Objectives

- Develop scalable Secure Multiparty Computation (SMPC) schemes for AI-based health data analytics tools.
- Provide advanced Anonymization on Health datasets and AI models.
- Provide adaptable, configurable, and versatile Synthetic data-generation tools and services for health/medical synthetic data.
- Offer scalability support for SECURED health-data-related services and tools through the SECURED Federation Infrastructure.
- Integrate SECURED components in the SECURED Innohub that can offer tools, services, training and knowledge for a broad range of researchers and users.
- Evaluate the SECURED solution in terms of legal and ethical aspects, regarding cross-border use of anonymized and synthetic datasets, and AI models.
- Validation and Demonstration with four use cases involving cross-border EU health data hubs.
- Provide a viable dissemination, exploitation and business model of the SECURED solution.

SECURED Pilots

Pilot 1
(Erasmus Medical Center): Real-Time Tumor Classification

Using the SECURED architecture, this pilot expects using Ultrasound and Brain imaging to generate novel insights related to the correlation of anatomically separate but functionally connected brain regions, confirmations of previous connectivities and discovery of new ones.

Pilot 2
(Paediatric Hospital Niño Jesús): Telemonitoring for Children

Using the SECURED architecture, this pilot expects, in terms of prediction of bad evolution in oncology patients, the capability of using AI will foster the extension of telemedicine among paediatric patients, which can contribute significantly to meet goals 1, 3, 13, and 15 of 2030 Agenda for Sustainable Development.

Pilot 3
(Semmelweis University): Synthetic-Data Generation for Education

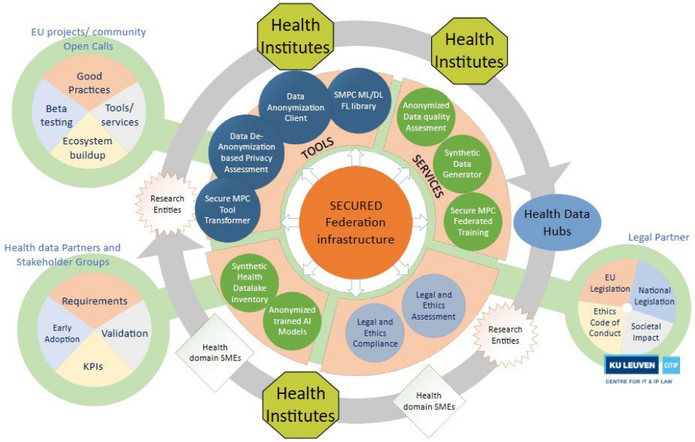
Using the SECURED architecture, this pilot expects to facilitate movement between countries and statistical data collection while protecting individual privacy, generate large amounts of synthetic data guaranteed to be GDPR compliant, educate doctors get a quick overview of millions of cases due to machine learning data synthesis instead of generalising from a single cases and finally doctors integrate machine learning tools into their daily practice.

Pilot 4
(Josep Carreras Leukaemia Research Institute): Access to Genomic Data

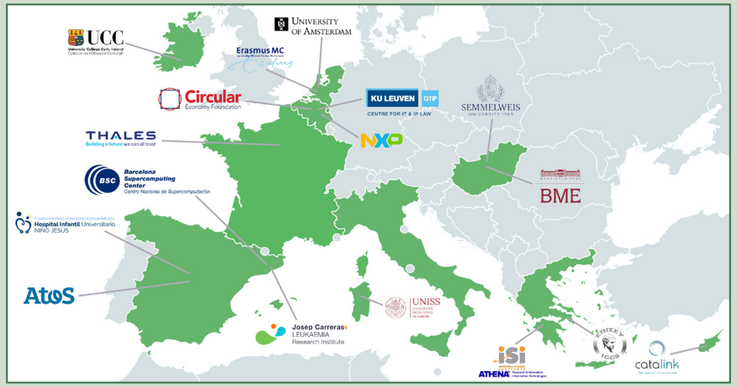
During this pilot, SECURED's federated learning system will allow researchers to train their models on all existing genetic data without the need of spending months preparing the paperwork to access it while, at the same time, preserving patient privacy, will transform the way genetics research is currently done.

SECURED Innohub

In SECURED, we aim to create and manage a Privacy-enhancing Hub (the SECURED InnoHub) that will provide tools, services, and overall support to external involved third parties of the healthcare domain, including researchers, Innovators or Health Data users as well as EU data Hubs across Europe, thus facilitating them to perform accurate data analytics in a distributed and private matter. The SECURED hub is also meant to promote collaboration among parties by acting as a one stop collaboration point for involved parties to share results and collaboratively shape/enhance their expertise through the Hub with others in a privacy-preserving matter. Given that the dominant health data analytics underlined technology is Machine Learning and Deep Learning intelligence, we focus our data analytics tools and services on enhancing the privacy of ML/DL solutions by offering a secure multiparty computation-capable toolbox that can operate in various modes under a SECURED Federation infrastructure. The end goal of the SECURED hub is to bring together providers and consumers of health data and offer them a trusted, secure and privacy-preserving environment to research, test their solutions and to collaborate.



Consortium



Project info

Start: 01.01.2023
Duration: 36 months
Participating Organisations: 17
Number of countries: 9
Project acronym: SECURED
Call: HORIZON-HLTH-2022-IND-13
Topic: HORIZON-HLTH-2022-IND-13-02
Type of action: HORIZON Research and Innovation Actions
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SECURED
EU Project

Scaling Up Secure Processing, Anonymization and Generation of Health Data for EU Cross Border Collaborative Research and Innovation

Overview

In SECURED, we offer a one stop collaboration hub, the SECURED Innohub, that can provide a secure environment for decentralized, cooperative processing of health data through SMPC techniques as well as generation of new, synthetic data and anonymization tools to health data providers and users.

Our goal is to facilitate the broad adoption of health datasets across Europe by making the interconnection between EU health data hubs, the health data analytics research community, health application innovators, and end users.

The SECURED vision is to kick start an EU cross-border health data collaboration ecosystem for data providers, data researchers and innovators that will be able to produce new AI based data analytics solutions and stem innovation.