
Smart living EPC

# BROCHURE

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The SmartLivingEPC project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069639.

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# 01 ABOUT THE PROJECT

SmartLivingEPC project aims to deliver a certificate which will be issued with the use of digitized tools and retrieve the necessary assessment information for the building shell and building systems from BIM literacy, including enriched energy and sustainability related information for the as designed and the actual performance of the building.

SmartLivingEPC will provide information in relation to the operational behaviour of the building, by introducing a new rating scale, based on a weighted approach of life cycle performance aspects, building smartness assessment and information on the actual performance of the technical systems of buildings provided by technical audits.

The new methodologies to be developed, will be based on existing European standards, whereas at the same time, they will trigger the development of new technical standards for smart energy performance certificates. The new certification scheme will also expand its scope, covering aspects related to water consumption, as well as noise pollution and acoustics.

SmartLivingEPC certificate will be fully compatible with digital logbooks, as well as with building renovation passports in order to allow the integration of the building energy performance information in digital databases.

A special aspect of SmartLivingEPC will be its application in building complexes, with the aim of energy certification at the neighbourhood scale. SmartLivingEPC aspires to develop two parallel schemes, one at the building level (Building EPC) and one at the level of building complex level (Complex EPC), with the ultimate goal in the near future of certification of building complexes, based on the certification of individual units, as well as on additional aspects following an integrated participatory and neighborhood based approach.

# 02 THE OBJECTIVES

01 More reliable, cost-effective and highly replicable calculation method

02 Integration of building automation and control systems intelligence through the SRI scheme

03 Synergies with building sustainability relevant instruments and relevant parts of Level(s)

04 Methodology for operational EPCs, incorporating technical systems audits

05 Based on digital construction practices and Industry 4.0 building services

06 The development of an EPC, compatible with digital building logbooks

07 The development of a new rating scheme for neighbourhood scale

08 The development of AI services supporting the building performance assessment

# 02 THE CONSORTIUM

- Centre for Research & Technology, Information Technologies Institute GREECE
- IsZEB - Intelligent Solutions for Zero and Positive Energy Buildings GREECE
- Frederick Research Center CYPRUS
- Federation of European Heating, Ventilation and Air Conditioning Associations BELGIUM
- Asociatia Inginerlor de Instalatii ROMANIA
- IES - Integrated Environmental Solutions Limited IRELAND
- DEMO Consultants BV THE NETHERLANDS
- R2M Energy ITALY
- R2M Solution ITALY
- University of Deusto SPAIN
- QUE Technologies GREECE
- GoiEner SPAIN
- Tallinn University of Technology ESTONIA
- Austrian Standards International AUSTRIA
- ANEC BELGIUM
- Eunice Energy Group GREECE
- Waide Strategic Efficiency Europe IRELAND

# 04 CONCEPTUAL ARCHITECTURE FRAMEWORK

For the SmartLivingEPC project, four main viewpoints were used to ensure that all necessary aspects of the overall system architecture were adequately described

**Functional view**

Explains the architectural components that are responsible for delivering the system's functionality

**Deployment view**

Outlines the physical environment in which the system will be deployed and the dependencies the system has on that environment

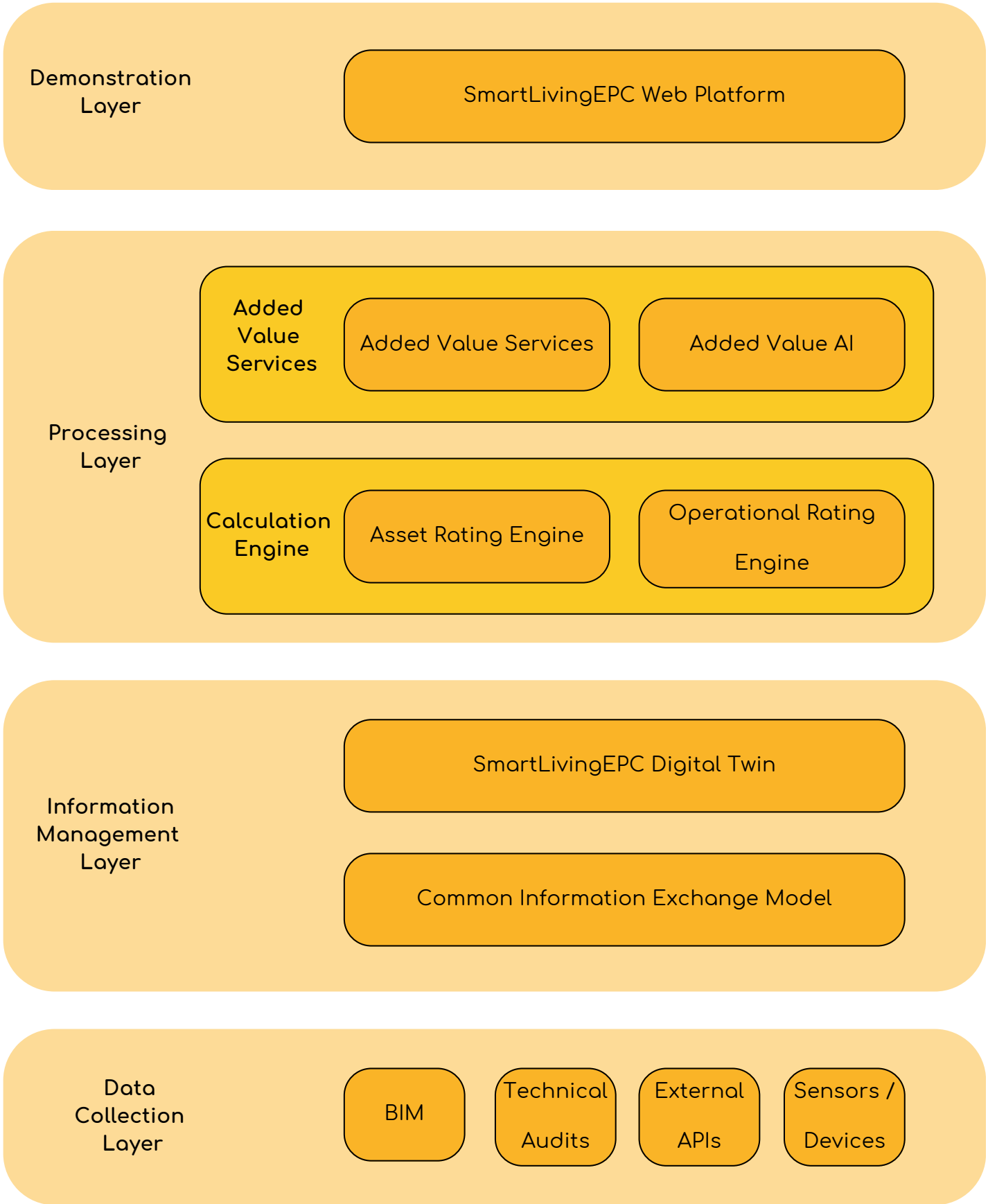
**Information view**

Provides a comprehensive but abstract representation of how information flows among the various components of the system through an information flow diagram

**Dynamic view**

Explains how the system functions within the runtime environment and responds to external or internal signals

Layered architecture is divided in four main parts: Data Collection Layer, Information Management Layer, Processing Layer and Demonstration Layer



# 05 PILOTS

## 01 nZEB Smart House DIH

The near-zero Energy Building (nZEB) Smart House is a residential and office/laboratory building located in Thessaloniki, Greece. It was completed in 2016, as part of a project, with the goal of a nearzero emission building that can be further experimented on

## 02 Frederick's University

Frederick University's building comprises classrooms, computer and engineering laboratories, art and craft studios, workshops, a library, seminar rooms, administration and faculty offices, and a large cafeteria


## 03 Ehituse Mäemaja

Ehituse Mäemaja is an NZEB office and laboratory building located on the campus of Tallinn University of Technology. The building produces solar energy with the entire roof surface, and wooden structures have been used to reduce the carbon footprint

## 04 Single-family house,

It is a detached single-family house located in Leitza, where 4 people currently live. The property consists of 4 bedrooms, kitchen, living room, garage, and auxiliary space in the semi-basement

## 05 Private flat

A flat located on the ground floor of a residential block of 3 flats (1 flat per floor). A family of 4 people currently lives there. The property consists of 3 bedrooms, kitchen, living room, 2 bathrooms, and a storage room

## 06 Mixed-use Building

Mixed-use building, as the ground floor houses a chocolate shop and an auxiliary space, and floors 1 and 2 house two flats. The building was built in 1860

## 07 Town Hall

The City Hall is located on Elbarren Street No.1 of Leitza. It was constructed in 1917, so it has a wooden structure and masonry walls. The roof was renovated completely in 2018

## 08 School Building Facilities

In the Erleta school, there are 314 children between 3 - 12 years old and 36 teachers. The building has two parts: a main block built in 1968 and the annex building built in 1979

## 09 Sports Centre

Amazabal sports centre is located on Amazabal Street No. 39 at the rear of the pilot site 8 building. It was built in 2001, and the envelope was refurbished in 2016. A ventilated façade with insulation was built and the exterior carpentry was replaced by others with better thermal performance.

"Advanced Energy Performance Assessment towards Smart Living in Building and District Level"

## Follow project's progress

https://www.smartlivingepc.eu/en

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