



Project Consortium

Fraunhofer FIT
Germany - Project Manager

Boston Scientific Limited
Ireland - Pilot Site

KLEEMANN
Greece - Pilot Site

CNet Svenska AB
Sweden - Technical Coordinator

Nextworks
Italy - IoT Expert

ELDIA SA
Greece - Pilot Site

Tyndall National Institute
Ireland - Hardware Developer

In-JeT ApS
Denmark - Innovation and Quality Manager

Center for Research and Technology Hellas
Greece - Modelling and Simulation

Atlantis Engineering SA
Greece - Dissemination Manager

Istituto Superiore Mario Boella
Italy - Marketplace and Machine Learning

Atos Spain SA
Spain - Security Expert



COMPOSITION

Ecosystem for optimising production and external collaboration in manufacturing

The COMPOSITION project is developing a digital ecosystem which helps factories optimise internal production processes and external collaboration with suppliers by putting existing data, knowledge and tools into play.

Manufacturing companies are offered a digital automation framework which enables its users to connect and integrate data across the value chain, providing analysis, forecasting and decision support for an optimal production process.

On top of this, COMPOSITION will connect factories with its suppliers in a virtual market, making it possible to fulfil actual production needs and open up for new collaborations, with security, privacy and data protection by design.

The technologies will be trialled in the production of pacemakers in Ireland and in the production of lifts in Greece to document the versatility of the system.



The COMPOSITION ecosystem



The COMPOSITION ecosystem consists of an Integrated Information Management System (IIMS) for optimising internal production processes and a technical operating system connecting the IIMS of factories in a virtual market for new, innovative collaborations.

The COMPOSITION IIMS is developed on digital models of business and production processes. It encompasses a set of core, multi-disciplinary and multi-domain integrated features such as interoperability, data fusion, big data analytics, simulation/forecasting, advanced human-machine-interaction, Cyber Physical Systems and Internet of Things.

The COMPOSITION marketplace is a technical operating system for connected factories where Agents with sufficient negotiation rights will discover, set up and coordinate several partners in fulfilling given production needs in a dynamic product line.

Integrating machines and complex data

An innovative library of open, standard connectors is developed, to ease the integration and coupling of real-time data, information and knowledge from existing, heterogeneous sources in the factory.

Tools for analysis and decision support

A core set of data management and analytics tools is deployed, detecting complex patterns in manufacturing big data sets. COMPOSITION will also implement a deep learning toolkit for re-adaptation and adjustments of operational metrics, in real time. On top of this, a Decision Support System will help users build the digital models of processes and products and to forecast what impact the re-configurations of the production process has.

Security, privacy and data protection by design

End-to-end security for trusted data exchange based on block-chain technology and authorised agents will guarantee the security, confidentiality, integrity and availability of required information for all authorised stakeholders in the supply chain.

Collaboration in lift production

In KLEEMANN's lift production plant in Kilkis, Greece, COMPOSITION technologies are also deployed to optimise the internal production processes. However, the main focus is on the interaction between different companies in the production.



The objective is to design and implement a technical operating system, connecting data between the factory and its suppliers. Together with its current supplier ELDIA, KLEEMANN will be looking at the existing logistics processes of waste management in the manufacturing of lifts.

However, the aim is also to create a virtual marketplace where new, third party actors can access and share relevant information and offer new services which can help improve different production elements such as cycle time, cost, flexibility or resource usage.

Whereas cost-benefit analysis will be the main driver for the internal production processes, new innovative business models will be the main point of interest in dealing with the supply chain.

The two pilots will demonstrate and validate the COMPOSITION ecosystem and its impact on real business, laying the ground for a wider European uptake.

Feel free to contact us

COMPOSITION unites 12 organisations from seven countries and constitutes a strong, multi-disciplinary team, mixing industrial, research, technology and business expertise.

For more information about the project and how to reach us, please visit our website: www.composition-project.eu or contact our Project Coordinator, Markus Eisenhauer: markus.eisenhauer@fit.fraunhofer.de

Producing pacemakers and defibrillators



One of the two pilots in COMPOSITION is the medical production plant in Clonmel, Ireland, owned by Boston Scientific Limited.

Here, focus is on the production of pacemakers and defibrillators and how COMPOSITION can help to optimise the manufacturing processes, productivity and the ability to adapt to the current markets.

COMPOSITION will be used to collect, connect and visualise the complex and heterogenous data from the different machines in the value chain to identify knowledge gaps and enable a more efficient planning.

