

Architecture and technologies

The SOFIE open federated platform approach combines various competencies.

Aalto University is leading the design of the SOFIE architecture, including the exploitation of interledger protocols and various adapters between open and closed IoT platforms and the SOFIE open federation.

Ericsson is responsible for the integration of the framework with business platforms. AUEB will evaluate the architecture, framework, and systems, including pilot data and results.

Particular attention, from both the architectural and implementation perspective, is given to openness, security, privacy and control of the data by end users or systems.

Project Consortium

Aalto University	Finland
ASM Terni SPA	Italy
Athens University of Economics and Business	Greece
Emotion SRL	Italy
Engineering Ingegneria Informatica SPA	Italy
Ericsson	Finland
Guardtime AS	Estonia
Optimum Anonimi Etairia Technologies Pliroforikis	Greece
Rovio Entertainment Corporation	Finland
Synelixis Solutions SA	Greece

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**Secure
Open
Federation for
Internet
Everywhere**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 779984.

The major challenge in the evolving IoT world is the fragmentation of vertically oriented, closed systems and architectures dedicated to specific application areas. The SOFIE project aims to develop a blockchain driven federated platform for enabling information exchange of different IoTs and data silos. Secure open federation is the key concept of the SOFIE approach. The aim is to enable creation of business platforms, based on existing IoT platforms and distributed ledgers, without needing to negotiate with any gatekeepers. The wide applicability of the approach is tested through four pilots.

Our objectives

Define a secure, open, decentralised and scalable IoT federation architecture for sensing, actuation, and smart behaviour with support for interworking across different Distributed Ledger Technologies.

Make IoT data and actuation accessible across applications and IoT platforms in a secure and controlled way.

Develop a solution that ensures integrity, confidentiality, privacy and auditability of data and transactions, with support for smart contracts.

Demonstrate SOFIE's concept and technologies through the:

Development of an IoT federation framework that facilitates the creation of federated IoT business platforms

Deployment and evaluation of the SOFIE federation framework in four pilots

Pilots

Italy - Engineering, as technological provider, together with Emotion and ASM Terni as users, is implementing a real-field pilot which will demonstrate the capability of creating smart micro-contracts and micro-payments in a fully distributed energy marketplace.

Finland - Rovio is exploring, through demonstration games, the potential for mixed reality gaming, by exploiting the real world via sensors and actuators, while also investigating the potential for trading of virtual goods among gamers and other parties.

Greece - Synelixis and Optimum are implementing a food chain pilot which utilizes IoT infrastructure to cover the whole path from 'field-to-fork,' providing consumers, traders, transporters, and producers with a thorough and secure insight into the complete supply-chain history of the product.

Estonia - Guardtime is implementing an energy pilot, which will demonstrate how the SOFIE federated framework can be used for providing reliable data feeds and exchange power consumption information among energy grid participants in order to allow new flexible services based on smart meter data.

