Smart2B

Smartness to existing Buildings

This project has recieved funding from the European Union's Horizon 2020 research and innovation programme under Grant agreement no. 101023666.

Smart2B is a project funded by the European Commission in the Horizon 2020 framework, under the Call H2020-LC-SC3-2018-2019-2020 **(BUILDING A LOW-CARBON, CLIMATE RESILIENT FUTURE: SECURE, CLEAN AND EFFICIENT ENERGY).**

Starting in September 2021 and for the following 36 months of activities, 11 partners will collaborate to develop new software and hardware solutions for automated management and control of legacy equipment and appliances in order to upgrade smartness levels of existing buildings.

NEEDS

It's a fact that residential and commercial buildings are among the major contributors to energy consumption (and waste) as well as CO2 emissions.
Designing new energy efficient buildings and renovating existing ones integrating environmental sustainability as a key design principle is surely a solution. However, with average renovation rates of less than 1% of the EU building stock, are we sure we can afford waiting so long before taking action?
An obvious solution would be to turn existing buildings into smart buildings, which requires orchestration of different types of communication and control of hardware/software components at the building level through real-time monitoring and control of the major energy consuming appliances in buildings. However, in contrast to modern smart devices and systems with shorter lifecycles, legacy appliances and technical building equipment lack smartness capabilities, significantly limiting the effectiveness of advanced AI and Machine Learning (ML) services which enable this intelligent monitoring and control. Therefore, upgrading the smart readiness of legacy appliances and technical building equipment is a key challenge in enabling more energy efficient buildings and communities.

OBJECTIVES

Smart2B's aim is to make existing building smarter by developing software and hardware solutions for automated management and control of legacy equipment and appliances. Besides, since we are aware that the transition towards more sustainable buildings is impossible without the active engagement of people who live them, we will implement community-based gamification mechanisms to stimulate users to improve buildings' energy performance, creating a user-centric ecosystem that empowers citizens by simplifying equipment and device control and providing information about overall energy performance.

Smart2B is designed to innovate the three main layers of buildings' energy infrastructure:

DEVICE LAYER
Legacy and smart devices, appliances, IoT sensors and actuators will all be seamlessly inter-connected through Smart2B devices, which allow them to exchange data with the platform.

PLATFORM LAYER
The core "operating system" of the building, featuring machine learning based big-data analytics, predictive analysis, and overall management of the entire infrastructure.

SERVICE LAYER
The Smart2B services toolbox will include multi-criteria management services, namely load scheduling, local energy efficiency, energy flexibility and indoor comfort assessment as well as transversal services, such as energy profiling and energy forecasting, user-in-the-loop actuation, predictive degradation assessment, air quality assessment and smart performance assessment & advisor.

01 TECHNICAL IMPACT
- Energy efficiency increase up to 40%
- Flexibility potential up to 50%
- Smartness upgrades up to 93%

02 ENVIRONMENTAL IMPACT
- CO_2 emission reduction >2GtCO_2
- Primary energy savings 7,4 GWh/year
- More efficient building management
- Low-carbon technologies

03 SOCIAL IMPACT
- Creation & promotion of CECs
- Creation of jobs & knowledge in EU
- Enhancing EU innovation capacity

EDP - PROJECT COORDINATOR

Project Coordinator of Smart2B, that also focuses on the demonstration and evaluation of the Smart2B concept and gives contributions throughout the project, namely in the development of the business model and the economic evaluation, exploitation and replication.

- Project Management activities.
- Contributes to the dissemination and communication by hosting several events, including the final conference of the project.

ALBERTSLUND KOMMUNE

- Demonstration host of the Smart2B concept for residential pilot in cold climate.
- Operational experiments and monitoring.

THE SANTA CASA DA MISERICÓRDIA DE LISBOA

- Influence young residents and employee's behavior and sensitivity towards upgrading the smartness of their building.
- Inform them of the benefits of forming citizen energy communities with other buildings in and outside the organization.

CENTRE FOR RESEARCH AND TECHNOLOGY-HELLAS

- Main responsible for the delivery of the HolisticMulti-criteria building load scheduling service.
- Management of the web-presence and the social media pages of the project.

RWTH AACHEN UNIVERSITY

- Definition and integrated into a holistic overall concept of all specifications and requirements of the technical and socio-economic solutions developed within the project
- Development of control strategies, predictive and adaptive control and by integrating the methods into a holistic building energy management system.

GRAZ UNIVERSITY OF TECHNOLOGY

- Actively integrating user feedback and preferences as well as requests from the grid in the holistic building control.
- Implementation of an integrated service toolbox – Smart2B services for holistic building management.

FCIÊNCIAS.ID

- Work on the smart performance assessment framework.
- Core participation in the development of the Smart2B platform and in the development of the Smart2B services.

VITO

- Focus on the development of the Smart2B services.
- Definition of a demonstration framework and KPIs to evaluate Smart2B concept and business models.

ODIN SOLUTIONS

- Implementation of the Smart2B Platform to enable the seamless integration of building equipment and systems, as well as the knowledge extraction in order to facilitate the services development.
- Development of data models, automatic semantic and filtering.

ENERBRAIN

- Develop new plug & play devices, enabling the flexible implementation of energy and non-energy services in the Smart2B project in commercial pilot sites in cold climate.
- Perform the compliance and certifications for the developed products.

DAY ONE

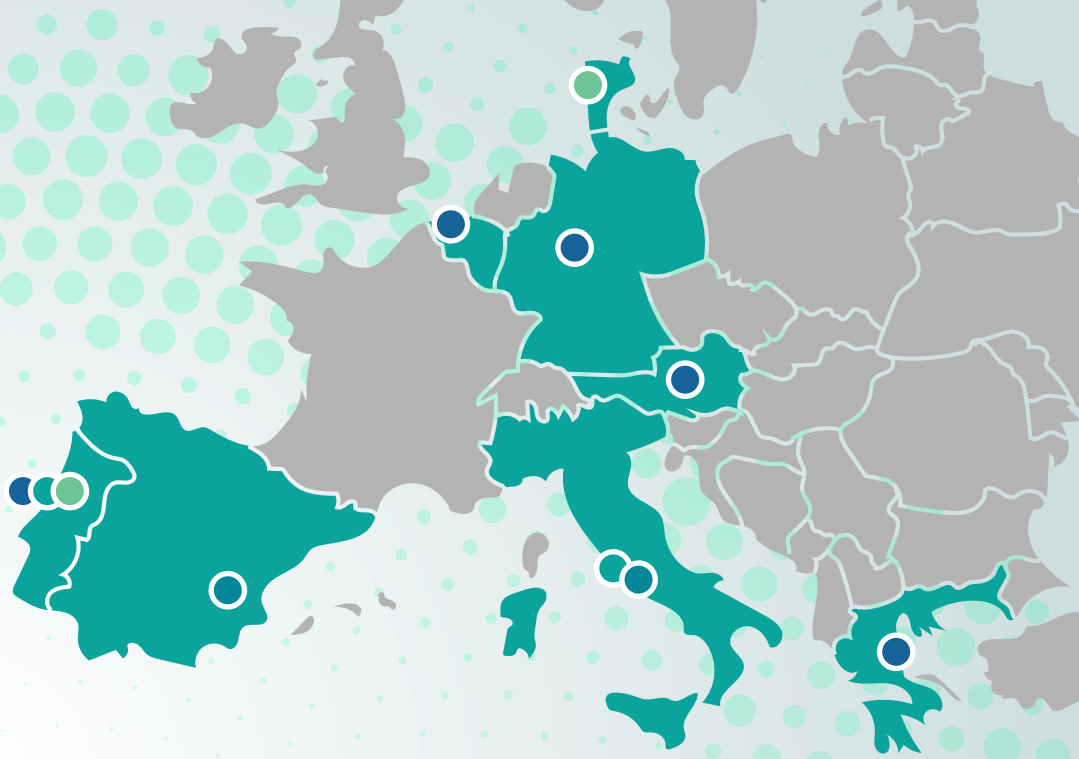
- Marketing activity to create and boost the Smart2B brand identity.
- Securing adequate industrial follow up of the project.
- Business planning.

Smart2B CONSORTIUM

11 Partners:

Cluster and research organizzation from:
Portugal, Greece, Spain, Germany, Denmark, Austria, Belgium, Italy.

8 Participanting countries



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NEW by EDP & CTG

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enerbrain
For an intelligent use of energy

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SANTA CASA
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