



*Co-funded by the European Community Horizon 2020 Program*

Project Title:

# **ORganizational Behaviour improvement for Energy Efficient administrative public offices**



## **OrbEEt**

**Grant Agreement No: 649753**

**Collaborative Project**

### **Public Summary**

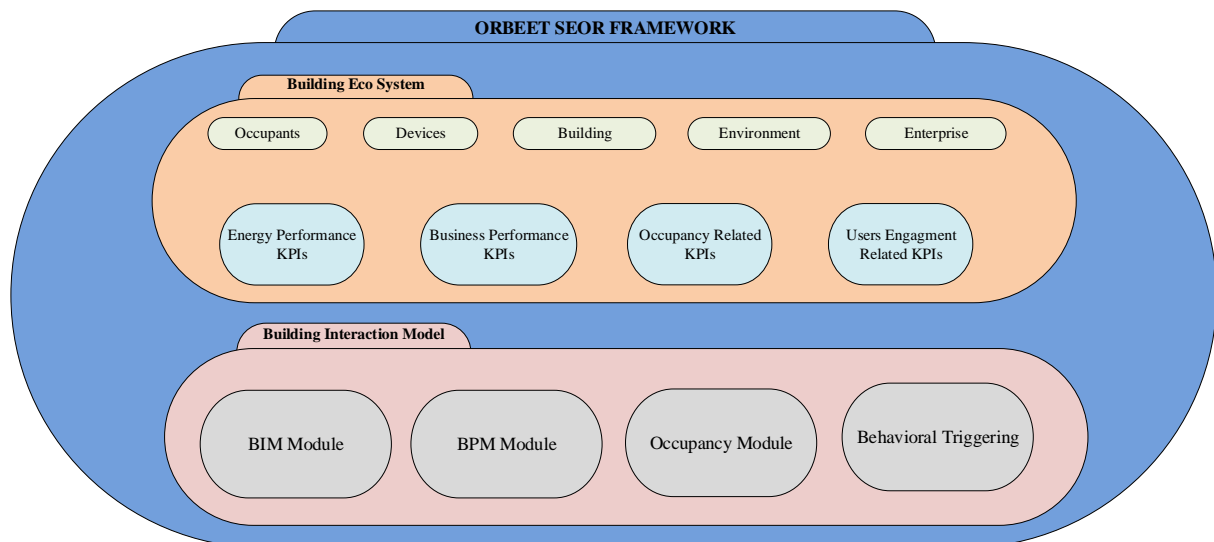
Deliverable No.	<b>D1.2 Specs SEOR methodology and Enhanced Displays Energy Certificates</b>
Workpackage	<b>WP1 Requirements – Specification &amp; Modelling</b>
Task	<b>T1.2 Systematic &amp; enhanced Rating Models Specification</b>
Lead beneficiary	<b>HYPERTECH</b>



# 1. PUBLISHABLE PUBLIC SUMMARY

The main objective is to define a reference **Enterprise Operational Rating** (denoted SEOR) for buildings, to be further used by the subsequent work packages in the OrbEEt project. The proposed **Systemic Enterprise Operational Rating** extends and integrates existing Operational Rating Models (UK EPC Model) by incorporating and integrating several dimensions: the *physical sub-system*, i.e. the buildings and their energy-consuming equipment; the *human sub-system*, i.e. occupants and their activities in relation to the buildings and equipment; the *business sub-system*, i.e. the business processes and the business objectives they support. The proposed framework selects from the existing modelling methodologies on energy performance certification (EPC), the parameters that are suitable for dynamic and situational energy management across business domains and their associated KPIs. In this way, OrbEEt extends the concept of existing DEC's towards delivering certificates of significantly enhanced spatio-temporal granularity by establishing a dynamic model-based approach (models, methods & tools) for a continuous estimation of their constituent metrics and indicators.

This deliverable thoroughly describes the extended **Systemic Enterprise Operational Rating (SEOR)** method along with specific key performance indicators, and elaborates on the existing methods and indicators for constructing such a rating. The next figure provides an overview of the overall SEOR framework. On the lower level we specify the modelling framework of the whole building ecosystem while on the upper level we define the core building ecosystem attributes with the associated KPIs that set the information model for the SEOR framework.



Overview of OrbEEt SEOR modelling framework

We first explore the main dimensions and attributes of building performance and efficiency. We seek to identify the measurable attributes based on the building aspects typically available during design phase. Normalization of these performance aspects is a challenge in any effort to establish reusable building ratings and benchmarks. Building performance needs to be estimated given the parameters typically monitored in a building while the unit of measurement for the composite building operational rating is in tones of CO<sub>2</sub> emissions per year, in line with the EU regulations, standards and practices for introducing a measure of the carbon footprint in the building sector. Our defined building performance rating (SEOR approach) is similar but complementary to existing energy rating methodologies.

The OrbEEt Enhanced DEC's framework takes into account all major loads related to organizational activities and most importantly, establishes a direct link between energy performance and various elements of the organizational ecosystem (spaces/offices, teams &

activities), allowing for a more systemic view (drill-down and drill-through) beyond typical DECs. Consequently, occupants will be provided with timely and concrete information on how their everyday actions influence building energy performance as well as how and how much they can actually improve their behaviour. A functional view of eDECs is provided as part of the deliverable in line with the requirements analysis.

Finally, this deliverable influences the functional specification of several modules, responsible for managing or presenting the performance indicators identified. Therefore, the model presented impacts the future work to be done towards modelling and developing of **Systemic Enterprise Operational Rating** engine.