; (2) to create spaces for experimentation with the co-creation of utopias (future) through arts-inspired methodologies; (3) to develop ideas for twin-living labs (Münster / Seville) in which the methodologies developed in 1 & 2 are further implemented to open inclusive spaces for people in both regions to participate in arts-inspired futuring activities. The overall objective is to create spaces for people to connect and to transform fear of the future into courage to co-create regenerative futures in Münster and Seville.

5. Social Inclusion, Citizenship & Education

E-SPORT+

Empowering Inclusion through Sport and Technology

Group ID: 251021	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Salvatore Bruno Barba (UniGe)	Supported by Seed Funding: no
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
4		5						

Topic:

Inclusive sport, accessibility, digital technologies (VR, apps, assistive tech), intercultural and interfaith dialogue, legal and religious inclusion

Keywords:

Inclusive Sport;Assistive Technology;Social Inclusion;Religious Freedom;Digital Innovation

Innovation: Develop and test new digital tools (C8 VR, assistive devices) for inclusive sports engagement.
 Networking: Build a European platform to exchange methodologies, technologies, and best practices.
 Awareness: Host public events and workshops to educate communities and professionals about inclusive sport.
 Scalability: Ensure transferability of results to other sectors such as rehabilitation, education, and social care.
 Legal Inclusion: Promote a comparative legal framework on access to sport for religious and cultural minorities.
 Interfaith Dialogue: Encourage cooperation between religious groups and communities through inclusive sport events.
 Legal-Ethical Education: Integrate sport law, anti-discrimination, and religious freedom modules into the Master's curriculum

FUTURABILITIES

Being Able to Create Sustainable Futures - Enhancing Futures Capabilities

Group ID: 251023	Type of the Group: Thematic Research Group	Lead Researcher: Antje Bierwisch (MCI)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
				4		3		

Topic:

Other

Keywords:

futures capabilities; transformative education; reference framework; inter- & transdisciplinarity; joint course design

The proposed research group will explore how European higher-education institutions can promote "futures capabilities" – the mind-sets, methods, and reflexive skills that enable students and faculty to anticipate and shape societal transformations. Its scientific agenda is threefold:

First, we will convene scholars from different academic disciplines to map and further develop conceptualisations of futures capabilities (e.g., futures thinking, futures literacy), identifying shared constructs and discipline-specific blind spots.

Secondly, by building on this synthesis, we aim to develop a reference framework for HED curriculum design, didactics, and learning environments that embed futures thinking in sustainable entrepreneurship education. Key research questions include: What pedagogical principles foster anticipatory competence? How can intercultural and transcultural perspectives enhance reflexivity and agency for sustainability?

Finally, the research group will co-create pilot course modules with Ulysseus partner universities, using them as living laboratories to test the framework. Findings will feed into a proposal for national and EU funding that couples basic and applied research with policy transfer, offering evidence-based guidance for transformational education agendas.

By integrating theory development, educational design, and policy engagement, the group seeks to position Ulysseus partners at the forefront of research and practice on futures-oriented higher education.

REACT

Regenerative and Community Tourism for Rural and Mountain Areas

Group ID: 251031	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Francesco Vitellaro (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic:

Sustainable Entrepreneurship & Impact

Keywords:

Community-Based Tourism; Community Engagement; Rural and Mountain Development; Social Innovation; Digital Tools for Empowerment

This interdisciplinary research group unites scholars from Italy, Finland, and Montenegro with consolidated experience in rural and mountain development, community-based tourism (CBT), and sustainable innovation. Each member contributes expertise from national or international research projects on the regeneration of marginal territories. The group's primary goal is to explore the reasons behind rural and mountain communities' limited or resistant engagement in tourism development processes. It seeks to understand the social, cultural, and institutional factors that hinder participation and identify innovative solutions enabling local communities to play an active role in shaping tourism trajectories that align with local values. Drawing on social innovation and regenerative tourism, the project promotes approaches that avoid negative externalities and actively restore community vitality and territorial identity. Special focus will be given to the role of training and mentorship programmes aimed at empowering communities to initiate place-based entrepreneurial activities in tourism. In addition, the project will assess how digital tools and platforms can be used to raise awareness of CBT opportunities and benefits, while supporting the design, promotion, and management of tourism initiatives driven by the communities themselves.

RUE

Regional and urban economics: the role of innovation and mobility in local wellbeing

Group ID: 251022	Type of the Group: Thematic Research Group	Lead Researcher: Alessio Tei (UniGe)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
2		2	5					

Topic:

Economic Sciences

Keywords:

Regional Economics; Transport Economics; Innovation; Urban planning; City development

The group is formed by 9 researchers from 3 different Ulysseus Universities interested in Regional and Transport Economics, with a big emphasis in innovation policies and urban planning for boosting sustainable and smart city development. Some members of the group have collaborated already in 2 Horizon Europe proposal writing and 2 BIPs – summer schools for PhD students, but there is an idea to scale up collaboration by allowing the whole research groups to work more closely together for facilitating new proposals, stable PhD collaborations, and paper writing opportunities. Moreover, labs and research facilities will be presented so to allow researchers from different Ulysseus institution to access joint research infrastructure.

SMAIR

Sport Management and AI Research & Innovation

Group ID: 251011	Type of the Group: Thematic Research Group	Lead Researcher: Jeronimo Garcia-Fernandez (USE)	Supported by Seed Funding: yes
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Researchers:

USE 2	UniCA	UniGe	TUKE	MCI	HH	UM	UoM 2	Associated Partners/Stakeholders
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Topic: Other	Keywords: "sports"; "innovation"; "sustainability"; "analytics"; "performance"
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The AI in Sport Management Research & Innovation (R&I) – SMAIR Group is dedicated to applying advanced artificial intelligence in the strategic management of sport. The SMAIR group brings together experts in sports management, data science, sport analytics, and digital innovation, aiming to develop intelligent systems that improve decision-making, optimize micro and macro performance, and enhance fan engagement.

The main objectives of the SMAIR group are to:

- use AI technologies in sport management processes;
- create predictive models for strengthening team performance, tactical analysis, and athletes' prevention of injuries;
- create intelligent platforms for developing sustainability, logistics, and sports organization resources optimization;
- enrich profiles of existing and new fans' experience through machine learning.

Scientific and innovation goals include researching how AI, through data-driven strategies, can support real-time decision-making, foster sustainable growth improve the management of sports organizations. In addition, the SMAIR group will explore the ethical dimensions of exploring AI in whole processes.

Specific research questions will include these issues:

- How can AI enhance talent identification and athlete development?
- What role can AI play in personalized marketing campaigning?
- How can AI support better competitive balance in team sport leagues?

Ulysseus ARISE

Advancing Research in International and Sustainability Education

Group ID: 251043	Type of the Group: Thematic Research Group	Lead Researcher: Regina Obexer (MCI)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA 1	UniGe	TUKE	MCI 2	HH 3	UM	UoM	Associated Partners/Stakeholders
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Topic: Education for sustainable development and global citizenship	Keywords: Education for sustainable development; global citizenship education; transformative learning; international education;
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This research group investigates Education for Sustainable Development (ESD) in an international context focusing on pedagogical strategies that cultivate learners' sustainability competences and global citizenship. Building on a foundation of Ulysseus initiatives, partnerships and researchers' expertise, the group seeks to explore how transformative teaching and learning practices empower individuals to act globally as change agents for a sustainable future.

Our work builds continuity with existing projects and networks examining global competence and sustainability pedagogies (Erasmus+ D2S@Ulysseus & BeGlobal projects, International Summer Program on Global Teaching and Learning by UniCA and MCI & Sustainable Global Citizenship and Leadership module by UniCA, and Ulysseus Pedagogical Group's work). We are particularly interested in how experiential, participatory, and transformative pedagogies enable learners to critically engage with sustainability challenges across cultural and disciplinary contexts.

The group aims to contribute to advancing educational research at the nexus of sustainable development and global citizenship through mapping existing research and applying evidence-based practices to Ulysseus activities, examining Ulysseus teaching and learning and providing expert recommendations to Ulysseus Pedagogical group and leadership. Our research focuses on evaluating Ulysseus learners' and educators' experiences in global citizenship and sustainable development and research interventions across the Ulysseus network to advance international and sustainability education that foster reflexivity, responsibility, and collective action for positive futures.

WE FEW

WEaving Futures in Entrepreneurship: Social, Intersectional, and Female perspectives

Group ID: 251025	Type of the Group: Ulysseus Innovation Hub topic	Lead Researcher: Constantina Rokos (UM)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic:

Sustaible Entrepreneurship & Impact

Keywords:

Intersectionality; Sustainability; Student Empowerment; Social Entrepreneurship; Inclusive Innovation

"WE FEW" scientifically investigates the interconnectedness of female, social, and intersectional entrepreneurship. Our research explores how students from underrepresented social groups navigate, influence, and are influenced by these entrepreneurial ecosystems. We focus on the interplay between identity, purpose, and structural conditions—examining how social missions, collaborative models, and institutional environments shape their experiences and opportunities. We aim to identify both barriers and enablers, with a particular emphasis on support structures, resource access, and the creation of inclusive, empowering spaces. By amplifying student voices and empowering underrepresented groups, we foster inclusive economic growth and promote integrated responses to societal challenges. This aligns with Ulysseus' ambition to build a socially cohesive European university grounded in equity and excellence. Our network's design—through joint research, mobility programs, and collaborative events—cultivates synergies across Ulysseus partners and strengthens their shared capacity to address complex issues. In doing so, "WE FEW" contributes to academic excellence and reinforces European leadership in socially relevant research. Our innovation goal is to translate findings into practical tools and educational resources that empower students in social and sustainable entrepreneurship. This includes mentorship programs and tailored curricula. Sharing our findings globally aligns with Ulysseus' open-to-the-world vision and promotes a more interconnected, equitable future.

6. Advanced Materials & Industrial Engineering

ALCHEMY

Advanced Layered Construction Harnessing Eco-friendly Materials Yield

Group ID: 251034	Type of the Group: Thematic Research Group	Lead Researcher: Ivan Gajdoš (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE 3	UniCA	UniGe	TUKE 3	MCI	HH	UM	UoM 3	Associated Partners/Stakeholders
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Topic: Technological Sciences	Keywords: additive manufacturing; sustainable material; material testing; material characterization; biodegradable polymers
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This interdisciplinary research group brings together experts from the Technical University of Košice (TUKE), the University of Seville (USE) and the University of Monte Negro (UCG) to evaluate sustainable materials for additive manufacturing and explore their real-world applications. The group includes complementary expertise: TUKE contributes advanced knowledge in robotic 3D printing and digital manufacturing processes, USE offers experience in material testing and characterization, while the UCG will enhance group expertise in processing and postprocessing of biodegradable materials.

The group's primary scientific goal is to investigate the mechanical, thermal, and processing properties of novel, eco-friendly materials, such as bio-based composites, for use in additive manufacturing. A key innovation focus lies in developing adaptive slicing and preprocessing strategies tailored for robotic printing systems, improving both material efficiency and structural performance. This approach will be coupled with adapted postprocessing approaches, enhancing application possibilities of 3D printed parts.

By integrating material science and manufacturing automation, the group aims to accelerate the adoption of sustainable additive manufacturing technologies in industry and education.

This collaboration, under the Ulysseus framework, will also support talent development, international mobility, and innovation-driven education, contributing to Europe's green and digital transitions through high-impact, applied research.

DAIMOND

Digitalisation and Automation for Iron-based materials: Modelling, Optimisation, Non-destructive testing and Defect detection

Group ID: 251028	Type of the Group: Thematic Research Group	Lead Researcher: Denisa Olekšáková (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE 3	MCI	HH	UM	UoM 3	Associated Partners/Stakeholders
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Topic:	Keywords: vision-based quality control; computer vision; automated inspection; deep learning; surface analysis
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The research will be carried out by the group of senior and young (PhD) researchers from TUKE and UCG, strengthening international cooperation and knowledge dissemination of research workplaces and specialised laboratories. The activities of the project are mainly focused on digitalisation in the field of automated manufacturing processes. The research will be carried out on pressed iron samples with a focus on modelling their physical and structural properties, which are crucial for their application. The project will include sample preparation using optimised metallurgical processes, characterisation (microstructure, hardness, porosity) and development of database models. An innovative component is the integration of computer vision (2D and 3D) for surface analysis and real-time detection of manufacturing defects. Artificial intelligence and deep learning methods will be used for automatic defect detection, comparison with CAD models and optimisation of manufacturing parameters. The project has the potential to improve the reliability of quality control in industry, increase production efficiency and reduce costs through early detection of deviations. The results will also be transferable to other areas of research and industry, making the project important in terms of strategic innovation and knowledge transfer.

DigiS4Industry

Researchers in the Digital Sustainability of Industrial Production

Group ID: 251003	Type of the Group: Thematic Research Group	Lead Researcher: Lucia Knapčíková (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
			3	3			3	

Topic: Technological Sciences	Keywords: Digitalization; Sustainability; Industry, Production; Cognitive;
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We will focus on research in the digital sustainability of industrial production in line with the challenges of industrial practice. Digital sustainability in manufacturing is a new approach to efficient, responsible and sustainable business operations in the face of growing environmental, economic and societal challenges. The concept uses digital technologies to support green production, higher energy efficiency, supply chain transparency, and optimisation of the product lifecycle. Within modern production processes, digitalisation plays a key role in reducing negative impacts on the environment and simultaneously contributes to increasing companies' competitiveness. Our research will be focused on the state of the art of:

- Optimising resource consumption- sensor systems and artificial intelligence can accurately monitor energy, water, or raw materials consumption and reduce waste.
- Implementing digital twins allows simulating and testing production processes before their real implementation, thus minimising the risk of errors and material waste.
- Circular economy - using digital platforms to track products throughout their life cycle and facilitate recycling, remanufacturing or reuse.
- Therefore, the connection between digitalisation and sustainability is one of the main ways to address the challenges of today's rapidly changing industrial environment.

FracMAM4S

Fracture modelling of anisotropic materials applied to composites and timber for sustainability

Group ID: 251002	Type of the Group: Thematic Research Group	Lead Researcher: Roman Vodička (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE	UniCA	UniGe	TUKE	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic: Physics	Keywords: fracture mechanics; composites; timber; computational simulations; multi-physics
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The research group aims to promote computational and experimental simulations of fracture in structural elements and their components, focusing on materials that exhibit anisotropy used in structural and mechanical engineering, such as composite laminates and timber. The analysis of other physical fields that may play an important role in such structural analysis, such as rheological models or hygromechanics, is also considered.

The programme is also focused on enhancements of the physical-mathematical computational models developed separately at both institutions and promote new directions of analysis based on regularised cracks, interface damage with cohesive zone models, and other internal variables for nonlinear or time-dependent mechanical response and other physical influences.

The computations will be carried out in an in-house MATLAB computer tool based on numerical time stepping tools, the finite element method, including nonlinear optimisation methods into developed models of physical problems with variational character and also using commercially available platforms for computational analysis like Abaqus.

The experimental part aims to provide reference data for the identification of model parameters and also to verify the results obtained by the computational techniques developed.

LASTING

Laboratory of AI Structural Monitoring Innovations for Next Generation

Group ID: 251009	Type of the Group: Thematic Research Group	Lead Researcher: Patřicia Vaňov (TUKE)	Supported by Seed Funding: yes
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Researchers:

USE 3	UniCA	UniGe	TUKE 1	MCI	HH	UM	UoM	Associated Partners/Stakeholders
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Topic:

Technological Sciences

Keywords:

Structural Health Monitoring; Artificial Intelligence; Probabilistic Models; Neural Networks; Smart Maintenance

The LASTING R&I group aims to establish a virtual research lab dedicated to the advancement of Structural Health Monitoring (SHM) through artificial intelligence (AI) techniques and innovative probabilistic modeling. Our scientific goal is to explore how data-driven AI methods combined with uncertainty quantification and probabilistic inference can enhance the prediction and prevention of failures in critical infrastructure, particularly Europe’s aging bridges. Our primary objective is to identify intersections in our ongoing research efforts and explore synergies that can enhance the work of each member. By sharing knowledge, methodologies, and best practices, we aim to build a collaborative environment where members can support one another in current and future projects. The group will serve as a platform for joint scientific output, including co-authored publications and the pursuit of joint funding opportunities, particularly through Horizon Europe calls. We will map common research interests, identify research gaps, and co-develop a collaborative research agenda. A key goal is to involve Master’s and PhD students, as well as early-career researchers, through Erasmus+ mobility and opportunities for joint supervision. Through this integrated effort, LASTING aims to strengthen institutional ties, enhance research capacity, and contribute to safer, smarter, and more resilient infrastructure across Europe.



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