Cooperation between Horizon 2020 Projects in the field of Smart Grids and Energy Storage

Main findings and recommendations

Customer Engagement Working Group

July 2019

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Introduction to the BRIDGE initiative

Purpose of the initiative

BRIDGE is a cooperation group involving Low Carbon Energy (LCE) Smart-Grid and Energy Storage projects funded under the Horizon 2020 program over the last five years (2014-2018). It aims to foster the exchange of information, experience, knowledge and best practices among its members.

BRIDGE wants to provide field experience, feedback and lessons learned from the participating projects to help overcome the barriers to effective innovation. It aims to gather coordinated, balanced and coherent recommendations to strengthen the messages and maximize their impacts towards policy makers in view of removing barriers to innovation deployment.

BRIDGE Working Groups

This cooperation group involves four different types of activities (Working Groups) addressing cross-cutting issues enlisted as follows:

Data Management

- **Communication Infrastructure**, embracing the technical and non-technical aspects of the communication infrastructure needed to exchange data and the related requirements
- **Cybersecurity and Data Privacy**, entailing data integrity, customer privacy and protection
- **Data Handling**, including the framework for data exchange and related roles and responsibilities, together with the technical issues supporting the exchange of data in a secure and interoperable manner, and the data analytics techniques for data processing

Regulations

- As regards to **energy storage**, the regulatory framework needs to provide clear rules and responsibilities concerning ownership, competition, technical modalities and financial conditions, for island and mainland cases
- In terms of **smart grids**, regulatory challenges arise regarding the incentives for demand-side response, commercial arrangements, smart meter data, etc.

Customer Engagement

- Customer Segmentation, analysis of **cultural**, **geographical** and **social** dimensions,
- **Value** systems - Understanding Customers
- **Drivers** for Customer **Engagement**
- Effectiveness of Engagement Activities
- Identification of what triggers **behavioral changes** (e.g. via incentives)
- The **Regulatory** Innovation to Empower Consumers

Business Models

- Defining common language and frameworks around **business model description and valuation**
- Identifying and evaluating **existing and new or innovative business models** from the project demonstrations or use cases
- The development of a **simulation tool** allowing for the comparison of the **profitability of different business models** applicable to smart grids and energy storage solutions is being developed and tested by the Working Group members

Projects involved in the Customer Engagement Working Group

Presentation of the report

This booklet was composed by members of BRIDGE, an initiative of the European Commission, which brings together Horizon 2020 Smart Grid and Energy Storage projects to create a structured view of cross-cutting issues encountered in the demonstration projects. It is motivated by the call of the European Commission to strengthen consumer-citizen engagement. The new proposal for Horizon Europe published in June 2018 includes MISSIONS as an important novelty, with the aim being to enable the innovation and research agenda to reconnect with citizens and involving them in shaping the future of Europe. The BRIDGE Initiative already identified the topic of customer engagement and customer values in its previous report of 2015-2018 and now picks up on this important issue with a focus on the Customer Engagement Cycle. The work described in this booklet focuses on establishing a process for understanding customers' values and how projects can adopt and implement these to achieve a long-term engagement of consumers in energy projects. For this purpose, the booklet summarizes how demonstration projects have approached their customers in the field and gives an overview of what worked and, equally important, what did not work.

A total of 20 demonstration projects were contacted, from which 10 accepted to collaborate and be interviewed to gather this information. The projects involved were: INVADE (3 demonstration sites Bulgaria, Spain and Germany), GRIDSOL, InteGrid, RealValue, FutureFlow, NETfficient, STORY and GOFLEX. The interviews addressed the roles of consumers in the project, their approach to customer needs and values, strategies to address these, changes over time, and recommendations for future projects or EU calls.

A summary of the results is described in the following sections, starting with a list of the most common challenges when it comes to customer values, followed by a description of the best practices examples with strategies used by the projects that worked to have full customer engagement and involvement. A description of each section is provided including either direct quotes or paraphrased statements from the interviewees. And finally, recommendations provided by the project contact points to future projects.

Customer Engagement Cycle

Addressing Customers Values: "Establish a Process for Understanding Customers' Values and how to address them during the Project".

What did not work – The challenge of Customer Engagement

Getting Customers on Board

A major challenge that was faced by many of the customer engagement professionals interviewed from the different projects was to mobilize and engage customers in research projects. In many cases, the customer engagement strategy was fairly limited and was built solely around offering customers savings on their energy bill, resulting in rather low customer motivation to participate and, thus, difficulties for the project to find consumers with their demos. While the monetary aspect seemed to work, at least partly, in some projects with residential consumers as a motivation for customer engagement, monetary incentives were not as successful for other projects, especially the ones conducted in wealthier areas. In these cases, securing engagement seemed to require a focus on the innovative aspects of the research project and on offering customers added value, such as an overview of their energy consumption in real time. This further highlights the need for gathering information on potential customers that are to be engaged in the research project, to better develop a motivator that will work with them.

"For engagement of residential consumer, don't begin with technology first but with people (…) understand people's problems and think how we can improve their life" ***InteGrid***

"When engaging customers, you really need to have a good story of what is the benefit for them (…) it needs to be a specific interest for them but it definitely helps if those interests are in line with those trends, being eco, being technologically advanced, being self-consumption energy efficient" ***FutureFlow***

Another angle of this challenge was the difficulty to establish a relationship with the customers when the partners of a research project were not active at a local level. It seemed that customer engagement was much easier if customers were approached by a local partner from the project with good reputation on the field.

"Have middle actors that talk to the customers and learn from the customers" ***RealValue***

"If a partner has an image this will help to reach more customers and will help in delivering the message" ***FutureFlow***

Finally, the complexity of the technology developed in the research projects was often referred to as one of the main challenges to attract customers and engage them in the research. It was often assumed that customers had more extensive knowledge than they actually had, therefore the information that was provided to them was difficult for them to understand. Misunderstanding of the aim of the projects often led to difficulties in the engagement process. Underestimating – rather than overestimating - the initial knowledge of the customers and planning for the effort needed in explaining technical aspects to customers is a helpful strategy to implement a successful engagement strategy.

Keeping Customers Happy and Engaged

Energy research projects are scarcely answering direct needs from the customers. Customers are often already enjoying a stable energy supply before engaging in research projects. When new pieces of equipment or a monitoring system are put in place on their premises, it is important to make sure these will not negatively affect their initial comfort and satisfaction. While it is often difficult, in the case of research projects, to fully ensure that no disturbance will come to the customers, it is important to take the time of thoroughly explaining the risks to the customers.

"*End consumers knew they would have to open the door many times. You should not underestimate the burden you put on the consumers. People need to take a day off*" ***STORY***

Another important challenge to keep in mind when engaging stakeholders in research projects is to avoid overburdening them. For example, the number of visits made at customer's premises to install or monitor equipment needs to be kept at a minimal as this often requires the customer to be present for a certain period of time. It has been observed, when these visits are too frequent due to equipment failure or over monitoring, that customers grow unhappy and are often reluctant to stay engage in the project.

Finally, communication was often cited as one of the biggest challenges when it comes to keeping customers engaged. Customers need to be regularly informed of the development of the project, but most importantly, for relevant cases, they need to have access to a communication point they can easily reach in case of equipment failure or other emergencies. Proper communication channels have to be designed and put in place in the initial planning of the project to avoid having customers feeling like they have been left alone. Ultimately, without proper communication, customers could decide to quit the project.

"It is very important that you are prepared to answer questions of any sorts at any time" ***STORY***

"You have to underestimate the end consumer, both when it comes to his acceptance level and is capability of understanding what it is you do" ***STORY***

"Have a dedicated budget for the communication of the project to the final customer, or the regular citizen. When this user is difficult to reach, like our case where they don't know what is coming or anything about the future energy market, you should have in the call, an automatic budget to bring specialists that can explain in a very simple way what the project goals are" ***INVADE***

What worked – best practices

Customers' needs and the value provided: 5C and a local social network for long-term engagement

The key to successful consumer engagements is the shift from technology-push towards a needs-based approach: This means to identify consumers' needs and make sure that the project creates value for consumers that address these needs. Findings from H2020-energy projects, especially the RealValue project, have found the 5C to be key values for consumers: The most important value that emerged for consumers in the project were:

- (reduced) **C**osts
- and (increased) **C**omfort.

In addition, three other factors were identified as being essential for good customer experience and engagement:

- **C**ontrol, **C**onnectivity and **C**are.

All three are related to communication: people-tech (control), people-people (care) and tech-tech (connectivity).

For demand response management as a specific case of customer engagement a key challenge emerges, namely the long-term engagement of customers, especially if the demand changes, e.g. peak load shifting, are not in line with the aforementioned factors, e.g. not offering (a valuable) cost reduction or a decrease rather than increase in comfort. Gamification approaches have been tried for this purpose but usually do not lead to long-term engagement beyond the so-called "honey-moon period". The H2020-project InteGrid is currently testing a novel and promising approach to address this: InteGrid identified the need of Swedish consumers for stronger social bonds with their neighbors and addresses this need by developing Local Life – a local social (online) network which will also be used for providing energy feedback and awards for community energy saving effort, thus, addressing environmental and social sustainability and offering true value to consumers.

"It is all about creating value. We need to be better in solving everyday-life problems!" ***InteGrid***

Analysis of the local socio-technical system to identify needs and values

Customer engagement demands, from installation of new technologies via demand response management to becoming active prosumers, differ a lot between projects. The same is true for the local contexts that (intentionally) represent a broad variety living situations in Europe. And as the examples below illustrate, the key needs of consumers and related values that the projects could offer differ in the same way and require specific local approaches, e.g. role of monetary incentives versus environmental feedback/incentive depend on peoples' living situation and current energy prices. A customer analysis in an early stage is accordingly mentioned as success factor in many projects. A local company could help for this step by providing data on consumers and/or facilitate contact for further data collection. Based on this

analysis, different engagement mechanisms should be used – with the needs and values mentioned above providing suggestions on what mechanisms might be central.

"We have one member that is responsible for collecting this information (…) we use the people who have expertise on this, they have their own tools" ***Gridsol***

Constant contact between consumers and (local) partners

While a local adaptation of the engagement mechanisms is a key success factor, the following best practice was named in several projects and seems generally applicable: Establishing from project start to project end (and at best beyond this) an ongoing communication with consumers in the project and this role is best taken by local contact persons and/or organizations which already have strong social bonds with consumers, know their needs, have a communication network and, most important, are trusted by consumers.

The projects NETfficient, GoFlex or INVADE are good examples for how the integration of e.g. a local (trusted) energy suppliers or other local organizations as an intermediary could facilitate the contact with costumers. The local proximity also helps with in-person meetings with consumers, including inspections of the new technologies and their use at home (which might not be as intended as the report from RealValue shows) and also helps to bridge comprehension problems between different actors, e.g. between the installers and the producing company.

"The strategies we used worked perfectly (…) first the mailing to give an impression about the project, then to give them a few days to think about it, then some days to call them and then to visit them personally" ***INVADE***

Recommendations

The demonstration sites were either business-to-business or business to customer. Some project managers could not clearly identify the direct customer. The interviews then focused on extracting information about customer initiatives or indirect impact of those projects to the targeted end user. The diverse definitions on customers indicate further work needs to be completed to broaden the definition of customers more clearly within projects. Only then, can projects determine a process to address customer values or carry out customer engagement initiatives. As a result of this, this section lists recommendations for future calls directly from the projects but also, from the best practices. Six recommendations have been identified from which four refer to strategies to be applied before reaching the users and while preparing the call and two specific recommendations while the project is being conducted.

A dedicated budget for customer engagement initiatives

Contacting local actors and experts from social sciences requires financial and human resources, calls should include specific budget to be used for the recruitment of local partners, field visits, and communication activities throughout the project with the customers. In addition, the budget should support exploration-based activities that allows for projects the enough time and resources to clearly define and identify the customer segments they will be working with. The dedicated budget could be a portion of the overall project, which could range from 5% to 10% of the overall project for initial recruitment stages and up to 30% if local training is used to have local partners conduct the ongoing engagement work in the field. This number would have to be further analysed with more projects.

Users before technology or Bring the social scientists and technologists together

Project calls have focused mainly in technology leaving out the main targets of the interventions. This creates obstacles in the initial phases of user recruitment as it makes it difficult to get users involved in the projects, which compromise the timelines projects need to respect to deliver in time the aimed reports. A needs-based approach is the best strategy – give users voice, collect the needs first and develop the interventions around those needs. This will help to reduce the recruitment issues since involving social sciences, means bringing the experts on human and needs analysis. They will provide the know how in terms of best methodology to approach customers.

Building trust right from the start through local actors

When preparing for a call project leader should reach local companies or associations that have roots within the community. Calls should then have space and specific budget allocation for entities to research which local actors are integrated into the communities and how to bring them into the projects. These people or associations will help recruit and advertise the project, identify the main community needs but also, bring users to become involved in the project. Recruitment is a time-consuming task, and local relationships help to break the initial barriers when a project is just first starting.

When it comes to benefits, be honest and appeal to context related values

During the project it is important to define very clearly to the user what the benefits will be by participating in the project. In the case of energy and demand response, the customers are already driven by environmentally friendly values, although financial and comfort values do play a role, these offer often very minimal gains in the short term. It is important to promise benefits the projects do think they will be able to deliver within its scope, especially regarding monetary incentives. Several demonstration pilots mentioned that environmental values help the users to be engaged for longer periods of time and feel more integrated. Yet, the findings also show that the role of monetary incentives versus environmental incentives, depend also on peoples' living situation and current energy prices and that local adaptation is key.

During the project reserve time to communicate and be with the users

During the project it is important to have dedicated and diversified communication channels with the users as this helps them feel satisfied and involved in the project. Communication with the users should be clear, constant without being intrusive which means communicating in shorter periods of time (don't stay too long without saying anything to users). Discuss with users, using whichever channels they feel more comfortable with, whether these are telephone calls, personal visits, surveys or text messaging. In addition, make sure customers are aware of the efforts needed from their part throughout the project, and the equipment has been properly certified and tested. Projects should then consider having specific partners that take responsibility for this task, and work on it full time. When planning in person visits make sure enough time resources and strategies have been considered to reduce time and effort needed, while keeping the users always informed in case unforeseen events do take place.

Allow for knowledge exchange experiences with similar projects

Communication with similar projects helps addressing and discussing issues, joining efforts to solve what could be common problems. One strategy would be the creation of events, workshops or structures to improve communication between projects and other partners, or other projects working in similar areas. Not all partners have the same level of knowledge and these experience exchange events could help leverage it to promote more successful customer engagement.

"Share information and learn from others, having common events like BRIDGE or workshops, it is important to compare to what others are doing in other projects" ***Gridsol***

Resources

For further information on best practices please see:

For the analysis of customers' needs and values interesting methodological approaches can be found in the RealValue project which used a large variety of qualitative methods (see for an overview of the methods and findings in the project):

Real Value Consumer Impact Report 2018

See also the book chapter derived from the project on data management in large, multi-disciplinary energy projects:

Higginson, S., Topouzi, M., Andrade-Cabrera, C., O'Dwyer, C., Darby, S., & Finn, D. (2018). Achieving Data Synergy: The Socio-Technical Process of Handling Data. In *Advancing Energy Policy* (pp. 63-81). Palgrave Pivot, Cham.

Or the new storytelling-technology used in the InteGrid-project that was designed to allow for an easy replication in other projects and showed very positive results for both customer engagement and analysis:

Consumer engagement strategies - InteGrid deliverable

Conclusions

Customer engagement can be challenging for projects from the initial stages of assessing knowledge base and values to bringing customers to the project, but also keeping them involved throughout its duration. Future calls should include dedicated budgets for projects to explore the customer segments in terms of their contextual needs and values, provide enough time and resources to reach local actors integrated in the communities but also, continuous support projects can be of use to keep communication clear and constant with their customers. All of this will be needed if we are to achieve the ambitious goals of the European Commission on a research and innovation agenda that put people, their values, needs and interest, at the center and shape an environmentally and socially sustainable Europe.

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