

**Digital
Innovative
Solutions**

SIMAVI

Software Imagination & Vision

Software Imagination & Vision

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+ 80**R&D projects
awarded****Horizon EUROPE
Horizon 2020****DEP EDF
ERASMUS+****ISF
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Eurostars**

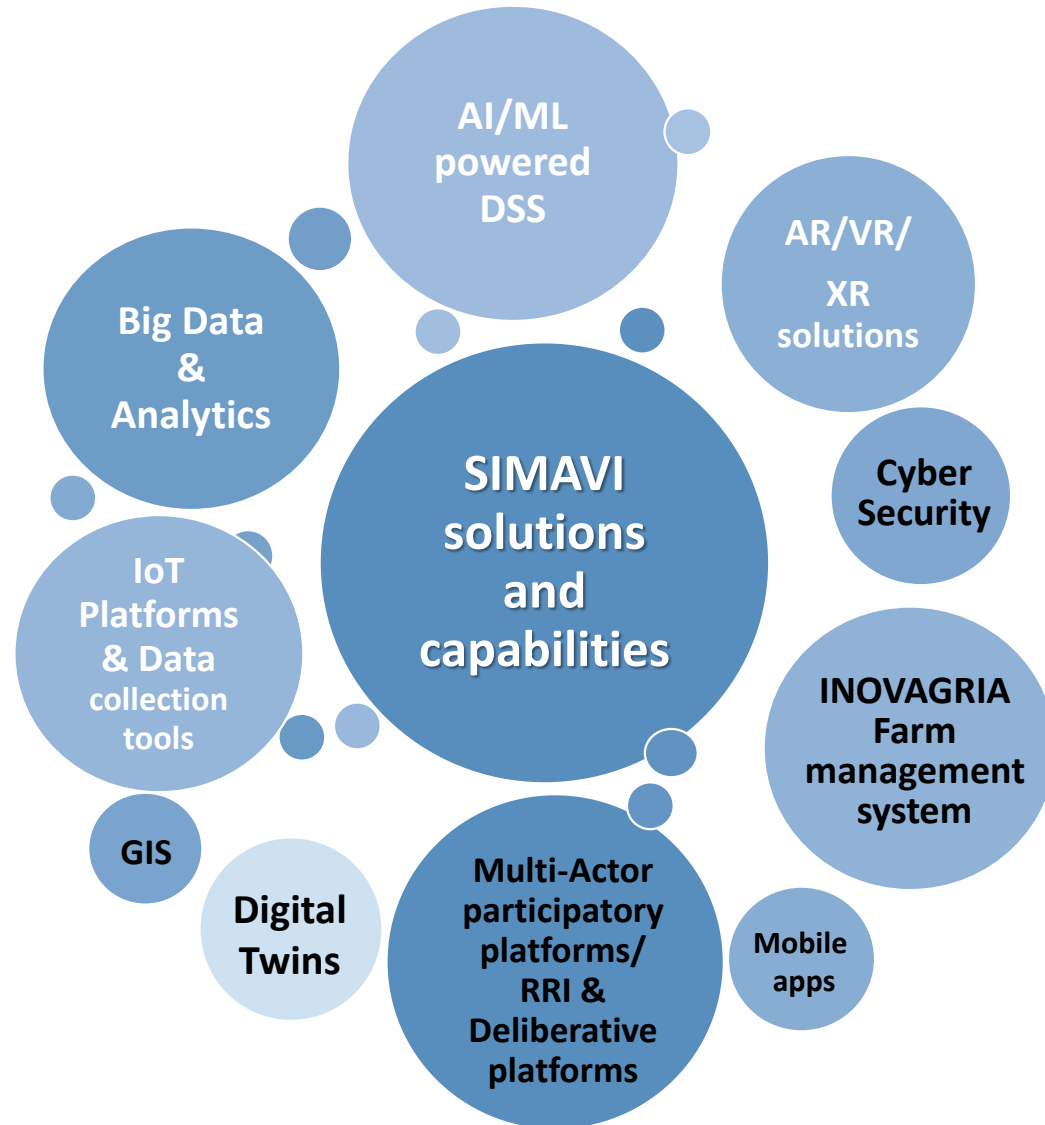
**SIMAVI develops solutions for
various industries**

eTraining**eLearning****Research & Development Projects****eAgriculture, climate change & biodiversity protection****Enterprise Application Suite**<https://simavi.ro/en/rd-projects>**Security, cybersecurity & intelligence****eGovernment**

12 Projects Coordinated

Energy, mobility & transportation**Defence****Industry 4.0 & circular economy****eCustoms****eHealth****Customized Applications**

SIMAVI Overview



COMPETENCES

- ✓ **Platforms development, Integration and Interoperability**
- ✓ **AI/ML powered Software Tools, DSS and Analytics**
- ✓ **AR/VR/XR** development for awareness, immersive simulations for field-support and training
- ✓ **User-center design** (UX, UI, UJ)
- ✓ **Pilot deployment and implementation** in Eastern Europe, by engaging key partners:
 - Cities & Public Authorities
 - NGOs & Clusters & Research Centers
 - Farmers & farm associations
 - Industry 4.0
 - Energy DSO/TSO
 - Hospitals
 - LEAs & FRs
 - Ministry of Education



SOLUTIONS & EXPERIENCE

- 1. AI-powered Virtual Tutor & Assistant** - Personalized guidance and continuous real-time support for learners.
- 2. AI-Powered Authoring Tool** - Automates the creation of digital lessons using AI.
- 3. Serious Games & Gamified Learning** - Interactive learning through immersive, game-based scenarios.
- 4. Mobile Learning Applications** - On-the-go, bite-sized learning for quick knowledge delivery.
- 5. XR/AR/VR Simulations** - Augmented and Virtual Reality environments blending digital information with real-world scenarios for practical learning.
- 6. eTraining courses development** - including microlearning, MOOCs, video learning to address diverse learning needs.
- 7. Learning Experience Platform (LXP)** - promotes engagement with interactive and personalized educational content.

REFERENCES:



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Projects



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AI-powered Virtual Tutor & Assistant (GenAI)

The **Virtual Tutor** integrated into the LXP platform is an innovative solution designed to enhance students' learning experience by providing continuous and personalized support. It's based on **AI technology** to create an interactive and efficient educational journey.

- **Personalized Guidance:** The virtual tutor offers tailored advice based on each trainee's needs, guiding them through the learning process and helping them better understand the studied materials.
- **Coaching:** Through virtual coaching sessions, trainees receive guidance and motivation to achieve their academic goals. The tutor monitors progress and provides constructive feedback.
- **Problem-Solving Suggestions:** Trainees can ask questions and receive detailed solutions to the challenges they face. The virtual tutor analyzes difficulties and suggests effective problem-solving methods.
- **Content Recommendations:** Based on trainees' profiles and preferences, the tutor provides course suggestions and additional learning materials to complement and reinforce existing knowledge.



AI-powered Virtual Tutor & Assistant (GenAI)

To provide **continuous support** in applying procedures or using internal systems, the **AI Assistant** is designed to be trained on **hundreds or thousands of pages of documentation**. Once trained, can deliver **personalized answers** to any question, ensuring efficient and accurate assistance.

How Can an AI Assistant Help?

- #1** Answers any question in less than 10 seconds
- #2** The response generation system is designed for 100% accuracy.
- #3** It can be trained on a database of up to 100,000 pages.
- #4** In addition to answering questions, it can be used as a coach/sparring partner.

PM2 Smart Assistant

Ask me anything about Project Management!

 I have a new project starting and I understand a project charter needs to be drafted. Who is responsible to draft the project charter?



The Project Manager (PM) is responsible for developing the Project Charter. The Business Manager (BM) may assist in drafting the Project Charter as well.

Sources

 PM2-project-management-methodology-5.pdf - Page 42



 In another project, the budget I had was exceeded. What should I do?



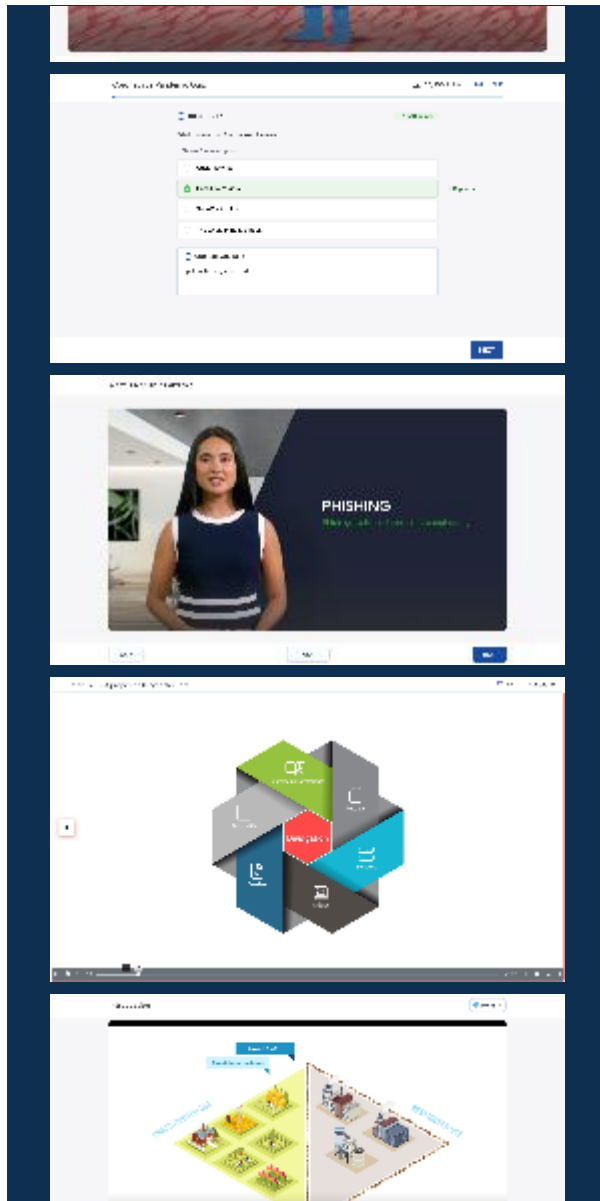
If the budget for a project has been exceeded, the Project Manager should inform the Project Steering Committee (PSC) and devise corrective actions to bring the budget back on track. Significant cost overruns need to be justified, reported to the Project Owner (PO) or the Appropriate Governance Body (AGB), and approved before implementing any corrective actions.

Sources

 PM2-project-management-methodology-5.pdf - Page 78



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AI-Powered Authoring Tool

The **AI-Powered Authoring Tool** is fully customized based on the end-user's needs.

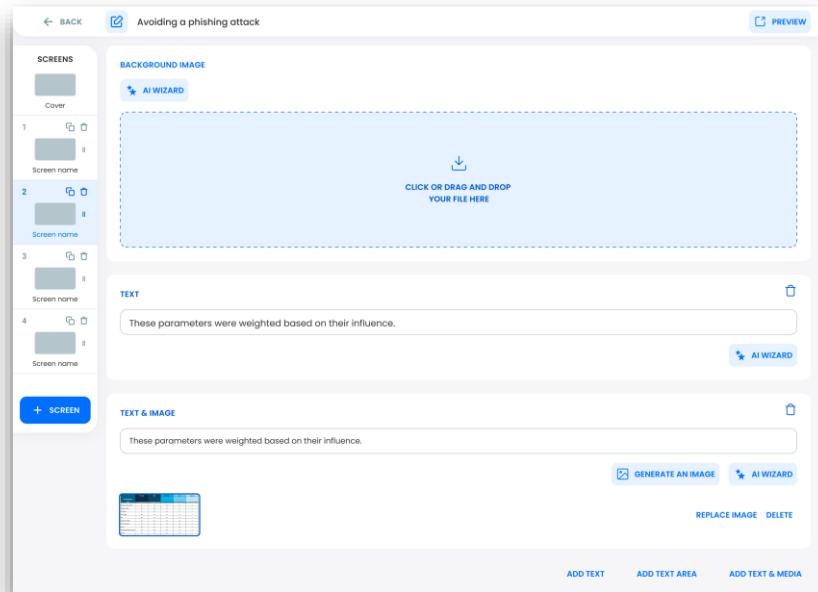
Therefore, users decide **HOW** the authoring tool should look and **WHAT** the key functionalities of the final product should be. At its core, it's a framework for developing authoring tools, enabling us to create multiple custom authoring solutions for various clients, including the **European Commission**, the **Romanian Ministry of Education**, and the **Maltese Ministry of Education**.

Key components of FLOW include:

- **Course Management** – A centralized resource repository for the entire organization, allowing trainers to create and update learning materials.
- **Templates** – The core of the authoring engine, enabling the easy creation of training activities based on pre-built templates.
- **Exporter** – All content can be downloaded or imported into other tools using the **SCORM 1.2 standard**.

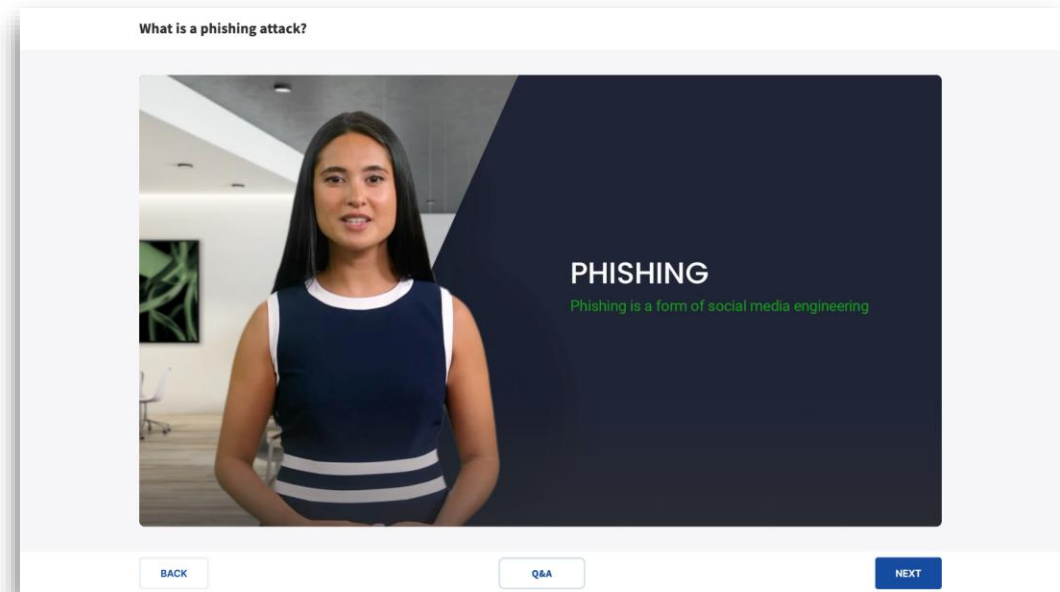
AI-Powered Authoring Tool

Edit Mode



In preview mode, trainers can easily create learning content by pasting the script into the text box on the screen. Additionally, they can add overlay resources at key points in the video, including quizzes, images, and more.

View Mode



The Authoring Tool will generate a video presentation using the entered text through our integration with the Synthesia API. Additional support for fine-tuning and script creation can be provided using our integration with the GPT-4 API.

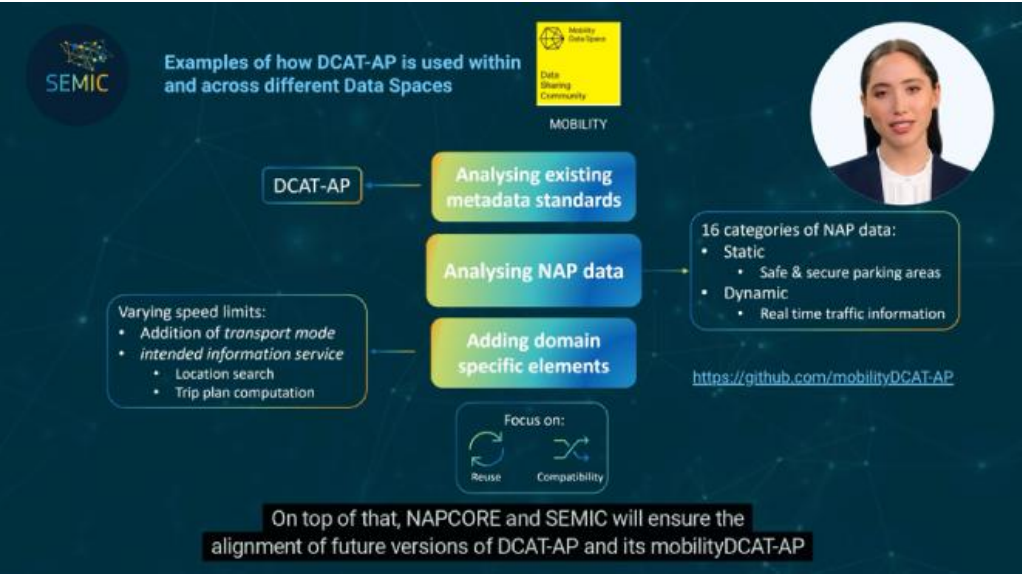
AI-Powered Authoring Tool & Virtual Experts

A **Virtual Expert** delivers the training content in a **friendly, conversational manner**, directly engaging with learners. This **interactive approach** enhances learner engagement and leads to **excellent results** in terms of information retention and the transfer of newly acquired skills to the workplace.

In addition to the expert's **verbal presentation**, **illustrated visual elements** will be displayed on the right side of the screen to further enhance the understanding of different concepts.

The courses allow learners to **select one or multiple virtual experts** from a list of **over 200 presenters**. Moreover, we can create a **custom virtual presenter** based on an internal representative of the institution, provided they **give their consent** and agree to be filmed by a **video production team**.

Fig 3-14: Video Animation Based on an AI Avatar



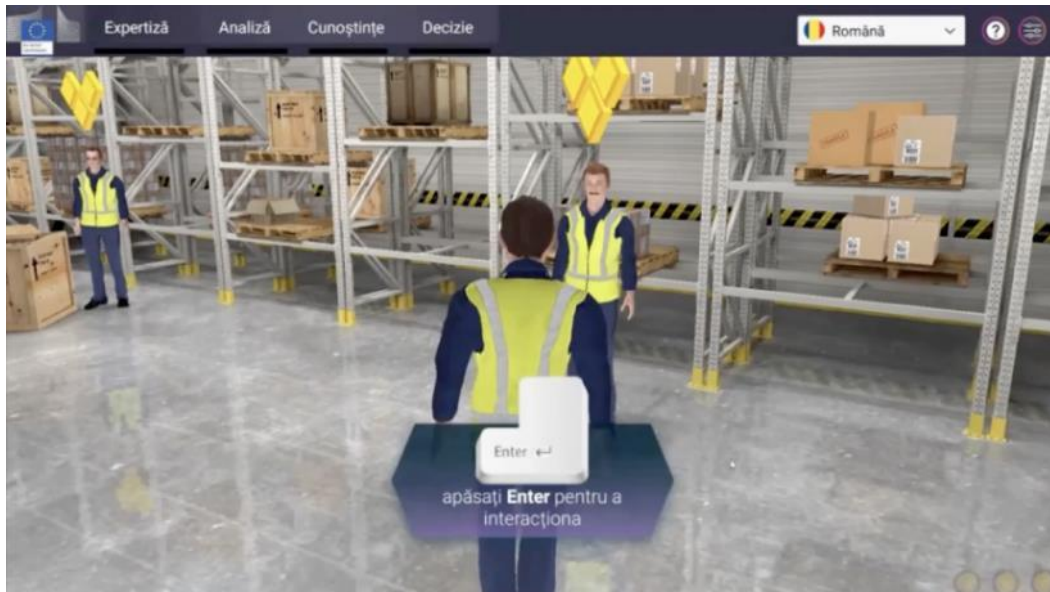
- 🚀 Production using AI Avatar
- 🚀 Easily updatable over time
- 🚀 Allows delivery of any content format
- 🚀 Allows integration of animations and visuals
- 🚀 The presentation can include interactive elements
- 🚀 The presentation can include assessment tests

Serious Games & Gamified Learning

[DG-TAXUD]

For the Directorate-General for Taxation and Customs Union of the European Commission, we developed a game-based learning solution where trainees are immersed in a realistic scenario, required to follow a set of procedures, make decisions, and find the best possible solution. The game is highly beneficial for scenarios where they need to practice handling hazardous substances, dealing with uncooperative individuals, or interacting with modern technologies (e.g., electric vehicles) for which traditional training equipment is not available.

Serious Games, where trainees must find real solutions to real problems in an immersive environment



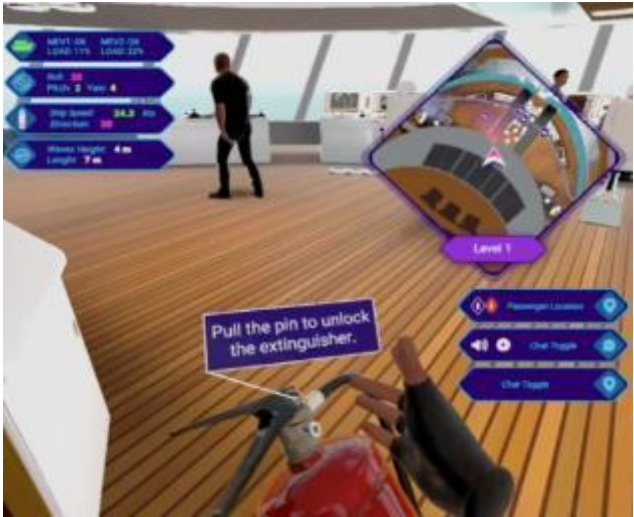
Thus, through these games, trainees will benefit from:

- 🚀 Correcting common mistakes
- 🚀 Personalized feedback on mistakes
- 🚀 Practicing in a safe environment
- 🚀 Correcting less understood concepts

XR / AR / VR Simulations

For **employee training in immersive environments**, where **real-world emulation** and **practical application of acquired skills** are essential, we have developed a **VR solution** capable of simulating any actions or work environments.

VR Applications on Various Topics



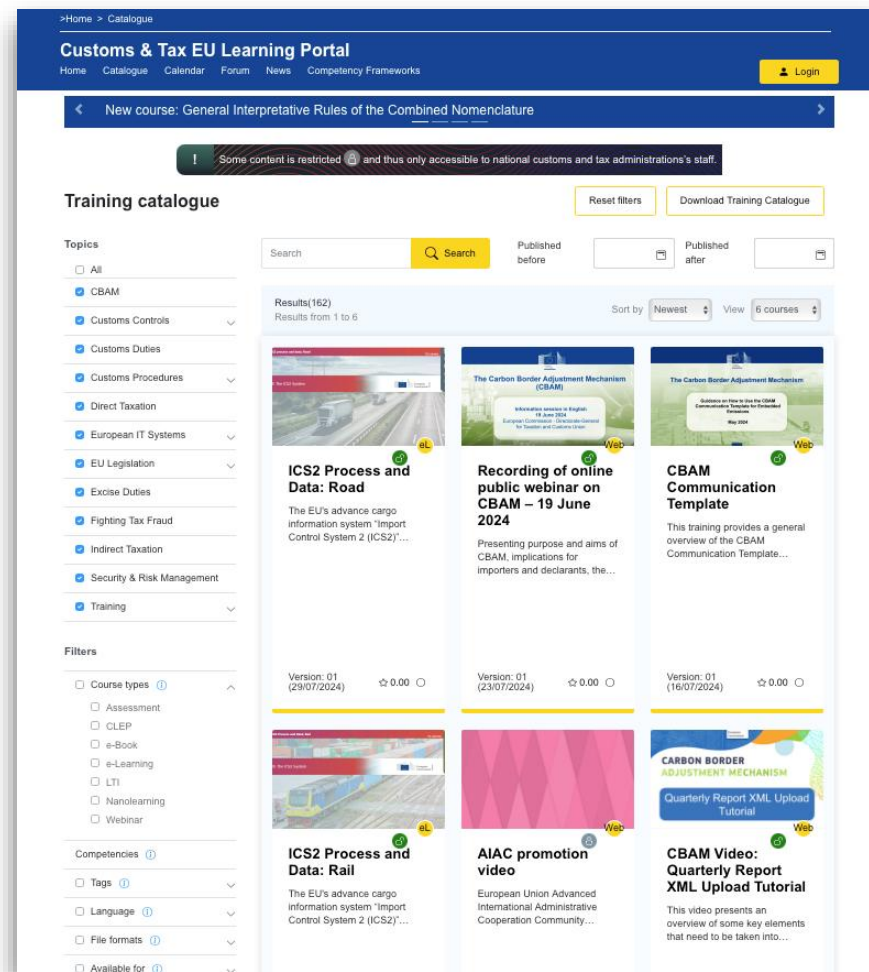
VR applications can play an essential role in activities where traditional training costs are high or where learner mistakes could have irreversible consequences. Thus, a VR application can help.

- 🚀 Reducing training costs in traditional formats (complex training environments)
- 🚀 Reducing training risks in high-risk environments
- 🚀 Reducing the number of mistakes in applying new competencies
- 🚀 Reducing the time required for employee training

Learning Experience Platform (LXP)

A Learning Experience Platform (LXP) represents an evolution of traditional Learning Management Systems (LMS), designed to emphasize user experience and personalized learning paths. **LXP not only manages educational content but also uses advanced algorithms to recommend learning materials** based on each user's interests, behavior, and needs.

- **Personalized Interface** design that adjusts to users' preferences and needs for easy navigation and quick access to relevant content
- **AI-based Recommendation Engine** to suggest courses and resources based on the user's learning history, preferences, and objectives
- **Diverse Content** through a broad range of educational materials, including videos, articles, e-books, simulations, and educational games
- **Social Features** enables interaction with other users through messaging, discussion forums, and study groups to facilitate idea exchange and collaboration
- **Advanced analytics tools** measure user progress, content effectiveness, and learning impact, providing valuable feedback to both learners and administrators
- **Mobile and Flexible Access**, allowing users to access content from mobile phones, tablets, or computers anytime, anywhere.



Awareness Campaign [SANTE]

For the training of **OECD delegates**, we created a **comprehensive onboarding experience**, where they are guided through short **animations and tutorials** on how to use all **procedures and IT systems** within the organization.

The **portal includes over 90 mini-animations**, designed to be used **on-demand**, whenever delegates have specific questions or uncertainties.

This approach **eliminates the need for formal training**, maximizing delegates' time and allowing them to focus on **learning in context**, precisely when they need the information.

Presentation on the Concept of Vaccines



STORYTELLING

VIDEO PRODUCTION WITH ACTORS

ANIMATIONS THAT VISUALLY SUPPORT THE PRESENTATION

To engage learners and ensure full course completion, we created a narrative framework that is relevant to the target audience.

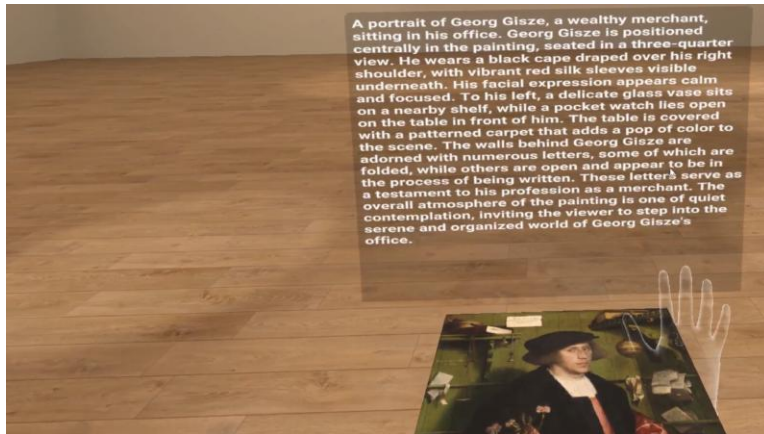
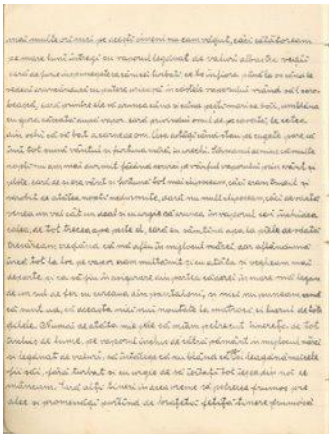
Presentation on How a Vaccine Works



SHIFT - MetamorphoSiS of cultural Heritage Into augmented hypermedia assets For enhanced accessibiliTy and inclusion

- **SIMAVI Role:** Project Coordinator, Cultural heritage platform developer and solution integrator

www.shift-europe.eu



The **SHIFT** project utilizes **AI** and **ML** technologies to enhance cultural heritage accessibility for European citizens. By integrating visual, auditory, and haptic modalities, the project **enriches interactions with cultural assets**. It develops **tools** and methodologies for contemporary descriptions of heritage using language evolution models.

SHIFT tools:

- Haptics interfaces
- Multi-modal data processing
- Digital content transformation methodologies
- Semantic representation
- Linguistic analysis of historical records



XR4ED - *eXtended Reality for Education*

- **SIMAVI's Role:** Participates in the development, verification and integration testing of the XR4ED Platform

<https://xr4ed.eu/>



XR4ED brings together the EdTech and XR communities to establish an European reference platform on learning and training with XR. It serves as a central hub for XR solutions, reinforcing Europe's leadership in education technology while upholding privacy, ethics, and inclusiveness.

The **XR4ED platform** aims to:

- Facilitate collaboration and knowledge sharing through a **marketplace for XR services**
- Promote **European XR educational solutions** via integrated catalogs and repositories
- Provide open-access tools for education stakeholders using standards like OpenXR and WebXR



SPIRIT – Synergies to Protect places of worship and Religious gaTherings

- **SIMAVI Role:** VR Simulation Platform

www.spirit-isf.eu



The **SPIRIT** project aims to enhance the preparedness and response capabilities of places of worship and religious mass gatherings in a cross-functional and multilevel setting by presenting the relevant stakeholders with **modern tools and security-by-design concepts** in a holistic, yet cohesive approach.

The **SPIRIT platform** is designed to accommodate diverse users, including law enforcement agencies, security experts, religious communities, and public safety authorities. The platform **integrates technologies such as real-time communication tools, crowd simulation modules, and a virtual reality training environment, allowing users to manage, practice, and simulate a variety of threat scenarios.**

LAW-GAME - An Interactive, Collaborative Digital Gamification Approach to Effective Experiential Training and Prediction of Criminal Actions

- **SIMAVI Role:** VR Simulator Platform, 3D Rendering of Dynamic Virtual Environments

<https://lawgame-project.eu/>



Law-Game VR Simulator is an **advanced training tool** for **police officers**, specializing in crime scene investigation, accident analysis, and counter-terrorism. It features high-fidelity textures, realistic physics, and dynamic weather for immersive training.

The simulator **integrates AI-driven modules designed with strict ethical standards**, generating unbiased, diverse scenarios.

Key Features & Innovations

- Fully immersive 3D virtual environments for training
- Complete gamified training system for LEAs
- Novel terrorist attack prevention, analysis and training framework based on serious gaming
- Comprehensive framework to measure training effectiveness.

Search and Rescue – Emerging technologies for the Early location of Entrapped victims under Collapsed Structures and Advanced Wearables for risk assessment and First Responders Safety in SAR operations

- **SIMAVI Role:** AR/VR Scenario Authoring Tool, Simulation Modules, Trainee Mobile System

www.search-and-rescue.eu



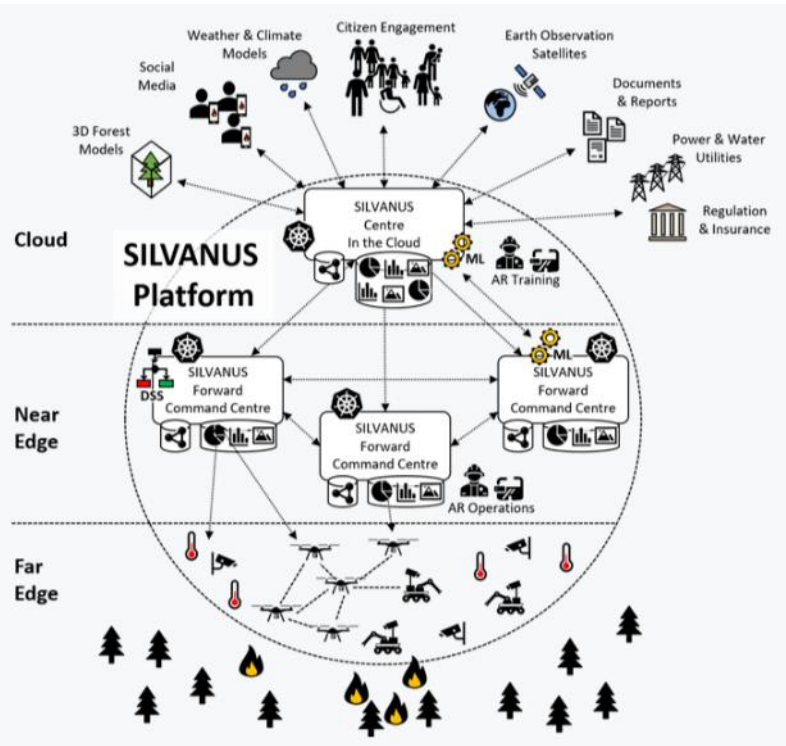
S&R aims at **equipping first responders and rescue teams with cutting-edge tools and specialized instruments to enhance their capabilities.** This S&R platform integrates advanced frontend equipment systems and backend applications, improving decision-making capabilities and delivering a dynamic, common operational picture of crisis situations.

- **Scenario Authoring Tool** supports creating a realistic simulation environment through an interactive 3D visualization component
- **Simulation Modules** allows to create, parameterize and control the simulation of specific events and threats defined by the scenario
- **Mobile Communication Systems** provides immersive communication means to operational units evolving on the field.

SILVANUS - 'Integrated Technological and Information Platform for Wildfire Management'

- **SIMAVI Role:** Authoring tool with AR/VR content curation for training firefighters, Forest fire ignition models, Pilot deployment and implementation in Romania (Rodna Mountains National Park)

<https://silvanus-project.eu/>



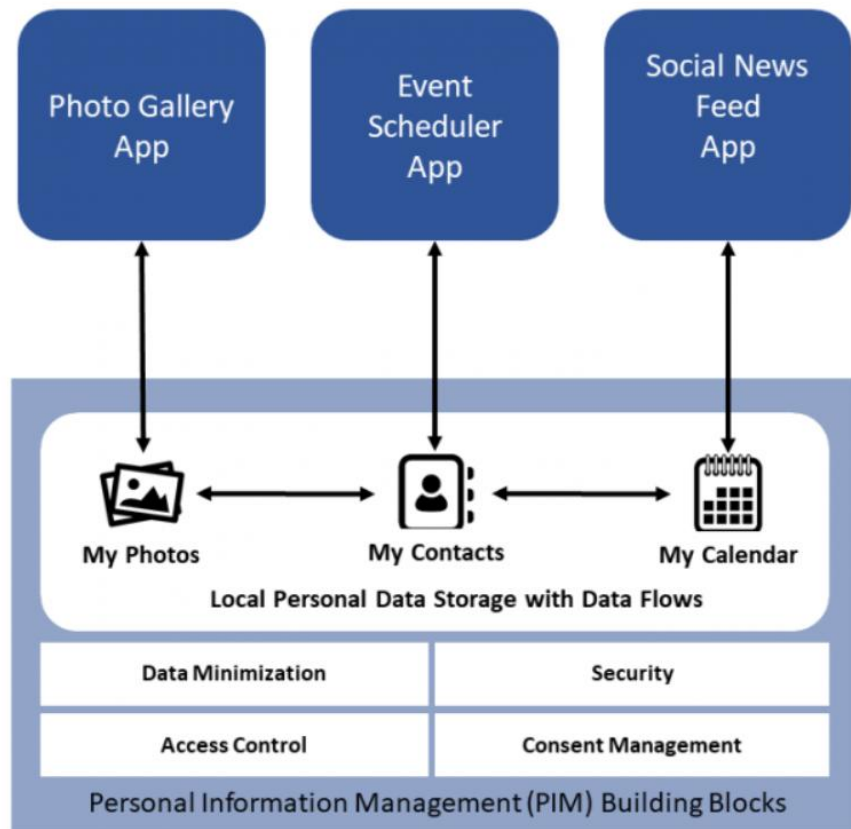
SILVANUS platform will cater to the demands of **efficient resource utilization** and **provide protection against threats of wildfires** encountered globally. SILVANUS will establish synergies between **environmental, technology and social science** experts for enhancing the ability of regional and national authorities to monitor forest resources, evaluate biodiversity, generate more accurate fire risk indicators and promote safety regulations.

The novelty of **SILVANUS** lies in the development and integration of **advanced semantic technologies** to systematically formalise the knowledge of forest administration and resource utilization. The project innovation are validated through **11 pilot demonstrations across Europe and internationally**.

ITHACA - artificial Intelligence To enhance Civic pArticipation

- **SIMAVI Role:** Contributes to tailoring the platform for democratic deliberation including citizens and gamified incentives | System Architecture Design | System Integration, testing and deployment.

www.ithaca-project.eu



ITHACA project is a ground-breaking initiative aimed at improving our understanding of the complexities and controversies surrounding the **integration of artificial intelligence (AI) in the field of civic participation**. ITHACA project promotes responsible artificial intelligence (AI) practices aligned with human rights and democratic principles. It assesses AI's potential to enhance citizens' participation in local governance and empower vulnerable groups.

ITHACA provides data governance framework, policy recommendations for embedding ethical values in AI civic engagement platforms.

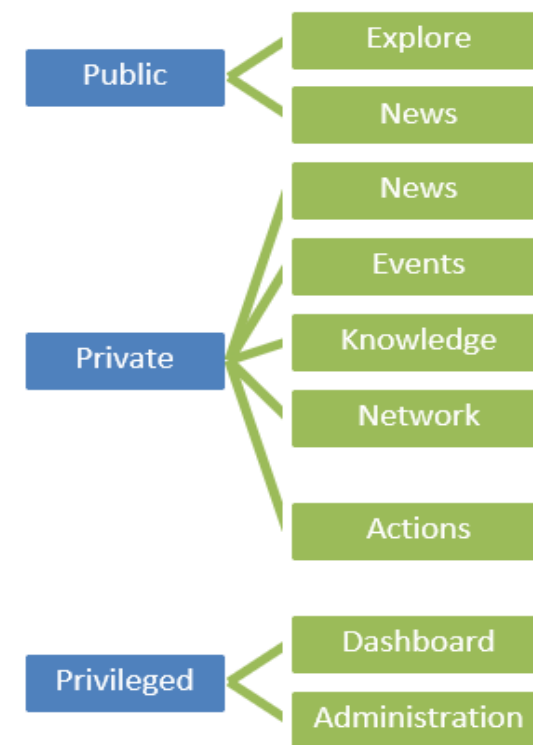
LIVING INNOVATION – ‘Implementing RRI through co-creation of smart futures with industry and citizens’

- **SIMAVI Role:** Development & Implementation of the Virtual Community Platform



In the **LIV:IN project**, major industry leaders join forces to co-create more **responsible approaches to innovation** building on the premise that **recognition of the value of RRI among industry** is necessary for achieving the aim of the call “**to progress further in integrating RRI in industrial contexts**”.

Its **Virtual Community Platform (VCP)** tackles challenges of **virtual communities** by incentivizing **collaboration**, fostering **content co-creation**, showcasing **use cases**, and accumulating **credits** based on **content creation** and **user interactions**.



SOLUTIONS & EXPERIENCE

Environmental monitoring

- ✓ GIS
- ✓ ICT Toolkit for simulating and assessing the impacts and risks of climate change
- ✓ Toolbox for Decision Support and adaptive control of air quality monitoring, Soil Pollution monitoring

Forest and Ecosystem Management

- ✓ AI based DSS for optimizing forest management decisions for a low-carbon, climate resilient future in Europe
- ✓ Platform for efficient resource utilization and prevention against global wildfire threats
- ✓ Authoring tool with AR/VR content curation

Urban Safety and Management

- ✓ Integrated toolkit for intelligent management of processes, ethics and technology for Urban Safety
- ✓ ICT framework for environmental emergency & awareness

REFERENCES:



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FLOOD-serv

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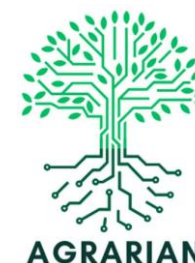
SOLUTIONS & EXPERIENCE

- ✓ **INOVAGRIA farm management system** created for managing the activity of agricultural, vegetable or animal farm
- ✓ **AI-based Decision Support Systems (DSS)** for precision farming and resource optimisation
- ✓ **Community participatory platforms/ RRI platforms**
- ✓ **Geographic Information Systems (GIS)** for mapping and spatial analysis
- ✓ **Interactive Dashboards** to provide real-time visualizations of key indicators, helping stakeholders make informed decisions
- ✓ **Digital Twin**
- ✓ **IoT platforms and real-time data collection from IoT sensors**
- ✓ **Mobile apps**
- ✓ Data driven **AR/VR/XR** immersive simulations

REFERENCES:

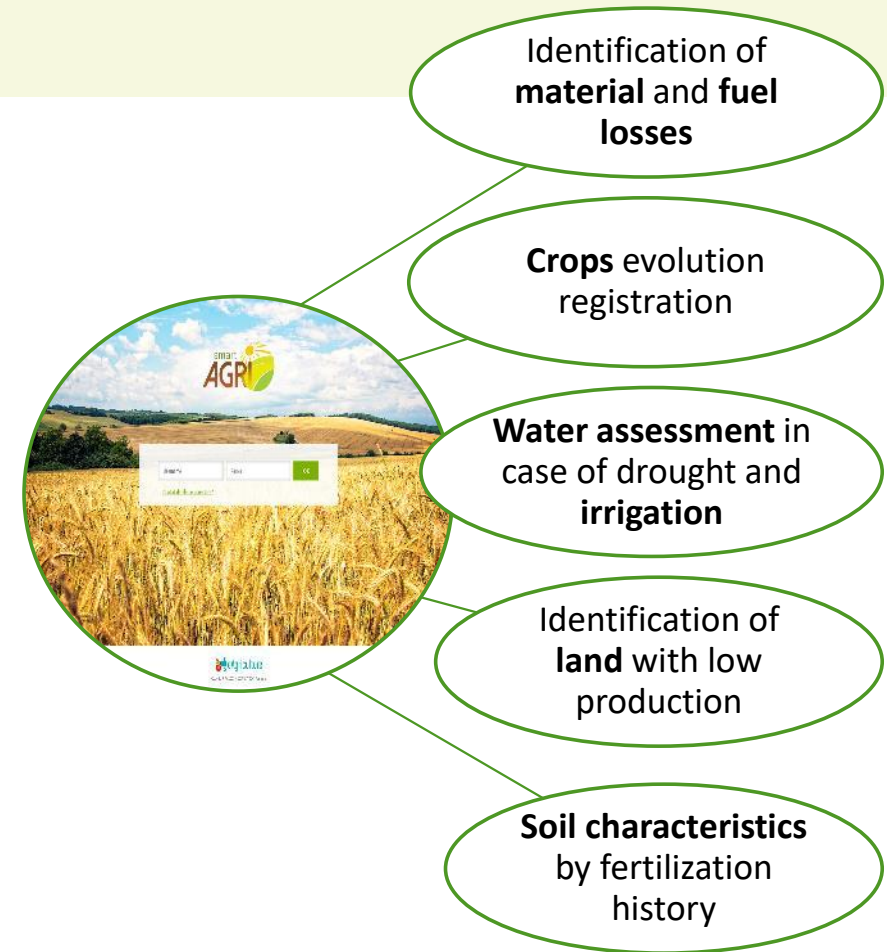
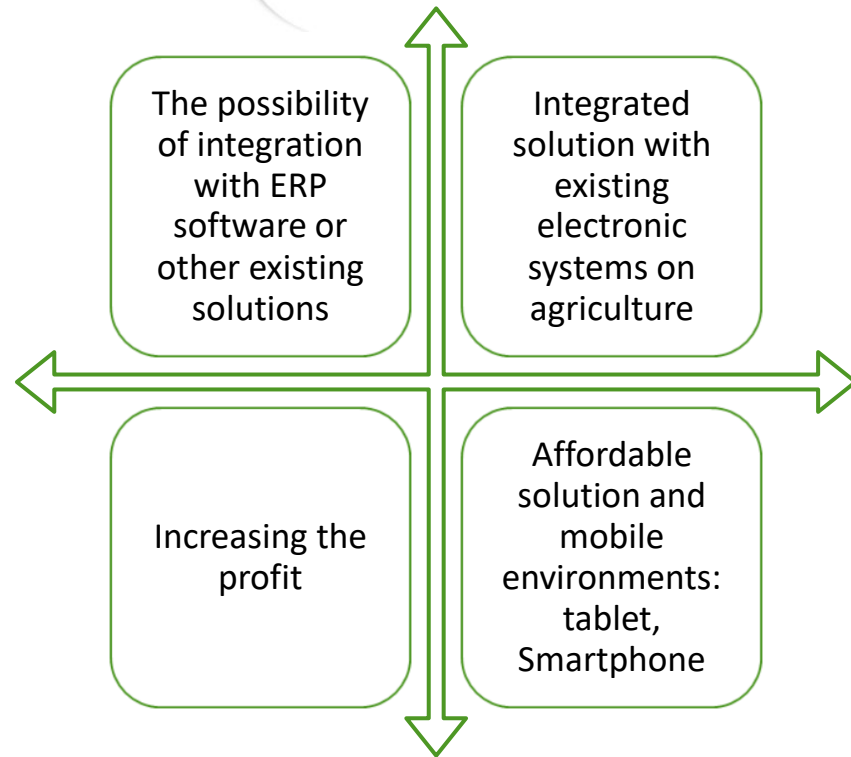


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The software created for farmers, for managing the activity of an agricultural, vegetable or animal farm



SOLUTIONS & EXPERIENCE

- ✓ **AI-based Decision Support Systems** dedicated to policymakers and communities
- ✓ **Smart City Digital Twins**
- ✓ **Data collection tool from IoT & sensors**
- ✓ **Citizen participatory platform / RRI platform**
- ✓ **Social Media Data Acquisition Engine**
- ✓ **AI-powered credit risk assessment and factoring indicators**
- ✓ **Mobile Application** for citizens engagement
- ✓ **Augmented & Virtual Reality**
- ✓ **Interactive & educational games** development, **serious games & gamification**
- ✓ **Interoperable climate-neutral** digital platform for **sustainable peri-urban transformation**
- ✓ **ICT Framework** for water ecosystems

REFERENCES:



SOLUTIONS & EXPERIENCE

✓ **IoT Platform development & Data integration from IoT sensors**

✓ **EIIS (Energy Integrated Information System)** application

✓ **Predictive Analytics** Tool to anticipate downtime, failure, critical events

✓ **Software Architecture** for small and medium distribution system operators (DSOs)

✓ **Integrated Smart GRID Cross-Functional Solutions**

✓ **Cybersecurity domain solutions** (vulnerability assessment, threat detection, risk mitigation):

- Heatmaps to represent vulnerable components or malware/intrusion activity
- Dashboard and Attack Graphs displaying how an intruder can traverse a network of nodes through vulnerabilities
- Dark Web Monitoring tool (MT) for potential threats
- SIEM (System Information Event Management) for collecting and analyzing security event data

REFERENCES:



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DEM₄PED



SOLUTIONS & EXPERIENCE

- ✓ **ICT platforms** → WhiteGoods Platform, Automotive Platform and collaborative Private Cloud Platform
- ✓ **Data collection tool** from IoT & sensors
- ✓ **AI-based Decision Support System** for manufacturing
- ✓ **AI-Analytics Designer** targeted at sustainable consumption patterns
- ✓ **Digital Twins**
- ✓ **Integration framework** for human-centric **AI multi-agent systems**
- ✓ **Analytics tool** – for process modelling, predictive downtime, failure, critical events
- ✓ **MaaS – Manufacturing as a Service**
- ✓ **Augmented Reality (AR)** based inspection and maintenance tool
- ✓ **Cybersecurity solutions** (data encryption, authentication, authorization)
- ✓ **Cloud to edge solutions**

REFERENCES:



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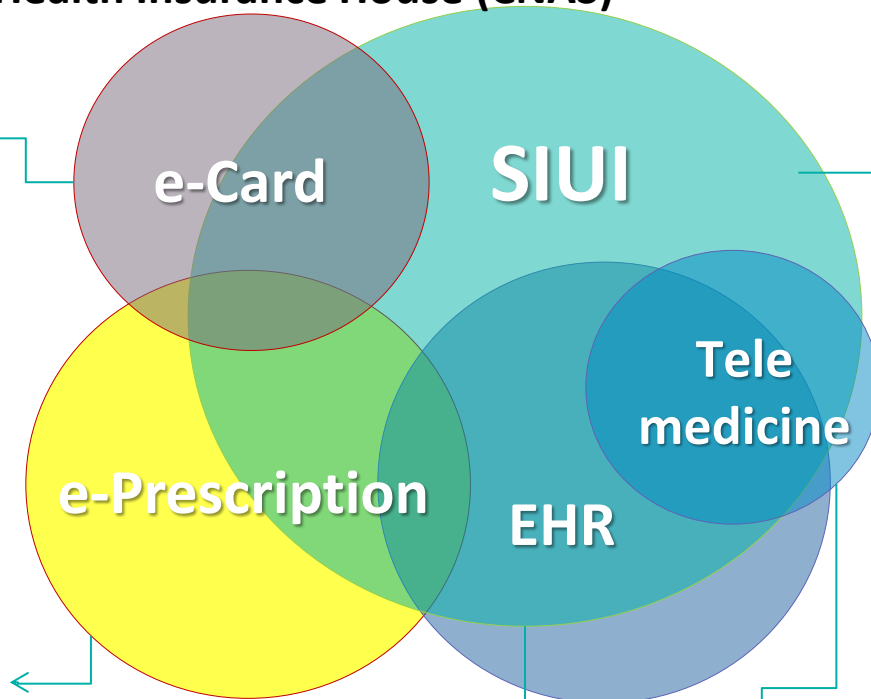
Integrated Health Information System in Romania – SIUI

Beneficiary: National Health Insurance House (CNAS)

15,5 millions
persons registered
with cards



- 150+ millions prescriptions registered in 3 years;
- 16,000 prescriptions daily.



Covers all population of Romania

- all Health Insurance County Houses
- **62,968** doctors
- **14,812** family doctors
- **111,783** nurses
- **5,799** clinical services providers
- **2,672** laboratory services providers
- **893** home care providers
- **1,126** providers of ambulatory recovery services
- **802** hospital services providers
- **179** ambulance services providers
- **302** suppliers of medical devices
- **5,398** providers of pharmaceutical services
- **6,799** dental care providers

SOLUTIONS & EXPERIENCE

Healthcare and Patient Support

- ✓ Tele-monitoring & Tele-rehabilitation applications
- ✓ Integrated and interactive Patient Care Ecosystem that supports quality of life for elderly people
- ✓ Monitoring solution for patients with neurodegenerative diseases
- ✓ Serious Games for brain training
- ✓ AR/VR for rehabilitation support

Advanced Technology Solutions

- ✓ Decision Support Tool for monitoring and controlling of air quality
- ✓ AI based DSS to foster evidence-based pain relief methods for cancer patients
- ✓ Multi-source real-world clinical information access and integration framework
- ✓ ML Anomaly Detection Component and NLP services
- ✓ Virtual Assistant and Application for Patient' Treatment Journey dedicated for healthcare professionals and carers use
- ✓ Diagnostic Support Tool to assist healthcare professionals

REFERENCES:



SOLUTIONS & EXPERIENCE

Security Infrastructures and Frameworks

- ✓ Real-time Early Detection and Alerting Framework for Operation Control Systems
- ✓ Operational Cybersecurity Risk Management Platform
- ✓ Big Data Integration Platform with real-time alerts
- ✓ Physical threat response Optimization (PTRO) tool
- ✓ Data Fusion Tool for multi-source comprehensive data view
- ✓ Analytics for real-time border event alerts

Data Acquisition, Analysis, and Visualization

- ✓ Social Media Data Acquisition Engine
- ✓ Multimedia Analysis for Crime prevention and Investigation
- ✓ Mobile apps monitoring or for on Field Guidance
- ✓ AI/ML-powered Prediction & Visual Intelligence
- ✓ Stream data collector
- ✓ Biometric data integration & analysis

Training and Skill Development

- ✓ XR Training dedicated to LEAs, First Responders and Cybersecurity experts

REFERENCES:



MARCONNECT

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CONNECTOR



PANTHEON



CONNEXIONS



SOLUTIONS & EXPERIENCE

- ✓ Adapting technologies from civil applications or addressing hybrid warfare
- ✓ Measurement and monitoring of physiological and cognitive state of soldiers
- ✓ AR/VR/XR
- ✓ Collection and sharing of **sensor data**
- ✓ **User interfaces** to help users and in particular pilots to understand and anticipate the **system behaviour**
- ✓ **Common simulation framework for wargames/combat simulations** with the potential to facilitate reinforcement learning for mission planning and execution support
- ✓ **Computer-based decision support system that leverages AI, machine learning, wargames/combat simulations and digital twins of the battlespace**

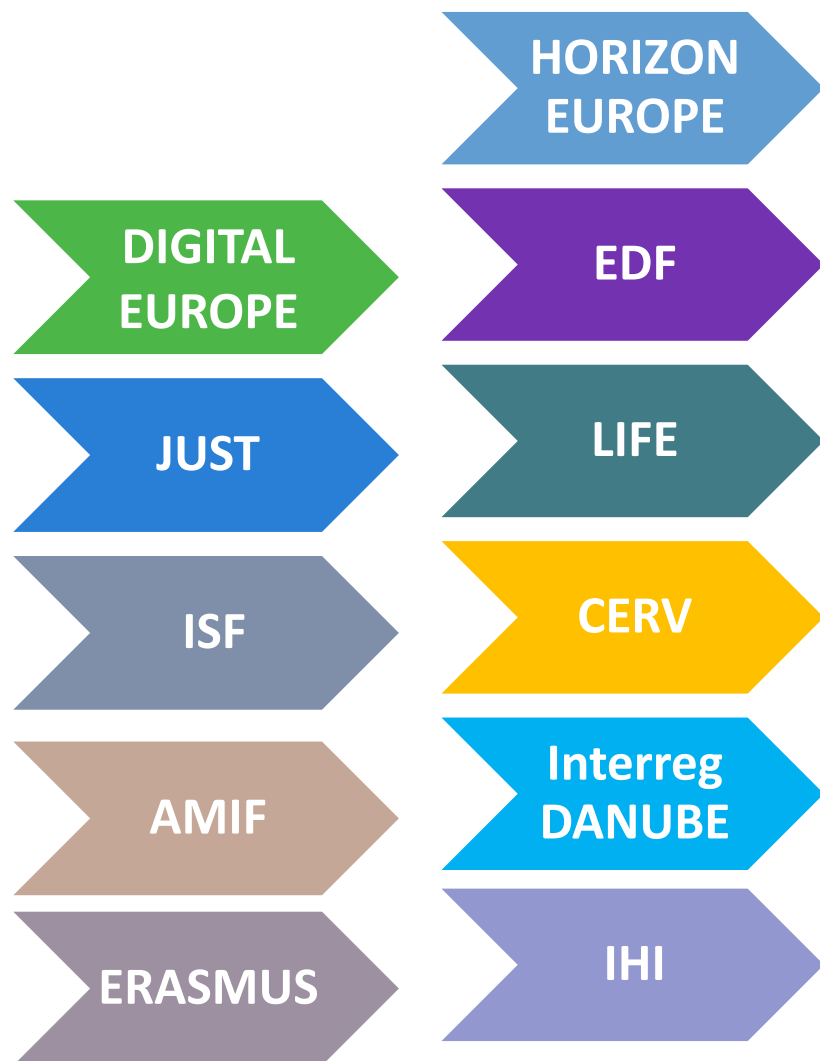
REFERENCES:



FEDERATES -
FEDeratedEcosystem of
euROpean simulation Assets
for Training and decision
Support

FEDERATES project has the objective of building the first prototype of a **European MSaaS (Modelling & Simulation as a Service) Ecosystem, to support decision making and training of European Armed Forces.** The project, led by Rheinmetall Electronics, is a multinational activity funded by the EU Commission, with the support of **15 European Nations.**

EU R&D Programs of interest



HORIZON EUROPE

- CL 1. Health
- CL 2. Culture, Creativity and Inclusive Society
- CL 3. Civil Security for Society
- CL 4. Digital, Industry and Space
- CL 5. Climate, Energy and Mobility
- CL 6. Food, Bioeconomy, Natural Resources, Agriculture and Environment

European Affiliations



Alliance for
Internet of Things
Innovation



MAGURELE SCIENCE PARK



BDV

BIG DATA VALUE
ASSOCIATION

CyberEPES Cluster



Romanian Employers' Association
of Military Equipment
Manufacturers



bridge

HORIZON 2020



Thank you!

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<https://simavi.ro/en/rd-projects>

