Collaborative Recommendations **and** Adaptive Control **for** **Personalized Energy Saving**

Athens, 19th of June 2018

Building Energy Efficiency: Research & Innovation Workshop
In EKT/NHRF

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723059

Key features of the project

TARGET: at Energy **Users;**

OBJECTIVE: Assisting & *Educating* different **types of users**

to change **Energy Consumption Behaviour Patterns**

maintaining, *however* their **comfort;**

WITH: IT tools

- Open platform (collecting and managing data)
- User friendly app

And **Game** methodology;

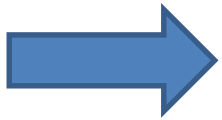
USING:

- **Actual User** Consumption **Data** via Sensors & Smart Home Appliances
- Advanced **data management** and **data processing tools**

The project Objective at a glance

Open Platform offering

- ❑ **Context dependent** energy usage **information**
  - ❖ Which is **user generated**
    - ○ via sensors and/or
    - ○ smart home appliances
- ❑ Adaptive **gamified** energy **visualisation**
- ❑ Intelligent **controls** via **automation**



Users achieve ***sustainable*** **changes** in **consumption behaviour** patterns ***without*** compromising **comfort** for ***different*** **types of users**

The project essentials

Starting date**: 1 November 2016**

Duration: **36 months**

Main topic: **Behavioural change** towards energy efficiency through ICT

Total budget: **3.309.375 €**

Total financing: ***2.000.350 €***

Project Partners:

- ❑ 5 **universities**
- ❑ 6 **companies** and **end-users**
- ❑ 3 **utility companies**

Our approach

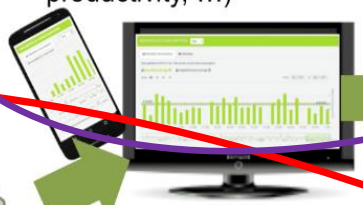
YOU LEARN

YOU PLAY

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

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

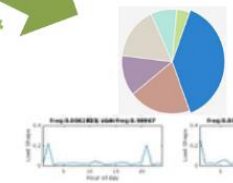
Digital+real games



Data acquisition
- smart meter & sensors

enCOMPASS

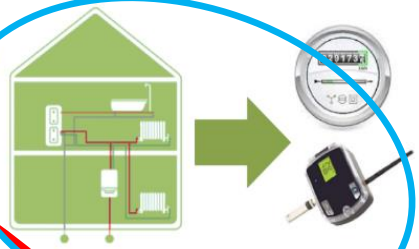
Consumption & ambient data repository
- Privacy
- Security



Data analytics
- End use disaggregation
- Activity / context detection

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

Intelligent control



WE WORK

YOU SAVE

Project 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**

3 on-site scenarios

Building type	Target groups
Residential homes/apartments: 300 households (100 per country)	Families (with & without kids), single households, students, building managers (ca. 600 participants)
Schools: 3 schools, 10 classes per school	Students, teachers, building managers (ca. 900 participants)
Public buildings: 3 public buildings	Employees, visitors, building managers (ca. 500 participants)
Countries: Germany (Hassfurt), Greece (Athens & Thessaloniki), Switzerland (Gambarogno)	

4 main elements

- Energy usage information from in-home information

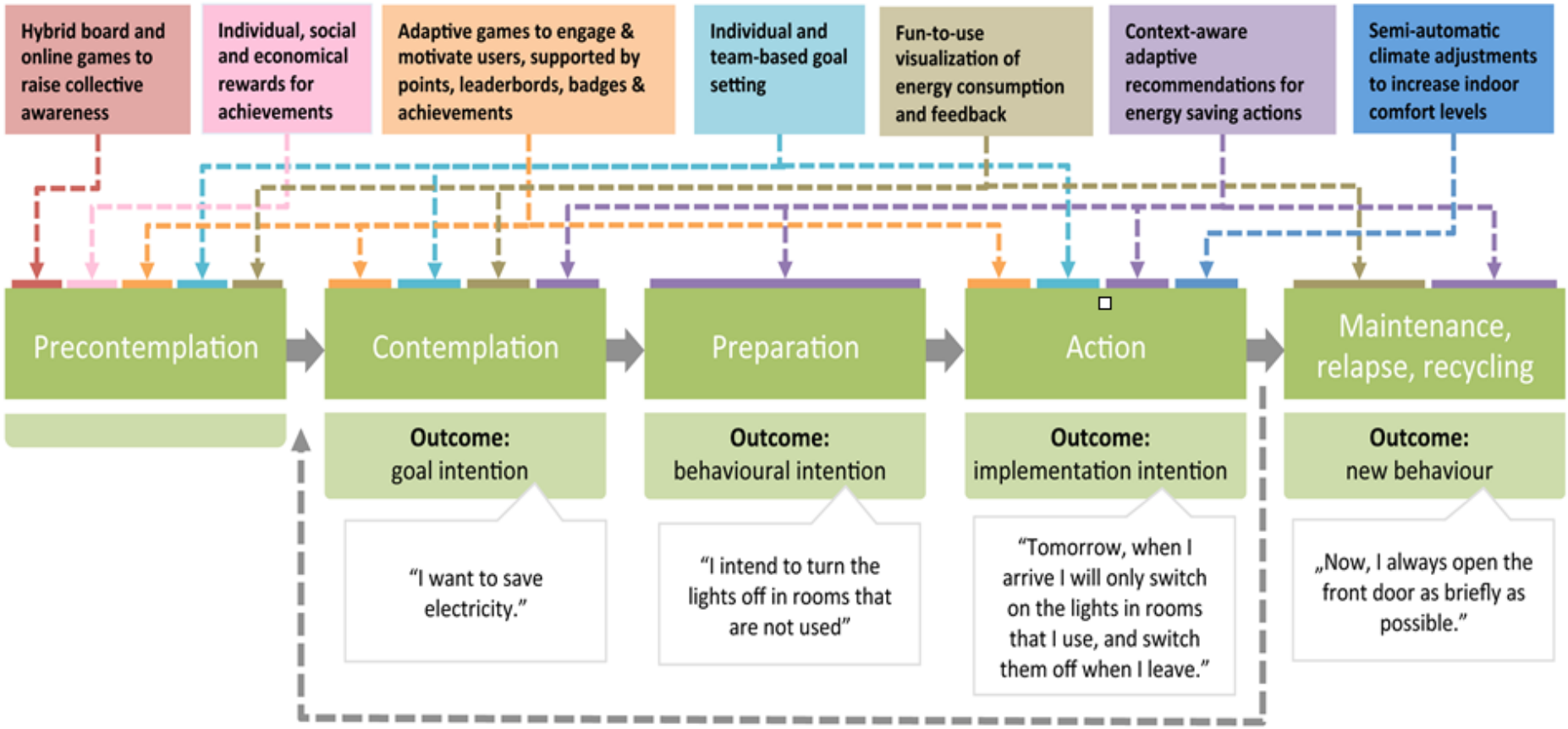
(smart meters and communication-enabled smart home appliances for heat and electricity)

- 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



Progress

- We defined **User Requirements** , involving **real users,** through dedicated workshops and interviews
- In-depth **technical requirements** analysis based on real users requirements
- Refined and extended **application scenarios**, and user **stories visual mock-ups**
- **Currently applying pilots…**

https://www.youtube.com/watch?v=7JA7D_UGGXg&feature=youtu.be

Having fun!

The main object of the game is to provide a very simple concept: saving energy is something involving all of us.

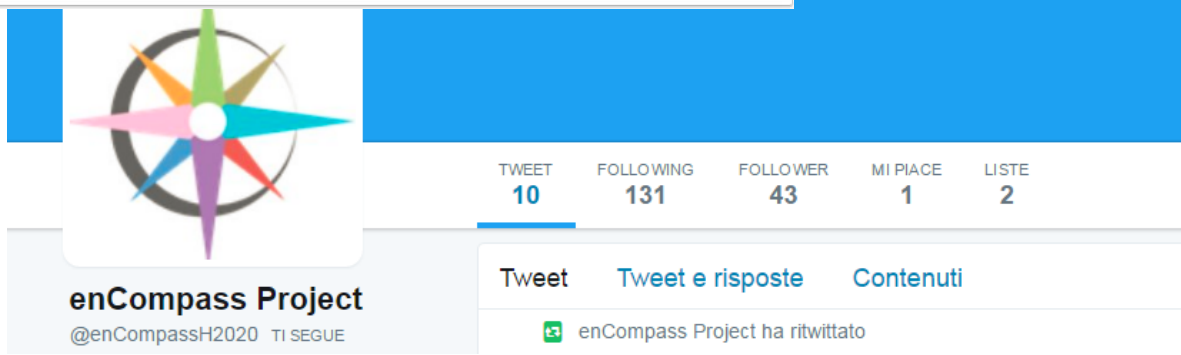
We do not want to change our everyday comfort level to save energy but we must understand that there is always a limit to the energy we can really use!

How to follow enCOMPASS

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

www.linkedin.com/in/encompass-project-470423142/

@enCompassH2020/



Consortium

enMPASS

POLITECNICO DI MILANO

NABU

ktu kaunas university of technology 1922

iti Information Technologies Institute

SETMOBILE

stadtwerk haßfurt

EIPCM EUROPEAN INSTITUTE FOR PARTICIPATORY MEDIA

Scuola universitaria professionale della Svizzera italiana SUPSI

PARADOX ENGINEERING UNLOCKING THE VALUE OF YOUR DATA

EKT ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΤΕΚΜΗΡΙΩΣΗΣ NATIONAL DOCUMENTATION CENTRE

GRAVITY Research & Development

WATT+VOLT

SES Società Elettrica Sopracenerina

KALEIDOS GAMES