domOS

**OPERATING SYSTEM
FOR SMART SERVICES IN BUILDINGS**

OBJECTIVES

Design an open, secure, multi-service Internet of Things (IoT) ecosystem for smart buildings.

Enable interoperability of data and services for smart buildings through ontologies.

Increase energy performance through smart services.

Demonstrate and evaluate smart services deployed on IoT ecosystem compatible IoT frameworks.

DEMONSTRATORS

Demonstrators play a key role in **domOS** project: their requirements drive the design of the domOS ecosystem, and they host domOS compliant IoT platforms.

Each demonstrated service brings its contribution to more energy-efficient, more flexible and more prosumer-friendly energy systems. The ecosystem aims at simplifying their development and deployment in the context of buildings equipped with various appliances and devices.
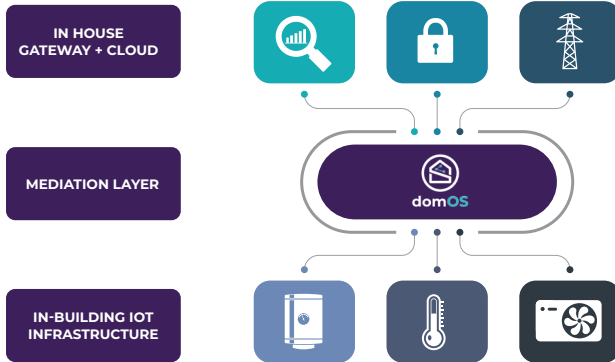
Read more about the five domOS demonstrators on our website:

www.domos-project.eu/demonstrators
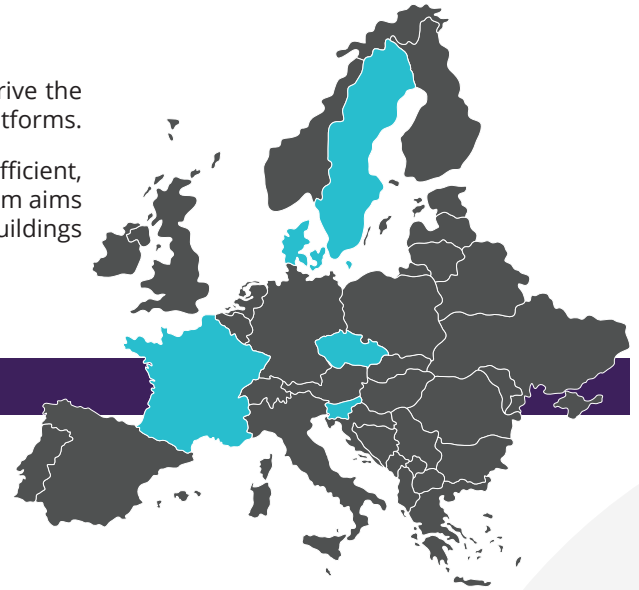
SERVICES: ORCHESTRATION OF SMART READY TECHNOLOGIES

IN HOUSE GATEWAY + CLOUD

MEDIATION LAYER

domOS

IN-BUILDING IOT INFRASTRUCTURE

"SMART READY TECHNOLOGIES": DIGITAL ICT DEVICES, PHYSICAL PRODUCTS OR A COMBINATION OF THEREOF

APPROACH

Digitalisation in existing buildings is not as widespread as in other sectors. Consequently, building owners and occupants generally have a limited understanding of their building as an **energy system**. Improving the energy efficiency of existing buildings can and should be achieved through deep renovation. In comparison, **smart technologies** can increase the efficiency and flexibility of buildings in a shorter term and with much fewer investments.

PLATFORMS

The **domOS ecosystem** is a specification based on existing and emerging IoT standards that allows smart services for buildings to be decoupled from the underlying appliances and devices in buildings.

In the frame of the project, three platforms have been upgraded to the **domOS** ecosystem specification: **cloud.iO, domOS-Arrowhead and S-IOT.**

cloud.iO is a scalable open-source **Internet of Things solution** supporting the connection of a huge number of devices ("things") to a central cloud platform. It enables applications to monitor and control things in real-time and to access the history of measurements and setpoints.

Using state-of-the-art encryption and certificate-based authentication for all connections (things and applications) and offering flexible privacy management, **cloud.iO** is the ideal mediation platform between distributed things and applications.

domOS-Arrowhead is a scalable open platform for enabling smart services (applications) to access domestic buildings and their installed devices.

It is a software layer that acts as a mediator between the service, the building, and the devices and enforces access control.

An instance of the platform will be run, administrated, and hosted by a platform operator (role). The building owner (role) manages the building, the devices, and access rights. The **domOS-Arrowhead** platform uses the Arrowhead SOA industrial automation framework as a foundation to implement its services.
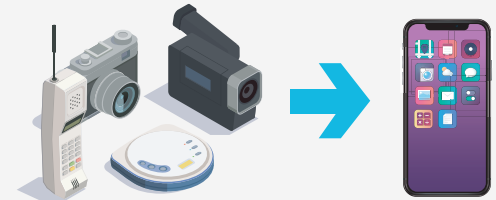

domOS-ARROWHEAD

S-IOT is a novel, decentralized approach to building **IoT systems.**

Appmodule developed **S-IOT**, considering the high security, availability, redundancy, and real-time requirements of mission-critical systems like smart grids.

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COORDINATOR

Hes·so
University of Applied Sciences and Arts
Western Switzerland

PARTNERS

Research consortium with ten partners from five different Europen countries:

Aalborg Forsyning

INEA

aliunid

eDF

AALBORG UNIVERSITY

csem
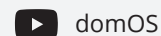
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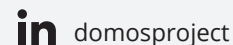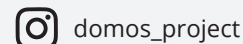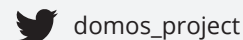tvořivost nad technologií

OIKEN

NEOGRID
TECHNOLOGIES

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