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RESEARCH, DEVELOPMENT & INNOVATION

ANNUAL REPORT 2022

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ABOUT THIS REPORT

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Photos: Unsplash

Purpose

The RDI Department is the driving force of **Research, Development and Innovation** activities for **Uni Systems** and for **iQnovus**, Quest Group's Innovation Center, which was established to address similar needs across other Quest Group companies (ACS Courier, Info Quest Technologies, Quest Energy, BriQ Properties) and beyond.

The purpose of this report is to provide an update on the progress that the RDI has achieved in relation to its activities during 2022 and to showcase key **innovation initiatives** launched over the past year across its two units, the Innovation Funding & Ecosystem Development (IFED) and the Innovation Management, Incubation & Realization (IMIR).

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MESSAGE FROM THE RDI DIRECTOR

I want to congratulate our RDI team for the 2022 impressive achievements in innovation! Here's a summary of the **successes** that our organization has experienced:

- Participated in **over 70 proposals**, indicating a strong commitment to exploring new ideas and pursuing innovation.
- Brought **20 new innovation projects** to the organization while also implementing **25 ongoing projects**, which is a significant accomplishment and a testament to the team's creativity and ability to identify new opportunities.
- Involved in **new technology ecosystems**, which suggests a forward-thinking approach to innovation and a willingness to embrace emerging technologies and trends.
- **Expanded the partner ecosystem**, which can be an asset in developing new ideas and bringing them to market.
- **Managed innovation at the Company group level**, which demonstrates a strategic focus on innovation and a commitment to driving growth and success through new and innovative offerings.
- **Built a culture of innovation**, which can be a powerful asset in attracting and retaining top talent and fostering a dynamic and collaborative work environment.

In this journey, we must also address **challenges** that emerge.

First, it is crucial to **maintain momentum** and **avoid complacency** in the face of success. Innovation is a continuous process, and there is always room for improvement and new ideas.

RDI activities are critical for an organization's success in a rapidly changing world. By embracing innovation and taking and managing risks, we can continue to stay ahead of the competition and drive growth for our organization. Let's keep pushing ourselves to be creative, challenge assumptions, and pursue new and untested ideas.

Second, it is imperative to balance the need for innovation with other organizational priorities and ensure that the team has the resources and support it needs to continue to be successful. As the team continues to expand and take on new projects, **resource allocation** may become a challenge.

Finally, maintaining a culture of innovation can also be a challenge, particularly as the organization grows and changes. It is important to **remain committed to open collaboration**, idea incubation, and a culture that values creativity and risk-taking.

Overall, our team's accomplishments are impressive, and our organization appears to be **well-positioned for continued success in innovation**. By remaining committed to exploring new ideas, embracing emerging technologies, and maintaining a culture of innovation, our RDI organization can continue to drive growth and success in the years to come.

ANTONIOS CASSANO
RDI DIRECTOR

KEY FACTS

71
new proposals were submitted

20
proposals were approved

24M€
actual budget (approx. 21m for Uni Systems)

6M€
actual budget approved (approx. 5m for Uni Systems)

455M€
total budget of proposals submitted

5
approved projects which Uni Systems will coordinate

199
proposals submitted in total

Total

1B€
total budget of proposals submitted

17
different funding schemes

20
different thematic domains

10M€
approx. actual budget approved for iQnovus

1in5
proposals are successful

45
proposals approved

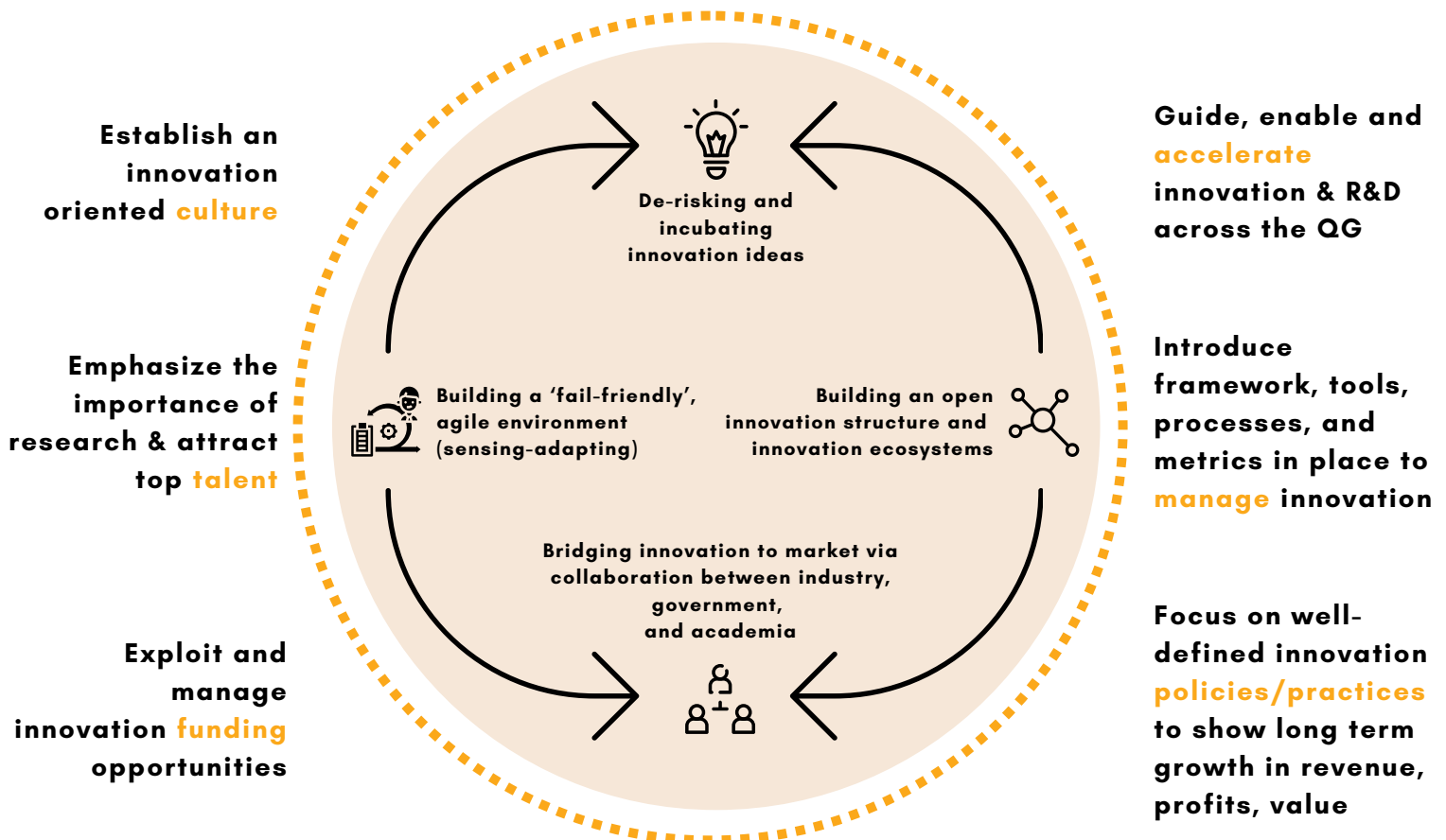**9**
projects where Uni Systems is the coordinator

7
approved clusters, competence centers & digital innovation hubs

RDI MISSION & OBJECTIVES

How do we engage with innovation, to compete for the future?

The RDI remains committed to its mission to foster and facilitate the Research and non-linear Innovation in Uni Systems and across the Quest Group (QG).

Establish an innovation oriented culture

Emphasize the importance of research & attract top talent

Exploit and manage innovation funding opportunities

De-risking and incubating innovation ideas

Building a 'fail-friendly', agile environment (sensing-adapting)

Building an open innovation structure and innovation ecosystems

Bridging innovation to market via collaboration between industry, government, and academia

Guide, enable and accelerate innovation & R&D across the QG

Introduce framework, tools, processes, and metrics in place to manage innovation

Focus on well-defined innovation policies/practices to show long term growth in revenue, profits, value
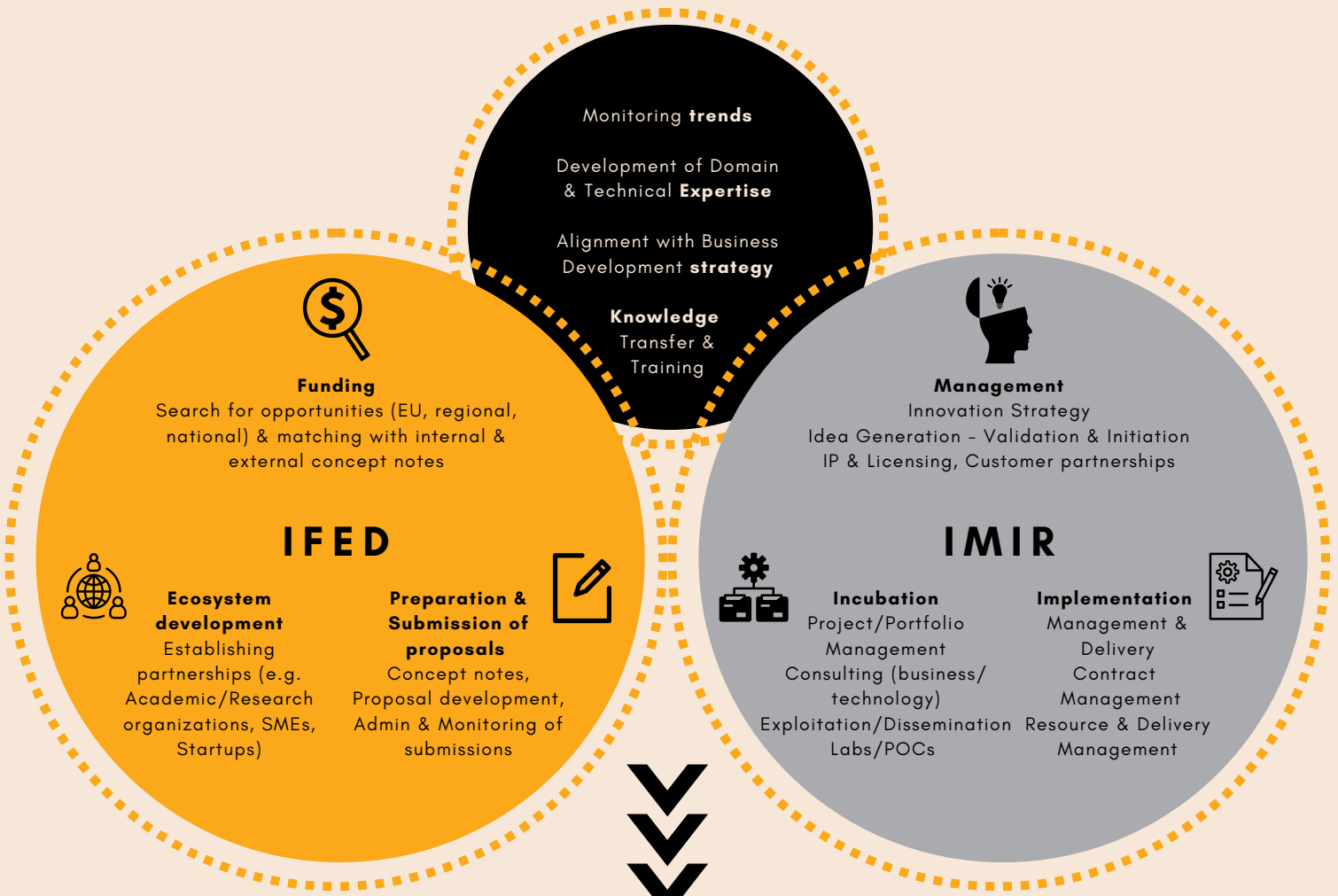
RDI MANAGEMENT

To achieve its objectives, the RDI is structured in two units: the Innovation Funding & Ecosystem Development (IFED) and the Innovation Management, Incubation & Realization (IMIR).

Innovation Governance (coordination & alignment)
Innovation Infrastructure (Monday & BrightIdea platforms, Lab)

Monitoring **trends**

Development of Domain & Technical **Expertise**

Alignment with Business Development **strategy**

Knowledge Transfer & Training

IFED

Funding
Search for opportunities (EU, regional, national) & matching with internal & external concept notes

Ecosystem development
Establishing partnerships (e.g. Academic/Research organizations, SMEs, Startups)

Preparation & Submission of proposals
Concept notes, Proposal development, Admin & Monitoring of submissions

IMIR

Management
Innovation Strategy
Idea Generation – Validation & Initiation
IP & Licensing, Customer partnerships

Incubation
Project/Portfolio Management
Consulting (business/ technology)
Exploitation/Dissemination Labs/POCs

Implementation
Management & Delivery
Contract Management
Resource & Delivery Management

Increase likelihood of application of fundamental technology advances

Drive short/long-term innovation outside the scope of mainstream business

Enhance innovation opportunities by embedding them in sound business models and/or renovate declining ones

Transfer solutions to generate new business, bringing research results closer to market and demonstrating the innovative capacity of QG

Via collaborative approach, increase our innovation scope and make joint innovation contributions to significant new business/market challenges

RDI SERVICES

Beyond Uni Systems, the RDI Department, as facilitator of the iQnovus Innovation Center, offers various consultancy services.

1 / IDENTIFICATION OF BUSINESS NEEDS

2 / MATCHING TECH TRENDS & BUSINESS NEEDS

3 / ADDRESSING IDENTIFIED TECH NEEDS

4 / OFFERING INNOVATION FUNDING SUPPORT

5 / INNOVATION MANAGEMENT & SUPPORT

6 / PROVIDING ACCESS TO INNOVATION INFRASTRUCTURE

Beneficiaries of R&D as a service

Quest Group companies
(ACS Courier, BriQ Properties, Info Quest Technologies, Quest Energy)

Members of our ecosystem
(e.g. Cardlink, Pleiades IoT Cluster)

Customers or other entities
seeking innovation support

Through applied RDI services, Uni Systems and members of the iQnovus Innovation Center can take advantage of the rapid developments in technology innovation.

Via our advanced advisory services, members:
- develop their innovation structure **risk-free**
- **interact** with actors in innovation ecosystems relevant to them
- **incubate** new business ideas
- **increase** RDI capacity in areas of interest (strategic playgrounds)
- create new **value** for revenue creation/ optimization
- **develop/test** innovative technological solutions
- understand the mechanisms, conditions and platforms needed to enter **new markets** and launch new products/services

The iQnovus Innovation Center thus plays a vital role, as the driving force behind the identification of new business opportunities based on new technologies that can accelerate growth.

STRATEGIC PLAYGROUNDS

In which domains do we want to be key players in the future?

Smart Cities & Sustainability

Smart Mobility
(mobility management, smart parking)

Smart Energy
(EV charging, smart grid)

Culture
(Asset management, Open, Big Data community platform)

E-Health

Cybersecurity & Trust
(Blockchain)

Industry 4.0/5.0

Fintech
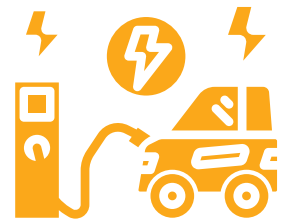
Phygital & Metaverse
(Retail, CX, E-commerce)

Drones/UAVs
(Inspection-multiple verticals, Civil Protection, Logistics)

Internet of Things

Artificial Intelligence

INNOVATION ECOSYSTEM

In its innovation journey, the RDI Department has fully embraced an **open innovation ecosystem approach** that enables us to collaborate with a wide network of external entities.

Universities, research centers, start-ups, SMEs and other large companies, clusters, digital innovation hubs and associations (such as AIOTI and Fiware), governmental and non-profit organizations, and are all active **enablers** of our innovation initiatives and **vital** participants in our innovative projects.

Benefits

Complementary expertise
We combine our technological profile with the **expertise** of a multi-disciplinary network of renowned professionals and entities, across our strategic domains

Strategic partnerships
We build strategic partnerships with entities across Greece & Europe to **monitor tech trends**, identify and **compete for funding** opportunities and to **develop new solutions**, products and services

Solutions oriented
We jointly **address challenges** relating to the digital transformation of the industry, the government and the society, in a sustainable way

Attracting top talent
Via our growing list of partnerships with universities, we offer sponsorship of **internship** programmes for BSc students, jointly design MSc and PhD **projects** that address practical industry challenges, and offer training and **employment** opportunities.

Accelerating innovation
We maintain a **culture of innovation**, as via our partnerships and the use of innovation management methods and tools, we facilitate **knowledge transfer** and promote an **entrepreneurial spirit** across business units.

In reality, our open innovation approach has enabled us to create an **ecosystem of ecosystems**, each one activated according to emerging needs.

2000
partners

52
countries

519
partners from Greece

388
academic/research partners

Academic & Research Centers

Domain/ tech experts

Large enterprises & SMEs

Innovation funding partners

Our talented people

Start-ups, Scale-ups & Spin-offs

Knowledge & Innovation Communities (KICs, Fiware, AIOTI)

Clusters

An ecosystem of ecosystems

Digital Innovation Hubs

Competence Centers

Training org/ions

Public org/ions, incl. Gov, Hospitals, Utilities

NGOs

Consulting org/ions

Others (e.g. regulators, chambers, bodies)

CLUSTERS, HUBS & COMPETENCE CENTERS

PARTICIPATIONS

Pleiades Internet of Everything

15 partners incl. Uni Systems (coordinator)
General Secretariat for Research and Innovation

The **Pleiades** cluster was launched in 2019, contributing to the creation of a **dynamic IoT ecosystem** and aiming to speed up the **adoption of IoT in Greece**. Its **members** include key IoT players – large companies, successful SMEs and dynamic startups, research centers, universities, associations and end–user representatives, with Uni Systems being a key founding member.

Pleiades drives business, policy, research and innovation development in **IoT & Edge Computing** and other converging technologies across the Digital Value Chain to support digitization and competitiveness in Europe.

Recently, the Pleiades cluster was converted into a **Non-Profit Company** and was awarded **funding** of approx. **2.5 million euros** from the Greek General Secretariat for Research and Innovation (GSRI) for the project **Pleione**. Pleione – the word standing for an Oceanid nymph in Greek mythology and mother of the Pleiades – aims to develop a **horizontal smart city platform** that collects **data**, **IoT** and legacy, from eight different solutions (verticals), incl. Next Generation Solar Heaters, Green and Smart Museum, Smart Environmental Monitoring, Drone Inspections, Data Marketplaces for IoT, Phygital Retail Interoperability Standardization, Smart Facilities Management, Smart eHealth. The goal is **data interoperability** and exposure to open data market. The data is normalized and made available through **FIWARE** open standards. The project will run from July 2022 to December 2023. Find out more: https://pleiadesiot.com/

AGILE 4.0 CLUSTER

**Digital Innovation for the
Industry of the Future**
13 partners, incl. Uni Systems
General Secretariat for Research and Innovation

The cluster seeks to contribute to the increase of productivity and **agile manufacturing**, as well as the digitalization of its members (renowned industry organizations) via the **adoption of new technologies** and thus securing their long-term survival and competitiveness. The cluster also seeks to become a model center focused on demonstrating and offering **training** of new technologies through the organization of informative seminars, in order to support **SMEs** in their successful transition to **industry 4.0**. Find out more: https://agile4-cluster.gr/en/home-en/

IN COMPOSE FOR SMART MOBILITY & LOGISTICS CLUSTER

Initiative for Collaborative Development and Exploitation of Innovative Products and Services for Mobility and Logistics
21 partners, incl. ACS
General Secretariat for Research and Innovation

This cluster – the 1st of its kind in Greece – aims to support participating companies to lead the highly-dynamic sector of **smart mobility** and **last-mile logistics** and to collaborate in designing, developing, and commercializing new solutions (products/services), in alignment with the pressing challenges to cities to adapt to **climate change**. It will support innovation by: a) increasing adoption of the innovative solutions by the market, b) maximizing the capacity of participating companies to continually develop their solutions and create new ones, and c) multiplying the impact of innovation through transfer of knowledge. Find out more: https://mlcluster.imet.gr/

HBIO CLUSTER

Hellenic Biocluster

27 partners, incl. Uni Systems
General Secretariat for Research and Innovation

HBIO is the 1st health-related cluster in Greece. It consists of dynamic Greek companies with high-added value products and services, highly skilled human resources and academic and research organizations with high-profile, world-renowned research activity. Its vision is to create scientific, technological and business excellence in the **health** sector, via developing products and services of high-added value. It aims to fully exploit innovation activities within the country, to promote synergies between the private sector and public research organizations, and to enhance the international competitiveness of its members, strengthening the Greek economy. Find out more: http://hbio.gr/

I4BYDESIGN

Competence Centre for Industry 4.0:
From Design to Implementation

23 partners, incl. Uni Systems (coordinator)
General Secretariat for Research and Innovation

The vision of **I4byDESIGN** is to become a competitive competence center, both at nation-level and at EU-level. Consisting of 23 renowned Greek enterprises in the **industry 4.0** sector, the center will link research organizations and enterprises, offering services to its members, such as:

* information sharing activities and business advice for industry 4.0
* training webinars
* networking services as well as promoting the Competence Center
* development of technology solutions in industry 4.0 and Logistics 4.0
* participation in innovation and entrepreneurship projects

The center, by focusing on **digital transformation**, adoption of **circular economy** strategies, supply chain optimization, standardization and support of new patents, as well as knowledge transfer to businesses, aims to offer a reference framework for industry 4.0; thus, it has the potential to transform all members into more competitive and technologically advanced entities that can participate successfully in industry 4.0. At the same time, the center will contribute to the smart, **sustainable** and outward-looking development of its members, as well as to the development of new collaborations via a variety of activities. The center will create a new space of **demonstrating new technologies**, new applications, new products, services and processes relating to industry 4.0 that companies can adopt. The center will promote its activities via informative webinars, workshops, trade shows, conferences, as well as social media campaigns. Find out more: https://i4bydesign.gr/

Π-NET

Competence Centre for 5G and Beyond:
Empowering Vertical Industries

26 partners, incl. Uni Systems
General Secretariat for Research and Innovation

By participating in π-NET, the 1st competence center for **Advanced 5G networks** in Greece, Uni Systems will:

* Become a core player in advanced 5G networks with emphasis on supporting sustainability and vertical value chains in areas of strategic priority like Smart Cities, Smart Logistics, Energy, Civil Protection, Tourism, Self-driving Vehicles, Robotics, Smart Manufacturing, Digital Health, etc.
* Use, jointly with other members, the infrastructure and equipment of the Center for piloting and demonstrating technological solutions
* Participate in knowledge transfer for advanced 5G networks and provision of related research and development services
* Participate in informative training events for advanced 5G networks targeted toward specific industry sectors that are already using or plan to use 5G apps

Find out more: https://www.p-net.gr/

SMARTHEALTH EDIH

European Digital Innovation Hub for Smart Health: Precision Medicine and Innovative E-Health Services

10 partners, incl. Uni Systems, Digital Europe

SmartHEALTH is the 1st digital innovation hub in Greece in the field of **digital health**, consisting of 4 leading research centers, 3 universities, Uni Systems, and a regional industrial association with infrastructure, products and services of high added value, highly specialized human resources and recognized research activity of world prestige in the field. SmartHEALTH will promote innovation, competitiveness and extroversion, via:

contributing to the **digital transformation** of the public and private sectors focusing on technologies such as **high performance computing**, **artificial intelligence** and **cybersecurity**, to support the creation of new products, services and applications aimed at the global market

offering expertise and services such as translational bioinformatics for precision medicine, drug discovery, smart hospitals, clinical trials, imaging informatics, hybrid molecular imaging, computational neuroscience, biosensors, eHealth interoperability, care coordination, social care, welfare, civil protection, and emergency management

providing new options for facilitating **prevention**, early **diagnosis** of life threatening diseases, and **management** of chronic conditions beyond traditional settings towards the vision of **citizen empowerment** to make better informed decisions about their own health

Find out more: https://smarthealth-edih.eu/

GR DIGIGOV-INNOHUB

Greek eGOV and Public Services Digital Innovation Hub

27 partners, incl. Uni Systems (supporting organization), Digital Europe

The **Greek Digital Government and Public Services Innovation Hub – GR digiGOV-innoHUB** supports the development of a new generation of **public services based on advanced digital technologies (AI, ML, IoT, Blockchain, HPC)**, with open source software, open data and open standards. GR digiGOV-innoHUB is coordinated by GRNET.

GR digiGOV-innoHUB aims to develop an **ecosystem of digital transformation actors** by promoting innovation in Public Administration through the National Digital Portal for Public Services gov.gr. All GR digiGOV-innoHUB pilot projects will be implemented using open software and open standards, while the source code of the projects with all documentation will be available under the European Union Public License (EUPL) on the Joinup platform for open-digital governance practitioners.
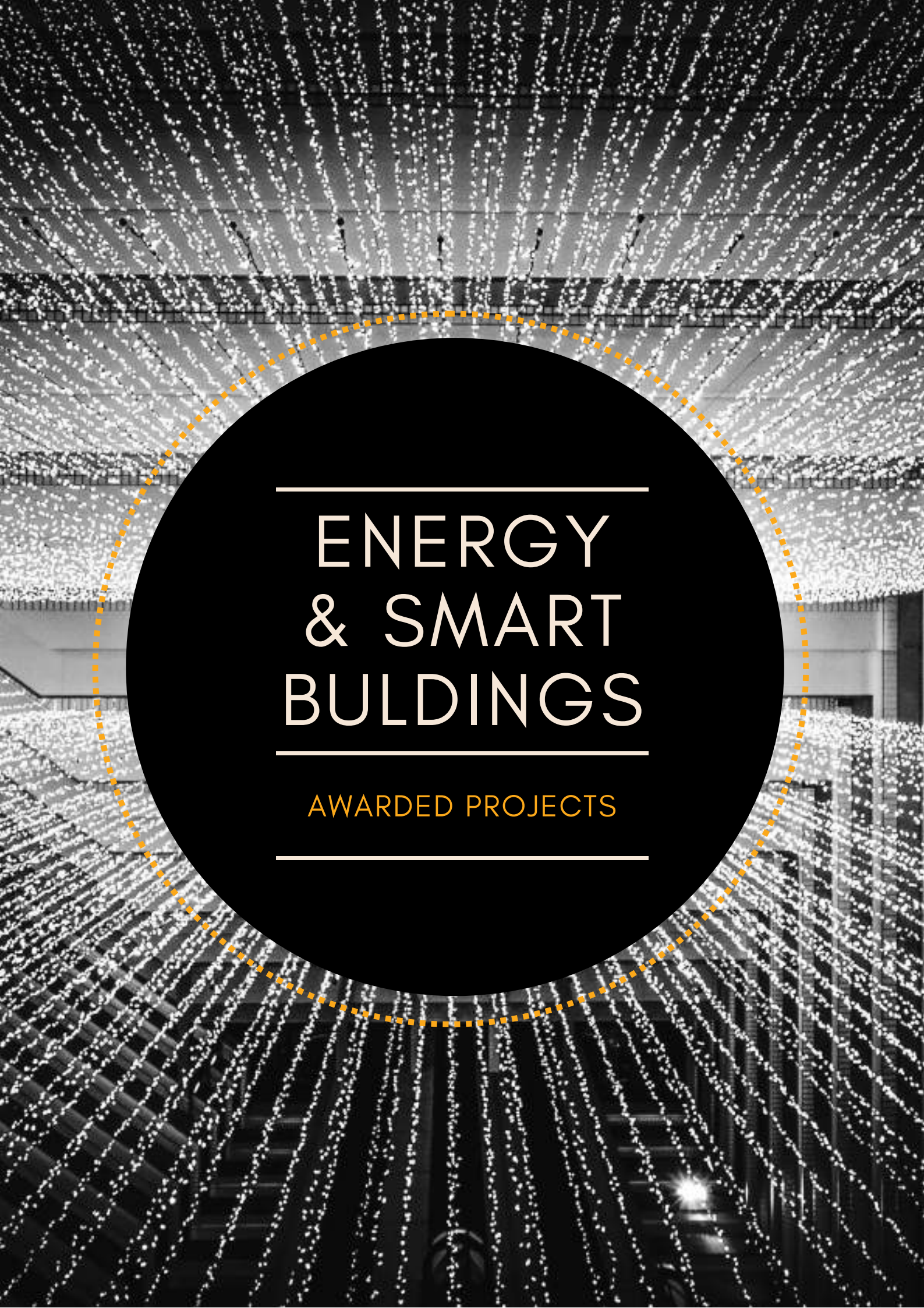
Objectives

The objectives of GR digiGOV-innoHUB are aligned with the Digital Europe Programme, Greece's Digital Transformation Strategy 2020-2025, as well as with other European and national policies such as the OECD Framework for Innovation in the Public Sector:

1. Support the development of a **new generation of public services** leveraging advanced digital technologies (AI, ML, IoT, Blockchain, HPC), with open source, open data and open standards.

2. Develop an **ecosystem of digital transformation actors** at every level of public administration

3. **Promote innovation** in the Public Administration, turning it into a leading investor in digital innovation market by introducing Pre-Commercial Procurement

4. Facilitate regional **cooperation** and international **networking** with similar initiatives and activities in the context of open government principles

5. Strengthen the **digital skills** of executives from Greek SMEs and civil servants in designing, developing, procuring, adopting and delivering innovative digital public services.

Find out more: https://digigov.innohub.gr/

ENERGY & SMART BULDINGS

AWARDED PROJECTS

EXPLOIT4INNOMAT

An Open Innovation Ecosystem for Exploitation of Materials for Building Envelopes towards Zero Energy Buildings
27 partners, incl. Uni Systems (coordinator),
Horizon Europe

36%

of CO2 emissions in EU come from the building sector

The building sector is responsible for 36% of CO2 emissions in the EU. As nZEB becomes the new standard, the role of building materials and smart envelope systems is becoming more and more important. **Exploit4InnoMat** will make available a high-end **Open Innovation Testbed** network for building envelopes including roofs and facades, enabling the replication of prototypes in different buildings taking into consideration the trade-offs between the three sustainability pillars, the life cycle stages as well as their impacts.

End-User Market Needs for low-cost, flexible, on demand material-based solutions will be assessed through an **extensive partnership knowledge** on materials characterization and modelling, monitoring and process control, environmental and assessment, regulatory and standardization, social acceptance and innovation management.

To achieve this target a wide range of expertise has been brought into this consortium, covering fields such as Open Innovation Testbeds for nano enabled cement, non cement premixes and ceramics, advanced coatings and glazing solutions loaded with aerogel, fibers, PCMs and other nanomaterials providing multifunctional properties; pilot lines for nanodispersion, **3D printing** and robot spraying; a network of **4 real scale living laboratories** for nZEB technologies evaluation will facilitate a realization tool for developing close-to-market technological solutions. Additionally, a semi-automated tool combining **BIM analysis**, fast track modelling and simulation will enable a digital tool for utilizing building blocks (structural, solar thermal and BIPV) in order to create a harmonized and aesthetically pleasing urban environment. Find out more: https://shorturl.at/fhlN5

SINNOGENES

**Storage Innovations for
Green Energy Systems**
27 partners, incl. Uni Systems (coordinator),
Horizon Europe

55%

**reduction in gas
emissions required
by 2030 (EU goals)**

The appropriate deployment of **innovative energy storage technologies** is of primary importance for the clean energy transition. Sustainability and circular economy approach for storage innovations will minimize the environmental footprint and enhance the overarching efforts for achieving the European Green Deal targets.

The **SINNOGENES** project aims to develop the Storage INNOvations (SINNO) energy toolkit, a complete framework of methodologies, tools and technologies that will enable the grid integration of innovative storage solutions beyond the state-of-the art, while demonstrating sustainability, technical performance, lifetime, non-dependency on location geographical particularities and cost. It will develop successful energy storage business cases and systems and deploy them in innovative and 'green' energy systems at different scales and timeframes.

SINNOGENES will target the effective integration of innovative energy storage systems and value chains at the interface of renewable energies and specific demand sectors, while ensuring the compatibility of systems and standards of distributed energy storage for participation in flexibility markets. **Six pilot projects** will take place in Portugal, Spain, Germany, Greece and Switzerland while a detailed scalability and replicability analysis will prove the wide impact of SINNOGENES project innovations at pan-European level. Find out more: https://shorturl.at/mnpC2

MOBILITY & LOGISTICS

AWARDED PROJECTS

TRACE

Integration and Harmonization of Logistics Operations

28 partners, incl. Uni Systems & ACS, Horizon Europe

The logistics industry is facing continuous and significant challenges during recent years. Transfers and deliveries can benefit from the use of novel business models that adopt intelligent services for increasing the performance of the provided systems and synchromodal operations. The goal of **synchromodal operations** and the integration of heterogeneous logistics services is the reduction of current transfers in order to **reduce the carbon footprint** while securing the uninterrupted deliveries and the resilience to any disruptive event.

TRACE offers a universal platform with functionalities related to planning, scheduling, optimization and events management as well as the use of **blockchain** technology to facilitate the real time conclusion of smart contracts and financial operations, thus, becoming one of the first attempts to provide an 'intelligent cover' upon the current logistics frameworks.

TRACE envisions real demonstrators in different European countries with different goals that start from **transportations with the use of shared resources**, the **disruptive events detection** and re-scheduling of transfers while concluding with the use of **unmanned vehicles** to automate the last mile deliveries. TRACE also proposes new transfer corridors, safe areas where unmanned vehicles can collect items towards the final destination and new (virtual) hubs.

TRACE will perform studies related to the **barriers** towards the new logistics era, the new **business opportunities**, the requirements for the **legislation and regulatory frameworks** and expose the benefits of the proposed approach in terms of the **reduction for energy demand and emissions** while limiting the operational costs for logistics stakeholders. Website coming soon.

40%
average fuel consumption reduction (TRACE KPI)

DISCO

Data-driven, Integrated, Syncromodal, Collaborative and Optimised Urban Freight Meta Model for a New Generation of Urban Logistics and Planning with Data Sharing at European Living Labs
48 partners, incl. ACS, Horizon Europe

€100bn

Annual costs due to congestion in EU

DISCO will develop and demonstrate – in real-life conditions – a federated European **urban freight (UF) data space** as one-stop-shop of data sharing on digital urban logistics solutions and smart tools for ambitious decision-making. It will be a continental TEN-T-oriented and distributed real-life ecosystem. The DISCO UF Data Space aims to achieve a radical transformation and alliance in purpose-oriented data sharing, **improving knowledge of city authorities and planners,** guaranteeing future data availability for dynamic and predictive integrated urban logistics planning, and **synchronizing real-time demand for transport & warehousing with logistics supply**.

DISCO partners and stakeholders (e.g., cities, logistics service providers, retailers, real estate/public and private infrastructure owners, transport operators, research and technical community, civil society) will co-design, deploy, demonstrate, evaluate, and replicate innovative, inclusive, **hyperconnected and data-driven urban logistics and planning solutions**, together driving a paradigm change from sprawl to **freight-efficient, zero-emission and nearby-delivery-based** models.

DISCO's ground-breaking results will be demonstrated in **4 leading cities** (Starring Living Labs), Copenhagen, Ghent, Thessaloniki, and Helsinki, in **4 replication cities** (Twinning Living Labs), Padua, a Spanish Cluster with Barcelona, Valencia, and Zaragoza, and in **4 Early Adopters**, Prague, Piacenza, Aarhus, and North Hesse. DISCO will support them with a **policy package** to achieve the EU Mission goals for inclusive climate-neutral smart cities by 2030. Website coming soon.

URBANE

Upscaling Innovative Green Urban Logistics Solutions through Multi-Actor Collaboration and PI-inspired Last Mile Deliveries
41 partners, incl. ACS, Horizon Europe

78%

rise in demand for last-mile deliveries in urban areas
(World Economic Forum 2020)

URBANE brings together a multidisciplinary group of partners from 12 different EU Member States, incl. 12 cities, industry leaders in logistics services, solution providers for shared, connected and automated operations and research experts to co-develop **novel last mile delivery solutions** combining green automated vehicles and shared space utilisation models.

The project will support the transition path towards effective, resilient, safe and sustainable last mile transport, through **four Lighthouse Living Labs** (Helsinki, Bologna, Valladolid and Thessaloniki), that will demonstrate efficient, replicable and socially acceptable innovative last mile delivery solutions (Wave 1 LLs). An **Innovation Transferability Platform** comprising **Digital Twinning** Tools, open models, smart contracts governed by **blockchain** technology and a data-driven Impact Assessment Radar will enable the adaptation and replication of Wave 1 solutions in two Twinning LLs in Barcelona and Karlsruhe (Wave 2 LLs), demonstrating their own solutions within the course of the project.

URBANE's commitment to upscaling is further strengthened by the engagement of **six early adopters (Follower Cities)** in feasibility studies regarding innovation adoption, thus stimulating the formulation of new LL communities across Europe. URBANE will provide, for the first time, evidence of the real introduction of the Physical Internet in urban deliveries. Find out more: https://www.linkedin.com/company/urbane-project/

PANACEA

Practical and Effective Tools to Monitor and Assess Commercial Drivers' Fitness to Drive
18 partners, incl. Uni Systems & ACS, Horizon 2020

PANACEA will design, develop and test a **holistic driving ability assessment system for commercial drivers** to be used pre-driving, during driving and at the roadside, paired with cloud-based countermeasure and coaching solutions.

To achieve this, PANACEA will create driver-oriented, health-based, touchless, and Use Case (UC) driven health **monitoring and assessment solutions** capable of detecting alcohol, licit (barbituric), illicit (methadone replacement) drugs, fatigue, stress, and cognitive load. Those drivers detected as unfit by the assessment/monitoring technology will receive **personalised, targeted support** from the cloud-based countermeasure and coaching system. Commercial Health Toolkits (CHTs), combining assessment/monitoring techniques with countermeasure solutions, aim to become an ecosystem of support and knowledge for drivers and operators alike, available before/after/during shifts as well as on site and roadside.

The sensitivity, specificity, robustness, ease-of-use, satisfaction and acceptance of these CHTs will be evaluated with **over 90** AV shuttle, e-truck, coach and taxi drivers and courier service riders, operators and stakeholders, across Greece, Spain and Sweden, while a 4th use case will focus on the transferability of the improved knowledge to other transport modes (i.e. aviation, maritime and rail). Besides the creation of a new fitness-to-drive paradigm for commercial vehicle operations, PANACEA will provide **policy and legislative recommendations** regarding standards for health provision for commercial transportations. Find out more: https://panacea-project.eu/

20%

higher chance of crashes for commercial drivers

CYBER SECURITY

AWARDED PROJECTS

PUZZLE

Towards a Sophisticated SIEM Marketplace for Blockchain-based Threat Intelligence and Security-As-A-Service

13 partners, incl. Uni Systems, Horizon 2020

PUZZLE will implement a highly-usable cybersecurity, privacy and data protection management **marketplace** targeted at SMEs&MEs that enables them to **monitor, forecast, assess and manage** their **cyber risks** through targeted cybersecurity services, and increase their cybersecurity awareness through: efficient heterogeneous information processing, knowledge sharing with other SMEs&MEs, and extracting insights based on advanced analytics. PUZZLE will support vulnerabilities and threats assessment in a collaborative manner based on the homogenization of data provided by the SMEs&MEs, which will take place through **blockchain**-based technologies, and will provide automated **defensive strategies** deployment mechanisms. Find out more: https://puzzle-h2020.com/

CONNECT

Continuous and Efficient Cooperative Trust Management for Resilient CCAM

17 partners, incl. Uni Systems, Horizon Europe

CONNECT defines a trust-reasoning framework based on which involved entities in the CCAM ecosystem can establish **trust** for cooperatively executing **safety-critical functions**. It will enable a) **cyber-secure data sharing** between sources in CCAM that had no/insufficient pre-existing trust relationship, and b) outsourcing tasks to the cloud in a trustworthy way. By coupling the **Zero Trust security principle** with the need of **"Never Trust, Always Verify"**, CONNECT enables continuous **authorization and authentication** prior to be granted access to data or resources for all users, devices and systems in the CCAM ecosystem. CONNECT emerges as the cornerstone of future smart transportation, as it will usher new levels of safety and connectivity. Find out more: https://horizon-connect.eu/

27

REWIRE

Rewiring the Compositional Security Verification and Assurance of Systems Lifecycle
13 partners, incl. Uni Systems, Horizon Europe

REWIRE envisions a holistic framework for **continuous security assessment** of open-source and open-specification hardware and software **for IoT devices** and the development of cybersecurity **certification** in accordance with recent EU regulation. The proposed scalable and multifunctional **cybersecurity platform** will ensure the security throughout the life of the IoT devices with continuous auditing, trust computing and enhanced protection to open-hardware/ software vulnerabilities. A certification procedure of the audited software and hardware components will propose new software security metrics and establish a layer of trust between stakeholders, utilizing **blockchain** and smart contracts - this will be piloted in three sectors: **Automotive, Smart Cities,** and **Smart Satellites**. Find out more: https://www.rewire-he.eu/

25.4 billion

active IoT devices by 2030 - all subject to breaches

ASSURED

Future Proofing of ICT Trust Chains: Sustainable Operational Assurance and Verification Remote Guards for Systems-of-Systems Security and Privacy
14 partners, incl. Uni Systems, Horizon 2020

Cybersecurity is an issue of high priority due to its potential consequences, both directly to the systems concerned and indirectly to human, society, and environment at large. Digital economy, Cyber-Physical Systems (CPS), cyberspace, and **Internet of Things** (IoT) connect Industrial Control Systems (ICS) and other digital entities to even larger Systems-of-Systems (SoS) making sound security design more challenging. A key challenge is to establish and manage **trust** between entities, starting from bi-lateral interaction between two single system components and continuing as such systems get connected to ever larger entities. Therefore, the need for **certification** mechanisms grows. **ASSURED**'s vision is to introduce a ground-breaking, policy-driven, formally-verified, runtime assurance framework in the complex CPS domain, encompassing **blockchain** technology for distributed **verification of transactions** between system elements. Find out more: https://www.project-assured.eu/

SANCUS

Analysis Software Scheme of Uniform Statistical Sampling, Audit and Defence processes
15 partners, incl. Uni Systems, Horizon 2020

5G is expected to transform how we interact with our day-to-day surroundings, involving trillions of **Internet of Things** (IoT) devices, smart cars, homes and buildings, **augmented and virtual reality**, healthcare and mission-critical applications, among others. The fundamental structure of our cyber ecosystem is prone to several – yet undiscovered – **security threats**, and the advent of new communication technologies will not only accentuate existing threats, but also introduce new ones, with unpredictable impacts on industrial, financial, societal systems. The important question is how to protect the overall network from potentially insecure, yet necessary, components.

SANCUS – after the Roman god of **trust** – draws a solution by:
i) introducing the **security-vs-privacy-vs-reliability** efficiency trade-off metric,
ii) designing and developing automated s**ecurity validation and verification** solutions using new **AI**-driven analysis methods with improved accuracy, and
iii) establishing intelligent game theoretic decision-making frameworks to facilitate automated cybersecurity optimization.
Find out more: https://sancus-project.eu/

$4.35m
Global average total cost of a data breach (IBM, 2022)

ENTRUST

Ensuring Secure and Safe CMD Design with Zero Trust Principles
20 partners, incl. Uni Systems (coordinator), Horizon Europe

ENTRUST envisions a Trust Management Architecture intended to dynamically and holistically manage the lifecycle of **connected medical devices**, strengthening **trust** and **privacy** in the entire medical ecosystem. ENTRUST will leverage a series of breakthrough solutions to enhance assurance without limiting the applicability of connected medical devices by enclosing to them **cybersecurity** features. The motivation behind ENTRUST is to ensure end-to-end trust management of medical devices incl. formally verified trust models, risk assessment process, secure lifecycle procedures, security policies, technical recommendations, and the first-ever real-time Conformity Certificates to safeguard connected medical devices. Find out more: https://www.entrust-he.eu/

SPIDER

A Cybersecurity Platform for Virtualized 5G Cyber Range Services
18 partners, incl. Uni Systems, Horizon 2020

Vision

SPIDER offers an innovative **Cyber Range as a Service (CRaaS) platform** that extends and combines the capabilities of existing telecommunications test beds and cyber ranges into a unified framework for:

Testing new security technologies and processes

Training modern cyber defenders in near-real conditions

Supporting relevant stakeholders in making optimal cybersecurity investment decisions

SPIDER is a highly customizable dynamic network modeling tool that enables **realistic virtualization** and **real-time emulation of networks and systems**. SPIDER has developed a cyber-arena where ethical hackers can leverage their skills on top of modern 5G networks using **realistic hacking scenarios**.

Innovation

Hybrid approach combining emulation and simulation techniques

Self-paced learning through gamification

Possibility for trainees to bring their **own** tools

Machine Learning to train models to replicate sophisticated offensive/ defensive activities

Live library of 5G-focused scenarios & of 5G components that can be parameterized and spawned on demand

Automatic scoring system embedded in the platform, and specific to each scenario

Role

Uni Systems leads WP6 regarding the **hardware abstraction layer** in order to enable data acquisition from H/W devices, while also contributing to the **integration** of the Cyber range with the 5G Infrastructure, following its strong expertise in system design, implementation and integration along with its emerging expertise in 5G technologies. It also contributes to WP2, regarding the **system design, architecture and specifications**.

Finally, as a commercial entity, it contributes to the **piloting activities** of WP7 as well as the **exploitation activities** of the project (WP8), incl. the development of **business and marketing plans**, but also the prerequisite market and financial analysis.

Benefits

Uni Systems seeks to:
- enhance its **technological know-how** in the area of microservices and platform integration and adopt components of the Uni Systems platform in the development lifecycle of its own products and projects
- enhance its current solution and **expand its current market share** in the security services and enterprise software market (web & mobile apps)
- **strengthen its relationships** with other partners from the consortium

Find out more: https://spider-h2020.eu/. You can also check out these brief videos: shorturl.at/hNQR9 and shorturl.at/GISVX

BIG DATA & CLOUD COMPUTING

5G-INDUCE

Open Cooperative 5G Experimentation Platforms for the Industrial Sector NetApps

21 partners, incl. Uni Systems, Horizon 2020

5G-INDUCE focuses on the development of an **open platform** for the **deployment of advanced 5G NetApps**. Tailored made applications can be designed and deployed, without any indirect dependency through a **cloud provider**, for the benefit of the **Industry 4.0** vertical sector, as one of the fastest growing and most impactful sectors in EU economy. The platform is integrated over 3 5G Experimentation Facilities in Spain, Greece, and Italy. Find out more: https://www.5g-induce.eu/

ARMONIA

Self-configured and Unified Access and Metro Network

5 partners, incl. Uni Systems (coordinator), Research-Create-Innovate (2018) programme by GSRI

To support the increasing traffic load and the requirements of emerging applications, the different segments of a **network** need to be redesigned and upgraded, while legacy and new equipment should be (re)-configured, a process that involves several manual operations.

ARMONIA is a self-configured and unified access and metro network that senses itself, and dynamically acts to (re)optimize itself in almost real time. The optical and IP equipment of the different segments of the network converge and are jointly and optimally controlled, leveraging the software defined networking (SDN) and network functions virtualization (NFV) technologies. Monitoring information from the network is collected and analyzed with **big data analytics** methods. This, in turn, is used by **dynamic algorithms** that decide how to adapt and dynamically optimize the unified network. Find out more: https://shorturl.at/exPQT

RAINBOW

An Open, Trusted Fog Computing Platform Facilitating the Deployment, Orchestration and Management of Scalable, Heterogeneous and Secure IoT Services and Cross-Cloud Apps
15 partners, incl. Uni Systems, Horizon 2020

RAINBOW falls within the bigger vision of delivering a **platform** enabling users to remotely control the infrastructure that is running, potentially, on hundreds of **edge devices** (e.g. wearables), thousands of fog nodes in a factory or flying in the sky (e.g. drones), and millions of vehicles travelling in a certain area or across Europe. It addresses the need to timely process the **ever-increasing amount of data** continuously gathered from heterogeneous **IoT devices**.

RAINBOW will be demonstrated in various real world and demanding scenarios, such as automated manufacturing (**Industry 4.0**), **connected vehicles** and critical infrastructure surveillance with **drones**. Find out more: https://rainbow-h2020.eu/

ELEGANT

Secure and Seamless Edge-to-Cloud Analytics
11 partners, incl. Uni Systems, Horizon 2020

ELEGANT aims to solve the ever-increasing problem of software fragmentation in the **IoT/Big Data interoperability** domain, which prohibits the unification of these two ecosystems severely limiting the ability to regard them as a single system and tune the whole infrastructure towards defining its a) Performance, b) Energy Efficiency, c) Security, d) Reliability, and d) Dependability (PESRD) requirements.

ELEGANT proposes a novel software programming paradigm, along with an associated set of methodologies and toolchains, to program IoT and Big Data frameworks using a unified programming framework. The proposed solution will be evaluated against pre-defined KPIs across a wide range of operational **use cases** from four distinct domains: health, automotive, smart metering, and video surveillance. Find out more: https://www.elegant-h2020.eu/

INCODE

Programming Platform for Intelligent Collaborative Deployments over Heterogeneous Edge-IoT Environments
19 partners, incl. Uni Systems (coordinator),
Horizon Europe

INCODE envisions the design and development of an open **platform** for the deployment and dynamic management of end user applications, over distributed, heterogeneous and trusted **IoT-Edge node infrastructures**, with enhanced programmability features and tools at both the network infrastructure level and the service design and operational level.

The platform is implemented following **3 innovative design approaches**:
i) The deployment and management of the applications is conducted by **an orchestration framework that follows a vertical layered approach** from the end user interface to the infrastructure management while spanning horizontally across the device-edge-core-cloud continuum.
ii) An **open and extensible, programming toolset** facilitates application development and deployment for large swarms of devices at the edge.
iii) A **secure and trusted framework** for registering and authenticating IoT device and edge nodes entering the system as well as the data sharing and application deployment.

The concept is **tested and validated** over a mature testing environment that integrates **diverse IoT application areas** in smart logistics, manufacturing, utility inspection, etc.

The **consortium** addresses all the required development sectors from the platform technology innovations, to supported IoT infrastructure and applications, including the end user interfacing and resource management intelligence. Find out more: https://www.incode-project.eu/

DATAVAULTS

**Persistent Personal Data Vaults Empowering a
Secure and Privacy Preserving Data Storage,
Analysis, Sharing and Monetisation Platform**
18 partners, incl. Uni Systems, Horizon 2020

Vision

DataVaults aims to deliver a framework and a platform that has personal data, coming from diverse sources in its center and that defines **secure, trusted and privacy preserving mechanisms** allowing individuals to take ownership and control of their data and share them at will, through flexible data sharing and fair compensation schemes with other entities.

What?
DataVaults enables a new mode of collaboration between individuals and organizations that would like to manage/process the personal data of individuals

Why?
To turn the personal data value chain into a multi-sided and multi-tier ecosystem governed by smart contracts to safeguard data ownership, privacy and usage and attribute value to all entities within this chain, especially data owners

Target users
Data Providers (Individuals)
Data Seekers (Economic Operators & Data Analysts)

Innovation

Key challenges addressed
- **3.5 billion** active users
- **$210 billion** total value of the market of personal data
- More than **70%** of millennials are willing to share their data for actual benefits (incl. non-financial ones)
- Only **15%** of people feel they have control of their data

DataVaults is giving individuals back the control of their personal data

Solutions

Holistic Personal Data Management
Collection, mining processing, normalization, formatting and availability of personal data, both at the individuals' personal devices level as well as on secure data vaults on the cloud

Novel Data Security and Privacy Risk Assessment
Cryptography, data anonymisation, remote attestation and trusted data exchange with TPM technologies between the Personal DataVaults and the DataVaults cloud-based engine. Privacy risk assessment for individuals revealing the true risk exposure factor of individuals based on the shared data

Twin-fold Data Brokerage Engine
IPR and data license safeguarding, facilitating compensations schemes with third parties through the instantiation of multi-layer real-time micro-contracts tailored for data sharing, redistribution and utilisation

Edge and Centralised Analytics
Analytics methods depending on the degree of data volume, velocity and variety, always in conjunction with the security and privacy modalities allowed by the individual. Intuitive reports, dashboards and visualisations tailored to the needs of each stakeholder

Privacy Preserving and Data Secure Retention Mechanisms
Generation of anonymised 'digital twins' of individuals, as well as specimen clusters ("persona groups") powering group analytics that contain valuable insights without violating privacy principles

Smart Data Interlinking
Linking of personal data to open, linked as well as proprietary data following Linked Data principles and openly (re-)publishing non-sensitive and business critical information to the LOD community

Offerings

Data Owners
- Collect part of your online personal data in one secure place to centrally manage it
- Set the terms and share your data with the organisations of your choice
- Get compensation for valuable data you share with businesses

Data Seekers
- Discover and acquire personal data directly shared by individuals based on their consent
- Engage with individuals in a privacy-preserving, GDPR compliant manner
- Deploy an analytics engine on your side to work with the data

www.datavaults.eu
info@datavaults.eu

- DataVaults H2020 Project
- DataVaultsH2020
- DataVaults H2020 Project
- DataVaults Project
- DataVaults

Role

Uni Systems is the **dissemination and communication leader** of the project, leading WP8.
Moreover, based on its experience in data access management and analytics, Uni Systems will provide the **risk management** and access control bundles (WP3) and **support to a demonstrator**.

Benefits

Uni Systems seeks to:
- **enhance its business & technological know-how** in the area of Smart Cities Marketplace Initiative within the Citizen Focus Action Cluster: "Citizen Control of Personal Data". This can be summed up as helping to build the conditions and relationships whereby the citizen will be willing to share personal data with a city and with other actors in the data economy.
- **strengthen** its relationships with other partners from the consortium.

Find out more: https://www.datavaults.eu/ and check out these brief videos: https://shorturl.at/npTY5

DIGITAL SOCIETY& E-GOV

AWARDED PROJECTS

ETHEMISID

Integrating the Greek Justice System with eIDAS and e-Signature Services
5 partners, incl. Uni Systems, CEF-Telecom

The Greek Justice System (Council of State, Supreme Civil & Criminal Court, Court of Audit), has made clear steps toward digitization. However, a significant issue is its ability to integrate with existing identification and authorization services in national and pan-EU level.

The scope of **eThemisID** is to: a) integrate the necessary components with existing systems to allow the Justice System to **offer eIDAS and e-signature services** to its EU-wide end-users and b) extend the national eIDAS node to **offer rich authentication/authorization services** to a large number of citizens. Find out more: https://ethemisid.eu/

GLASS

Single Sign-on e-Governance Paradigm Based on a Distributed File Exchange Network for Security, Transparency, Cost Effectiveness and Trust
12 partners, incl. Uni Systems (coordinator),
Horizon 2020

The rapid growth of Information and Communication Technology (ICT) and its ubiquitous presence in our everyday life has significantly affected the way government services are delivered today and poses challenges to safeguard the data confidentiality and integrity of **e-gov services**.

The vision of the **GLASS** project is to **place EU citizens in control of their personal information** and **streamline access to eGov services across Member States**. Aligned with the EU eGov Action Plan 2016-2020 and the EU Digital Single Market Strategy, the project's main goal is to use **state-of-the-art technology** and introduce a **citizen-centric e-governance model** that enables beneficiaries to participate in a network for **big data exchange** and service delivery, which is by design digital, efficient, cost-effective, interoperable, cross-border, secure and promotes the once-only priority. Find out more: https://www.glass-h2020.eu/

INGOV

**Inclusive Governance Models and ICT Tools
for Integrated Public Service Co-Creation and
Provision**
12 partners, incl. Uni Systems (coordinator),
Horizon 2020

Today citizens require accessible, user-friendly, personalized, and integrated **public services** that match their needs. At the same time, trust in the public sector deteriorates.

The vision of **InGOV** is to provide **innovative ICT-supported governance models** as well as **mobile apps** and **virtual assistants including chatbots**, which will enable stakeholders' collaboration in co-producing inclusive and accessible **Integrated Public Services** (IPS) thus increasing **trust** and **satisfaction**.

The results will be **piloted** in Malta to modernize the digital family household public service (affecting 200,000 households), in Austria to collect tourism tax (affecting 3,200 accommodation providers), in Greece to digitize the disabled card renewal service (benefiting 11,500 disabled, low-income citizens) and in Croatia to create AI-driven virtual assistants and services (affecting 32,000 citizens). Find out more: https://ingov-project.eu/
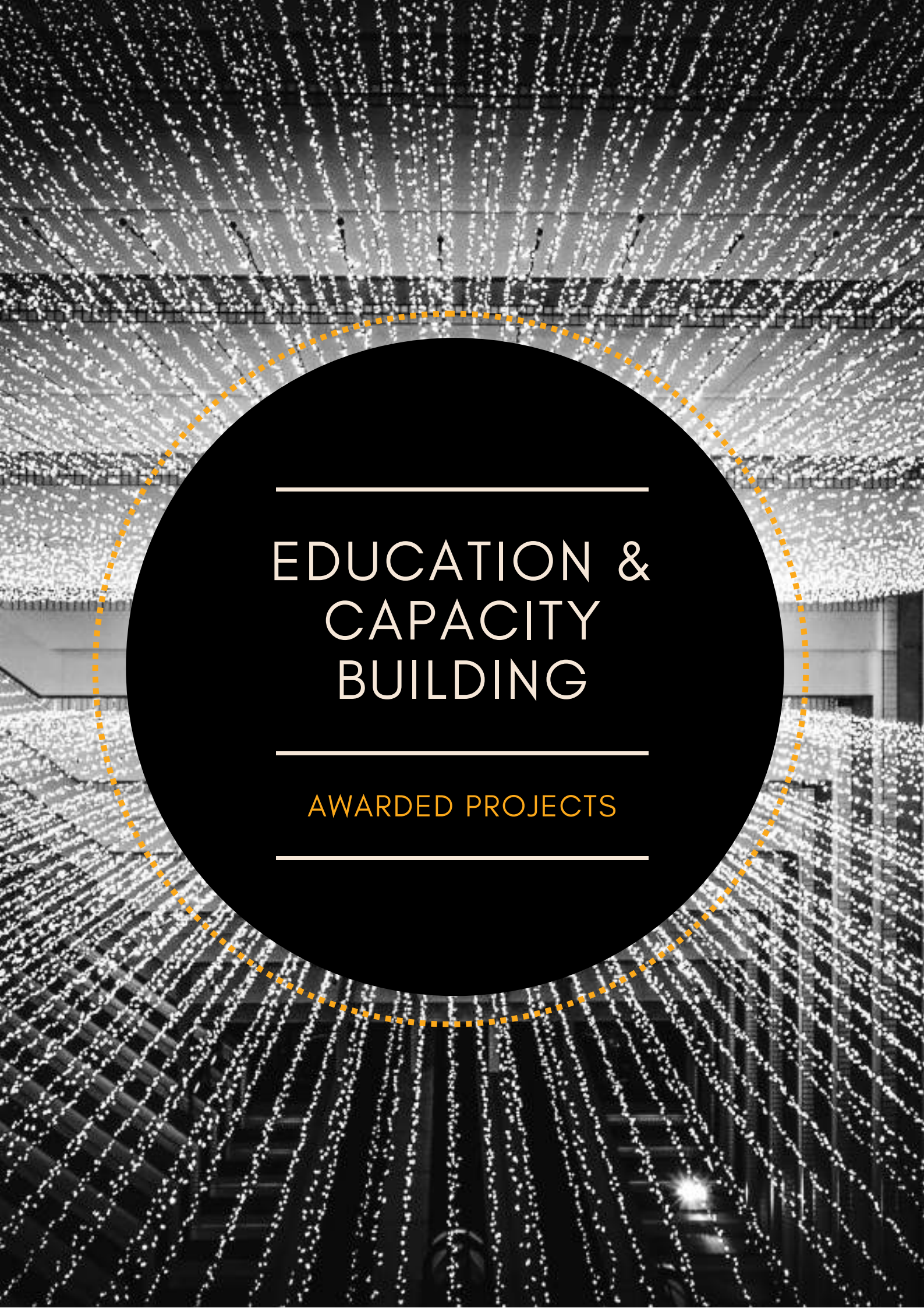

ORBIS

**Augmenting Participation, Co-Creation, Trust and
Transparency in Deliberative Democracy
at All Scales**
14 partners, incl. Uni Systems, Horizon Europe

ORBIS responds to the profound lack of dialogue between citizenship and policy-making institutions by providing a theoretically sound and highly pragmatic socio-technical solution to enable the transition to a more inclusive, transparent **Deliberative Democracy** in Europe.

The project builds on **cutting-edge AI tools and technologies** to develop a sustainable **digital solution**, and bridges theories and technological solutions from the fields of political and social science, social innovation, Artificial Intelligence, argumentation and **digital democracy**.

The achievement of the project's goal is validated through **6 use cases** addressing contemporary issues at different scales and settings, experimenting with different civic participation and deliberation models, and involving **diverse types of stakeholders**, incl. teenagers, politicians, activists, city councils, EU officials, etc. Find out more: https://shorturl.at/fnAJR

EDUCATION & CAPACITY BUILDING

AWARDED PROJECTS

AUGMENTOR

**Augmented Intelligence for Pedagogically
Sustained Training and Education**
13 partners, incl. Uni Systems (coordinator),
Horizon Europe

AUGMENTOR aims to develop a novel pedagogical framework that promotes both basic **skills** and 21st century **competencies** by **integrating emerging technologies**. This framework will be supported by an **open access AI-boosted toolkit** that builds on the strengths of **big data** and learning analytics to provide different types of stakeholders with explainable recommendations for **smart search and identification of educational resources**, as well as for designing **personalized learning profiles** that take into account individual actors' characteristics, needs, and preferences.

The overall approach foreseen is innovative, based on appropriately structured data that capture the stakeholders' learning paths, promote informed and well-justified interaction, and advance critical thinking. AUGMENTOR will:

- leverage advancements in the fields of Pedagogical Design, Creative Pedagogy, Explainable **Artificial Intelligence**, and Knowledge Representation and Reasoning for instructional purposes.
- integrate pedagogical approaches with AI-based software solutions to enable a **rich collaboration among all chain's actors** from students to teachers and policy makers.
- provide guidelines to stakeholders on how to address potential underlying **educational difficulties and disabilities**, shape individual learning paths, or identify cases of gifted and talented students, to enable them to **reach their full potential**.
- trigger **constructive reflection** in both tutoring and pedagogical policy making, keeping a strategic balance between the pedagogical and technological dimensions of teaching and learning, and contributing equally to the concepts of individual and organizational learning, considering them as interdependent processes.

The foreseen solution will be thoroughly deployed and **validated in a series of real pilots** representing diverse educational and training settings to define best practices. Find out more: https://augmentor-project.eu/

EAGLE

Covering the Training Gap in Digital Skills for European SMEs Manpower

13 partners, incl. Uni Systems & Pleiades (associated), Digital Europe

The main objective of EAGLE project is to design and deliver **6 high-quality specialized training courses**, reflecting the latest developments **in key capacity areas (Cybersecurity, Big Data, Robotics, Blockchain and Smart Energy)**, supporting the development of **advanced digital skills** of people in the labor force, with a focus on **SMEs** managers and employees.

Specifically, the project aims to:

1. provide access to high-level educative contents regarding digitalization and **new technologies**, specifically to SMEs managers and staff, as well as job-seekers; contributing to bridge the digital divide between large, multinational companies and the rest of society.

2. increase the number of professionals able to design, develop and deploy **digital solutions** in the economy and across sectors.

3. strengthen the relationship between private companies, especially SMEs; and Higher Education Institutions, by **analyzing the knowledge needs** of the first and providing specialized education adapted to their requirements, both in the **contents**, in the methodology for their **delivery** (short-courses, on-line or blended learning, etc.) and the academic **certification** provided (micro-credentials).

4. contribute to **digital transformation** of businesses, contributing to the EU's digital ambitions for 2030.

5. contribute to **gender convergence**, relative to digital skills of people in the labor force.

Find out more: https://www.projecteagle.eu/

TRUSTFOOD

Advanced Digital Skills on Blockchain for Trusted Food Supply Chains
14 partners, incl. Uni Systems, Digital Europe

$163bn

global blockchain technology market size by 2027 (Statista, 2022)

The aim of **TrustFood** is to support the development of advanced digital skills of people in the labor force, with a focus on SMEs, as well as to job seekers by providing access to high-quality specialized training courses, reflecting the latest developments in the area of **Blockchain** technologies applied holistically to the **Food Supply Chain**.

The project will design and deliver **short-term training courses for upskilling and reskilling** of the labor force, with a particular focus on SMEs owners, managers, and employees in the Food Supply Chain (FSC) sector. The courses will be highly practical and will provide specific knowledge about key digital technologies of Blockchain and their applications to the FSC. The courses will be also focusing on job seekers in the particular area. The courses will have different length, from one month to 6 months maximum. The main types of courses will be:

- Courses **for business leaders** or managers, to acquire advanced digital skills and competences related to blockchain and how they can be deployed to innovate, transform and expand their businesses, as well as forge trust in their relationships with other businesses and stakeholders in the field.
- Courses **for employed people or job seekers** to acquire advanced digital skills and competences of how to integrate blockchain technologies to relevant innovative digital tools in their daily work.
- Intensive **seminars and workshops on specific business cases** and aspects of blockchain for high-skilled workers in SMEs or job seekers (e.g., business case: blockchain for enhanced traceability of food products).

Find out more: https://shorturl.at/tyKLZ

HEALTH

AWARDED PROJECTS

3D-BIOPERIODONTIS

Bioabsorbable Three-Dimensional (3D) Printed Scaffolds for Personalized Treatment of Periodontitis
4 partners, incl. Uni Systems,
Research-Create-Innovate (2018) programme by GSRI

Periodontal disease is an infection of periodontal tissues caused by the colonization by pathogenic microorganisms infecting the tooth's root surface and tissue. It **affects a large proportion of the population**, and results in **worldwide productivity losses of approx. $54 billion yearly**. Despite encouraging results, previous treatment techniques have not succeeded in achieving the ultimate goal of periodontal therapy, namely the complete regeneration of lost periodontal tissues and the maintenance/improvement of aesthetics. Of new periodontic regeneration biomaterials, the most important seems to be the development of new **3D printed** scaffolds, which reproduce precisely the complex morphology of periodontal damage and tissue organization for each individual patient.

The **3D-BioPerioDontis** project **aims to study new biomaterials** for the fabrication of innovative bio absorbable 3D printed scaffolds for **personalized medicine** for periodontitis, which will act simultaneously as drug delivery systems for controlled delivery of APIs. Find out more: https://3dperiodontis.gr/

SMARTEMBRYO

Classification and Characterization of Fetal Images for Assisted Reproduction Using Artificial Intelligence and Computer Vision
4 partners, incl. Uni Systems,
Innovation Investment Plans – Central Macedonia

The World Health Organization has indicated infertility as a "disease" of the reproductive system. Many couples turn to **assisted reproduction**, the effectiveness of which – although promising – remains low. **Only 1 out of 3** couples undergoing assisted reproduction therapies will eventually have a child. The most crucial step in the IVF process is the selection of the 'optimal' embryo for transfer. Thus far, the process mostly takes place by embryologists who assess the embryos via microscopes, and then 'score' them in order of preference; ultimately, the embryo with the highest score is selected. Yet, this process is subject to variability – even within the same lab – and lack of objectivity. As a result, the need to identify more effective tools is imperative and of great social importance.

SmartEmbryo aims to design, develop, test and commercially exploit a new **software**, integrating **Artificial Intelligence** and **Computer Vision** technologies and thus optimizing the optimal embryo selection process. Website coming soon.

ONCODIR

Evidence-Based Participatory Decision Making for Cancer Prevention through Implementation Research

27 partners, incl. Uni Systems, Horizon Europe

Colorectal cancer (CRC) is one of the **most common cancer types** and its increased occurrence may be attributable to adverse health behaviors, especially in lower socioeconomic status populations.

Stemming from the specific risk factors identified with CRC, **ONCODIR** integrates multidisciplinary research methods from health policy analytics; social and behavioral science; **AI-powered** multi-omics and retrospective **data analytics** as well as **decision support** theories to deliver **evidence-based cancer prevention programmes** and **innovative AI-powered personalized prevention approaches**.

ONCODIR's evaluation of its prevention programmes will address cost effectiveness, affordability and cost-benefit parameters, investigating cost balancing and demand generating financial schemes. The coherent technological ecosystem that ONCODIR is developing is based on robust **AI trustworthiness and privacy** preserving principles to deploy **recommendation services** that will be specified by citizens, health policy actors and social science experts, during **3 design thinking workshops**.

ONCODIR's results will be **validated in 3 Laboratory Integration Tests** (LITs) and **3 Large-scale Intervention Pilots** (LIPs) in **5 EU member states**. ONCODIR will deliver feasible policy-supporting outcomes of significant exploitation potential. Website coming soon.

2nd

most common cancer type globally: the colorectal cancer

ALAMEDA

Bridging the Early Diagnosis and Treatment Gap of Brain Diseases via Smart, Connected, Proactive and Evidence-Based Technological Interventions
15 partners, incl. Uni Systems, Horizon 2020

The care of patients with **brain disorders** is complex and manifestations of certain diseases could seriously impair the **quality of life** of patients and their care-givers. Regular rehabilitation treatment assessments are essential to ensure that medical interventions are impactful. Different brain diseases pose different challenges on clinicians, and patients respond differently to medication or rehabilitation protocols.

ALAMEDA will research and prototype the next generation of **personalized AI healthcare support systems** for people with brain diseases and disorders, specifically focusing on the needs of **Parkinson's, MS and Stroke (PMSS) patients' rehabilitation treatments**. ALAMEDA innovations are anchored at the integration of lifestyle retrospective data as well as new streams of **patient monitoring data**, via new methods during every-day activities, incl. sleep behavior, **advanced data analytics** and **AI recommendation services**.

The success of such applications will provide clinicians with the opportunity to modify **interventions** based on personalized data recordings that could include both pharmacological and non-pharmacological therapeutic options, such as exercise regimens. Find out more: https://alamedaproject.eu/

> 1/3rd

of the total EU population is affected by a mental disorder every year
(Wittchen et al, 2011)

BIO-STREAMS

Multi-Pillar Framework for Children Anti-Obesity Behavior Building on an EU Biobank, Micro Moments and Mobile Recommendation Systems

30 partners, incl. Uni Systems, Horizon Europe

During the last decades, overweight & **obesity rates** have reached epidemic proportions across the EU. Prevalence in childhood is particularly alarming. **Bio-Streams** aims on supporting the **optimal use (and re-use) of health data** (e.g. biological, demographic, epigenetic, etc.) to generate metadata/knowledge and provide new evidences, methodologies & tools for:

a) creating and deploying the **Bio-Streams Biobank** that will act as a **scientific platform for research in obesity** and better diagnostic and therapeutic approaches;

b) understanding the transition from metabolically healthy to unhealthy, **preventing under-age obesity**;

c) designing better **strategies to educate** & empower young citizens for weight self-management;

d) coordinating authorities & policy makers to develop **cross-sectoral solutions for health promotion** & under-age obesity prevention.

The Bio-Streams framework for data handling, provides robust and transparent methodologies for operational procedures (data infrastructures), analysis and reporting via metareviews and **AI-based Apps**/components evaluated via **12 multi-site pilots** (7 clinical and 5 schools), citizen awareness and lifestyle alteration, delivering obesity prevention guidelines, and knowledge generation while fostering considerable opportunities for regional and national health authorities/policymakers. Website coming soon.

PCP

PCPs as procurement instruments in Health

The EU Commission supports RDI in Public Institutions through Pre-Commercial Procurements (**PCPs**) and Public Procurements of Innovative Solutions (PPIs) involving the private sector through a multistage competition.

PCPs and PPIs are **Horizon funding programs** in which Public Institutions from different countries around Europe form a group of Procurers that jointly identify a **market need** and call different Supplier Consortia to design and implement **solutions**.

PCPs are split into separate phases (see next page).

PCP PHASES

Following an open market consultation and curiosity driven research phase (**Phase 0**), in which a request for tenders is prepared and launched, Supplier Consortia proposals are invited.

Those that are successfully awarded enter **Phase 1: Solution Design**. This phase is a feasibility study of the proposed solutions and technologies, which aims to verify the technical, economic and organizational feasibility of each group of suppliers. The expected output from participating suppliers is a report describing the results of the feasibility study and a detailed design of the approach. Outcomes are reviewed and after an application process and competition only a portion of the suppliers proceed to the next phase.

In **Phase 2: Prototype Development** the most promising concepts shown to be feasible in Phase 1 are developed into working prototypes. Each selected supplier consortium develops a prototype based on the results of their feasibility study, the aim of which is to verify the extent to which the prototype's main features meet the functional and performance requirements. The prototypes are also expected to be tested in lab-type environments. After successful completion of phase 2, a review, application and competition process takes place to select the suppliers of Phase 3.

Phase 3 aims to verify and compare the full feature set and performance of different solutions in real-life operational conditions using procurers as **pilots**. At the conclusion of the phase the Intellectual Property Rights and developed prototypes remain the property of the suppliers involved and the PCP comes to an end.

Suppliers are however expected to continue the refinement of the tested prototypes in order to make them into **market-ready solutions** that can be procured by additional public procurers. These solutions may enter **Phase 4** to participate in a respective Public Procurement of Innovative Solutions (PPI). PPIs use a different budget and can involve additional suppliers.
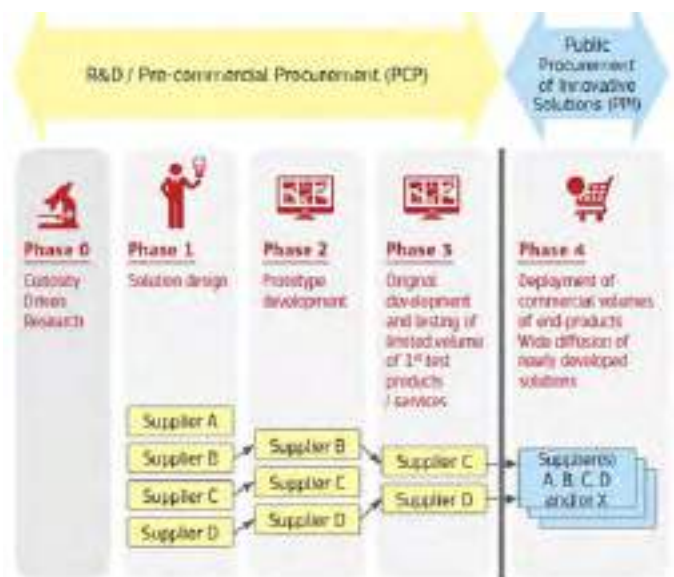
UNI SYSTEMS IN HEALTH PCPs

In alignment with the Greek Ministry of Digital Governance – which considers PCPs important as they offer services to the public sector – Uni Systems also recognizes their significance as the company offers solutions and runs multiple projects in this domain.
Uni Systems currently participates in 3 PCPs.

eCARE PCP   **InCareHeart PCP**   **ROSIA PCP**

Role & Benefits

The role of Uni Systems in the three PCPs includes part of the overall **Project Management**, participation in **Prototype Development** and leading the **Business Development and Exploitation** actions.

We ensure that the results of the project are **sustainable** by:
- developing a robust exploitation and **business strategy**,
- organizing the required **dissemination** activities,
- **communicating** the project among different stakeholders,
- **gathering insights** of all relevant players to provide a clear strategy in place for long-term success of the tools and services beyond the lifetime of the project.

Our active participation in PCPs – in the significantly growing market of **eHealth** - offers multiple opportunities:
- helping us establish our presence in the EU among other market players and create effective synergies and partnerships
- expediting the commercialization of the developed products,
- taking advantage of the need for innovation from healthcare and social care providers to improve the provided services,
- improving costs of service provision from social security and insurances,
- entering the "smart living" market,
- using advanced technologies such as Artificial Intelligence, High Performance Computing, etc., thus creating a state of the art knowledge base that can be used in the development of future digital solutions.

ECARE

Digital Solutions for Frailty Prevention in Old Adults
2 partners, incl. Uni Systems, PCP – Phase II

eCare (https://ecare-pcp.eu/) focuses on innovative digital solutions supporting continuum of **care for frailty prevention** in pre-fail/fail old adults with emphasis on those that feel lonely or isolated. The main goal is to encourage their independent living and wellbeing.

The PCP considers **digital solutions** with a wide-ranging approach that facilitates cognitive and functional decline support, psychological and emotional support as well as education and empowerment.

The group of procurers consists of entities from Spain, Germany and Italy. Our consortium in eCare is composed of FORTH (Coordinator), Uni Systems and 3 subcontractors.

INCAREHEART

Innovative ICT-enabled Integrated Care Solutions to Advance Multidisciplinary Health and Care for Patients with Chronic Heart Failure
7 partners, incl. Uni Systems, PCP – Phase II

InCareHeart (https://incareheart.eu/) is proposing an **integrated care management system** based on software and hardware (commercial devices) solutions to manage and support patients with **Chronic Heart Failure** (CHF).

Building on the partial advances seen in integrated healthcare delivery, a range of features will be integrated into a modular solution to effectively bring different care providers, carers, and patients into a shared CHF care pathway cutting across **diagnosis**, **acute care** and jointly managed **long-term care**.

The group of procurers consists of entities from Sweden, Turkey, Portugal, Greece and Italy. The consortium, coordinated by CERTH, is composed of 7 members and 3 subcontractors.

ROSIA

Remote Rehabilitation Service for Isolated Areas
7 partners, incl. Uni Systems, PCP – Phase I

ROSIA (https://rosia-pcp.eu/) stands for Remote RehabilitatiOn Service for Isolated Areas and aims to deliver comprehensive **tele-services** to patients in need of rehabilitation, enabled by cutting-edge technology, new care pathways and community support.

ROSIA works towards making self-managed care through tele-rehabilitation possible with: Technology using systems that provide support during the rehabilitation process (evaluation, exercise assignment, rehabilitation follow-ups), including motivation and coaching features and **data driven intervention** to make digital support personalized.

The group of procurers consists of entities in Spain, Ireland and Portugal. We participate in a consortium of 7 members, coordinated by FORTH.

NEW INNOVATION CHALLENGES

The RDI Department continuously strives to address **innovation challenges**, either internal to Uni Systems, the rest of the iQnovus Innovation Center members, or to external entities, based on identified needs.

Via applying **open ideation** and **design-thinking** methodologies and largely facilitated by our Innovation Platform, **BrightIdea**, we are able to:

- run innovation challenges, either on a continuous or one-off basis.
- understand and define the needs, values and context behind an innovation challenge.
- translate these into requirements for the development of possible solutions.
- develop and test solutions, tools, applications relevant to the challenge.
- evaluate solutions and investigate their economic, environmental and social impact for stakeholders involved.
- and ultimately facilitate the alignment of Innovation & Business goals.

During 2022, many new innovative challenges and concepts were launched and others were matured, such as the City Living Lab.

City Living Lab

Addressing the needs of the emerging smart and connected cities, the City Living Lab is an open innovation ecosystem mechanism that aims to **produce solutions for urban areas** in sectors such as mobility, energy, urban development, and the environment, in order to make the city attractive and improve the quality of life. It orchestrates collaboration as it brings together different stakeholders (companies, research communities, public sector and citizens) through co-creation activities.

"To make cities and human settlements inclusive, safe, resilient and sustainable"
(UN Sustainable Development Goal 11)

OTHER VALUE-ADDING ACTIVITIES

In addition to submitting EU & national funding proposals, delivering awarded projects and launching new innovation initiatives, during 2022, the RDI Department further reinforced its role as a vital enabler of sustainable growth for Uni Systems, via implementing various value-adding initiatives.

R&D Tax Incentives

The RDI Department coordinated the submission of annual R&D expenditures to the Greek General Secretariat of Research and Innovation (GSRI), which has established a legislative framework for granting tax deductions to enterprises implementing R&D projects. Specifically, R&D expenditures are deducted from the gross revenue generated in the year the expenditure was incurred, increased by 30%.

Next Gen Investments & programmes

The RDI Department also continued to coordinate the preparation of applications aimed to the Next Generation EU investments and to digital transformation funding programs (ESPA).

New Ventures

In order to expand Uni Systems portfolio, the RDI Department remains dedicated to facilitating innovative entrepreneurial activities, either externally or internally driven. It thus actively encourages **internal innovation** and entrepreneurial spirit – a typical example of this is MuseoTek. The team also continuously explores its innovation ecosystem in order to collaborate with, and **invest** in, external parties with innovative technological solutions that present long-term potential to disrupt Uni Systems core and emerging markets, such as:

optechain

PROBOTEK

An innovative startup on a mission to transform digital retail and **electric vehicle** charging

Utilizing proprietary technologies that exploit **drone** & UAV capabilities with the help of AI/ML and mission critical software platforms

uni.systems