Eco-Bot

RISA Sicherheitsanalysen GmbH

Project co-funded
by the EU under H2020

Building Energy Efficiency
Research & Innovation Workshop

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Project information

"Personalised ICT-tools for the Active Engagement of Consumers Towards Sustainable Energy"

"*Eco-Bot*"

- EE-07-2016-2017 (ENERGY EFFICIENCY CALL 2016-2017) – Behavioral change toward energy efficiency through ICT

- Duration: 01.10.2017 bis 31.12.2020
- Type of action: Innovation action
- EU-Funding: 1.96 M Euro

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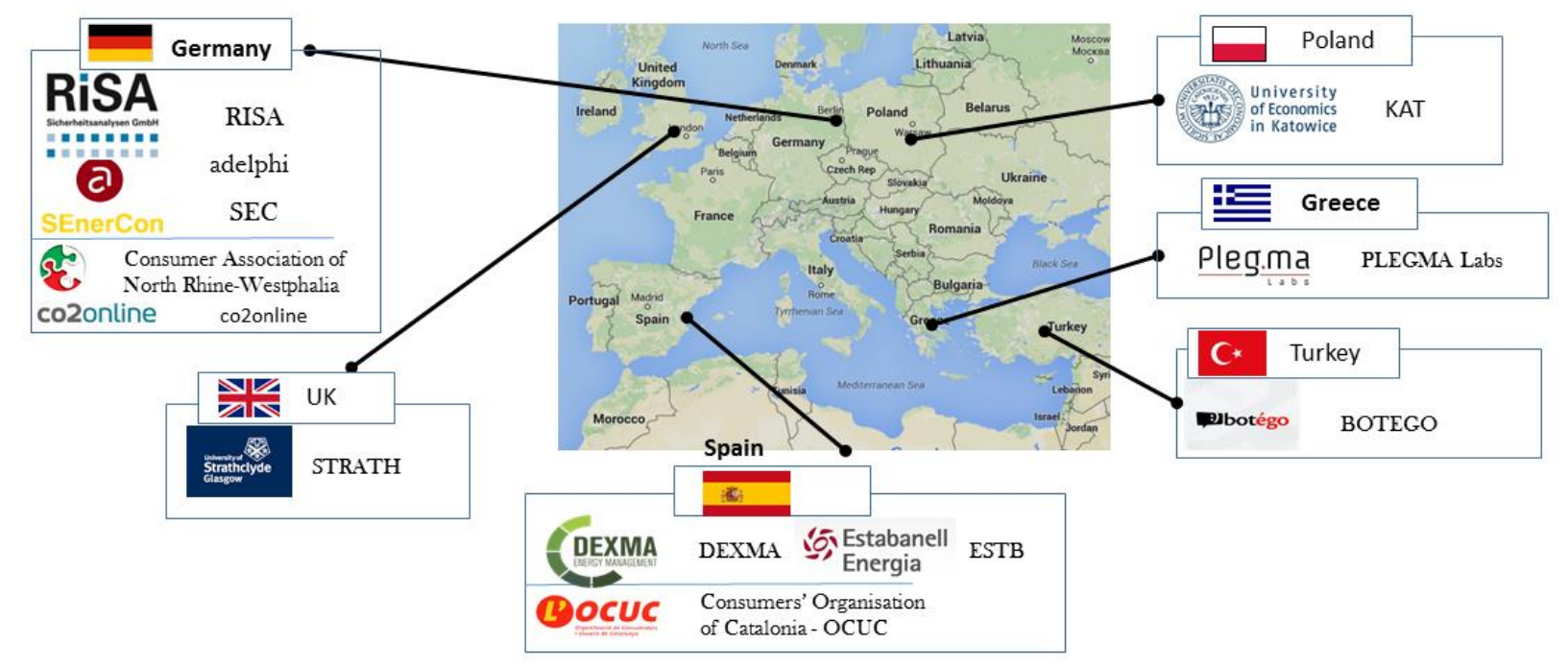
Consortium



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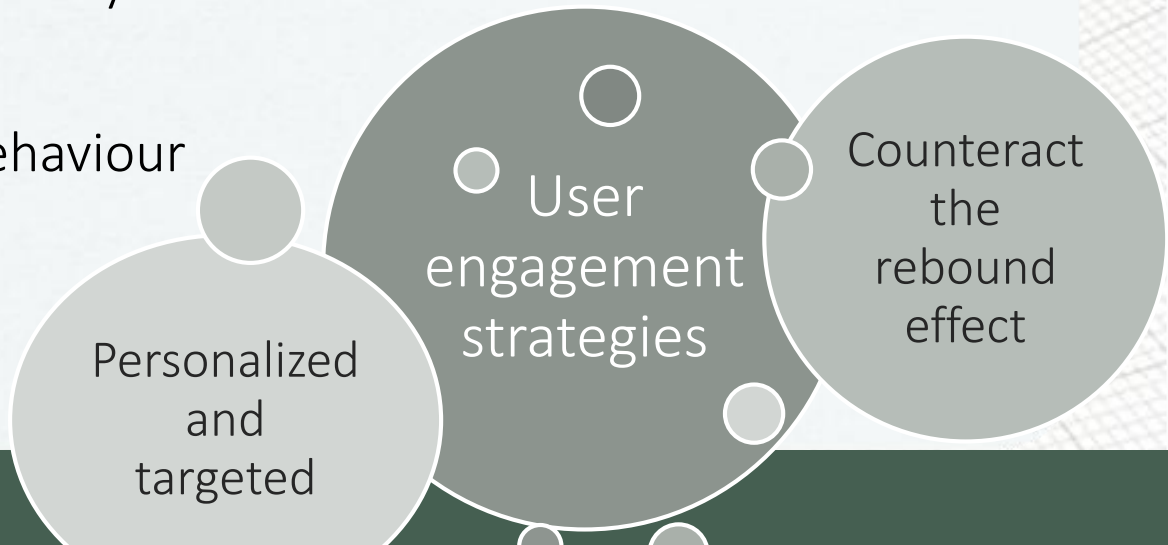
Problem statement

- Human behaviour is at least of equal importance to technological and physical factors in influencing energy use, and consequently carbon emissions
- Intersection between human behaviour and energy efficiency is complex and multifactorial
- A major factor is the rebound-effect, a phenomenon where the adoption of energy efficiency measures leads to an increase of consumption
- **Change** consumption behaviour without limiting activity



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Proposed solution

- A system is to be developed which will positively influence consumer behaviour in terms of saving electrical energy.
- The key concept is the use of a chat bot, that based on disaggregated data from smart meters and information on location-related consumption and personal data, will positively influence the consumer behaviour.
- Over 100 energy efficiency models will be evaluated and over 40 user groups are going to be identified. From these findings new strategies will evolve on how these users can be optimally addressed.
- Target groups: individuals, building managers

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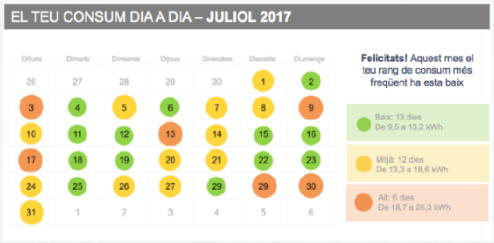
How should Eco-Bot work?

- The Eco-Bot user is assigned to a group based on his specific data.
- The consumption data assigned to the user are analyzed.
- Within the framework of a chat with Eco-Bot, the user is provided with information that is intended to change his consumption behavior in a sustainable, positive manner.
- A learning effect should be achieved.



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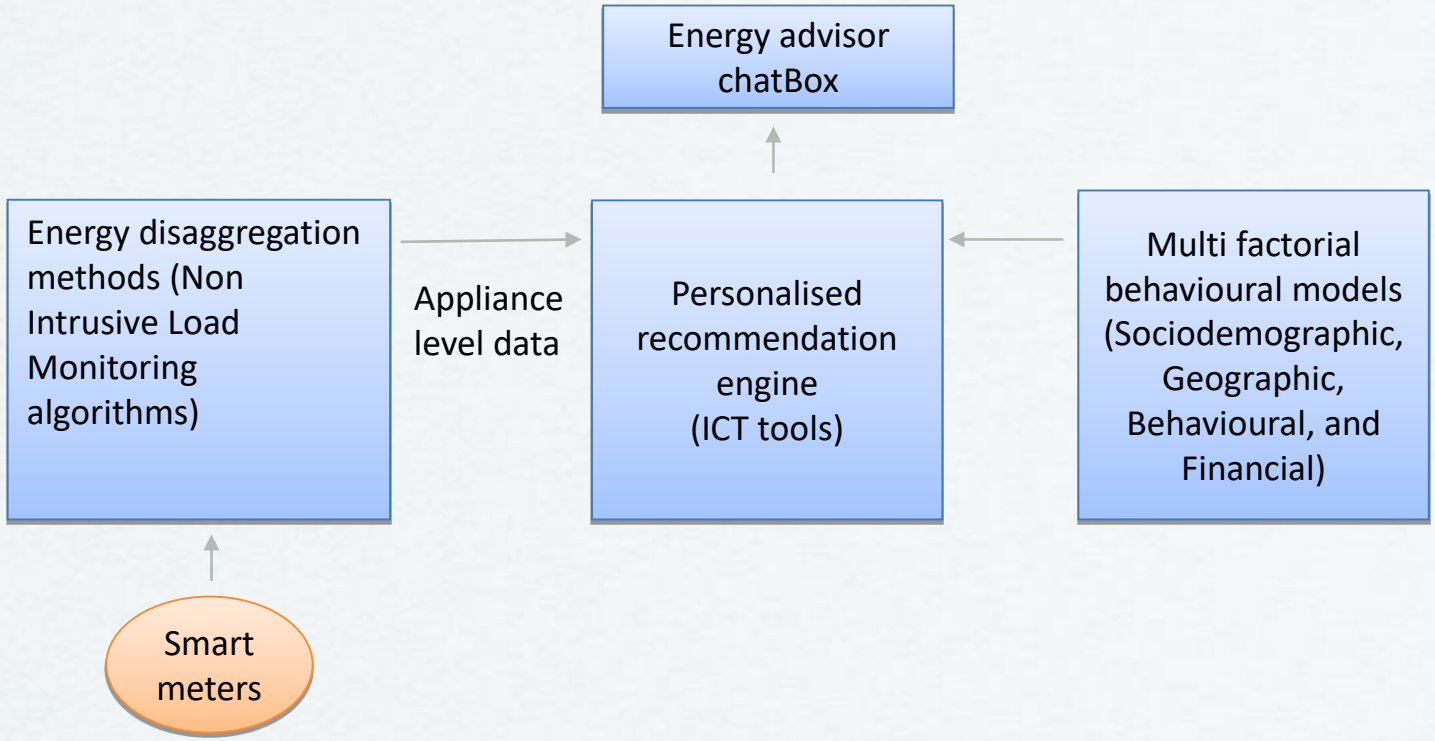
Eco-Bot Idea



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What is to be achieved?

- Improvement of the dissagregation of data from the smart meters
- Analysis of more than 100 energy efficiency models
- Analysis of the data of potential users for the purpose of group formation
- Design optimal engagement strategies for each group
- Improvement of the Chat-Bot Technology
- Validation and testing

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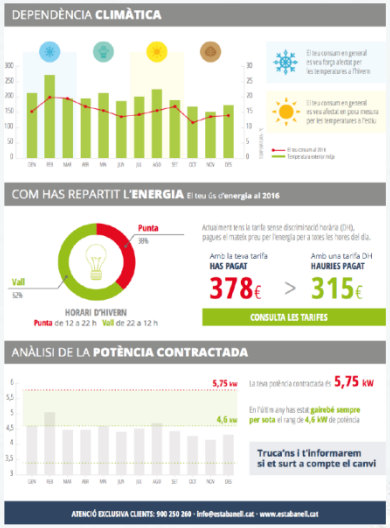
Improvement of energy dissagregation algorithms

Half or quarter hour values are used

- Higher detection rate of devices
  - Higher accuracy for a better individual response
- Greater reliability of detection
  - Less detection error
- Detailed electricity billing
  - Regardless of Eco-Bot, a more disaggregated energy bill can influence consumer behaviour



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Analysis of more than 100 energy efficiency models

- Classify energy efficiency models with respect to core factors
  - social, demographic, gender, cultural, occupation, etc.
- Development of engagement strategies
  - Based on market segmentation and the classes of energy efficiency models
- To which user groups do the strategies fit?

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Analysis of the data of potential users for the purpose of group formation

The analysis extends to houses and commercial buildings

What data is required for the group formation?

- Geographical data (e.g. clima)
- Housing or building-related data
- Personal data (customer)
- Resident-related data

Design optimal engagement strategies for each group

- Development of possible dialogs
  - Question and Answer Pool
  - Which questions does Eco-Bot have to answer?
  - Which answers are possible?
  - For whom fits which answer?

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Improvement of the Chat-Bot Technology

- Understand what the user says / writes
  - Use of information about the user
  - Identify question content
  - Reliably understand questions
- Mapping of the user inputs to the Question and Answer Pool
  - Answer quickly
  - Answer competently
  - Answer reliably

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System validation and testing

- Three pilots are foreseen to cover the main business model cases
  - Business-to-Customer

    EPESA use case will demonstrate the effect of Eco-Bot to the behavior of the utility customers
  - Business-to-Business-to-Consumer

    SENERCON/co2-online use case involves residential energy consumers that will measure the effectiveness of the Eco-Bot approach
  - Business-to-Business

    DEXMA use case will demonstrate the proposed solution to real business users

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Project Coordinator:

Mr. Stephanos Camarinopoulos (s.camarinopoulos@risa.de)

THANK YOU! ANY QUESTIONS?

Dora Karali (d.karali@risa.de)
RISA Sicherheitsanalysen GmbH

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