



MOEEBIUS

Novel business models and new energy market roles

Modelling Optimization of Energy Efficiency in Buildings for Urban Sustainability

Project duration: November 2015 – April 2019



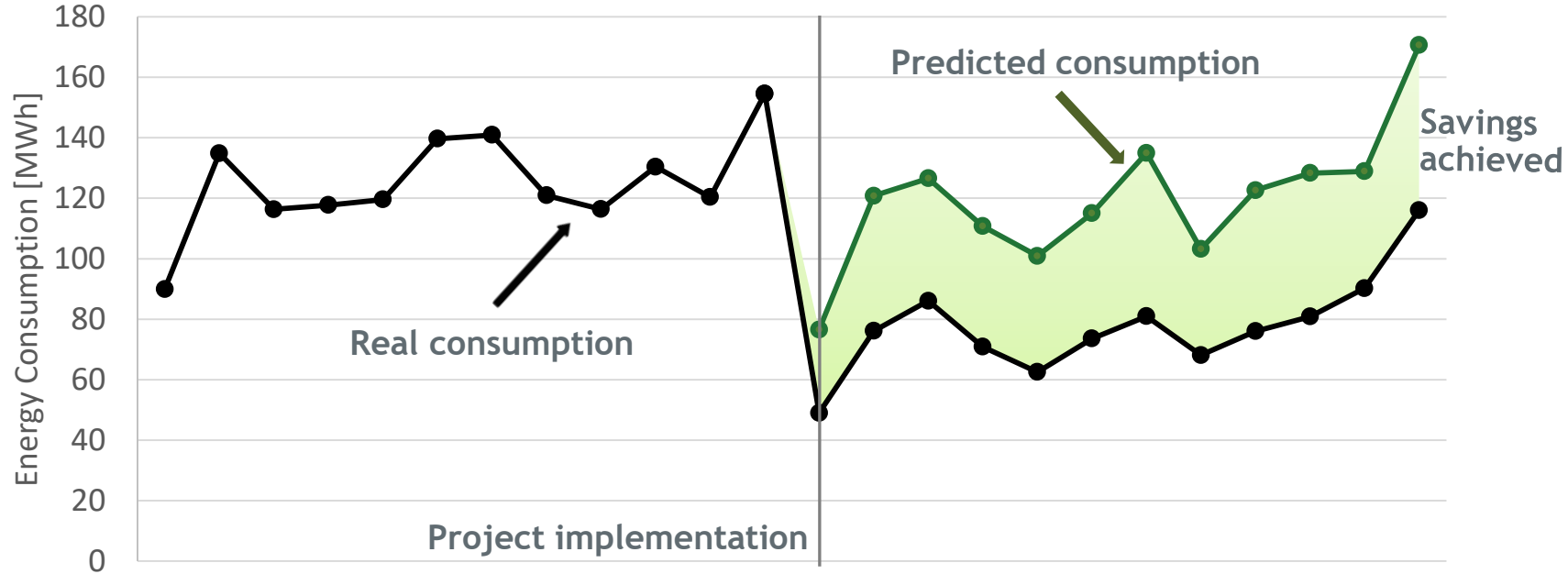
Motivation

- Buildings account for 30% to 40% of global energy use;
- Energy efficiency shows enormous potential to reduce energy consumption in buildings;
- Barriers such as access to financial resources and legal constraints are preventing the generalization of investment in energy efficiency solutions.

Energy Service Companies

- **Directive 2006/32/EC** – “A natural or legal person that delivers energy services and/or other energy efficiency improvement measures in a user’s facility or premises and accepts some degree of financial risk in so doing. The payment for the services is based on the achievement of energy efficiency improvements and on the meeting of the other criteria.”

Energy Performance Contracts



Development process

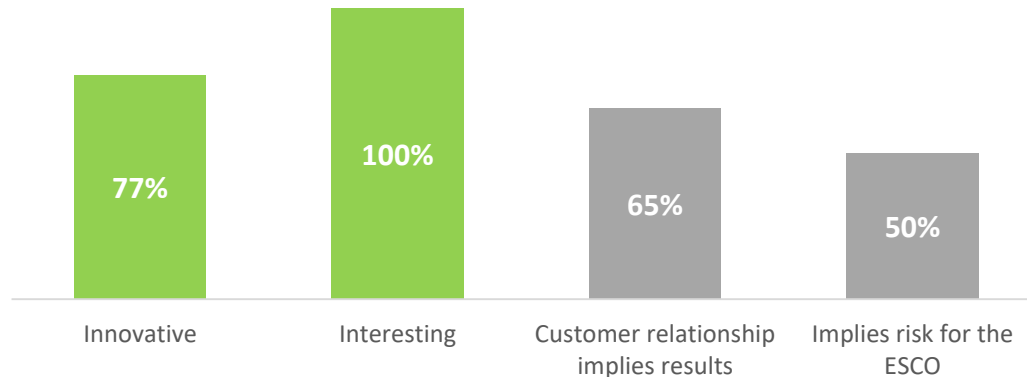
- Analysis of current business models;
- Interviews and surveys with stakeholders to identify main barriers in the current business models;
- Focus group discussions to develop models that could overcome the barriers identified by stakeholders;
- Final interview with stakeholders to evaluate the innovation and interest in the new business models.

Novel business models

- Energy management based on enhanced EPC
- Condition/efficiency based maintenance
- Raising occupants' awareness as a tool for energy savings
- Valorisation of buildings through energy certification

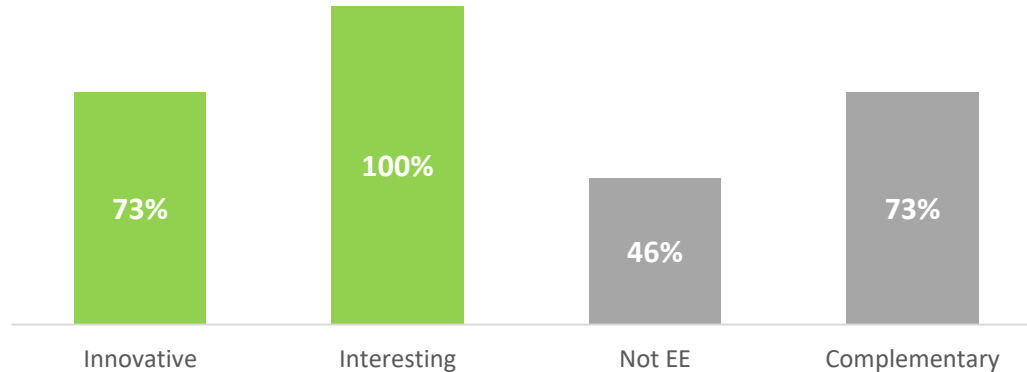
Energy management based on enhanced EPC

- Energy management service as a part of a shared-savings EPC;
- Incorporation of comfort and health parameters;
- No cost or low cost energy efficiency solutions;



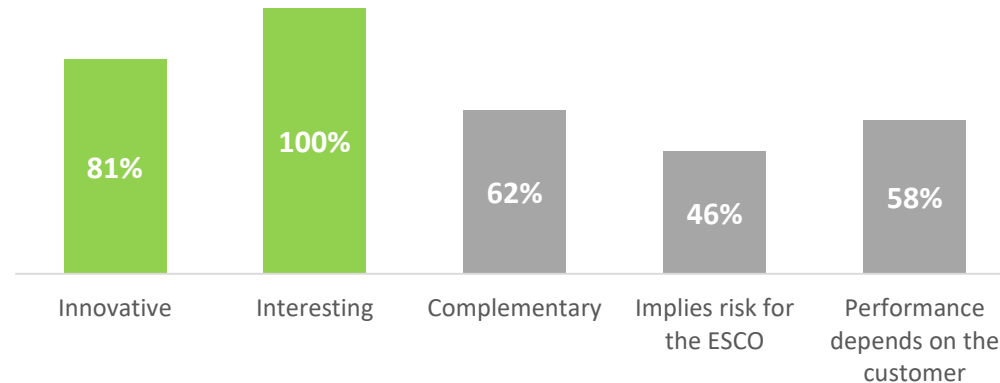
Condition/efficiency based maintenance

- Incorporation of real-time automation;
- Predictive maintenance and identification of retrofitting opportunities.



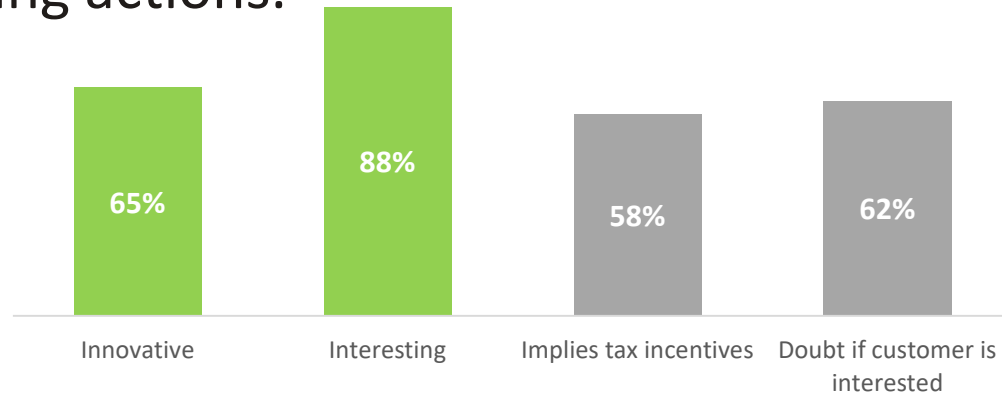
Raising occupants' awareness as a tool for energy savings

- Gamification and behaviour triggering framework to raise occupants' awareness for energy consumption and to ensure accurate energy savings.



Valorization of buildings through energy certification

- Inflate the value of a building by raising its energy certification label, improving its energy performance through the implementation of EE measures and retrofitting actions.



Aggregators

- **Directive 2012/27/EU** – “A demand service provider that combines multiple short-duration consumer loads for sale or auction in organised energy markets.”

New energy market roles

- Predictive analytics for buildings
- Optimal peak demand management
- Flexible DSM framework for participation on external market

Conclusions

- Lack of awareness and complexity of contracts prevent the generalization of ESCO business models;
- The business models will take advantage of the tools developed within the MOEEBIUS project;
- Validation of business models is being carried out in three large-scale pilot sites, in Portugal, UK and Serbia.



MOEEBIUS Partners



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