# REALVALUE

## IIESI WORKSHOP
## The Value Proposition for Energy Systems Integration

*'Integrating the Customer – the RealValue Project'*

**Rowena McCappin, Project Director – London, May 2017**
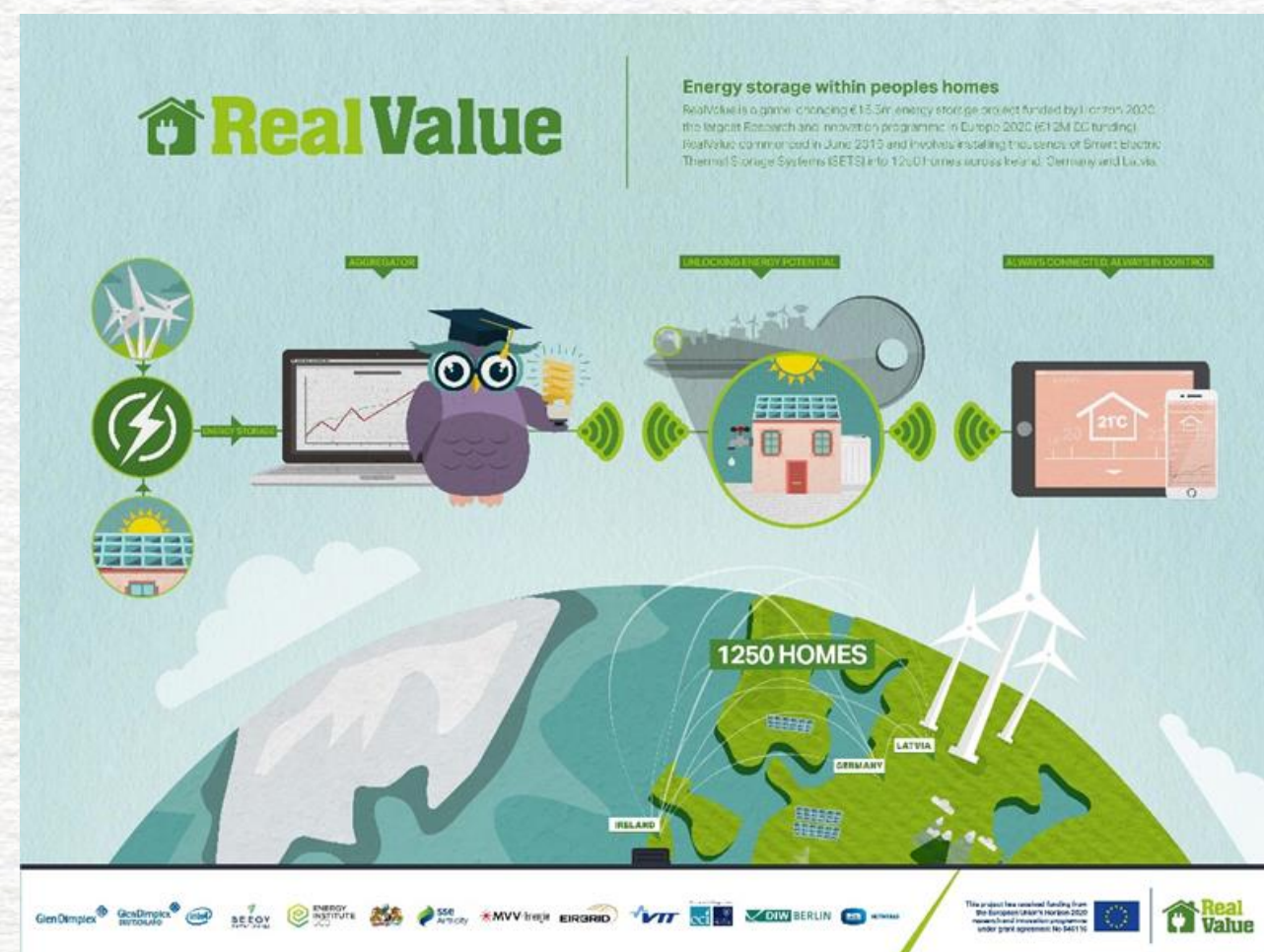
May 2017

# The Glen Dimplex Group

- World leader in intelligent electric heating and renewable energy solutions, as well as holding significant global market positions in domestic appliances, cooling and ventilation.

- Operates through 33 autonomous businesses throughout the world

- Employs  c10,000 people

- Annual turnover €2bn



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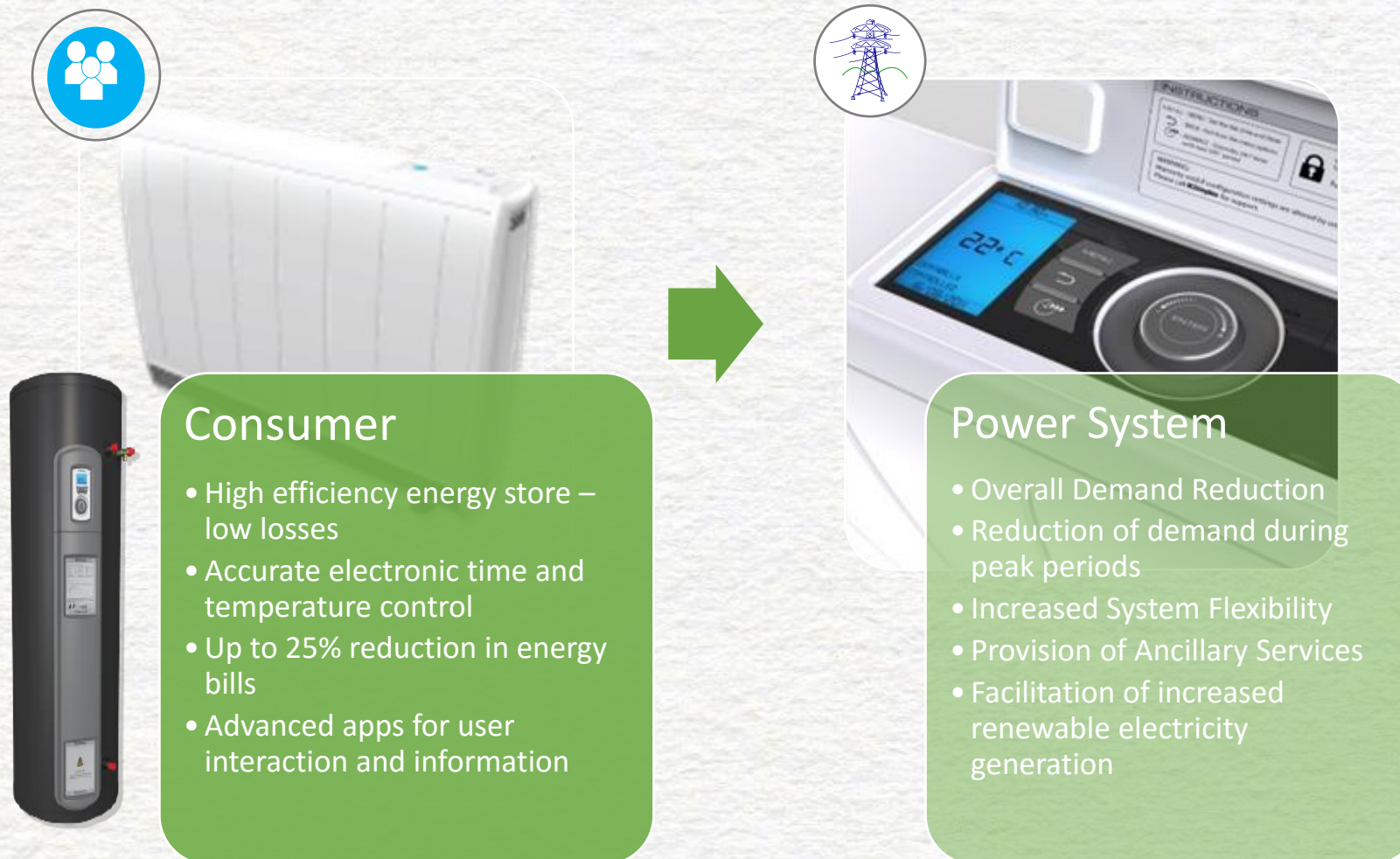Real Value

# RealValue H2020 Overview

- RealValue project funded under H2020 LCE 8 – 2014:  Local / small-scale storage
- Commenced 1st June 2015 (duration 36 months)
- EU Grant €12 million
- 1250 homes installed with the Quantum Smart Electric Thermal System in Ireland, Germany and Latvia
- Glen Dimplex acting as a coordinator
- Consortium of 13 partners in 5 member states
- Focus on Northern Europe
- More info www.realvalueproject.com

# RealValue Consortium

# SETS – Key Features

## Consumer

- High efficiency energy store – low losses
- Accurate electronic time and temperature control
- Up to 25% reduction in energy bills
- Advanced apps for user interaction and information

## Power System

- Overall Demand Reduction
- Reduction of demand during peak periods
- Increased System Flexibility
- Provision of Ancillary Services
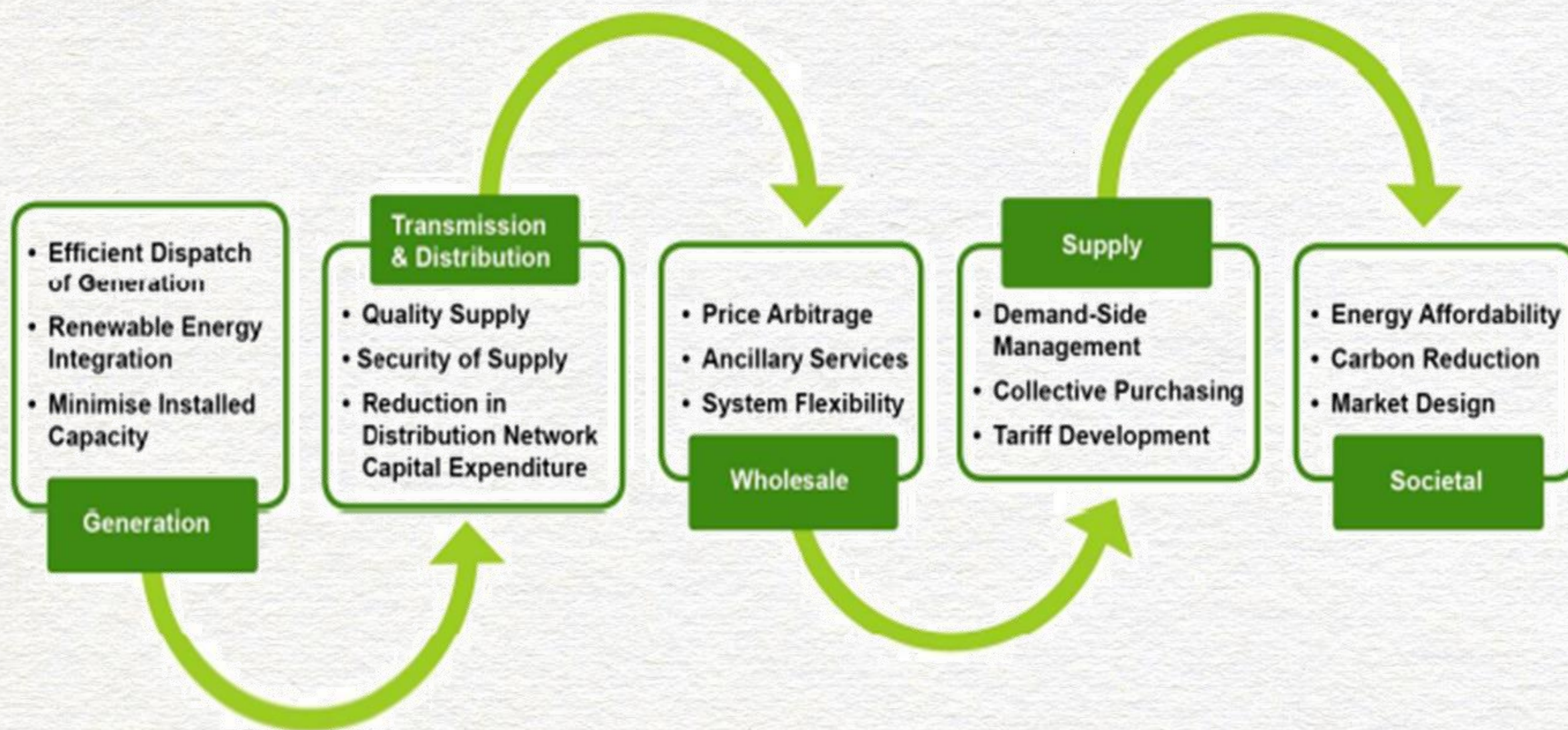- Facilitation of increased renewable electricity generation

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# Demand Side Management (DSM) using SETS

- DSM controls the consumption, not the heat

- Consumers remain in complete control of their heating and hot water at all times.

- The SETS technology allows us to be smart and intelligent in how the energy is consumed to deliver this heat and hot water

- We start with their requirements – the level of heat and hot water they want and when they want it

- This reveals how much energy is required and our smart technology optimizes the best time to deliver it, based on energy prices, and renewable energy generation

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# RealValue – Impact across the electricity value chain

**Generation**
- Efficient Dispatch of Generation
- Renewable Energy Integration
- Minimise Installed Capacity

**Transmission & Distribution**
- Quality Supply
- Security of Supply
- Reduction in Distribution Network Capital Expenditure

**Wholesale**
- Price Arbitrage
- Ancillary Services
- System Flexibility

**Supply**
- Demand-Side Management
- Collective Purchasing
- Tariff Development

**Societal**
- Energy Affordability
- Carbon Reduction
- Market Design

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# Who could/should gain value from smart storage?

- Customer

- Grid /TSO

- Landlord

- Manufacturers

- Network/DNO/DSO

- Electricity retailer

- ESCOs, third-party service providers

- Cost, comfort, [participation]

- Peak reduction, ancillary services, use renewable generation

- Satisfied tenants, fewer problems with damp etc.
- Sales of equipment

- Avoided investment, use renewables
- Satisfied customers, income from ancillary services
- Business development

**…but benefits are lost/reduced if customers don't contribute to demand response**

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# Demand Response dimensions

- **Technologies/ stuff** – invoices, kit, meters and coms, controls, information, housing stock

- **Activities/ skills** – keeping warm and clean, learning how new arrangements work in amongst conducting daily life

- **Service expectations/ image (meanings)** – levels and duration of heat/ hot water, speed of delivery

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# Demand response in 3-D

Demand response
potential = total 'volume'
of changes in technology,
activity and service
expectation



Full
demand
response
capacity
achieved

Service expectations

Status quo

Technologies/stuff

Activities, skills
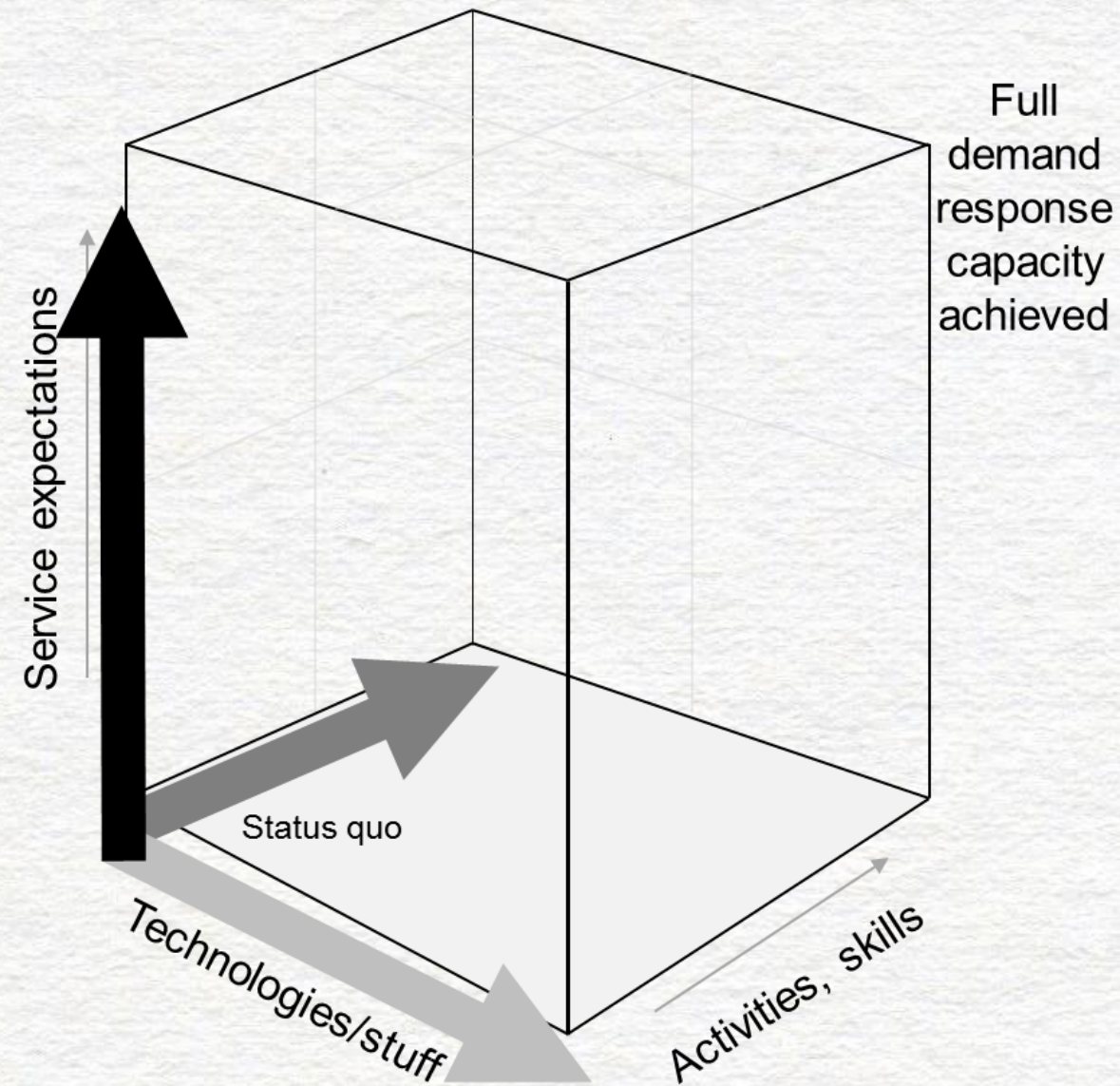
Source: McKenna, Higginson, Grünewald and Darby, in press

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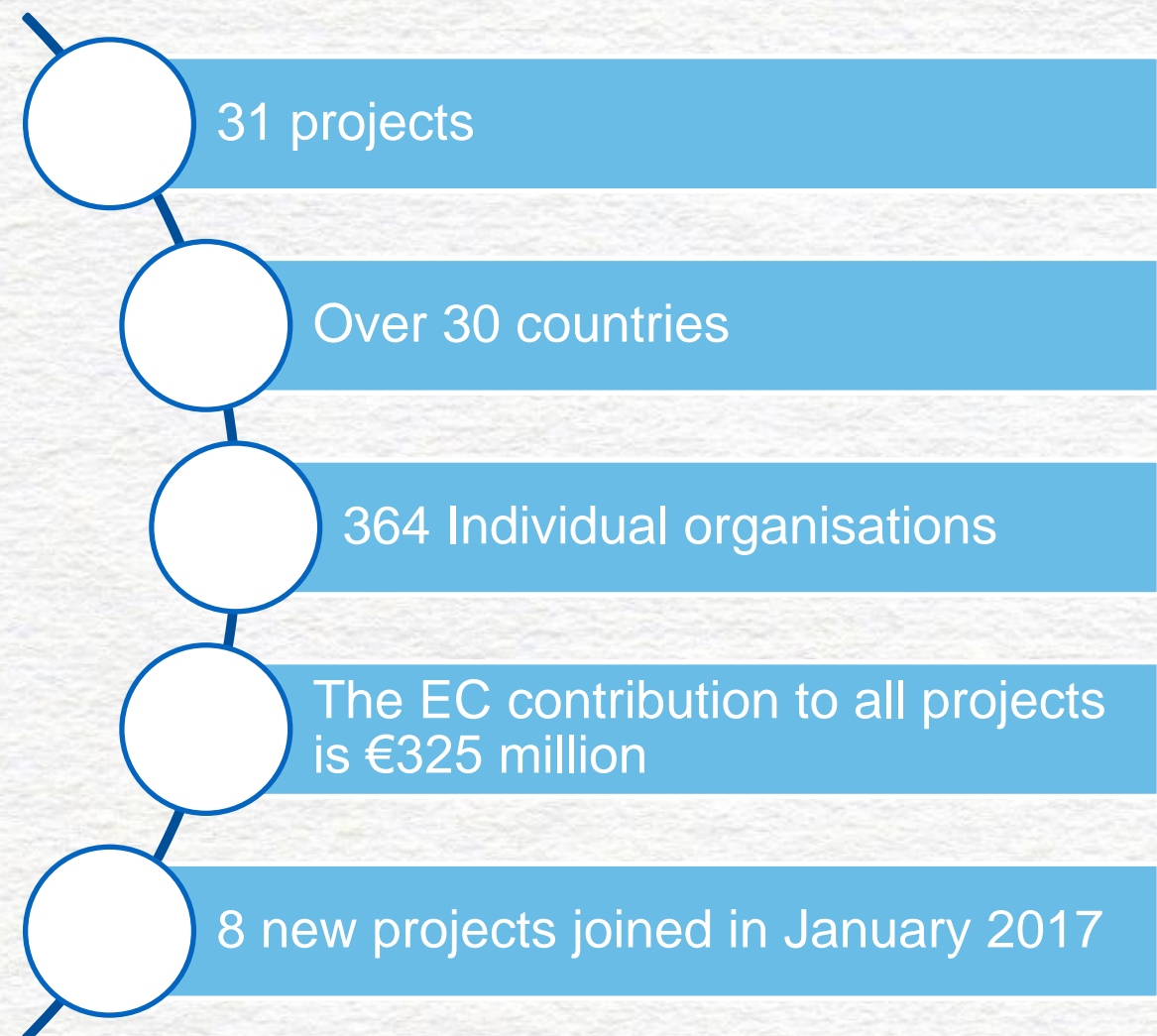# Some early lessons on engagement in a smart system

- Smart is complicated: more actors, things, processes - more that can go wrong

- Coming to terms with a complex system like this requires time and learning from customers – and from everyone else

- Careful teamwork needed to develop confidence in a new product + service

- 'Middle actors' are important: worth interviewing installers, housing officials etc. And, if possible, offering additional training

- 'tech demonstration' involves socio-tech testing, with engagement a central concern.

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# Bridge initiative

**bridge**
HORIZON 2020

**BRIDGE** is a European Commission initiative which unites Horizon 2020 Smart Grid and Energy Storage Projects to create a structured view of cross-cutting issues which are encountered in the demonstration projects and may constitute an obstacle to innovation.

The **BRIDGE** process fosters continuous knowledge sharing amongst projects thus allowing them to deliver conclusions and recommendations about the future exploitation of the project results, with a single voice, through four different Working Groups representing the main areas of interest:

31 projects

Over 30 countries

364 Individual organisations

The EC contribution to all projects is €325 million

8 new projects joined in January 2017

Data management

Business Models

Regulations

Customer engagement

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# Thank you for your attention

# Any questions?