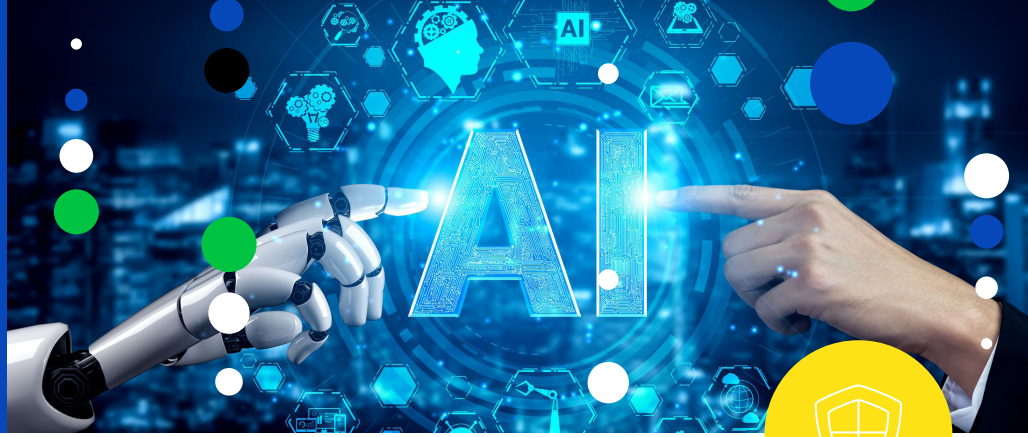
ITEA 4

Project Profile



ResilientEnterprise

Resilience-by-design for adaptive human-AI systems

The ITEA project ResilientEnterprise (Improving Enterprise Resilience with Adaptive and Explainable AI) will develop an AI-enabled resilience-by-design framework and solutions to help enterprise systems adapt to changing operational conditions, strengthen their resilience and improve decision-making across diverse enterprise environments.

Addressing the challenge

Enterprise operational environments are becoming increasingly complex and dynamic, but the human workforce is still vital to success. AI can support humans in such environments but requires oversight, especially if the AI itself is inflexible. Additionally, AI-based solutions may face challenges in responding effectively to changing operational conditions, particularly when they lack the flexibility to accommodate variability and unexpected situations. The question remains: how can AI-based solutions effectively support human and enterprise capacities to anticipate, respond to and adapt to changing operational conditions?

Proposed solutions

The answer lies in resilience, understood as the capacity to anticipate, respond to, adapt to and learn from changing or unexpected conditions. ResilientEnterprise will support this capacity through a resilience-by-design framework for solutions that build on existing adaptable AI, sensing and pattern-recognition technologies. These solutions will strengthen resilience by incorporating diverse data sources into AI training, developing incremental and/or transfer learning methods, and fostering mutual learning between humans and AI. Explainable AI models, conversational interfaces and tailored explanations will help users understand, correct and oversee AI decisions.

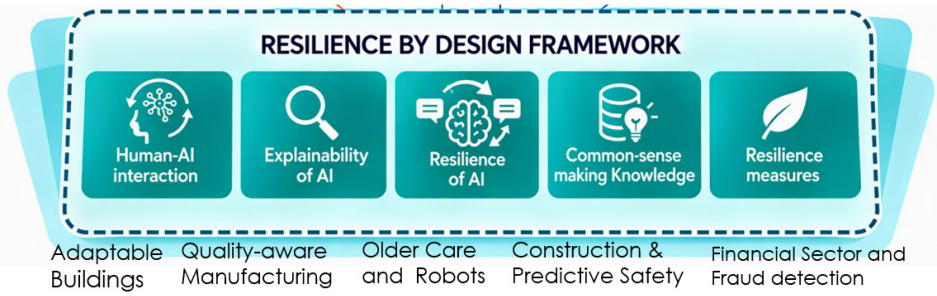
These solutions will be developed and validated across different application domains:

- Adaptive management of buildings, indoor conditions, space and energy use as occupancy, user needs and climate change challenges;
- XR-enhanced cognitive support to improve manufacturing workers' skills, quality awareness, production flexibility and adaptation to changing tasks and requirements;
- AI-supported identification and processing of financial risks and suspected fraud to make financial operations more efficient and transparent;
- Data-driven occupational and operational risk assessment and AI decision support to improve safety and adaptability in transmission line construction;
- Bedside companion robots supporting older care home residents' wellbeing and safety through conversation, routine prompts and privacy-preserving fall detection, helping care teams sustain care quality amid staffing pressures and changing needs.

Shared needs and solutions identified across these application domains will inform the resilience-by design framework introduced above, providing practical guidance for application developers.

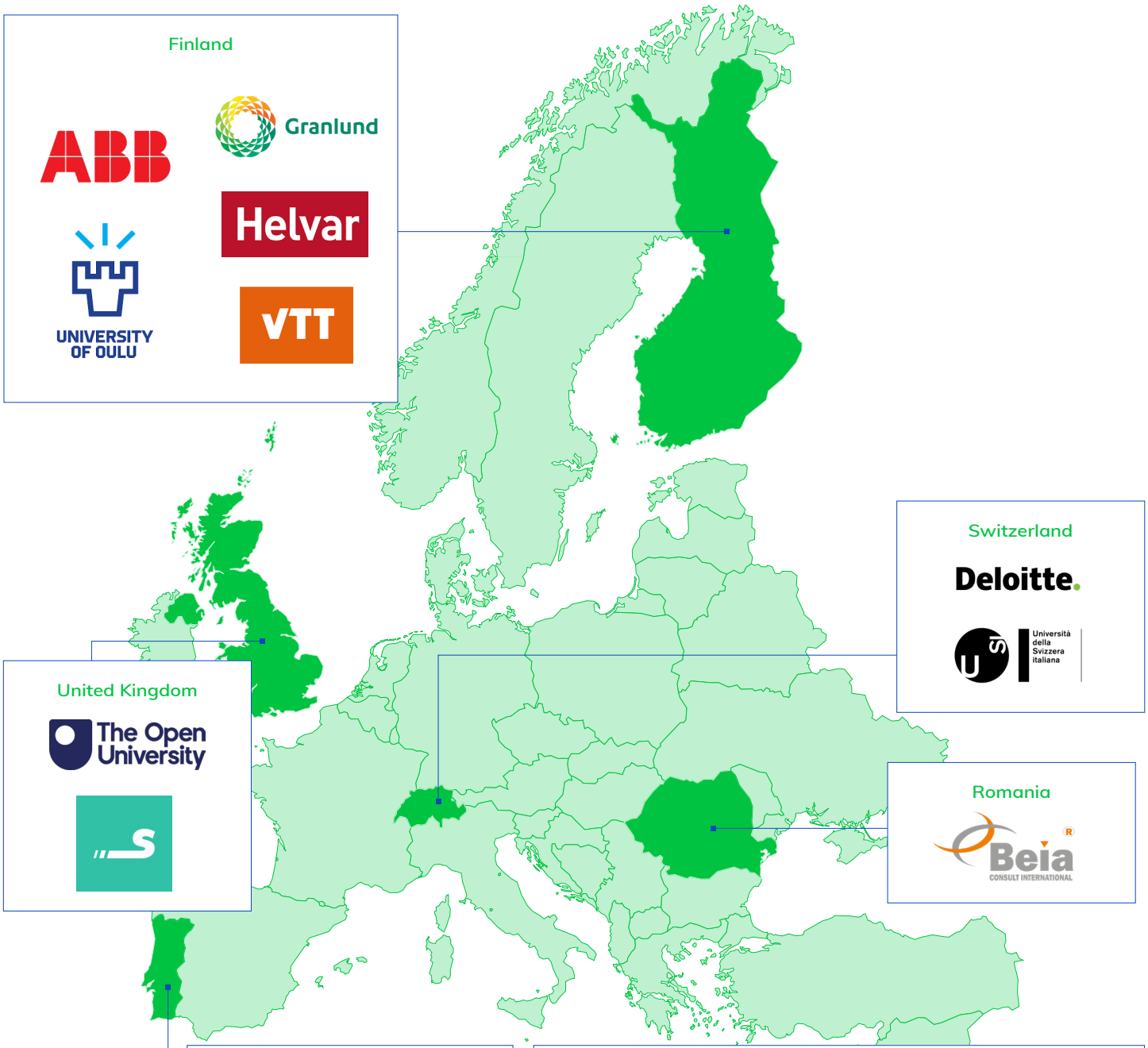
Projected results and impact

With the introduction of resilience-by-design approaches, the project aims to convert a major challenge into opportunities that support the development of the AI market, currently worth USD 100 billion and set to grow to USD 2 trillion by 2030. The selected use cases – impacting the smart buildings, manufacturing, construction, robotics and financial services – have enormous business potential for the consortium partners, by standing out in fragmented, fast-growing markets through AI-based offerings that can be adapted more quickly to diverse customers, but their results will also be generalised to update and validate the framework and facilitate the development of resilience in use cases beyond the project. This is expected to benefit individuals, organisations and society seeking to strengthen their capabilities and competencies while adapting to AI's transformative impact on their capacities.



Project partners

ResilientEnterprise
23046



Project start
November 2024

Project end
November 2028

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ITEA is the Eureka RD&I Cluster on software innovation, enabling a large international community of large industry, SMEs, start-ups, academia and customer organisations, to collaborate in funded projects that turn innovative ideas into new businesses, jobs, economic growth and benefits for society. ITEA is part of the Eureka Clusters Programme (ECP).

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