



Project Profile

Secur-e-Health

Preserving privacy in healthcare collaboration

The ITEA project Secur-e-Health (Privacy preserving cross-organisational data analysis in the healthcare sector) will integrate new approaches to digital ID technologies and privacy-preserving analysis techniques in a secure system infrastructure, establishing trust and security in cross-organisational data analysis in healthcare.

Addressing the challenge

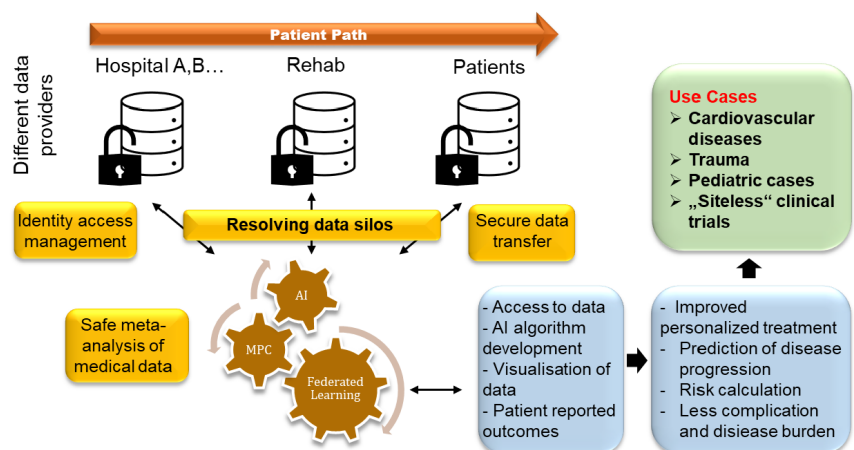
Healthcare costs, which account for 10% of EU GDP, are rising due to comorbidity and aging populations, placing an additional burden on practitioners. However, sensitive health data is often kept in silos and cannot be efficiently leveraged, leading to suboptimal care, task allocation and use of practitioner time. While technologies to address this are entering the market, an internationally integrated infrastructure that addresses digital trust and privacy in healthcare is not yet widely accepted, requiring a new approach to data analysis collaboration across segregated federations.

Proposed solutions

Secur-e-Health proposes a move to a decentralised setting in which data is analysed in a secure, distributed manner, only encrypted data and model parameters are shared, and control and privacy are mathematically enforced while ensuring transparent and auditable data transactions. This will be enabled via a fully integrated technology stack incorporating two major innovations: (1) the design and implementation of a new digital ID infrastructure with a federated identity over a distributed, decentralised and open data architecture and strong digital identification, authentication and authorisation processes to establish trust in medical data requests, and (2) the combination and advancement of state-of-the-art technologies to connect data silos, including multi-party computation in a federated learning approach, to create evidence-based predictive

models with higher accuracy. These solutions will be integrated in a secure system infrastructure with a high level of interoperability, providing a methodology to perform cross-industry analyses.

privacy-preserving cross-organisational data analysis by 25%. The knock-on effects of this include the strengthening of preventive healthcare and improvements to patient outcome, the latter of which Secur-e-Health aims to improve by 15% relative to specific treatment metrics. As 80% of premature heart diseases and strokes are preventable, for instance, a great deal of progress is possible. In the long run, this will enhance quality of life for patients and alleviate the economic burden of treatment. From a business perspective, the consortium is aiming



^ Schematic of the Secur-e-Health project, which illustrates the secure use of previously separate data sources using privacy-preserving technologies to deliver better care in a variety of settings.

Projected results and impact

By allowing medical institutions to collaborate and combine insights, Secur-e-Health is expected to significantly improve medical predictive models, data-driven treatments, clinical research and general healthcare. As this implementation is considerably more flexible, more scalable and less expensive than existing systems, the project expects to reduce the time to set up new clients by a factor of five and the time for

to increase their competitiveness and market share in a healthcare IT market worth EUR 157 billion and expected to grow at a compound annual growth rate of 15.6% until 2026. In doing so, they provide a roadmap to the rapid digital transformation of healthcare worldwide.

Project partners



Project start
November 2021

Project leader
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Project website
<https://itea4.org/project/secure-health.html>

Project end
December 2024

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ITEA is the Eureka R&D&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).

<https://itea4.org>