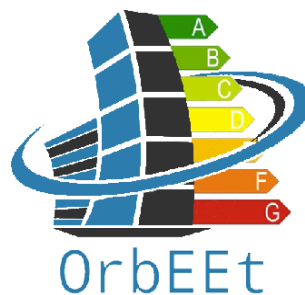




*Co-funded by the European Community Horizon 2020 Program*

Project Title:

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



## **OrbEEt**

**Grant Agreement No: 649753**

**Collaborative Project**

### **Public Summary**

|                  |  |
|------------------|--|
| Deliverable No.  | <b>D1.3 Specification and high-level design of Organizational Behaviour Change framework</b> |
| Workpackage      | <b>WP1 Requirements – Specification &amp; Modelling</b>                                      |
| Task             | <b>T1.3 Organization behaviour change framework design &amp; specifications</b>              |
| Lead beneficiary | <b>COVUNI</b>  |



## 1. PUBLISHABLE PUBLIC SUMMARY

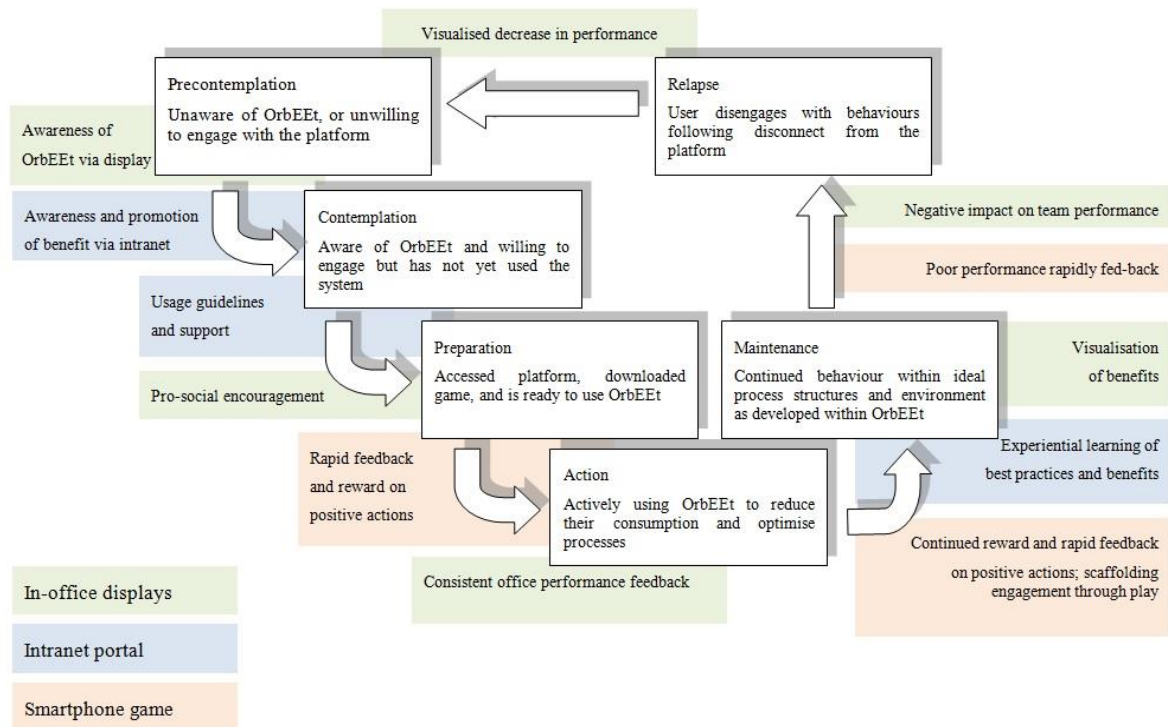
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This deliverable presents the key outputs of Task 1.3 – Organization Behavioural Change Framework Design & Specifications. The purpose of the document is to provide a high-level model for behavioural change within the OrbEEt platform, which takes into account the core technical aspects of the project. These aspects include energy sensing and monitoring, business process modelling, and games and gamification, all of which are incorporated in this deliverable as the basis for the OrbEEt Behavioural Change Framework (OBCF). This high level model is subsequently used to underpin lower-level architecture designs (D1.4), and drive the design process for the user interfaces, including in-office displays, smartphone gaming, and an intranet portal. Achieving meaningful, long-term change in organisational behaviour is a challenging task, and therefore this deliverable seeks to identify best-practices both in terms of fundamental underlying theory, and existing examples of the application of technologies or theoretical models relevant to OrbEEt.

Based upon high-level consideration from literature and relevant examples showing the role of games and gamification, the principal goal of gamification within the OBCF is to synergise with the behavioural models of the States of Change Theory or Transtheoretical Model (TTM), Self-Efficacy Theory and Work on Expert Tutors with the “INSPIRE” acronym, encompassing the following:

- The game and gamification layer runs across the individual interfaces, with game-based elements and mechanics present in all three user interface components
- The in-office displays are designed with specific regard to how individual and group performance is fed back. This applies a consideration of how key game based elements of collaboration, competition, and the relationship between feedback and sense of self-efficacy can be scaffolded and supported by the abstraction of sensor data (D1.2) into gamified visualisation.
- The smartphone game builds on abstraction and metaphor to place engaging gameplay at its forefront. This aims to facilitate uptake and engagement with the OrbEEt platform as a whole, with the sensor data being used as inputs to the game at a variable level (for example, though not limited to, a game world becoming more oppressive as consumption increases). Due to challenges in establishing and retaining a critical mass of players, gameplay should be viable in a standalone "single player" fashion, but in view of the wider goals of supporting social interaction within the OBCF, affordance should be given towards asynchronous multiplayer through comparisons of performance or drop in/out multiplayer.
- The intranet portal acts in concert with the other two interfaces to provide informational data from sensors and learning resources to the end user. Gamification here supports the use of asynchronous methods for allowing users to adapt content, contribute to discussions, and develop their own profiles when using the portal.

Based on the behavioural change theories and approaches outlined, and in consideration of gamification approaches described, we propose the OrbEEt Behavioural Change Framework. The structure of the Stages of Change theory is emphasized and the OBCF assumes that the content throughout will be crafted to be consistent with the INSPIRE guidelines from work on expert tutors as well as major tenets of Self-Efficacy theory.



This derives intentionally from the stages of change approach, which has proven to be valid in a wide range of contexts where behaviour change is the principal target outcome. Specific consideration is given to the role of each interface within the model, which serves to identify as essential transitions between various phases:

#### Precontemplation ► Contemplation

Here the goal is firstly to make the user aware of the OrbEEt platform. This alone may not generate uptake in individuals without intrinsic motivation to improve energy or business process efficiency, therefore, in office displays perform a valuable role in promoting uptake through social dynamics. Similarly, the intranet portal supports the transition by providing an accessible overview of the system's benefits to the individual using an interaction modality they are already familiar with (their desktop PC).

#### Contemplation ► Preparation

Given awareness of the platform, and the benefits of engagement, the user should be scaffolded towards understanding the various technologies and their use. A pro-social approach via the intranet portal is advocated, which seeks to encourage users to support one another acting as more- or less-able partners.

#### Preparation ► Action

Defining here action as achievement against a behavioural target goal, the analytical layer of the system supports consolidation of metrics into definable and measurable objectives. Through a more abstract approach to visualising data, which enables rapid feedback, the game and gamification elements also encourage users to engage with and use the OrbEEt platform.

#### Action ► Maintenance

Transitioning from action to maintenance can be seen both as the user continuing to engage with the OrbEEt platform, or disengaging but continuing with positive habits and behaviours. Whilst pilot site interventions have a fixed duration, it would be anticipated that, "in the wild",

the required duration of engagement with the platform could vary depending on availability, or a user's initial behaviours which it should be noted may not be suboptimal in all cases.

#### Maintenance ► Relapse

A common challenge in behavioural intervention is sustaining target behaviours beyond the lifecycle of the intervention. Whilst, under the business models presented in D1.1 and through WP5, exploitation aim to provide a sustainable means to continue to expand platform content, rapid content consumers, or individuals who believe their performance is already optimal, may disengage with the platform and relapse. Here the OBCF illustrates the role of services to prevent, rather than support, the process of relapse.

#### Relapse ► Precontemplation

Given a relapse has occurred, it is important to handle it and support the user in a transition back towards using the platform. Social dynamics and mechanics here are important, as in-office visualisations offer a means to show negative team performance. Care must be taken, however, to avoid an individual feeling "singled out" or excluded when presenting data on decreased performance.