

# ITEA project results enhancing people's lives

## Security of Smart Buildings: saving energy and lives!

Imagine, a malicious hacker is taking over the heating, ventilation and air conditioning system from a hospital, changing the temperature in such a way that diseases can easily spread in the hospital, where people actually are supposed to be healed. A bit of a scary scenario, but with all the equipment and facilities more and more connected to make the systems smart and save a lot of energy, this has become a serious threat that needs to be taken into account. Should we then be afraid to go to a hospital now? Luckily not, as also cybersecurity champions are becoming increasingly successful in addressing these issues. And one of these success stories can be found in the FUSE-IT project.

FUSE-IT addressed the need for sustainable, reliable, user-friendly, efficient, safe and secure Building Management Systems in the context of Smart Critical Sites. From a site management perspective, it solves the dilemma between efficiency and security in intelligent buildings. At the user level, a smart unified building management interface enables the daily monitoring and control of a building, while a full security management interface enables supervision of both physical and logical security throughout the premises. And at the end-user level, this can save both energy and lives, not to mention operation and maintenance costs!

To achieve this, the project developed a Smart Secured Building System, resulting from cross-domain innovation between energy, facility, ICT and security activities that are traditionally very segmented. The system can be deployed as standalone components, as a fully integrated system or as a service. Innovative business models have been defined to provide holistic building management and security monitoring either as a turnkey system for customer-lead operation, as a passive remote monitoring service for decision support, or as fully outsourced control service with binding Service Level Agreement (SLA).

The hospital attack scenario has been demonstrated in Centro Hospitalar São João (CHS) in Porto, Portugal, one of the FUSE-IT partners. A complete surgery floor of CHS with inpatient rooms, technical room, kitchen, nursery office, access to HVAC and power system were provided for the demonstration. This live environment enabled to demonstrate interoperability between legacy equipment and smart IoT sensors, deployed under severe health and safety constraints. The defensive capabilities proved efficient in ensuring detection, alerting, decision support, response and recovery against a complex attack scenario involving physical intrusion, power system hacking, HVAC system hacking, and biological threat.

Thanks to the FUSE-IT project, hospitals can now continue to save energy by using smart grids and IoT and at the same time be protected against cyberattacks and thereby protect their patients' lives.

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