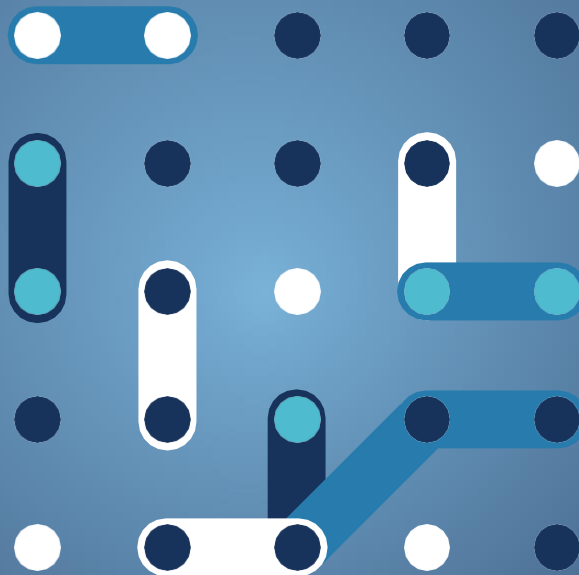




bridge

Exploration of citizen
engagement methodologies
in European R&I projects

Consumer & Citizen Engagement
Working Group



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APRIL 2021



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Executive Summary

The Working Group on Consumer and Citizen Engagement (WG CCE), previously Consumer Engagement, is part of the BRIDGE initiative. The WG is looking to create a structured cross-cutting understanding of the role and methodologies of engagement in the European R&I projects. During the 2020 BRIDGE General Assembly (GA 2020), the group decided, based on European R&I project experience, to focus on 4 main objectives:

- Build methodologies to engage consumers in the energy sector
- Build methodologies to support the constructions of organisations to involve consumers in the energy system
- Build objective assessment criteria to consumer engagement
- Build models for collective action of citizens

In order to tackle this wide scope, the working group was divided into 5 subgroups each tackling a piece of this goal:

	Topic	Sub-Group Leader	Description
	Socio economic drivers of engagement	Johanna Irene Höffken (MUSEGRID)	To collect evidence around the incentive strategies implemented by projects to ensure participation and involvement of consumers.
	Group building	Panagiotis Ktenidis (TILOS)	To study the ways to mobilise consumers to act collectively and build a consumer group.
	Governance and organisational models	Maarja Meitern (RENAISSANCE)	To explore governance models for collective action groups. This looks at principles that are the base for citizen participation.
	Assessment of engagement	Sebastian Seebauer (COMPILE)	To find a range of indicators and monitoring techniques to understand, monitor and assess the development of collective action groups.
	Smart tools	Diego Casado Mansilla (PARITY)	To collect an exhaustive list of tools and technologies supporting consumer participation and the ways those tools are supporting the involvement of consumers.

Table 1. Consumer and Citizen Engagement Working Group Subgroups

The plan of the WG CCE is organised over the span of two years. Until the 2021 GA, the subgroups explored their respective topics and identified gaps in the knowledge and needs of European R&I projects around engagement. Until the 2022 GA, the working group will address those gaps, with the support of BRIDGE projects. Throughout the year 2020, subgroups got activated according to the interest and will of working group members. Sub-group leaders have taken on the heavy responsibility to guide and facilitate those sub-group, forming a leadership group with the chair of the working group.



Conclusions of the sub-groups

Despite the fact that some subgroups had less time than others to perform this preliminary research, all subgroups reached preliminary conclusions.



Socio economic drivers of engagement

The socio-economic drivers group decided to focus on two points: user groupings in order to inform engagement strategy building, and adaptation to COVID-19. The goal was to explore topics that could help projects improve and adapt their engagement strategies. The result of the first item was an analysis of the matrix needs / motivation / behaviour for 5 grouping of consumers: private consumers, collective consumers (i.e., private and public buildings), industrial consumers and others. On the adaptation in reaction to the COVID crisis, the group has produced a set of preliminary recommendations for project consortiums.



Group Building

The group focused on the field experience of the BRIDGE projects of the ways to build consumers groups as part of R&I projects. The group collected practices through surveys among on-going projects. This survey revealed the main phases of the Group Building process: The Starting phase, the Operating phase, and finally, the Sustainability phase. The survey also showed that only a few projects have established and used a methodology for group building in most of the cases.



Governance and Organisational models

The group focused on the exploration of currently used organisation models for community-based initiatives. The research focused on governance principles and their implementation in energy communities, as the most advanced form of community-based initiative. The group concluded that a legal form is the best, and often the only, to guarantee a sustainable engagement of a citizen group. This legal form must include a transparent, trust-worthy and democratic governance model. The cooperative model is the most often represented to achieve this outcome.



Assessment of engagement

The group on assessment focused on the exploration of the stages of change, which represents the key stages a community-based project is going through during its construction. The group then attached currently used indicators for each of the stages of change. This work allows the group to conclude that most of the currently used metrics and indicators are related to later stages of construction. Therefore, European projects tend to evaluate only the more mature initiatives, often ignoring the maturing of initiatives through the first stages.



Smart Tools

The group on smart tools has reached two main conclusions: the first is that there are already several mature tools for engagement of consumers, optimising around the notion of comfort for the user as a key driver for the use of the tool. The smart tools gathered by the subgroup are mostly in the category of top-down triggering of consumers. The second conclusion is the lack of tools that includes a user-centric approach and supporting a partnership with the consumer. There is a heavy bias around the notion of individual benefit in the tools gathered by the subgroup, vs an idea of collective benefits or community benefits. There is an additional conclusion that was reached by the subgroup linked to the user profiles served by tools identified. There is a stereotypical profile type for the users that are included in R&I projects. In general, projects tend to overwhelmingly have an approach based on volunteering which prevents from diverse and inclusive samples. This bias might damage the relevance of the tools developed and speaks for a more inclusive people centered approach to development. This also reinforced the need for an engagement strategy that will build representative samples for technological innovation.



Gaps Identified

Each sub-group has identified the gaps in their scope and prepared a plan of action for the next step of our work as a working group.






Topic		Conclusions
	Socio economic drivers of engagement	<ul style="list-style-type: none">● Need to explore the adaptation of engagement strategies per consumer groupings.● Needs to collect more collective animation techniques and their adaptability to online / removed group work.
	Group building	<ul style="list-style-type: none">● Need for more group building effective and efficient methodologies to improve the quality of formation and operation of the consumer group while shortening the time needed.● Need for clear and improved coupling of smart grid with common interest establishing group sustainability.
	Governance and organisational models	<ul style="list-style-type: none">● Need to explore the transferability of democratic governance principles to the non-cooperative entities.● Need to explore the modalities of scaling of those principles to larger organisations● Need to explore the impact of policy to support the development of democratically governed legal forms, allowing for citizens to engage in more collective actions.
	Assessment of engagement	<ul style="list-style-type: none">● Need to explore more metrics and indicators for the early stages of change, allowing for projects to better understand and assess starting community-based initiatives.
	Smart tools	<ul style="list-style-type: none">● Need for the exploration of more incentive structures for the tools away from individualistic incentives● Needs to provide for a better maintenance concept (constant feedback loop) for the smart tools created by projects● Need for more diversity of user profiles for tools

Table 2. Gaps identified by each subgroup



Recommendations



Formalise a targeted engagement strategy specific to each community and each user group

In our contacts with existing projects, it became apparent that in many projects there was a lack of a clear and specific engagement strategy for community building. Projects were also providing broad notions of engagement without providing specific regarding their targets and the specific adaptation to the context that were facing in their pilot countries. This seems to be related to the proposal process which disproportionately rewards technical and economic solutions rather than social ones. Project consortiums are encouraged to provide detailed plans on the development of technological solutions or revenue-oriented business models, but not often in the deployment of those solutions with real consumers. Most consortiums that we interviewed had to perform this analysis after the start of the project, and realising the difficult time frame, decided for modelling solution rather than live testing. This finding is accentuated by the COVID crisis where engagement plans, and methods had to be adapted.



Work with existing community initiatives

Considering the timeframe of a European R&I project, it is difficult to reconcile the timeframe of the project with the necessity of a long trust-building exercise. Therefore, we recommend that consortiums work with existing collective actions, where citizens have shown interest in supporting research and innovation and where the social fabric underpinning collective action has already been established. This also highlights the need for a clearer understanding by reviewers of the nature of such initiatives and their clear role in project consortiums. However, this point might require from funding institutions a stronger support for smaller and citizen-led initiatives in the negotiation of the contractual relationships with established project partners.



Work with specific organisational structure to create consumer engagement

A large majority of the projects that we have interviewed created legal forms to validate, and sustain, the citizen engagement through time. Creating a legal form seems to be a turning point in the life of collective initiative allowing for activities and collective actions to be concretised. However, we also have found that the types of legal forms that were explored are limited. It is often cooperative legal forms. If another type of legal form is used, the institutional model is often inspired by cooperative principles. When interviewed, community leaders often refer to basic principles of democratic governance to sustain the engagement of their members through time: transparency, fair representation and education. A question remains around the opportunity to explore those principles in different, more flexible, legal forms.



Provide adapted procedures for community energy initiatives to support their specific governance needs

The creation of citizen-led organisations often requires specific effort and procedures. The needs of community organisations are different from traditional business due to their collective governance system, lack of technical expertise and need for individual support throughout the decision-making process. Energy communities in particular are often stuck between two types of contrary requirements, on one hand business-like administrative and registration requirements, on the other hand social and excellence criteria for their business model and governance model. It is necessary that national institutions as well as project consortiums understand the specific needs of those community-based entities.



Use different indicators for growing citizen-led initiatives based on their maturity

Citizen-led initiatives have different characteristics and different levels of maturity, and therefore need to be assessed with a varied set of indicators. Moving away from traditional financial and technological indicators toward social indicators related to group formation and decision rules will allow for project consortiums to better understand and validate the growth of early citizen-led collective actions. This understanding is especially crucial



as the most perilous phase of the creation of those entities are the early stages and are poorly supported currently by European R&I projects.



Create people-centric solutions vs technology centric solutions

The technologies currently being developed by European R&I projects are heavily influenced by an approach centred on technological innovation and market viability which unfortunately does not allow for co-construction processes to be fully developed and therefore risk producing tools ignoring the specificities of community-based organisations. This technological and economic focus tends to crowd out value creation regarding, for instance, social inclusion, enhancing wellbeing, or climate protection. We recommend supporting the development of tools that will concretely support the community building process and engage citizens feedback and maintenance in the development process. We also recommend covering social competencies and disciplines among the staff of European R&I projects, such as expertise in community marketing, conflict management, or needs assessment, in order to cater to people-centric solutions.



Include more evidence-based engagement methodologies

Our work with BRIDGE projects has highlighted the needs for a more competence-based approach to community building and citizen engagement. The projects that we have interviewed are usually well supported on the technical side but struggle with consumer interactions and engagement. Our group proposes that consortiums take a more competence-based approach to selecting partners to manage the engagement process, including community building experience, social science background and strong analytical skills. The working group will work on identifying key assessment criteria in the coming period (2021 - 2022).



From Market focus to value focus

Throughout the analysis of the engagement of European R&I projects, we came across a key overall conviction that the market focused approach of research is preventing several projects from gaining and sustaining trust with community-based actors. Therefore, impeding their capabilities to create a relevant engagement process of residential consumers. Our group's analysis highlighted the need to sift our focus away from market integration to community value as a key success factor to promote the development of energy communities and other collective action schemes in smart grid projects. Resolving this value-based approach integrating a holistic view of the technologies and innovations produced by projects, is an under-exploited area of research.



1. Introduction

The BRIDGE working group on consumer and citizen engagement (WG4) has been established at the origin of the BRIDGE group with the following objectives:

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

In 2018/2019, those objectives evolved to encompass the protean nature of the collective action schemes, changing consumer relationships in the decentralised energy system. They grew to respond to the policy push of the European Commission toward an empowerment of consumer and ownership of citizens in the energy sector.

Therefore, the tasks of the WG4 were extended by the expansion of the role of consumer empowerment and looking at the role of R&I projects in understanding, supporting and structuring this role in the market. In February 2020, REScoop.eu – for the COMPILE project – took the chair of the working group in order to support its members to collectively deliver a framework of analysis and recommendations toward promoting citizen engagement.



2. Key Objectives and Actions

The role of the Consumer Engagement Working Group is to develop a framework to guide R&I projects toward better understanding, triggering and leveraging the action of consumers in the energy market. This “engagement” is characterised by the transformation of the role of consumers into prosumers, communities and other active forms of participation in the energy sector and energy activities. Therefore, it is crucial to understand how to trigger and support this engagement throughout R&I projects and in the energy market in general.

The engagement is materialised by engagement markers which are actions that can be taken by a consumer or not. Those engagement markers are of various qualities and intensity. In this regard, the SONNET and ENABLE projects¹ have shown that the strong engagement markers are linked to consumer collective building, meaning the creation of active consumer groups. Our goal therefore should be to reinforce the creation of those groups and the efficacy of their impact onto the energy sector. This process is called community building: “community” refers to consumer groups, while “building” refers to the structuring of their actions. Our goal should be to create a complete method of community building. This method should include several levels of action and assessment tools to measure and support the actions of those citizens collective onto the market.

Our goal is to mobilise as many projects as possible to work on all the aspects of community building and single consumer engagement. Our scope will include private consumers, consumer groups and large consumers transforming their role to act on the energy market. In order to limit the scope of this working group, we propose that we only limit ourselves to consumers acting at the “local” level, meaning that they are connected to the medium or low voltage grid. This limitation is due to the fact that most market access barriers are related to this type of consumer, not the large consumers directly accessing the high voltage grid. However, considering those “local” consumers, it is important to cover a broad range of actors: from private consumers to SMEs and municipalities (as described in the definition of Citizen Energy Communities). This also allows us to focus our work on the transformation of the role of the consumer in a decentralised energy system.

¹ Those findings have since then been confirmed by many other projects in a wide range of sectors: from energy efficiency (REScoop.eu PLUS) to smart grid (WiseGrid or ECHOES) and flexibility (FLEXcoop).



3. Methodology

Since our goal is to build a complete framework of understanding. It should start with a “state of the art” collection, like it was mentioned during the GA in February 2020. This state of the art should give us an idea of:

- What is the current evidence around the framework of consumer engagement?
- What are the processes and techniques to support and trigger the engagement of consumers?
- What are the results and outcomes that can be expected from collective action groups?
- How to structure, measure and assess collective action groups in order to support their creation and growth, and maximise their impact?

The second part of the work will be to provide recommendations around the continuous development of consumer engagement, both in terms of concrete actions for project building and policy recommendations around the integration of consumers into the energy sector.

In order to ensure that we can cover a very wide variety of topics and leverage the efforts of the whole working group, we work according to the investigation group model. We will divide the working group in sub-group each tackling a piece of the broader framework. Our goal is that after the first year of working in parallel, the working group could potentially tackle the complex task of building a complete framework of consumer and citizen engagement.



4. Investigation Sub-Groups

Sub-groups are voluntary only, each group should have a facilitator that will be the main contact for the group. Each sub-group should investigate a piece of the framework of consumer and citizen engagement. Here are some of the topics that we already foresee to be investigated by a sub-group:

	Topic	Sub-Group Leader	Description
	Socio economic drivers of engagement	Johanna Höffken Irene (MUSEGRID)	To collect evidence around the incentive strategies implemented by projects to ensure participation and involvement of consumers.
	Group building	Panagiotis Ktenidis (TILOS)	To study the ways to mobilise consumers to act collectively and build a consumer group.
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	Smart tools	Diego Casado Mansilla (PARITY)	To collect an exhaustive list of tools and technologies supporting consumer participation and the ways those tools are supporting the involvement of consumers.

Each subgroup is representing a piece of the R&I project experience in building consumer engagement. Each of those groups are investigating a stage of the engagement strategy of R&I project:



Stage I – A strategic view of engagement – Projects are looking to build a broad strategy to interact with consumers either to get feedback, experiences or support for their innovative services and tools. In order to understand key factors and drivers engaging consumers and turning them into citizens, projects need to understand the drivers of engagement.



Stage II – Build a consumer group – Projects usually already have defined pilots but no real consumer interactions. It is part of the task of the project to create a group that will integrate into the project innovation process.



Stage III – Structure and organise – Projects are looking to structure a group of citizens in order to facilitate the collaboration and “professionalise” the interaction. The main challenge is to create a governance model which preserves the citizen-led nature of the initiative, while formalising the interaction channels.



Stage IV – Assess and coach citizen-led initiatives – Project are looking to keep track of their impact on citizen-led initiatives and the community at large.



Stage V – Projects are looking for tools to accelerate the interactions and mobilisation of citizen groups.



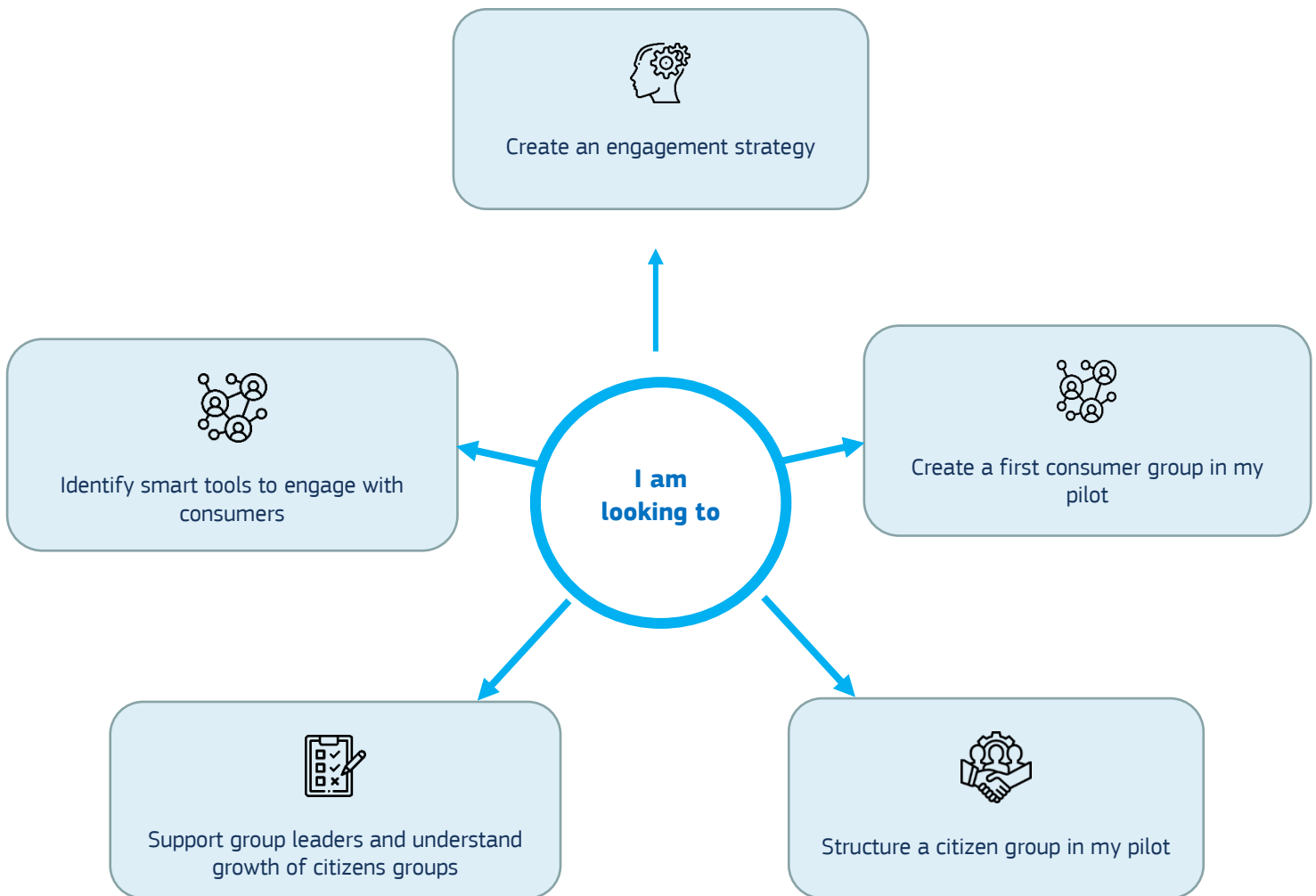
5. How to use this report?

This report is meant to guide R&I project leaders into their consumer engagement strategy. We created this report as a “choose your own adventure” book, where depending on your needs, you can find contents relating to your situation. This report is mostly based on experiences and research from European R&I projects.

Decision Tree

You just started your project and are looking to engage consumers and citizens to validate the technology you are building.

Click on the topic you find most relevant.





6. Chapter I – Socio economic drivers of engagement

Authors: Joana Desport Coelho, Stelios Zikos, Zbigniew Bohdanowicz, Helena Rodríguez, Andrea Moser, Johanna Irene Höffken, Natascha van Bommel, Rebecca Hueting and Romain Mauger

Engagement happens in two directions: users engage with technologies in various ways and to varying degrees, and project developers or technology promoters engage with their users in various ways and to varying degrees [1]. In the subgroup Drivers of Engagement, we look at both; the types of users and their ways and degrees of engagement, and the strategies from BRIDGE projects to engage with their users. The overarching aim of this subgroup is to *explore the socio economic and cultural drivers of consumer/citizen engagement and collect information and experiences of the varying strategies for engagement-based consumer profiles and cultural basis.*

6.1 Scope of the subgroup

To define the scope of the subgroup, we have first taken stock of what has already been researched in BRIDGE. We have analysed the 2019 BRIDGE report on consumer engagement to explore key findings of previous BRIDGE projects with regards to consumer and citizen engagement strategies [2]. In addition, we also analysed the S3C deliverable on key success factors and barriers for engagement [3], and the InteGrid deliverable on Design of Consumer Engagement Strategies [4]. This resulted in a list of key success strategies and barriers of consumer engagement strategies that are shown in table 1 and table 2:

Success strategies	Description
Identify end users	There are diverse types of users, it is crucial to know who you want to target.
Understand context	Even in small communities the context might differ per user type, these contexts should be understood.
Build trust	Involve local stakeholders to understand the local context and users. Create workshops and forums to get to know them, together with the end users.
Need based approach	Users have different needs even in the same communities, getting to know them will be helpful in the adaptation process.
Custom communication	Asking users how they prefer to communicate with stakeholders and setting up the proper channels will lead to a better involvement and less misunderstandings.
Understand barriers	To tackle barriers and challenges, it is key to understand them.

Table 3. Success strategies for engagement derived from BRIDGE (projects) documents.



Barriers and challenges	Description
Underestimate profiling	Profiling and understanding end users can be costly and tedious to execute. If underestimated, it leads to missing key features about the targeted users.
Lack of budget	Not all projects have the resources to provision a specific budget for user engagement strategies.
Unmotivated users	Different types of users are motivated by different incentives. In wealthier areas monetary incentives are not as strong motivators as in middle-low class households. One type of motivation incentive or a “one size fits all” motivation package might not be enough.
Overestimating users	The end users’ knowledge regarding the technology is often overestimated. Confusion about the technology can lead to a loss of user engagement.
Misunderstanding between project and users	Users can get demotivated if communication between parties is not set up properly. Misunderstanding could occur easily leading to annoyance and lack of engagement.

Table 4. Barriers and challenges for engagement derived from BRIDGE (projects) documents.

What comes clearly to the foreground in the success strategies in table 1 and the barriers and challenges in table 2 is the importance of knowing your user. There are diverse types of users, and to know who you want to target, it is essential to understand the differences between users and their incentives. Therefore, our first cluster focuses specifically on *user types, grouping participants for engagement strategies*.

Our second cluster came to the foreground by a more practical issue voiced by different members of our subgroup: how can projects still engage with users in a safe but effective way during times of a global pandemic? This question relates to the success strategy presented in table 1: customise your communication, and to the danger of miscommunication or lack of communication that is present in table 2, but then put in the context of the current COVID-19 measures.

6.2 Methodology of work

Our approach to exploring these drivers and strategies started with taking stock of what has already been researched within BRIDGE regarding this topic. After creating an overview of previous BRIDGE results on consumer engagement, we decided to focus on two main topics that came to the fore through discussions among all members of the subgroup. This resulted in the formation of two clusters within our subgroup: (1) User types, grouping participants for engagement strategies; and (2) Engagement strategies in times of a global pandemic.

The subgroup as a whole meet once a month to synthesise the work that has been done in the clusters. The clusters meet separately next to these monthly subgroup meetings.

Methodology wise, the work done in both clusters includes:

- extensive literature searches, both in academic literature and other.
- reflective work on what is happening in the H2020 projects represented by the contributors of this cluster.



Both clusters present their preliminary achievements and results below. These achievements and results are preliminary as this subgroup started up later than the other subgroups of the working group Citizen and Consumer engagement.

6.3 Preliminary results cluster: User types, grouping participants for engagement strategies

Joana Desport Coelho, Stelios Zikos, Zbigniew Bohdanowicz & Helena Rodríguez

This cluster has started with an analysis of the relevant user types for BRIDGE projects. This analysis is the starting point to analysing engagement strategies and their effectiveness. It is the starting point because the engagement strategies are dependent on the user types.

User types can be defined as different groups of users that share motivations, interests, needs, and behaviour patterns related to a specific technology. Therefore, each user type will react differently to engagement strategies. This means that some strategies that might be deemed useful with one group could fail when applying them to another one. Precisely for this reason, it is important to define the user types in this first phase, before moving on to the customised engagement strategies.

To develop this deliverable; twelve EU funded projects were analysed, together with scientific publications and technical reports [5-12].

Nine of the EU-funded projects that allowed this group to gather these results are still ongoing and three have already concluded. The following projects are still ongoing: [Ambience](#), [eBalancePlus](#), [FEEdBACK](#), [FEVER](#), [InterConnect](#), [MEISTER](#), [MUSE Grids](#), [PARITY](#), [RENAISSANCE](#). These are the projects that have already ended: [InteGrid](#), [SENSIBLE](#), [UPGRID](#).

The image below represents an effort of grouping the user types in energy projects, considering the data that was analysed, with a special focus on the publicly available information obtained from EU projects.

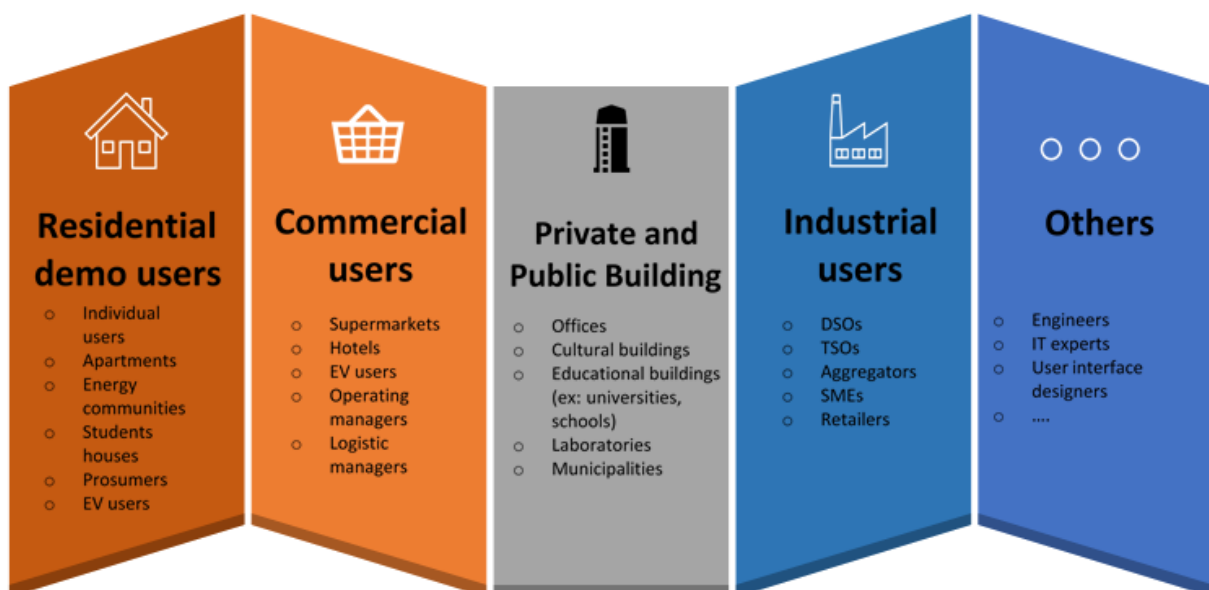


Figure 1. Main user types in energy projects

The five main groups are the following: residential end-users, commercial users, buildings (public and private), industrial users, and others. Examples of the type of users that are covered in each of the main clusters are provided in the image below.





6.4 Preliminary results cluster: Cluster User engagement in times of a global pandemic

Andrea Moser, Natascha van Bommel, Rebecca Hueting and Romain Mauger

The measures taken against the spread of the SARS-CoV-2 virus have called for another way of thinking about engagement of users. Engagement during times where restrictions are put on travelling, meeting in person, or even leaving your house is different than usual, and adapting to this is not as easy as simply transferring the engagement strategy to online platforms.

As part of the subgroup drivers of engagement, we sought to answer three main questions: (1) what general guidelines can be set up for transforming engagement strategies to be within the rules of COVID-19 measures?; (2) what engagement strategies can be easily transferred to be COVID-19 proof?; and (3) what inspiring and creative new ways of engagement can be found to deal with the current restrictions? In this preliminary report, we will give some examples of the activities that we found and of the guidelines that we have drafted.

6.4.1 Guidelines

Virtually

If the activity can be organised virtually, it's the safest option. However, the organiser must check beforehand a number of conditions:

- Does everyone have a good internet connection?
- Does everyone have a working webcam and microphone?
- Is everyone willing to use their webcam and microphone, especially from home?
- What time is the best to organise such an event? During the day? In the evening? On a Saturday?
- What means of communication are preferred by attendees? What technologies are they comfortable with? What are their reasons to participate?

Once these questions are answered, the event can be designed. This can include sending activity supplies to the participants' homes, (for example colour cards, etc.). Advertise your event through various channels: email, mail, radio, etc. Think about the format that is the most suited for your activity. For example, the World Café is a good option (<http://www.theworldcafe.com/>). Additionally, human resources are likely needed to manage the event (technical aspects) and/or to guide discussions, especially when participants will be divided in subgroups.

In Real Life

If the activity is to be organised In Real Life, a number of guidelines should be followed:

Address all the measures against the spread of the virus: if inside, be sure to have a room big enough to allow physical distance between participants, provide masks and hand sanitisers, make sure the room has enough ventilation;

- Preferably organise the activity outside (but of course, the number of participants and weather conditions may constitute issues);
- Be sure to have enough supplies for your activity – so people don't have to share items (boards, post-its, pencils...);
- This works best if people don't have to move too much around. You should organise and mobilise beforehand the necessary human resources. You will need one main organiser but potentially some other people too, for example to carry the microphone (with a 1 m stick) and gather participants' contributions (drawings, post-its, etc.). The microphone is especially useful as soon as there are more than 15/20 people, so that participants don't have to talk loudly, which is uneasy with a mask.



- When movement is key, going outside and having a relatively small group is important.

A good example of an engagement activity which can be adapted to IRL pandemic conditions is The 5 Whys (<https://toolbox.hyperisland.com/the-5-whys>).

6.4.2 Creative techniques of engagement

The search for new creative ways to engage people appropriately in energy projects, even in pandemic times, revealed some interesting methods and two of them are briefly mentioned as a result:

- **Data Walks:** A “Data Walk” is an event where researchers can share information, get feedback and identify gaps for additional research. Data walks can be in-person and online. (source:https://www.urban.org/research/publication/community-engagement-during-covid-19-pandemic-and-beyond/view/full_report)
 - In Real Life: Data is printed on large posters and placed around the room. Participants move from station to station to read and leave feedback on posters with sticky notes. During stricter restrictions the “Data Walk” can be organised for smaller groups visiting the venue on separated time-slots or completely en plein air, if the weather allows.
 - Virtually: Absent in-person meetings, Data Walks can be carried out by breaking participants into smaller groups on virtual meeting platforms and having a facilitator share the poster on a digital board with the participant.
- **Mash-up innovation:** The “Mash-up” innovation workshop is a 3 step structured brainstorming to generate ideas or concepts by combining different elements together. (source:<https://toolbox.hyperisland.com/mash-up-innovation>)
 - In Real Life: in large venues or en plein air, with the support of paperboards, firstly participants brainstorm around different areas, such as technologies, human needs, and existing services. In a second step, they rapidly combine elements from those areas to create new concepts.
 - Virtually: Absent in-person meetings, Mash-up workshops can be carried out by breaking participants into smaller groups on virtual meeting platforms and having a facilitator share the poster on a digital board with the participants.

6.5 Outlook

This short preliminary chapter shows the results of the work of the Subgroup Drivers of Engagement. Our aim is to create a toolbox of engagement strategies, taking into consideration both the different user groups; and the different types of engagement that are still viable during the restrictions and measures to limit the spread of the SARS-CoV-2 virus. We will present this through a virtual presentation, combining insights of the two clusters within our subgroup. This presentation will allow projects to browse through easily, guiding the projects to find engagement strategies suitable for their target user, type of project, in compliance with the restrictions and measures in place.

Regarding the cluster *User types, grouping participants for engagement strategies*, the next steps will be to analyse the problems and barriers that each user type faces. The barriers will be divided into the following typologies: financial, regulatory, technological, communication, and cultural. After that analysis is performed, the opportunities will also be assessed. Only after all that work is developed, the engagement strategies targeted to each of the user types will be identified, since they depend on the barriers and opportunities.

Regarding the cluster *User engagement in times of a global pandemic*, the next steps include finalising the list of engagement strategies that are suitable for different types of COVID-19 related measures and restrictions. These



engagement strategies will be presented to several BRIDGE projects, starting with the H2020 projects that we represent ourselves, to gather feedback on possible (new and creative) engagement strategies. We will synthesise our analysis with the results of the other cluster and integrate the different user types and their barriers to engagement that they face into our own results.

Once the COVID-19 pandemic is over, questions of users' engagement methods' resilience will remain. Indeed, given the climate and biodiversity crises, other such paralysing plagues are likely to hit our societies in the future. It would therefore be wise to learn the lessons from the current situation and to think how to adapt users' engagement to times of social distancing. This can for example include the improvement of ventilation for buildings dedicated to social gatherings or provide covered external terraces where physical distancing is eased. As each crisis may be different, there will be no one size fits all solution, but integrating such a reflection on the resilience of users' engagement methods to future events is important.



7. Chapter II – Group Building

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Special thanks to Evangelos Rikos for elaborating the Survey Template prototype.

7.1 Scope of the work

Group building sub-group goal is to uncover the ways to mobilise consumers to act collectively and build a consumer group.

The scope of the work during the present period is to collect and process information/experience from projects mainly participating in the BRIDGE Initiative while bringing knowledge from the action field context like Member States legislation, regulations and best practices.

7.2 Methodology

Several questions were discussed among members of the sub-group and fitted **into the different stages** identified for building consumer groups:

- Phase 1 - Starting phase: launching of the group
- Phase 2 - Operating phase: transition process is crucial; trials/mock-up test to simulate the whole group – build the story/workflow to have a good operation of the group. To monitor this operation, KPIs have to be defined (e.g., Frequency of the discussions, etc.)
- Phase 3 - Sustainability phase: run and maintain the stability of the group (beyond the projects)

To collect the narratives from each project on the initiation / organisation of a community a template was prepared accompanied by a written example.

All the projects involved in the WG were contacted and asked to provide a narrative according to the example provided.

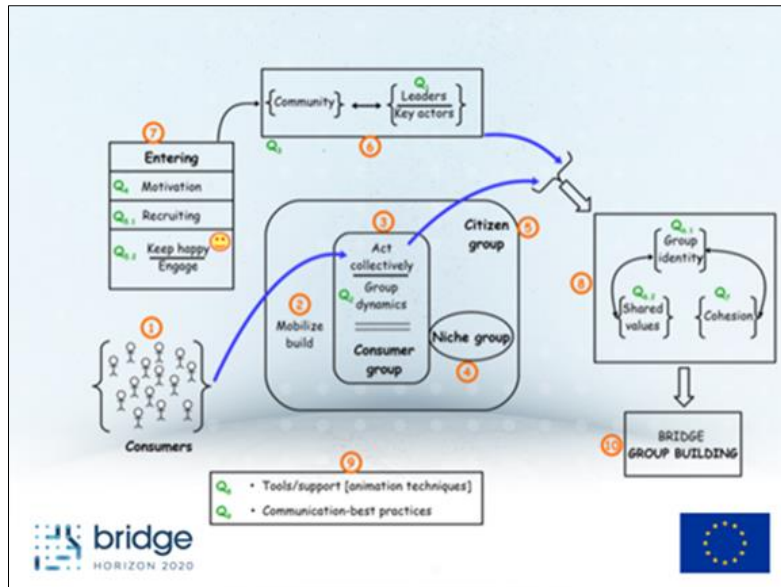


Figure 2. Figure presents schematically the different components of the engagement and Group Building activities with the corresponding questions included in the organised survey.

Main Questions	
1	How did you identify and train community leaders / key actors?
2	How do you create a group dynamic?
3	How do you ensure the group continues despite some key actors leaving the group?
4	What are motivations for people to join a group in your project?
5	How do you recruit group members and keep them engaged through time?
6	How do you create a group identity and shared values?
7	How do you increase group resilience?
8	How do you maintain group cohesion?
9	Which tools / techniques are you using to animate consumer groups in your project?
10	What are best practices in communicating toward consumers?

Table 5. Main questions covered by the group building subgroup survey.

7.3 Achievements and results

The first narratives (**Collection A**) from almost half the number of BRIDGE active projects were collected and there is an ongoing process as the other half of them are passing from the initial project phase to the deployment. A second collection (**Collection B**) is expected during the next working period of the year 2021.

Collective A includes contributions from the following BRIDGE ongoing projects: BD40PEM, Ebalance-plus; EU-SYSFLEX; FEVER; Ielectric; INSULAE; InterConnect; INTERFACE; MUSE GRIDS; PARITY; PlatOne; PLATOON; RENAISSANCE; SDN-MicroSense; SMILE; TILOS; ISLANDER; TRINITY



The Collection A includes short description of the engagement cases of each project (pilots, demonstrators, etc.), description of the consumer types with different Use Cases. The projects covered at least one case and are spread across Europe. Twenty-one countries are the landscape for pilots, demonstrators or in any case have active interested citizens to be part of a consumer group. Spain, Italy, and Belgium are countries with the largest number of groups identified. Projects with cases in different Member States have a variety of different types of group building methodologies based on the local context, and the type of supporting consortium partner. Several classical engagement methods were used such as surveys, interviews, campaigns, and workshops. In several projects' municipalities were the central actors to facilitate the community building process.

Only one project uses a specific engagement methodology: the **Multi Actor Multi Criteria Analysis (MAMCA)**, developed by VUB. The MAMCA is offering a method to motivate consumers to participate and act in the energy transition pilot group.

The analysis of the technical solutions used to facilitate the setting up of the consumers' group show that web, mobile apps, show rooms, info kiosks, modeling and simulation are the supporting means.

There were two type of consumer profiles involved in the building group process:

- First cluster was formed by customers of a partner of the consortium of the BRIDGE project.
- Second cluster followed a group building process based on the Energy Community institutional and organisational scheme.

In general, the first consumer group was almost ready to form an interest group to participate in the energy transition pilots. The second one needed more time and presented several operational barriers to become a final transition group. The Starting phase of launching the group had a duration of over 12 months in most of the cases (over 75%) while the Operating phase of the transition group presents a variation from 12 to 24 months.

While tutorials, workshops, guidebooks, videos, and software tools were used to facilitate the setting up of the consumer groups, testing and laboratory simulations will be used to minimise risk of missing the consumer expectations, according to the projects' scenarios.

The sustainability of the Consumer Citizen Group is under study with potential application of the principle of formation of smaller sub-groups to develop the trust and the sense of belonging.

7.4 Recommendations

It is recommended to support initiatives for establishing group building methodologies bringing together methods, processes, and tools from the various member projects to accelerate the energy transition process and achieve better and faster engagement of the citizens.

It is necessary to clarify the importance of the inclusion of engagement experts that will not only use smart grid and storage technology to motivate citizens to be part of an energy transition group but also capitalise on the innovative knowledge on social science, human behaviour and value domain science.

It is recommended that consortiums work with existing citizens groups and collective actions. Citizens have shown interest in supporting research and innovation and where the social fabric underpinning collective action has already been established. This also highlights the need for a clearer understanding of the nature of group building for energy transition and their clear role even before the project is approved.

7.4.1 Next steps

The Group Building subgroup will focus on the following aspects to explore:



- Gather and analyse Collection B, the responses to the survey from the rest of the on-going projects of the BRIDGE Initiative.
- Exchange experience among the projects and elaborate a potential “common” methodology bringing together methods, processes, and tools from the various member projects.
- Propose ways based on the collective experience of how to form a citizens group as early as possible, even before the official initiation of the project. Energy Communities and other citizens movements will be the starting point.



8. Chapter III – Governance and organisational models

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8.1 Scope of the work

Originally, there were two separate subgroups (governance, and organisational models). In cross-subgroup meetings, the overlap between the two groups was examined and as such it was decided to merge both groups.

The two groups combined their forces in order to explore the governance principles and institutional models to structure citizen-led initiatives, with the goal of providing reliable partnership while preserving their bottom-up approach. In order to focus the work, energy communities were taken as a focal point. Our goal as a group was to explore which (legal) organisational models exist for consumer engagement and which governance principles facilitate/ensure effective consumer engagement in decision-making in those different models.

Why are organisations important for European R&I projects?

Our starting hypothesis was that in order to create long lasting engagement of citizens and consumers, it is crucial to create collectively run organisations. The goal of our group was to understand which formats of organisations are better suited to support grass-roots collective actions. European R&I projects have been facing challenges relating to the sustainability of their impact on consumers². In order to support project consortiums, we explored the modalities of structuring citizen-led organisations through the example of energy communities (REC/CEC).

What are governance principles?

Governance principles are principles that guide the decision-making process on energy-related projects or policymaking. When governance principles have consistently proved to lead to good practices, they can be codified/institutionalised in legal governance structures/legal organisational model in national company law. Depending on the purpose that the governance structure/legal organisational model serves, the decision-making principles may vary. Governance principles hence are principles that guide the decision-making process and are either at the discretion of the project developer(s) to be defined and specified or codified in national company law.

8.2 Methodology of work

Our work was divided in three parts. The first step was a review of the corporate legal framework in European member states. The second part was reviewing the statutes of several citizen-led organisations currently participating in European R&I projects. Finally, we interview community leaders, in order to confront our literature research with real-life experience.

² See report from the BRIDGE Customer Engagement Working Group 2020



COUNTRY	COMPANY LAW REVIEW	Statutes review		Interviews	
		NAME	TYPE OF ORGANISATION	NAME	TYPE OF ORGANISATION
AU	Yes	ViertelZwei	Energy Community	-	-
BE	Yes	Zuidrant	Energy Cooperative	Thor Park	Public-private initiative
				Circular South	Energy Cooperative
HR	No	Klick	Energy Cooperative	Klick	Energy Cooperative
DK	No	Samsø Energieakademie	Private association, non-profit, non-governmental	Samsø Energy Academy	Private association, non-profit, non-governmental
EE	Yes	-	-	-	-
FR	Yes	Enercoop	Energy Cooperative	-	-
DE	No	EWS Schönau	Law private partnership	-	-
GR	No	-	-	Hyperion	Energy Community
IT	No	Energia Positiva	Energy Cooperative	-	-
		Dolomiti Energia Holding S.p.a.	ESCO shareholding	-	-
NL	Yes	Thermo Bello	Energy Cooperative	Eemnes RENAISSANCE	- Energy Cooperative
ES	Yes	-	-	Vega de valcarce	Consumer stock ownership model (SCORE) - Energy Cooperative
PT	No	-	-	Coopernico	Condominium
SW	No	Oberwil i.S.	Energy Cooperative	Energiegenossenschaft Elgg	Energy Cooperative
		Energiegenossenschaft Bülach	Energy Cooperative	Energiegenossenschaft luzern	Energy Cooperative
		Boswil-Bünzen	Energy Cooperative	-	-
UK	No	Energy Scotland Limited	ESCO shareholding	Community Energy Scotland	ESCO shareholding

Table 6. Community Leaders interviewed in each country.



8.2.1 Observations on the national legal Framework (main conclusions)

The review of the legal frameworks allowed us to extract some free ranging observations. Even though we have not been able to review the legal framework for all member states, we conclude that in the analysed countries, three types of legal statutes are represented:

- Associative legal statutes: those are usually not for profit organisations, ranging from simple non-profit associations to more complex associations adding in complexity as the protections to participants becomes higher.
- Company legal forms: those legal forms are traditional business forms (i.e., limited liability company) allowing for profit activities and requiring capital investment. Those forms involve a limit of liability of the participants and heavier constraints than not-for-profit statutes.
- Cooperatives and foundations, as well as forms of specific purpose partnerships are also present in most of the reviews that we made. Those forms usually have higher organisational burdens and specific advantages attached to them.

Understanding the specific qualifications of legal forms informed our reflection on the available options for citizen-led initiatives to structure themselves. We also have looked around Europe for the legal forms chosen by governments to support the transpositions of energy community definitions (REC/CEC), as this is the most common goal for R&I projects as it relates to creating citizen and consumer engagement.

8.2.2 Observations on the Statutes review

Our review of statutes allowed us to extract several basic principles of action from the standpoint of the organisation. Most of the initiatives reviewed by the group were energy cooperatives, but we also had an informal initiative from a Power Supplier, and a couple of ESCO models. For the exception of the informal initiative, all statutes were elected for the same organisational form: a general assembly of members electing a leadership group (board of directors). Some also added a “review board” or auditing group which was charged with reviewing independently the decisions and actions of the board of directors.

All of the legal forms that we analysed had a form of the one member one vote principle, except for the informal initiative which had no participation in the decision making by citizens. All the members of the general assembly are treated in a similar way regardless of their nature (citizens or SMEs or local authority). Except for Enercoop (FR) which has implemented a governance by stakeholder group. This form of governance allows for the vote of different types of stakeholders to be weighted based on their specific needs.

In terms of transparency and information, the organisational rules that we have studied are kept to the bear minimum (annual meeting and information provided X days before the meeting in a written form). All organisations were also showing a strong and broad value-based objective for the organisation. However, we also wanted to clarify the actual implementation of those procedures and principles in real life situations, through community leaders' interviews.

8.2.3 Observations on the Interview process

Our interviews focused on pilots of R&I projects of the BRIDGE initiative. We only have 1 organisation not participating in a pilot. Out of the 11 interviews with community project leaders, only 4 of them were part of a non-cooperative model. Cooperative model is the most common organisational model we were able to study in this exercise. The reason for this could be that other energy initiatives were either not easily identifiable for working group members or that it was not possible for those initiative leaders to answer questions regarding the involvement of citizens in their organisational and governance models. The latter definitely is applicable for statutes review. The other models involving private citizens still included robust participatory processes (Samsø, Community Energy Scotland and the Lisbon condominium).



Our interviews focused on 4 aspects of the collective participatory experience: Participation, Representation, Accountability and Deliberation.

In Participation, most interviewed initiatives had the widest possible criteria. For energy cooperatives, this participation is a key element of their functioning, and therefore was supported by a robust and regular mechanism to engage members. For the non-cooperative initiative, the participation was welcomed but not specifically supported. One outlier was a cooperative from Greece which made participation mandatory as part of the membership process.

In the representation and accountability sections, we did not uncover any major surprises. The status of the representative institution has not been put in doubt in any of our initiatives. The only good practice that we see emerging in cooperative models is a 3rd party representation (monitoring board) for monitoring the activities of the representation board. The only function of this monitoring board being to clarify and audit the activities of the representation board.

In the deliberation part of our analysis, we simply spotted barriers related to the challenge of expert knowledge in the citizen initiative. The key challenge is linked to the passing of information to individual members, in an engaging and understandable format. Several initiatives that we interviewed have training and education programs set up for the members, in order to support the decision-making process. The main challenge expressed by the community leaders interviewed is linked to the nature of the citizen commitment which will lower through time. New members are usually very committed and energised to support the energy community. But this energy will deplete through time, therefore it is to find mechanisms to “re-energise” the members of the initiative.

Through our interviews, we also uncovered several barriers currently faced by community energy initiatives. The first barrier is a confusion between citizen-led initiatives and limited liability companies in the registration and creation process. The energy communities are facing the same scrutiny and administrative burdens than private entities which is disproportionate considering their scope. It is sometimes even irrelevant when certain steps of the registration process are adapted for limited liability company organisational models and disregard the specificities of a collegial governance (i.e. obligation to name a single legal representative bearing responsibility for the initiative).

Finally, interviewees also have the perception that new energy laws are more focused on energy efficiency measures rather than those strictly directed on creation of local flexibility.

8.3 Analysis and Recommendations

The overall observations indicate that active engagement of citizens takes best place if mechanisms of engagements have been previously established. The presence of a trustworthy and proven organisational structure will allow projects to ensure the best results in terms of engaging with citizens.

It seems that in order to engage citizens in energy projects, previously existing citizens-led legal entities need to set up a new legal structure in order to share energy within the community as the existing legal entity often is not suited to accommodate the new energy services in their current set up; this only increases the administrative burdens for initiators and thus is not desirable – member states should look into possibilities how energy communities could fit in already existing legal models, maybe by adapting existing models and broadening their possible range of activities;

Energy community initiators are subject to administrative burdens similar to other energy companies, which can be disproportionate compared to their nature of being non-profit and led by volunteers. Member states could offer to support communities in the early phases of set up with legal advice, and specific administrative procedures inspired by the non-profit registration procedures. This would be in line with the article 22(4)(h) of the 2018 renewable energy directive, requiring member states to implement a supportive framework for renewable energy communities (REC).



In order to reflect better the unique position of energy communities, the legal forms recommended by member states for the establishment of such collective actions, should be in line with non-profit or limited profit statues (associations, cooperative, foundation) when creating safe and quick options for consumer engagement;

Citizens have shown high commitment in the establishment phase of the energy community. However, the rate of participation after establishment tends to decrease over time; to combat that some citizen-led organisations have adopted specific strategies, for example one made participation mandatory in decision making institutions.

In order to create a sustainable organisational structure, participation is key. In order to preserve and enhance participation of citizens, it is necessary to maintain a strong and tailored mechanism of governance, based on democratic decision making (impact of each member on the decisions taken), and transparency (similar level of information throughout the organisation). Trust building should be the primary goal of the governance institutions, and asking more from the members then becomes a strength rather than a weakness.



9. Chapter IV – Assessment of engagement

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9.1 Scope of the subgroup

Various stakeholders require valid and meaningful indicators for understanding, monitoring and assessing the development of collective action groups. Leaders of collective action groups may need guidance how to develop their groups into a (financially) sustainable entity, or they may need to report group activities to funding agencies. Local authorities or governing bodies may need to understand the needs and challenges of action groups in order to support their establishment on the market best. A range of ongoing projects have developed or are developing key performance indicators for this purpose. Here, we refer to collective actions groups that involve prosumer households in a home context and pursue energy independence and/or carbon neutrality on the household level.

Common indicator systems track the development of a collective action group as a series of data points on a consistent metric, e.g., by monitoring over time the group's number of members, financial turnover, or amount of energy produced/consumed. These indicators help to objectively observe how a group grows, consolidates or diminishes. However, these indicators do not cater to the specific challenges groups face e.g. during the take-off phase when slow initial uptake by early adopters turns to rapid diffusion among a larger population of participants, or during the saturation phase when diffusion levels off as only laggards remain to enter the group.

9.2 Methodology

The subgroup convened in repeated online meetings to scope the goals for the present working phase and then shifted to joint online drafting of a working document. From the range of applications of indicators for the assessment of engagement, the subgroup identified the Stages of Change model as a novel perspective to address the practical observation that most consumer communities undergo an extended period of formation and growth until they can be assessed by quantitative metrics such as Euro or kWh.

We reviewed previous studies on the Stages of Change Model in the pertinent literature in order to transpose definitions and caveats to the case of consumer communities (or: collective action groups). We then applied the Stages of Change logic to the indicator systems for assessing engagement in our ongoing project, in order to identify possible blind spots and ways to move forward.

9.2.1 Introducing Stages of Change to the monitoring of action groups

In our experience, instead of continuous development, **most action groups undergo a sequence of developmental stages** characterised by distinct tasks and responsibilities. Understanding development as a process of stepwise progress (and sometimes relapse) has been posited by the Stages of Change framework. Originally developed to understand the adoption of health behaviours (e.g. the Transtheoretical Model in quitting smoking; Prochaska and Velicer 1997), the Stages of Change framework has been transferred to individual pro-environmental action (Bamberg 2013). Households pass through a sequence of decision processes, transitioning from contemplation to preparation, implementation and ultimately maintenance (Table 1). We argue that the stage-driven nature of individual behavioural change may similarly apply to the development of collective action groups, and that the indicators used in monitoring action groups should reflect the present developmental stage of a group and its readiness to proceed to the next stage.



Stage of Change	... in individuals	... in collective action groups
Contemplation	<ul style="list-style-type: none"> ● Becoming aware of needs, opportunities and barriers for action ● Recognising personal options ● Building motivation for action ● Observing peers 	<ul style="list-style-type: none"> ● Developing a general intention for action ● Formulating a shared vision of the group ● Reaching out to other groups as role models and reflecting on their examples and lessons learned
Preparation	<ul style="list-style-type: none"> ● Planning and evaluation of specific actions ● Reflecting on efforts and benefits of specific actions ● Imagine future outcomes of well-established objectives 	<ul style="list-style-type: none"> ● Forming a leadership team ● Setting specific objectives ● Comparing options in business plans and technologies ● Designing rules for decision-making ● Researching funding options ● Reaching out to participants
Implementation	<ul style="list-style-type: none"> ● Putting specific actions into practice ● Leveraging situational factors for support (e.g., resources, social context) 	<ul style="list-style-type: none"> ● Contractual founding of a formal organisation ● Applying for funding ● Recruiting participants ● Relating to external actors for implementation support
Maintenance	<ul style="list-style-type: none"> ● Sustaining and if necessary, revising specific actions ● Forming new enhanced habits ● Setting more ambitious goals when the original goals are achieved 	<ul style="list-style-type: none"> ● Maintaining regular operations and revenues ● Consolidating entrepreneurial skillsets among the leadership team ● Revising rules for decision-making ● Refining the shared vision

Table 7. Definition of Stages of Change in individuals and adaption to collective action groups.

We consider Stages of Change **a useful framework in monitoring action groups** because it ...

- shifts the focus from a snapshot assessment of the momentary situation, typically linked to an end-of-period date in a funding report, to intermittent development and progress in phases.
- acknowledges that action groups face qualitatively different challenges as they evolve.
- considers that the leadership team and the members of an action group may change over time, may themselves move through Stages of Change and may shift in the current depth of their commitment to the action group – joining initially, dropping out, remaining engaged for a long time, passing on responsibilities, being active contributors or passive participants.
- explains not only the period after an action group has reached full functionality, but also the period before, during which individuals express their interest in engagement.
- reinforces the commitment of a group to progress to the next stage and not relapse.

However useful as a monitoring tool, Stages of Change come with **several caveats**:

The same stage may not uniformly apply to all activities an action group is engaged in at a specific point in time. If the group pursues several parallel activities, these activities may be allocated in different, earlier or later stages.



Stages of Change should be considered as a conceptual heuristic for understanding how action groups grow, but not as a fixed unidirectional sequence that is strictly followed step-by-step. Specific stages may be skipped, advance may come to a stop, processes within a stage may be repeated until resolved, or the action group may relapse to an earlier stage (Littell & Girvin 2002; Klöckner 2014; Pettifor, Wilson & Chrysochoidis 2015).

Applying the Stages of Change approach to groups instead of individuals may slow down the stepwise progress to later stages as different views and angles of individuals have to be agreed among all group members.

9.2.2 Mapping indicators to Stages of Change

Table 2 maps the indicators developed in the projects represented in the BRIDGE subgroup *Assessment of Engagement* to the respective Stages of Change. This **mapping exercise** shows whether specific Stages of Change are over- or underrepresented in common indicator systems, pointing to potential blind spots in the ways the progress and success of action groups are currently being monitored. To facilitate comparison between projects, indicators are grouped as social/political/technical/financial/others and are, if applicable, rephrased to similar terminology. Note that this grouping and rephrasing serves for illustrative purposes and is not intended to obscure the level of detail pursued in the respective projects.

The overall picture in Table 2 highlights an implicit focus of common indicator systems which incurs **blind spots regarding a process-oriented monitoring** of action groups:

The majority of indicators address the maintenance stage, when an action group is fully established and its impact on the market and the energy system becomes visible in economic or technical metrics such as reduced energy costs, peak load reduction, or emission savings. By contrast, indicator coverage of the earlier Stages of Change is less detailed.

The earlier contemplation and preparation stages centre on social indicators referring to group formation, involvement and recruitment. As an action group progresses to the later implementation and maintenance stages, technical and financial issues come to the fore.

Stage of Change	COMPILE	MUSEGRIDS	DELTA	FLEXIGRID	PARITY	E-Land
Contemplation	Social Factors <ul style="list-style-type: none"> - shared vision - identification of barriers - participant recruitment - quality of interaction 	Social Factors <ul style="list-style-type: none"> - stakeholder identification 	Social Factors <ul style="list-style-type: none"> - workshops organisation and participation 	Technical Factors <ul style="list-style-type: none"> - average estimation of savings per stakeholder - demand flexibility potential 	Social Factors <ul style="list-style-type: none"> - participant recruitment 	
Preparation	Social Factors <ul style="list-style-type: none"> - rules for decision making - key personnel (commitment, skills...) - stakeholder involvement Financial Factors <ul style="list-style-type: none"> - public funding - business plan - financial independence 	Social Factors <ul style="list-style-type: none"> - stakeholder involvement Financial Factors <ul style="list-style-type: none"> - legal requirements 	Social Factors <ul style="list-style-type: none"> - increase in trust and security 		Social Factors <ul style="list-style-type: none"> - stakeholder involvement 	Social Factors <ul style="list-style-type: none"> - stakeholder involvement Financial Factors <ul style="list-style-type: none"> - business plan



Stage of Change	COMPILE	MUSEGRIDS	DELTA	FLEXIGRID	PARITY	E-Land
Implementation	<p>Social Factors</p> <ul style="list-style-type: none"> - number of paid employees - participant recruitment <p>Political Factors</p> <ul style="list-style-type: none"> - local authorities' involvement <p>Financial Factors</p> <ul style="list-style-type: none"> - legal form - provision of financial sources - citizens' investment in projects 	<p>Other Factors</p> <ul style="list-style-type: none"> - responsible value chain and product design - data & cyber security - privacy - transparency and accuracy 	<p>Social Factors</p> <ul style="list-style-type: none"> - number of customers 		<p>Technical Factors</p> <ul style="list-style-type: none"> - average self-consumption rate achieved by the neighbourhood 	<p>Technical Factors</p> <ul style="list-style-type: none"> - number of potential services
Maintenance	<p>Social Factors</p> <ul style="list-style-type: none"> - participation adaption - customer & user feedback - employment - skill acquirement - refining the shared vision - commitment of members <p>Political Factors</p> <ul style="list-style-type: none"> - increase of environmental awareness - reduce energy poverty <p>Technical Factors</p> <ul style="list-style-type: none"> - emission savings - peak load reduction - energy savings - safety - number of services provided <p>Financial Factors</p> <ul style="list-style-type: none"> - reduced costs 	<p>Social Factors</p> <ul style="list-style-type: none"> - participation adaption - customer & user feedback - employment - skill acquirement <p>Political Factors</p> <ul style="list-style-type: none"> - increase of environmental awareness - reduce energy poverty <p>Technical Factors</p> <ul style="list-style-type: none"> - emission savings - unwanted noises - safety <p>Financial Factors</p> <ul style="list-style-type: none"> - time saving - reduced costs 	<p>Social Factors</p> <ul style="list-style-type: none"> - increase in trust and security - customer & user feedback <p>Technical Factors</p> <ul style="list-style-type: none"> - emission savings - peak load reduction - energy efficiency <p>Financial Factors</p> <ul style="list-style-type: none"> - reduced costs 	<p>Social Factors</p> <ul style="list-style-type: none"> - customer & user feedback <p>Technical factors</p> <ul style="list-style-type: none"> - peak load reduction - energy efficiency - flexibility actions taken - improved interoperability - reactive energy consumption - self-consumption rate 	<p>Social Factors</p> <ul style="list-style-type: none"> - participation adaption - customer & user feedback <p>Financial Factors</p> <ul style="list-style-type: none"> - reduced costs <p>Technical Factors</p> <ul style="list-style-type: none"> - peak load reduction - flexibility actions taken 	<p>Political Factors</p> <ul style="list-style-type: none"> - percentage of demand covered by local renewable generation <p>Technical Factors</p> <ul style="list-style-type: none"> - emission savings - peak load reduction - energy efficiency - increase in storage usage efficiency

Table 8. Mapping prevalent indicators to Stages of Change.



9.3 Recommendations

Thus, from applying a Stages of Change perspective to the monitoring of action groups, we propose the following **recommendations**:

- Current indicator systems tend to capture the effective performance of an action group once it has fully matured and reached the maintenance stage. Presumably, this outcome-oriented focus traces back to funding regime guidelines which require funding recipients to account for project activities and expenses.
- Current indicator systems seem less useful as a self-diagnostic tool for action groups when navigating the contemplation and preparation stages. Introducing process-oriented indicators could shed more light on and provide better guidance during the critical initial phase when members of an action group come together and develop a shared vision for their joint undertaking.
- The way action groups are assessed shapes the way how some action groups are seen as successful while others are not. By merit of their focus on later Stages of Change, current indicator systems tend to favour full-grown over emerging action groups. Acknowledging the level of readiness and maturity as an important moderator variable for impact on the market and the energy system could facilitate access and lower entry barriers for less-developed yet promising action groups to research and funding programs.
- However, calling for better indicator coverage of earlier Stages of Change should not render current indicator systems obsolete. Process-oriented indicators should complement, not substitute established outcome-oriented indicators

9.4 Future steps of the subgroup

Departing from these recommendations, the **future steps in the BRIDGE subgroup** will:

- Elaborate and verify the observed blind spots with further indicator systems and engage in a practice dialogue with existing action groups to confirm the definition of Stages of Change posited in Table 1.
- Discuss methods for measuring early-stage, process-oriented indicators. In order to be included as criteria in funding schemes, these indicators need to be operationalised clearly, transparently and externally valid, so to allow comparison of specific action groups to other, similar groups or to benchmarks. A wide scope of options for data collection are available, each having specific advantages and drawbacks for measuring particular indicators during particular Stages of Change: Minutes of group meetings, surveys, delphi method among market experts, interviews with group members, statistics published by the funding source, annual business reports, data readout from energy meters, to name a few.



10. Chapter V – Smart tools

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10.1 Scope of the SG

The smart tools for engagement subgroup did the kick-off on October 6, 2020. At this early stage of the initiative, the objectives were to know the rest of the participants, their backgrounds and their motivations to participate in the new created sub-group. As a coordinator of the initiative, I first introduced the idea of the subgroup and the mandate of the Working group: *“The goal is to have an exhaustive list of tools and technologies supporting consumer participation and the ways those tools are supporting the involvement of consumers.”*

Taking into consideration the mandate, we ran a participatory workshop around the following topics/questions:

- How can we group tools? What are KPIs to measure effectiveness of different tools?
- Critical evaluation of the suitability of tools: How to develop tools to increase the consumer engagement including digital exclusion and energy poverty?
- Should these tools only address the participation of citizens or also should the target audience be extended to other market actors (e.g., aggregators, DSO, etc.)?
- How can the tools be adjusted/tailored to socio-economic characteristics of certain EU regions/people?
- What already existing tools (like Smart meters) can be improved or better exploited to increase citizens' engagement (CE)?

After holding a discussion, the agreement reached was to concentrate the subgroup efforts on defining the target audience (unit of analysis) and to focus on the solutions (smart tools) already existing in H2020 projects, more specifically those who belong to the BRIDGE initiative/network. In essence, the group decided to focus on answering the following questions: ***what is out there in terms of digital tools for CE? What are the gaps that we encounter? Who will use those tools and for what purpose?***

10.2 Methodology of work

The first objective was addressed in a separate online meeting with the subgroup's participants. Household residents or building occupants (i.e., consumers/prosumers) were the unit of analysis for the group.

The second objective was addressed by gathering existing evidence of tools in BRIDGE related projects (with different TRL, with different objectives, engagement strategies and or with different focus). To this purpose, the group created a canvas-template that was delivered to the coordinators of the ongoing BRIDGE projects. Upon collection of the tools (N = 15; 10 from BRIDGE projects - BD4OPEM, Ebalance-plus, EnergySHield, INSULAE, 2xInterConnect, MERLON, PARITY, SMILE, 2xDELTALTA - and 4 from H2020 energy related projects - EU HEROES, 2xH2020 GreenSoul, ChArGED -) an analysis of the evidence was provided in terms of descriptive statistics and clusters were made according to different variables requested in the canvas being the most relevant the engagement strategy used. Before to show the results, the template used to gather sample data from projects is presented.



Asset/Tool name	XXXXX
1. Introductory overview paragraph that describes the general purpose and use of the tool (max. 300 words, understandable for a general audience)	
2. Key smart tool specifications (Status Quo)	
Type Please specify: digital tool, physical tool, hybrid	
Testing environment Households, buildings, public spaces, all	
TRL (degree of maturity) Proof-of-Concept, Lab validated, Validated in Simulated Environment, Validated Real Environment	
Project in which it was/is tested	
Was/Is it a BRIDGE project?	
The objective of the tools was/is: 1) foster Energy efficiency energy saving, 2) react to signals in a Demand Response scenario, 3) react to signals in a Flexibility trading scenario.	
3. Evaluation criteria	
Unit of analysis Individuals, employees, Tenants, Family units, Energy communities, Building managers	
How was/is it tested?	
How was/is it evaluated?	
User engagement strategy? Gamification for engagement, Comfort for engagement, Security and privacy-by-design for engagement, Monitoring and signaling for engagement	
Was/Is the engagement strategy complemented with a physical interaction between designers/researchers/engineers and the unit of analysis?	
Was/Is the tool useful for 1) aware users about energy issues, 2) prepare them to do actions in favour of the environment, 3) propose actions to actively perform green actions, 4) or give cues and make nudges to maintain an already acquired green behaviour.	

Figure 3. Survey sent out to BRIDGE projects to collect information on smart tools

10.3 Achievements and results

The first descriptive analysis conducted from the evidence collected shows that the majority of the tools put the focus on engaging individuals or collectives in the residential and service sector. In the following table, the number of occurrences of the different target groups in the analysed tools is presented.

Office Buildings (Tenants/Employees)	Energy communities	Residential students	Residential (Family units/individuals)	Building managers	Energy managers
8	2	1	10	3	1

Table 9. Number of occurrences of the different target groups in the analysed tools

Furthermore, we were interested in knowing the main objective of the smart tools gathered. We found that most of them are focused on fostering energy efficiency regardless of the emergence of signalling in DR and flexibility scenarios across Europe.



To foster Energy efficiency energy saving	To react to signals in a Demand Response scenario	To react to signals in a Flexibility trading scenario
11	5	3

Table 10. Signalling in DR and flexibility scenarios across Europe

We also analysed the stage(s) of the Transtheoretical Model of Behaviour change (TTM)³ in which the smart tools can be effectively helpful to nudge people to advance to higher stages of the framework (see picture below). As can be observed in Table 11, most of the tools are focused to the lower stages (precontemplation and contemplation - awareness). It was interesting, though, that we found more evidence from tools that try to foster the users to take action than those to prepare people to perform them.

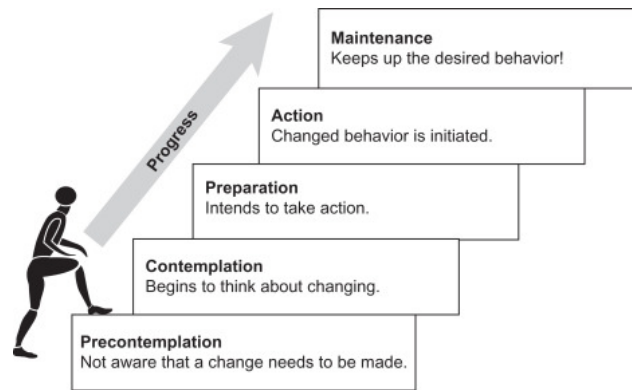


Figure 4. Stages of the Transtheoretical Model of Behaviour change (TTM)

To aware users about energy issues	To prepare them to do actions in favour of the environment	To propose actions to actively perform green behaviour	To give cues and make nudges to maintain an already acquired green behaviour.
10	5	6	2

Table 11. Stages of TTM towards which the analysed tools are focused

After the descriptive analysis, we decided to cluster the smart tools depending on the qualitative input they offered in the canvas in terms of the engagement strategy employed, the testing set up and the evaluation criteria to assess them.

The most interesting finding for the working group was to understand that some of the tools shared a similar strategy to engage final users. As can be seen in Figure 5, the most recurrent strategy was comfort, followed by monitoring/signalling, gamification, security/privacy and extrinsic incentives (e.g., pecuniary/perks)

³ The proposal of evaluating the TTM resonates and aligns with the subgroup of assessment of engagement as they took a similar approach.

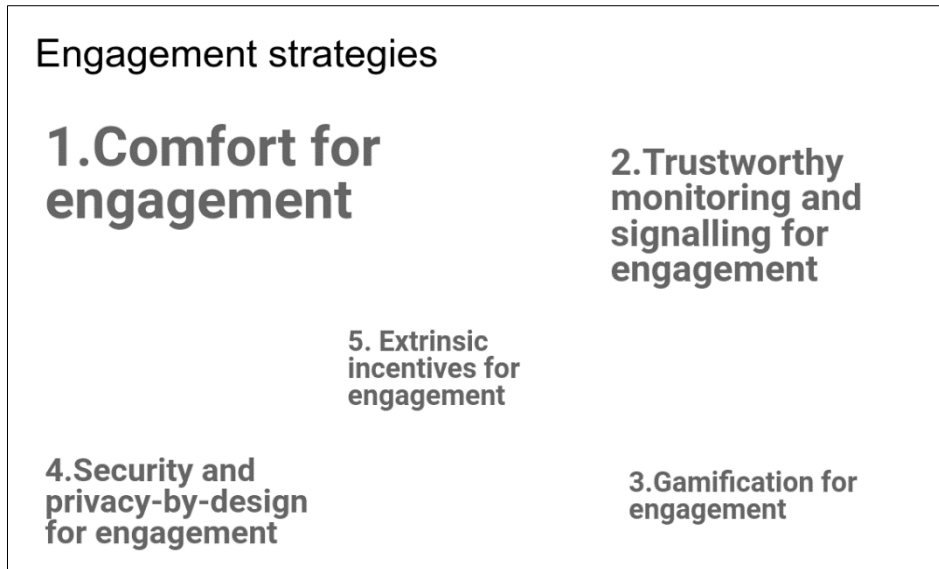


Figure 5. Representation of weight of most common strategies to engage final users.

Regarding the testing and experimental set up to assess the smart tools, we found that the majority of the approaches were deployed in real-life settings, with some evidence first tested in pre-pilot premises or labs. For those deployed in real life, it was common to see a coverage of 20-30 houses with exceptions of large set ups with more than 100 houses/buildings covered. Finally, we found that only some of the devices were assessed in workshops with end-users under a controlled environment.

In terms of evaluation criteria, we found three main approaches. 1) Provide benchmarking to measure objectively the improvement or relapse of energy consumption/usage or emissions. 2) User feedback to assess end-users' adherence/engagement. 3) A mix between the two previously mentioned approaches.

Finally, it was interesting observing that the majority of the tools were in higher readiness levels according to the TRL measure. See table below:

TRL-1	TRL-2	TRL-3	TRL-4	TRL-5	TRL-6	TRL-7	TRL-8	TRL-9
0	1	0	1	2	7	2	0	2

Table 12. Technology Readiness Level rates of the smart tools analysed

10.4 Recommendations

Our subgroup's endeavour was to analyse within clusters which are the gaps of the tools received that we identify, which are the stages of the TTM under/over-represented by the tools created and which are the main contexts that the designers/developers of the tools target.

Our observations from the evidence collected showed that smart tools are already mature when they are being tested in the field, even being deployed in more than 100+ households and/or buildings. However, we have observed that co-design workshops, or more people-centric solutions iteratively evaluated and refined are still underrepresented.

Comfort for engagement was unexpectedly found as the most adopted strategy for engagement. It covers easy-to-use designs, simple goal setting or personalisation and tailor-made information. There is still room to demonstrate if such strategy is as effective as state-of-the-art solutions that have been more oriented towards providing data for engagement (reflection for action or rational solutions) or eco-feedback to engage and change behaviour (nudges, persuasion or gamification that usually address values/beliefs).



Having observed the stages of the TTM that tools tend to modify, or recommendation from the existing evidence is that more tools have to be focused on maintaining already acquired/formed behaviours. Raise awareness has been demonstrated quite useful in the body of knowledge, however under the ongoing climate crisis the new tools should be designed to action and maintenance to not relapse to lower stages (this includes mixing different engagement strategies, taper off feedback or do continuous/iterative evaluation of engagement strategies proposed to assess if these are still valid).

10.5 Future steps of the subgroup

The next meeting after the General assembly will orient the new endeavour of the group. We propose a joint workshop with the engagement subgroup to evaluate the common aspects and to reinforce the EU recommendations through the outcomes that will be issued from this event.



11. Conclusion – Our concept of engagement, and what is missing

Our working group has explored the current state of the research in a wide range of European R&I projects. We have found several relevant conclusions for each of our subgroups:



Socio economic drivers of engagement

The socio-economic drivers group decided to focus on two points: user groupings in order to inform engagement strategy building, and adaptation to COVID-19. The goal was to explore topics that could help projects improve and adapt their engagement strategies. The result of the first item was an analysis of the matrix needs / motivation / behaviour for 5 grouping of consumers: private consumers, collective consumers (i.e. private and public buildings), industrial consumers and others. On the adaptation in reaction to the COVID crisis, the group has produced a set of preliminary recommendations for project consortiums.



Group Building

The group focused on the field experience of the BRIDGE projects of the ways to build consumers groups as part of R&I projects. The group collected practices through surveys among on-going projects. This survey revealed the main phases of the Group Building process: The Starting phase, the Operating phase and finally the Sustainability phase. The survey also showed that only a few projects have established and used a methodology for group building in most of the cases.



Governance and Organisational models

The group focused on the exploration of currently used organisation models for community-based initiatives. The research focused on governance principles and their implementation in energy communities, as the most advanced form of community-based initiative. The group concluded that a legal form is the best, and often the only, to guarantee a sustainable engagement of a citizen group. This legal form must include a transparent, trust-worthy and democratic governance model. The cooperative model is the most often represented to achieve this outcome.



Assessment of engagement

The group on assessment focused on the exploration of the stages of change, which represents the key stages a community-based project is going through during its construction. The group then attached currently used indicators for each of the stages of change. This work allows the group to conclude that most of the currently used metrics and indicators are related to later stages of construction. Therefore, European projects tend to evaluate only the more mature initiatives, ignoring often the maturing of initiatives through the first stages.



Smart Tools

The group on smart tools has reached two main conclusions: the first is that there are already several mature tools for engagement of consumers, optimising around the notion of comfort for the user as a key driver for the use of the tool. The smart tools gathered by the subgroup are mostly in the category of top-down triggering of consumers. The second conclusion is the lack of tools that includes a user-centric approach and supporting a partnership with the consumer. There is a heavy bias around the notion of individual benefit in the tools gathered by the subgroup, vs an idea of collective benefits or community benefits. There is an additional conclusion that was reached by the subgroup linked to the user profiles served by tools identified. There is a stereotypical profile type for the users that are included in R&I projects. In general, projects tend to overwhelmingly have an approach based on volunteering which prevents from diverse and inclusive samples. This bias might damage the relevance of the tools developed and speaks for a more inclusive people centred approach to development. This also reinforced the need for an engagement strategy that will build representative samples for technological innovation.

11.1 Working Group Conclusion

The key tension in our working group is the realisation that despite all evidence of engagement pointing out toward the need for a people centric approach, relying on strong democratic governance principles, the number of actual project implementations of that format are rather limited. Projects have explored several forward-looking tools to support engagement in their research, but the methodologies and strategic aspects of engagement are still mostly forgotten. Finally, there is a key challenge to engage with citizen-led collective actions such as energy communities, which require the creation of an independent governance structure not always allowing for the delivery of project objectives in the required timeframe. The next step of our working group work should be focused on exploring and highlighting initiatives that are tackling this missing link of people centric tools and methodologies, while exploring the principle of the governance of the people centric approach and methods of evaluation allowing for the valuation of progress for projects.



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