Collaborative Recommendations and Adaptive Control for Personalized Energy Saving
The project at a glance

Starting date: 1 November 2016

Duration: 36 months

Main topic: Behavioural change towards energy efficiency through ICT

Total budget: 3.309.375 euros

Total financing: 2.000.350 euros

Partner: 5 universities
  6 companies and end-users
  3 utility companies
Our objectives

- Objective 1: stimulate behavioural change for energy saving using innovative digital tools
- Objective 2: make energy usage data accessible to consumers in a user-friendly and easy to understand way
- Objective 3: demonstrate that individual comfort levels can be maintained while achieving energy saving
- Objective 4: validate the effectiveness of different types of behavioural change interventions for different types of users in different types of climatic conditions
- Objective 5: make the enCOMPASS platform and other digital tools available to third parties to start new services for smart energy demand management
Our approach

YOU LEARN

Consumer Apps
- Visualization
- Awareness
- Feedback (on comfort, productivity, ...)

Engagement & Behavior Change
- In-context adaptive recommendations
- Goals, Achievements, Rewards

YOU PLAY

- Digital+real games

YOU SAVE

WE WORK

Data acquisition
- Smart meter & sensors

Consumption & ambient data repository
- Privacy
- Security

Data analytics
- End use disaggregation
- Activity / context detection

Building and User modeling
- Building/ Household features
- User clustering
- Demand prediction and simulation
- Intelligent control policies
4 main elements

- Energy usage information from in-home information (smart meters and communication-enabled smart home appliances for heat and electricity)
- User-generated information (automatic and manual activity tracking)
- Adaptive gamified energy visualization
- Intelligent controls and automation for sustainable changes in user energy consumption maintaining the user’s comfort level
enCOMPASS holistic model

Hybrid board and online games to raise collective awareness
Individual, social and economical rewards for achievements
Adaptive games to engage & motivate users, supported by points, leaderboards, badges & achievements
Individual and team-based goal setting
Fun-to-use visualization of energy consumption and feedback
Context-aware adaptive recommendations for energy saving actions
Semi-automatic climate adjustments to increase indoor comfort levels

Precontemplation  Contemplation  Preparation  Action  Maintenance, relapse, recycling

Outcome: goal intention
“I want to save electricity.”

Outcome: behavioural intention
“I intend to turn the lights off in rooms that are not used.”

Outcome: implementation intention
“Tomorrow, when I arrive I will only switch on the lights in rooms that I use, and switch them off when I leave.”

Outcome: new behaviour
„Now, I always open the front door as briefly as possible.”
### 3 on-site scenarios

<table>
<thead>
<tr>
<th>Building type</th>
<th>Target groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential homes/apartments:</td>
<td>Families (with &amp; without kids), single households, students, building managers (ca. 600 participants)</td>
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<tr>
<td>300 households (100 per country)</td>
<td></td>
</tr>
<tr>
<td><strong>Schools:</strong></td>
<td>Students, teachers, building managers (ca. 900 participants)</td>
</tr>
<tr>
<td>3 schools, 10 classes per school</td>
<td></td>
</tr>
<tr>
<td><strong>Public buildings:</strong></td>
<td>Employees, visitors, building managers (ca. 500 participants)</td>
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<tr>
<td>3 public buildings</td>
<td></td>
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<tr>
<td><strong>Countries:</strong></td>
<td></td>
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<tr>
<td>Germany (Hassfurt), Greece (Athens &amp; Thessaloniki), Switzerland (Gambarogno)</td>
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The main object of the game is to provide a very simple concept: saving energy is something involving all of us.

We do not want to change our everyday comfort level to save energy but we must understand that there is always a limit to the energy we can really use!
How to follow enCOMPASS

http://www.encompass-project.eu/

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