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EXECUTIVE SUMMARY

The Guidelines to optimize energy-efficiency information campaigns and citizen participation for collective action and energy communities are intended to provide a coherent summary of approaches to communication, information, and intervention campaigns for establishing and shaping Energy Communities, with a strong focus on the behavioural science perspective. Therefore, this document contains a practical approach instead of theoretical considerations. The main goal of this document is to offer recommendations for a structured stakeholder engagement, to provide concrete tools and to classify them from a psychological perspective. Lastly, we give recommendations tailored to DECIDE's pilots.

The document is structured as follows: First, a brief overview of guidelines from exemplary previous information campaigns and interventions in EU Energy related projects will be given, showing the necessity to distinguish between different phases of engagement during a project as well work with different stakeholder groups, which are planned to be engaged. The conclusions drawn will be synthesized with the in D1.1 identified action phases of collective energy actions (CEAs) within DECIDE (Section 1), meaning stages of changing needs for information, motivators, and barriers to implementation.

Building on this approach, the next section will concentrate on tools for information campaigns, intervention and communication strategies, stating best practices from previous EU Projects and scientific literature, including some novel approaches based on first year of DECIDE research, and including a thorough analysis of the benefits and psychological goals of such ways of engagement. The different tools, information and intervention channels are classified according to their level of participation and involvement of the respective stakeholders. Subsequently, a scientific classification and evaluation of the delivered methods

and expected psychological effects of these approaches is made, which is supplemented by best practice examples (Section 2).

The given communication guidelines and tool overview will be complemented by a summary of overall intervention and information guidelines, based on the synthesis of insights from this review (Section 3). In the next section it will then present whether and, if so, which campaigns have already been carried out in advance in the respective pilot sites of the DECIDE project. Starting from this status quo, it will also be described which further interventions and communication approaches have already been implemented in DECIDE with the help of WP1 and which strategies are proposed based on the previous analyses to provide tailored communication guidelines, aiming at DEICDE pilots (Section 4). Finally, already used materials within DECIDE as well as further useful materials from other EU projects for communication strategies will be provided (Section 5).

The presented Deliverable D1.2 is strongly related to Deliverable D1.3: D1.2 mainly serves to derive, describe and scientifically evaluate tools for optimizing energy-efficiency information campaigns and citizen participation. This is summarized in D1.3 both by (a) a general overview of possible information, intervention and communication tools and by (b) a summary of DECIDE-specific recommendations for the respective pilots. For a holistic understanding, we therefore recommend using D1.3 for an overview and D1.2 as background knowledge and evaluation of the tools and recommendations presented there. Both deliverables are built upojn the definitions provided in D1.1 and extend the findings from it.

This deliverable is intended as a living document. Recommendations and conclusions will be tailored and refined as the DECIDE project progresses, with multiple updates throughout the project.

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GLOSSARY

CEA	Collective Energy Action
EC	Energy Community
EID	Energy Improvement District
IHD	In House Display
LEC	Local Energy Community
REC	Renewable Energy Community

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1 GUIDELINES FROM PREVIOUS INFORMATION CAMPAIGNS AND INTERVENTIONS

The following chapter aims to summarize conclusions and best practices from exemplary previous EU projects regarding their interventions, information campaigns and engagement strategies. A thorough review of former EU projects revealed that in most projects, communication strategies are tailored along the life phases of the underlying energy communities and according to the types of stakeholders addressed through the respective strategy. We will take over this basic organization for the communication approach within DECIDE.

The following section will present an overview of communication strategies aimed at different phases of engagement of the EU projects, reviewing the engagement strategies targeting different life phases of the energy communities and relevant stakeholder groups, complemented through some best practice examples. The review sets a focus on initiatives that subsume a huge set of EU projects and energy communities, namely the BRIDGE initiative, of which also DECIDE forms an active participant, S3C EU, a former pan-European projects initiative and and REScoop, the European federation of citizen energy cooperatives.

Concluding experiences drawn from the short review, the different action phases of energy communities and collective energy actions for DECIDE will be synthesized with different stages of engagement: Within the first segmentation of DECIDE (D1.1), different action phases were identified that can be applied to each collective energy action. Based on the underlying analysis, collective energy actions in DECIDE can be ordered alongside the following action phases: *Inception, preparation and founding, initial operations, maintaining operations,* and

upscaling. Building on this idea, it can also be assumed that different forms of information, different approaches and the implementation of different interventions are necessary for the respective phases. Therefore, it is aimed to orient and plan an engagement strategy along the action phases, also taking into account the role of relevant stakeholder groups.

EXPERIENCES FROM EU PROJECTS AND INITIATIVES

BRIDGE

Bridge, an initiative uniting Horizon 2020 Smart Grid, Energy Storage, Islands, and Digitalisation Projects proposes a three-step process to ensure engagement within their consumer engagement strategy. These three steps can be classified as *involve – engage – evolve:*

Based on this strategy, it is first necessary to *involve* the customer as a starting point and gain a better understanding of relevant stakeholders. In the second step, it is considered important to *engage* the customer with the help of benchmarking, personal incentives and segmentation. Lastly, through the step of *evolve,* the relationship should be developed further through feedback loops and end-user communication supported by advanced feedback, information and education (BRIDGE, 2018).

Best Practice: Merlin Living Labs. (MERLON, 2019)

One exemplary BRIDGE project working with the concept of involve – engage – evolve is the project of MERLON, where which uses a series of "LivingLabs" workshops for training and engagement of stakeholders along a phased approach. The LivingLabs are used as a participatory workshop draft, adapted and integrated along the following phases:

1. The first phase is seen crucial as an intent to involve all local stakeholders and end-users that participate or are potentially affected, also to gain a concrete understanding of the audience group.
2. Within the second phase, the creation of personal incentives as well as proper segmentation should be conducted, so groups of participants will be defined in more narrow terms and training activities will be included.
3. The third phase serves to have an extensive evaluation of the realised solution and an impact assessment.

Within the project related engagement plan, several techniques to communicate the customized setting of activities for each Living Lab for each of the phases are proposed: Workshops are considered as a key element, which should be held one for each phase in each pilot site, being customized to the respective phase and current status of the infrastructure deployment in the pilot sites. The workshops are planned to be set up as a technical workshop, with a wider feedback session afterwards. Besides workshops, further communication is sought through Surveys (especially phase 1 and 3), a newsletter as a follow-up on the workshops, containing applicant- and user oriented LivingLab Material and a hotline, which will be established for end-users and stakeholders to ensure efficient communication in the deployment and user integration phase.

S3C EU

The S3C Consortium (S3C CONSORTIUM, 2014), analysing 32 European smart grid pilot projects, reports positive effects of the ICA method: “Interaction, Commitment and Activation” - a strategy used to foster community- and stakeholder engagement. Consisting of an activation and a subsequent empowerment phase this approach is consistent with the findings of the BRIDGE initiative (see above, BRIDGE, 2018) and corroborates the DECIDE methodological decision to focus on a phase-based segmentation rather than a persona-based segmentation.

Within the S3C best practice report (2014), the ICA method is described, which can be tailored to project goals and target groups. The underlying idea is to activate stakeholders first in relation to issues in their direct living environment and their personal interests, so people are made aware of issues directly related to them. This is to create an incentive to get involved in something aimed at goals people themselves want to achieve, rather than at an already pre-decided solution. The ICA method aims to encourage stakeholders to actively participate and to convey that they can indeed "make the difference", fostering a sense of self-efficacy for issues that are of personal relevance to the target group. Support is then provided to achieve the goals they have set for themselves.

Best practice: Rendement voor Iedereen (S3C Consortium, 2014)

In the Rendement voor iedereen (NL) project, following the goal to implement a bottom-up approach and establish a community, the ICA Method as described above has been used. The case study did not focus on financial incentives, but on conveying a sense of self-efficacy for issues that are of personal relevance to the target group. For

this, a sense of 'civil disobedience' was addressed. Concrete actions implemented in the case study were the distribution of flyers (which clearly differed from advertising leaflets, for example by being printed in black and white and containing a typo to attract attention) and balloons, as well as advertising through a variety of channels (local newspaper, text cars and primary schools). The engagement phase ended with an information session (high registration rates for participation in the project reported). In the second phase, the focus lies on supporting the participants in implementing their goals, as well as providing continuous information on energy issues. In order to involve the participants more closely in the (top-down implemented) project, a board of 12 participants was formed to represent the participants.

RESCOOP

Gathering expertise from 27 projects around Europe and building on the best practices from different European RES, the community energy guide drafted as a handbook from Friends of the Earth, REScoop.eu and Energy Cities (2020) with the important support of the Community Power Coalition describes the different steps for the set-up of an energy community to build up community communication with the main targeted stakeholders.

1. First, it is recommended to build a core team, starting with the smallest project possible. The core team ideally consists of 4-12 people, who are willing to take responsibility for the project over a long term. Beyond this, follow-up relational meetings with those that might want to lead/join a core team can be a good opportunity to present the vision and purpose. Within an established core team, it is considered crucial to distribute responsibilities, invest in activities that build friendship

and trust and provide safe spaces where thoughts and feelings can be expressed. Progress towards objectives is seen as crucial to keep everyone excited, which requires a sense of momentum within a group. The guide furthermore recommends to understand the core team of people as a group of leaders working together. This is why responsibility to reaching out to different parts of community should be shared among the team.

2. To integrate the local authorities and municipalities and reach out to broader acceptance, it is recommended to get the local authority to make a public commitment. When it comes to the outreach to the wider community, the Guide provides recommendations, like going to "listening places" in the community in order to understand issues that affect members of the community, build empathy and trust as well as link the community's topics to energy, climate and local economy. The approach of “starting small, growing big” is suggested, based on the experience that it’s easier to win new members once the project is already running, as people like to get involved when they see some first success. The guide also delivers best practices for such communication approaches, which are described more in detail within the guide.

Best Practice: COME RES (2021)

The COME RES Project within Horizon2020 coordinated by the Free University of Berlin is supported by DECIDE project partner ICLEI Europe together with REScoop in advancing renewable energy communities and their development. The stakeholder engagement plan of the COME RES Project stresses the relevance of a phased approach, taking into account different groups of stakeholders and therefore suggests a framework to classify stakeholders in groups, using a matrix approach with the level of interest and level of influence.

They consider engagement to be settled along these groups, as they differ in their way how to reach them. The four groups are described as follows:

1. The first stakeholder group, having high interest and high influence are the *Key Players*. Such key players are expected to have power and resources, which is why special attention during the engagement process should be given to this group, building on the assumption that they can affect change and can be potential partners for the project.

2. The second group, called *Context setters* are expected to be highly influential, but have a low level of interest for the project activities. Therefore, particular efforts might be necessary to continuously engage this group in the project´s activities.

3. The third group, named *Subjects* has high levels of interest in the research and project activities, but only a low level of influence. However, during the project, such stakeholders may gain leverage by forming groups with other more influential stakeholders. It is relevant to secure their engagement and empower them to engage as equals in the project with more influential participants

4. Lastly, the engagement plan describes the group called *The Crowd*, which comprises stakeholders with a low level in interest in or influence over the project and its desired outcomes. Still, their interest may change with time and with project process.

SYNTHESIS WITHIN DECIDE

To bring together the lessons learned and examples from the above mentioned initiatives and projects, these are merged with the phases already identified in D1.1. In this context, it is also important to consider a possible segmentation of stakeholder groups: Since scientific uncertainties and contradictions have been found for segmentation along socio-demographic,

namely “personal characteristics”, it was declined as a segmentation dimension for the DECIDE project (for more details, see D.1.1, p. 24ff.).

Based on the former described projects, it is rather recommended to tailor communication and engagement strategies along different phases of engagement and take into account the relevance of stakeholder groups along their level of engagement and commitment for the project, therefore segmenting stakeholders along their energy attitude and project involvement. Following the described examples, also within DECIDE it is seen crucial to work with community evangelists as first movers, aiming to build a core group. To establish such group, it is proposed to ideally use existing groups, approaching activist and people with power, resources and interest to support the project first, using their support for reaching out to further citizens and community members. The principle of “starting small, growing big” also fits to the examples for a phased communication approach and the identified action phases within D1.1 of DECIDE for segmentation. The information campaigns and interventions are also recommended to be guided along the phases. The following table (Table 1) depicts this approach, integrating the action phases with different communication methods, building on the experiences from different projects reviewed above and integrating the BRIDGE approach of *Involve – Engage – Evolve* (BRIDGE, 2018) with a previous preparation of communication and engagement.

Table 1: Integration of Action Phases and Phased communication methods, synthesized from former projects.

Action Phase	Phased Communication Method
Inception Phase	**Prepare Communication & Engagement**

Preparation and Founding Phase	• Decide from early on who is responsible: Build on existing groups to establish a core group of evangelists • Establish a concrete stakeholder engagement plan • Set a timeline
Initial Operations Phase	**Involve** • Foster high engagement • Involve as much as possible • Understand stakeholder/-groups: Use the support and resources of your core group, also to enable first successes to get visible for the broader community • Set tone for following interactions • Raise awareness & understand requirements
Maintaining Operations Phase	**Engage** • Define stakeholders in more narrow terms • Support participants in implementing their goals, also through incentives and benchmarking • Activation and stakeholder empowerment • Ensure continuous information flow and closer involvement • Establish a process • Enable reflection and planning phases

Upscaling Phase	**Evolve** • Plan and establish a wider outreach, also trying to reach people that might not have been interested in the beginning • Develop further communication steps • Establish feedback loops • Evaluate and (if necessary) adapt used communication and information channels

2 TOOLS OF COMMUNICATION FROM A SOCIAL SCIENCE PERSPECTIVE

Depending on the objective of a communication strategy, the relevant stakeholders and the respective phases of engagement, different methods are suitable for information and intervention. This section is meant to give an overview on possible tools of communication, information and intervention campaigns, considering the different action phases and taking into account the psychological benefits drawn from the respective tools. It clusters different interventional and informational instruments that can be used for citizen participation and engagement in the context of energy communities along their level of involvement.

LEVEL OF INVOLVEMENT

Considering and clustering different levels of involvement, a four-step-involvement approach is suggested, based on former research and projects, which propose a gradually rising way of involvement level. As an example, the IAP2's Spectrum of Public Participation defines different levels of participation, differing in the public's role participation processes and distinguishing between the phases of inform, consult, involve, collaborate and empower (IAP2 International

Federation, 2018; found in: Wright & Bragge, 2021). With each phase, a higher level of participation of the respective stakeholders in project decisions and developments is postulated. Using a similar idea, Wunderlich (2012) proposes four stages of citizen participation regarding to energy citizen projects: Information, Consultation, Cooperation and Self-Determination. This approach has also been used to create the ECOISM Participatory Toolbox for Communities within the EUKI Project (2020). Based on these considerations, we suggest a four-level framework of involvement for clustering different tools, which will be depicted below in Figure 1. The first stage, *inform*, only uses a unidirectional approach with low level of involvement, concentrating on information provision and creation of understanding and know-how: Relevant stakeholders should be fully informed about advantages and disadvantages of a project at an early stage (Wunderlich, 2012). The second level, *consult*, is used to gain feedback and get input in a unidirectional way from the stakeholders contacted, offering a way to display feedback but still a medium low level of involvement. *Include* however, comprising the next stage, already fosters a medium high level of involvement by working directly with stakeholders throughout a process, giving a possibility for bidirectional communication and interchange on decisions taken. This level of involvement is further increased in the high level, *collaborate*, where stakeholders are integrated in different aspect of decision making, including the development of alternatives and solutions or even the self-determined implementation of a project by the citizens themselves (IAP2 International Federation, 2018).

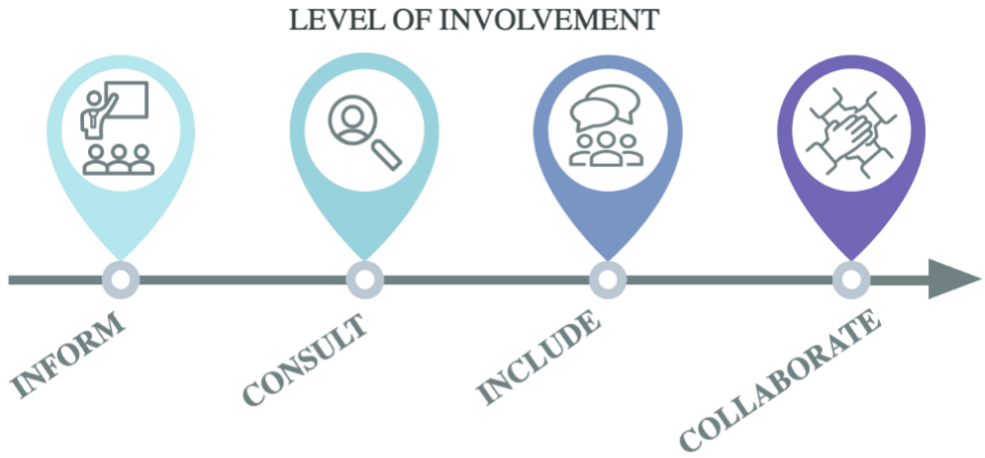


Figure 1. Levels of involvement for Tools and Interventions.

OVERVIEW TOOLS & INTERVENTIONS

This involvement level approach as well as the former described segmentation into phases of engagement will be synthesized towards an overview of possible forms of intervention and information, as well as the tools that they involve. Such a synthesis is aimed to give an overview in terms of their fit with the respective action phases, considering their level of involvement. The particular intervention tools are evaluated with regard to their psychological benefits and the underlying methods that should be taken into account when implementing. A summary of all tools and their respective guidelines out of a behavioural science perspective can be found as well in a structured overview in D1.3.

An explanation of the structure to better understand and use the overview of intervention tools is given in Table 2 and Table 3. Furthermore, Table 2 shows an excerpt of the overview, providing a list of examined tools for the different levels of involvement. For the full overview, please see D1.3.

Table 2. Overview of interventions, part 1.

Level of involvement	Type	Intervention	Phase
Scale of level of involvement for the respective tool: Increasing from low to high level	Depending on the level of involvement: Inform / Consult / Include / Collaborate	Tool / Intervention: Concrete Implementation form	Action phase / phase of communication recommended as suitable for the tool: Prepare / Involve / Engage / Evolve

Best Practices	Why? Intended Effects	How? Elements to include
Best practices in implementing this tool / intervention in former projects / studies	Based on the identified motivators for CEAS and collective actions: Psychological effects / benefits targeted through the intervention / tool	Theoretical concepts, principles and models, which should underlie the tools in order to ensure a meaningful implementation of these from a social science point of view

Table 3. Overview over Interventions, part 2.

Level of involvement	Type	Phase	Interventions
Low	Inform	Prepare, Involve	Flyers / Postcards
		Involve, Engage	Newsletter
		Involve, Evolve	Promotional Video

		Involve, Engage, Evolve	Media Campaign
		Engage, Evolve	Comparative Feedback Information (Social norm intervention)
		Engage, Evolve	Energy Feedback (through IHD etc.)
Medium Low	Consult	Prepare, Involve	Semi-Structured interviews
		All	Surveys
		Involve, Engage, Evolve	Information sessions
		Involve, Engage	Site visits
		Involve, Engage, Evolve	Citizen hearings / Committee
Medium high	Include	Engage, Evolve	Consenus Workshop
		Prepare, Involve	Engagement-Event / Drop-in-event
		Involve, Engage	Focus Groups
		Involve	Home visits
		Involve, Engage	Serious Gaming
		Involve, Engage, Evolve	Hackathon
		Involve, Engage	Commiment Pledge
High	Collaborate	Prepare, Involve	Community Mapping
		Involve, Engage, Evolve	Town Meetings
		All	Workgroups / Forum

		Involve, Engage, Evolve	Interactive Webportals / Networks
		All	Participatory Community workshops
		Engage, Evolve	Co-creation and mutual learning events
		Involve, Engage	Micro-Utopias

SCIENTIFIC EVALUATION

Interventions and information campaigns are key to actively engage with end-users. As the different engagement and communication actions are used to approach different goals, their expected impacts and psychological benefits do differ. This section is meant to deliver a brief overview on the theoretical framework and evaluation of the respective intervention and information tools, regarding their effects on energy consumption and their social impact. It also aims to explain more detailed the guidelines out of a behavioural science perspective which can be found in the structured overview in D1.3

THE COM-B MODEL OF BEHAVIOUR CHANGE: A STARTING POINT

Through the different interventions and tools, behaviour of stakeholders and possible changes in such behaviour are targeted. Aiming at behaviour change, it is considered necessary to integrate possible motivators and barriers. One model for explaining enabling and hindering factors for behaviour out of different perspectives is the COM-B Model of behaviour, developed by Michie et al. (2013) in an approach to create a method for characterising and designing behaviour change interventions.

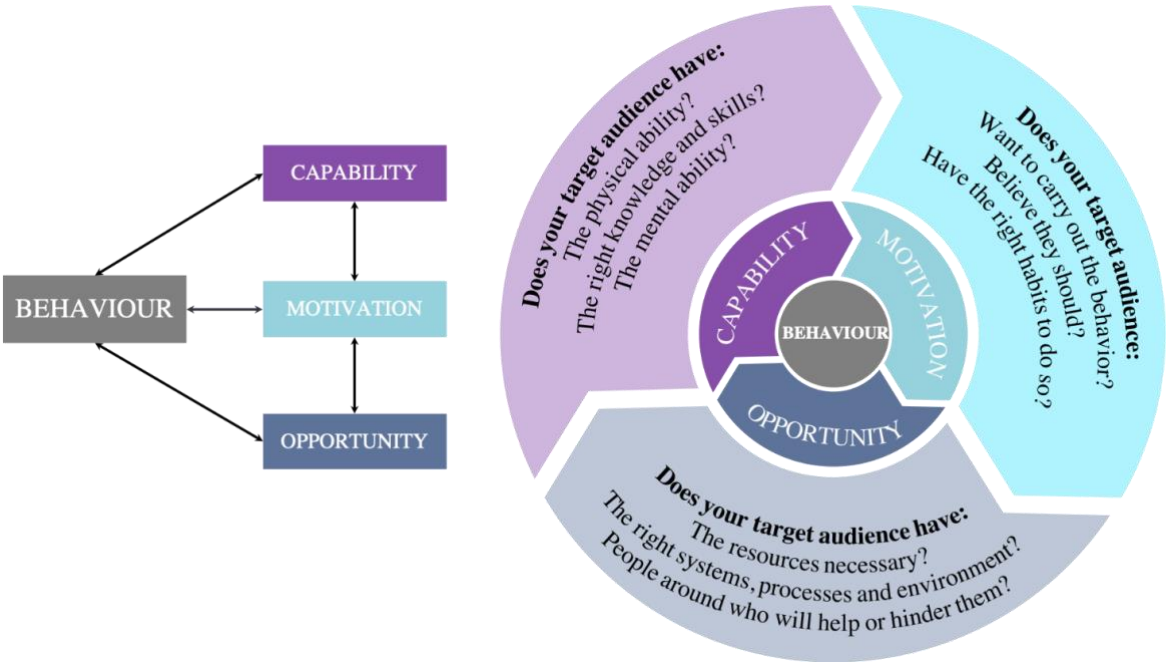


Figure 2. COM-B Model of behaviour & behaviour Change Wheel, based on Michie et al. (2013)

The proposed behaviour system is describing behaviour (and therefore possibilities for behaviour change) through capabilities, opportunities and motivations. While capabilities imply the psychological or physical abilities to enact the behaviour, opportunities reflect the contextual settings, including the physical and social environment enabling the behaviour. Motivations are furthermore seen as reflective and automatic mechanism that activate or inhibit behaviour. These components are the basis and target of interventions: In this respect, the model provides a starting point for designing interventions by analysing the given components of the behavioural system and considering them as a leverage point for potential change (Michie et al., 2013).

INFORMATION & COMMUNICATION FOR TRUST

Informational steps as tools for raising awareness and providing information are often seen as a first step towards consumer engagement (Gangale et al., 2013). Information can be used for example to promote energy conservation behaviours through general information about energy-related problems or specific information about possible solutions (Abrahamse et al., 2015). When providing information and communication material, it is recommended to base such material on the principle of communication for trust, taking into consideration the integrity, benevolence and competence model (Mayer, Davis, & Schoorman, 1995). Competence refers to the ability to realize promises, based on adequate knowledge, expertise, skills, leadership, and other characteristics in related domains. Benevolence implies having a sincere concern for customers' interests and the motivation to do good for them, while integrity means the adherence to a set of sound principles. Each of these components helps to increase a trustworthy perception of an organization or person. When the three factors are met, a high level of trustworthiness is perceived (Mayer, Davis, & Schoorman, 1995). Trust in project organizers has been found to be correlated with citizens' support for the project (Walker et al., 2010).

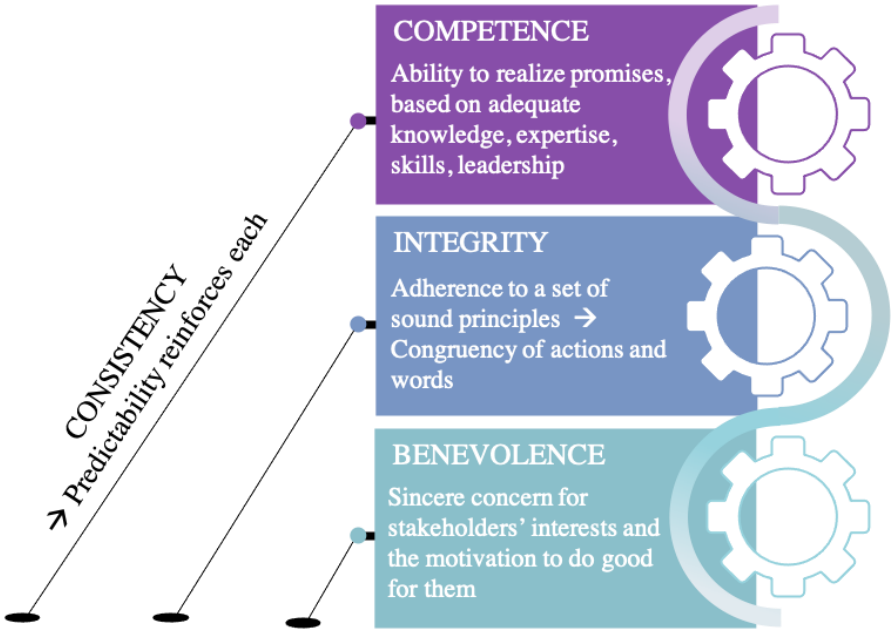


Figure 3. Factors of trust, building on the integrity, benevolence and competence model (Mayer, Davis, & Schoorman, 1995).

There is a variety of different communication channels for information interventions, with each of them having its own benefits. While a website is seen more suitable to send general information about the project, home visits or audits can be used to tailor information and provide it highly personalized (Straver et al., 2014). The benefit of such personalized information is that the respective target group receives only relevant information rather than getting an overload of general information (Abrahamse et al., 2015). Moreover, there is a difference between the suitability of communication channels and actions to achieve the different goals. A brochure, for example, is effective to inform people, but not to engage them. Still, continuous communication can create a positive social norm, and support the community feeling of participants (Straver et al., 2014).

Best Practice: Membership Brochure

Regarding government and management of Energy Communities, providing brochures for members to support them in their position is recommended by the REScoop Guide for Stakeholder Management (RESCOOP, 2020). Such a *membership brochure* should

- make clear the rights and obligations linked to the membership
- address questions on the process for new members to join a REScoop
- explain the way of involvement, the current governance and power structures

It is considered necessary that all members receive transparent, clear and sufficient information.

FEEDBACK & TECHNOLOGY

A specific form of information given to the targeted stakeholder groups is feedback on energy consumption. In this case, not only the content of information but also the way of displaying it is considered important. Within the project of VaasaETT (Stromback et al., 2011), collecting and comparing about 100 pilots regarding feedback and dynamic pricing programs enabled through smart metering technologies, it was revealed that both informative billing and In-House-Displays (IHD) are effective in reducing overall electricity consumption. Overall, IHD were shown to result in the highest energy savings, but results vary widely within a given program type. This highlights the relevance of surrounding variables, which have a substantial impact on success levels of such information (Stromback et al., 2011). Similar results are found by Faruqi et al. (2010), reviewing 12 projects regarding IHD utility pilot programs. It was found that direct feedback encourages consumers to make more efficient use of energy when

delivered by IHDs. The associated reduction of energy consumption can be up to 7-14%, also depending on the payment structure.

Overall, Feedback is considered an effective strategy for reducing household energy use many different studies, while review results also suggest a higher frequency of feedback supports effectiveness (Abrahamse et al., 2015). Feedback can also be given in a comparative way: This includes feedback on individual performance relative to the performance of others. Such comparative feedback can lead to feelings of competition, social comparison, or social pressure, might be especially effective when important or relevant others are used as a reference group (Abrahamse et al., 2015). Figure 4 offers an example of Opower[1] for such an energy feedback, also providing a comparing component.

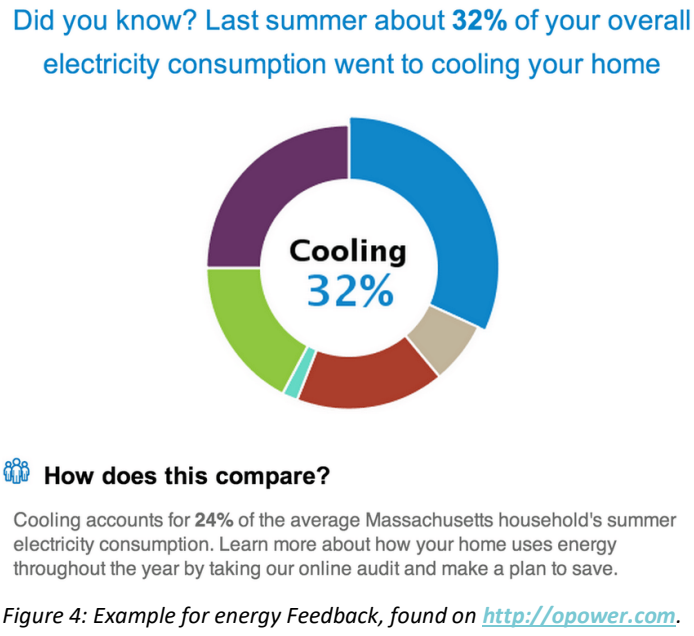


Figure 4: Example for energy Feedback, found on http://opower.com.

[1] http://opower.com

Also, comparative feedback offers the possibility to display descriptive norms (i.e. observing the behaviour of others) and communicate injunctive norms (i.e. what somebody thinks is expected by others), which have been found as driving forces for energy related pro-environmental behaviour, such as shown in the ECHOES project. As feedback mechanisms are often connected with the use and adoption of new technologies, the Unified Theory of Acceptance and Use of Technology (UTAUT2) Model offers a proper framework to understand intention to use of technologies (Venkatesh et al., 2012). The model explains the intention to use a technology through various influencing factors, such as performance expectancy, effort expectancy, social influence or price value, among others. Examining and incorporating these influencing factors can inform interventions that are relying on participants' adoption of technology.

MEDIA USAGE & NARRATIVES

Another scope of informing and consulting stakeholders often is based on use of media. Such an approach is recommended to be used from early on: Stromback et al. (2011) see media involvement as a crucial factor on the extent of customer acceptance and engagement, as it is expected to improve future marketing campaigns as well as help against future negative publicity. At the same time, media-based information as a video or a coherent media campaign can be used for storytelling, which is seen as an innovative methodology approach in energy research. In this case, it can be useful to focus on existing stories and narratives and then use storytelling as a process to facilitate stakeholder engagement (INTEGRID, 2018).

Furthermore, discussions on dedicated blogs, forums, websites, or social media pages can be used to foster involvement of stakeholders. This is considered to be especially suitable for consultation of geographically scattered stakeholders. At the same time, media-based interventions such as a video or a coherent media campaign can be used for storytelling, which

is seen as an innovative methodology approach in energy research. In this case, it can be useful to focus on existing stories and narratives and then use storytelling as a process to facilitate stakeholder engagement (INTEGRID, 2018). This is especially true considering that local themes have been found to be the most motivating narratives, with social and community-related aspects being other appropriate narratives (Poppen, 2015; Rogers et al., 2008).

Best Practice: Interactive Webportal (InteGrid)

A customer engagement group of the EU project bridge (BRIDGE, 2019) observed ten smart grid demonstration projects and found that one way of offering additional value to participants within the project of InteGrid was the implementation of a local online network. This way of web-based engagement suggests a concept of a sustainability-orientated local social network, which is built on outputs from both a literature review and focus groups:

- The idea of such a network is to connect the digital neighbourhood with the physical neighbourhood and strengthen neighbour-to-neighbour interactions.
- Through interaction, building-or neighbourhood-level local interest groups can be created and private internal discussions can be held within housing cooperatives and interest groups, while within the same tool, sending a message to the neighbourhood or surrounding neighbourhoods quickly spreads information to a large area.
- Beyond the direct effects, an increased frequency of communication and physical meetings between neighbours is expected, which can also contribute to feelings of social identity, cohesion, safety and trust (INTEGRID, 2018)

PARTICIPATION & TRUST

Participatory interventions serve both the consultation and involvement of stakeholders, offering possibilities for getting to know stakeholder views, give them the possibility for commenting on decisions and collaboratively work on solutions (INTEGRID, 2018). Research indicates that using participatory interventions like workshops or focus groups fosters involvement, can increase intrinsic motivation and establish new norms, especially regarding energy consumption (Endrejat et al., 2015). Beyond that, the feeling of civic gratification or sense of duty, associated with a desire to contribute community's welfare can be considered a benefit related to the act of participation itself (Hoffmann & High Pippert, 2010). Events as one way of enabling participation might be more informal than workshops or focus groups, but can be considered important as especially informal interaction often creates a chance for a rich exchange of information (including non-verbal information) and enables the feeling of familiarity and trust (Heiskanen et al., 2013). Trust, often built up through participatory interventions, is seen as a pre-requisite for cooperation and goodwill. Furthermore, it is seen crucial for the establishment of dialogues and promotes further active involvement (Gangale et al., 2013). On the downside, participatory interventions often require participants to invest their own resources, most importantly time, which can reduce participation and effectiveness.

SOCIAL IDENTITY

Another goal of participatory intervention is the establishment and development of a social identity, particular related to a community identity. Figure 5 shows in a simplified way how personal identity, social identity and the resulting identification with one's own in-group, or potential stereotyping of the out-group, are connected. When striving for social identity, the Social Identity Model of Pro-Environmental Action, SIMPEA (Fritsche et al., 2018), identifies four basic social identity processes: emotions and motivations originating from or resulting in social identity processes; in-group identification; in-group norms and goals; and collective

efficacy. The model proposes that these social identity processes are related to appraisal of and responses to large-scale environmental crises. As identified in D1.1, these processes can be motivators for collective actions and, where available, for CEAs. In this context, the concept of collective efficacy especially plays a role in case of low perceived personal efficacy: When the sense of personal control is threatened, people try to restore perceived control by an increase in sense of collective control through group agency and the social self (Stollberg, Fritsche & Bäcker, 2015).

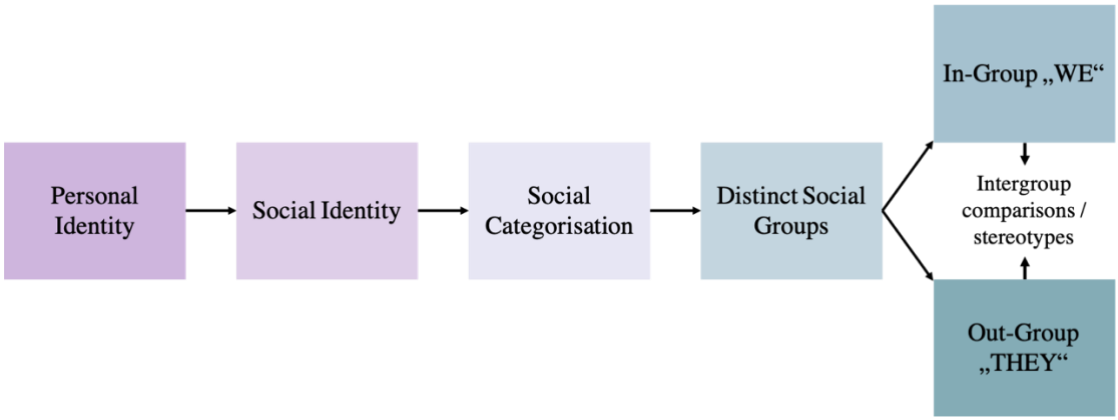


Figure 5. Personal and social identity.

Best Practice: Community Drop-in Event

One example for a successful community event is given by Clay Futures (THE EDEN PROJECT, 2009), that thoroughly describes the procedure of preparing and carrying out an event aimed at attracting a broad audience to consult the local community about a possible Eco-town development.

- First, local groups and schools were identified and contacted in order to chat about a community engagement event. The focus of the conversations was to use what is already there: members of the local community were encouraged to share stories and memories of the area – a method aimed at building trust, and allow the project and the community each to understand each other.

- In a following 3-day drop-in event, different stalls (in the look and feel of a fête stall) were installed on the key topics, including e.g. the sense of community, Eco-Towns or Parish Plans. Open-ended questions, scrapbooks of information, small objects and curiosities were used to provoke interest and washing-lines to display completed question cards were placed in each stall on the different topics.
- From the memories and stories of past glories of the community, a slideshow with old photos was prepared and displayed in order to connect to the community's sense of identity and link the planned project with past success. Afterwards, the results of the information collected on each topic in the stalls were gathered and merged to a report.

FAIRNESS & INCLUSION

Furthermore supporting the ideas of approaches fostering involvement of stakeholders is the theory of Social Justice: when decisions within projects are taken, people focus on how decisions are made in making justice evaluations, which means that the procedure used to reach a decision can have profound effects on fairness judgments (e.g. Thibaut & Walker, 1975; Lind & Tyler, 1988) and therefore on acceptability of decisions, which also underlines the benefits of a fair, participatory approach. Another method directly including stakeholders are in-depth interviews, used to establish a dialogue on opinions about possible interventions. This kind of method can help to reduce a desirability bias that may arise in workshops, as interview are associated with more anonymity and privacy (INTEGRID, 2018). Surveys as a participatory approach furthermore have the benefit of offering more representative samples of end-users, which should be aimed at also inserting the views of members which are less

interested or involved. Ideally, surveys and interviews can create new knowledge and thereby complement other actions (Heiskanen et al., 2013).

Overall, empowerment of stakeholders is considered to be crucial for ensuring high-quality participation. At the same time, including local stakeholders can also support understanding the suitability for and translation of research findings from other parts of the world into local settings (Wright & Bragge, 2021). Involving stakeholders is realized by providing two-way communication formats on an equal level, and in particular through enabling broad inclusiveness and a participation level of consulting (Stober et al., 2021). Different methods serve to engage diverse stakeholders and align their interests, which was seen crucial in several studies of user involvement on the community level (Heiskanen et al., 2013). It is considered necessary not to rely on a one size fits all approach, but rather to use a mix of solutions, in order to address different user and stakeholder types (Straver et al., 2014).

3 SUMMARY OF RECOMMENDATIONS

Based on the insights from the previous chapters, we here propose a DECIDE toolbox, that can be found in total in the structured overview in D1.3. The most important and impactful methods and interventions are summarized below in a brief overview. Based on this general toolbox, more specific interventions can be designed in a variety of ways. For the DECIDE project, chapter 4 will propose ways to employ elements of this toolbox for the pilot sites, more specifically defining intervention and communication approaches on the basis of this toolbox.

- **No "one-size-fits-all" Approach.**

  Tailor communication, information and intervention to the respective stakeholder group and the current phase of your project.
- **Understand stakeholders.**

  Carry out an analysis of your stakeholders' needs and barriers at an early stage of the project to find out more about enabling and hindering factors, also supported by psychological models like UATUT2 for technology acceptance (Venkatesh et al., 2012) or the COM-B model for motivations and barriers of pro-environmental behaviour (Michie et al., 2011).
- **Build on the existing.**

  Use existing local identity and existing local groups and their identity, build on these identities instead of creating new ones. It is easier to integrate an initiative with already existing groups, especially in such which are somehow committed to climate protection. This means start working with 'early adopters'/ community champions and empower them to act in their own community.

- **Establish Trust.**

  Create trust as one of the most important foundations for all levels of involvement. It is considered necessary to be continuously active at local level as building trust takes time and be transparent on goals, methods and actual possibilities to collaborate in decisions taken. To reach communication for trust, build on the principles of the Integrity, benevolence and competence model (Mayer, Davis, & Schoorman, 1995).

- **Organise it collectively.**

  Use different participatory methods to strive for social identity processes, in-group identification, in-group norms and goals and collective efficacy (SIMPEA; Fritsche et al., 2018); allow for involvement in decision-making as much as possible.

- **Keep Rebound effects in mind.**

  Rebound effects are important to consider in order to be able to reach the energy efficiency strived for. Keep a superordinate goal commitment focus and consider principles of goalsetting when deciding on superordinate goals and subgoals.

4 DECIDE PILOTS – PREVIOUS CAMPAIGNS & RECOMMENDED TAILORED COMMUNICATION GUIDELINES AND INTERVENTIONS

As a conclusion, we present the application of the general toolbox for the DECIDE project. Thus, based on the developed overview on tools and interventions for different stakeholder involvement levels, this section aims to provide tailored communication guidelines and intervention suggestions for the pilots within DECIDE. The proposed guidelines along their scientific principles from a social science perspective are as well found in a second overview in D1.3, concentrating on the DECIDE Pilot recommendations only.

For each pilot[2], previous activities that included information and intervention approaches are first summarized. Then, communication, intervention, and participation concepts and ideas are proposed that either (a) were already implemented within the DEICDE project, (b) are in the process of being implemented, or (c) are recommended for future implementation. All proposed activities can be developed further and evolve throughout collaboration with the respective pilot partner and through experiences made during the project.

DOMX

Given that the DomX solution was only just released as a product at the beginning of the implementation of DECIDE, no activities had been taken to directly engage consumers in acquiring the solution before the starting point of DECIDE. Corresponding to this, no information campaigns have been carried out (e.g. through flyers, letters, social media

[2] For more detailed backround information on the specific pilot sites within the DECIDE project, go to https://decide4energy.eu

contents or others) at the release date of this document (M12). DomX is still within discussion with identified stakeholders to formulate the way of collaboration.

To better understand customer behaviour, as well as motivations or barriers for customers of DomX, a survey regarding a smart appliance for a demand response system in heating is proposed and in the process of implementation. The survey is based on the formerly described models UTAUT2 (Venkatesh et al., 2012) and COM-B (Michie et al., 2011). In connection with the theoretical foundations and based on previous studies on the acceptance of smart technologies in the heating sector (see for example Annala et al., 2014; Fell et al., 2015), it is therefore recommended to investigate both motivation and barriers for uptake of the DomX Technology as well as examine possible incentives and integrate technology related items. Furthermore, communication materials in form of flyers, postcards or a newsletter are suggested to be necessary for tailored information reaching DomX customers, which should be based on the Integrity, benevolence and competence model (Mayer, David & Schoorman, 1995) to ensure communication for trust.

Such communication material should frame and visualize the overall goal, provide possibilities for interaction and contact, and target social identity and motivation as much as possible. A key point is to strive for a coherent narrative that extends to all types of information and communication material. Further input to communication material design and the right motivational approach can be drawn from other information-related activities (see e.g Postcard Study for OurPower).

As heat efficiency as well as gas and cost savings of end customers are considered to be important goals for DomX, it is further advised to have rebound information sessions, considering that rebound effects might lead to a much lower energy efficiency than expected.

In such information sessions, rebound effects can be explained, and the relevance of focusing on a superordinate goal to strengthen commitment should be addressed. Rebound information sessions can be developed in close collaboration with the pilot and worked out in detail for the particular use case, evolving over time and with more experience.

OURPOWER

OurPower started in summer 2019 with a successful series of local events in Upper Austria attracting more than 200 members and supporters, most of them prosumers with their own PV systems. The planned roadshow in this line to win new customers and supporters had to be cancelled for pandemic reasons. As a substitute, OurPower chose for their first activity within the DECIDE project a direct mailing approach through 20.000 (not personalized) letters to home-owners with PV on their roofs. That campaign proved unsuccessful, resulting in only 150 contacts, mostly via telephone. Only 25 contracts were generated, of which only 5 contracts were implemented through the OurPower website, which had originally been the target avenue in the letters.

In order to reach a higher number of potential members within DECIDE and at the same time to understand which is the best way to approach future customers based on the knowledge of their main motivation, a postcard intervention has been designed; this intervention has not implemented as of this deliverable (M12).

The postcard is seen as an ideal first approach for possible customers, as it serves to raise interest without delivering too much information. The goal of the postcard approach is to incentivize people to contact OurPower via their website. The experimental part of the postcard study has been designed in order to understand the main driver for people to join the community of the pilot. The intervention addresses either the community identity, the

regional identity or the environmental identity spirit. Individuals will receive randomly one of the three postcards, which also contains information how to access the website.

To clarify, one postcard targets environmental identity, another targets the regional identity and a third targets community identity (for a visual display of the postcards, see section 5). Based on the results in interest and contact, this method is used to better understand which social identity is the most motivating for people to join such a collective action as OurPower. It is based on the COM-B Model (Michie et al., 2011), also examining possible incentives to reach customers and trigger interactions. Additionally, the postcards are designed to build awareness and communicate the goals of OurPower using a superordinate goal framing. This type of intervention can be slightly adapted for future communication towards consumers.

In order to better draft a future strategy for OurPower as a collective action, we have also proposed an adapted version of an already developed game survey (for more information see HINDELANG). Finally, we suggest implementing an interactive webportal, which could be part of the already existing website by OurPower, fostering interactions between community members and creating a sense of community.

HERON

Regarding interventions and information steps in the past, HERON has been mainly concentrating on the preparation and creation of the HERON platform. In addition, a first information campaign has been designed within the first months of the DECIDE project, and will be rolled out in the near future. In the context of the DECIDE project, residential consumers that belong to the clientele of HERON have been invited to participate in the pilot execution which foresees, amongst others, the installation of additional smart meters for real-time monitoring of energy and non-energy data.

HERON's communication plan is to address the target group of its own clients in order to achieve best results possible for each pilot phase. In the beginning, HERON clients that were aware of such initiatives were contacted, since they could serve as frontrunners. In this context, employees of HERON and their family members with already installed smart meters in their households were contacted first. Next, additional residential customers will be approached through telephone communication, email and relevant questionnaires performed in HERON's stores and potentially through HERON's external partners. In addition, information about the DECIDE project in general and the Greek pilot in particular will be published on HERON's website, as well as on the DECIDE project website and newsletters. All interested consumers willing to participate in the Greek pilot at the time of registering in the HERON's online metering platform will receive the information sheet through a popup window with all the relevant information about the DECIDE project and the Greek pilot that they have been invited to participate in. Only the customers that have accepted electronically the terms and conditions (tick-box) and, as such having provided their consent will be entitled as eligible users to participate in the Greek pilot.

As acceptance of technology and monitoring of energy data play an important role in the concept of HERON, the study of the acceptance and usage intention of Heat DR systems can as well be used and adapted for HERON customers, finding out more about the intention to use smart appliances in heating within their existing customer basis and on potential new customers. As the platform for HERON Customers already allows for tracking and monitoring of energy consumption in (a) total and (b) regarding specific devices, it is further recommended to use progress-bars and push information on the platform. Such display serves to give a monthly efficacy update, helps to visualize the overall goal and the respective progress towards this overall goal.

This not only helps to reduce rebound effects through giving a focus on the superordinate goal when reaching subgoals (Fishbach et al., 2006), but also helps to create a sense of collective efficacy. Furthermore, comparative feedback and a visual ranking of one's consumption relative to the community can serve to promote social norms and encourage behaviour change. In addition to feedback measures, it is also recommended to explore the potential feasibility and implementation of an interactive portal as part of the website to enable interactions and a sense of community.

Following the already existing HERON Platform, an interactive webportal could be an interesting addition for HERON to connect its customers and provide a platform for interaction and knowledge exchange within their customer group. This can again help to create a sense of collective efficacy and social identity, especially when trying to set up a “virtual energy community”.

THERMOVAULT

Former information activities organized by ThermoVault started with a residents’ meeting in September 2019, for which invitations had been sent by letter to respective inhabitants. The letter already informed the residents about the functioning and especially the benefits of implementing the ThermoVault controllers, also informing about some incentives. The resulting residents meeting was followed by the installation of the ThermoVault controllers in October 2019, together with the collection of consent forms for data processing. Additionally, payments of €75 per apartment for possible induced costs due to ThermoVault control have been offered to the participating residents as part of an innovation project (Flemish VLAIO-funded ROLECS project). The operation towards a LEC is technically enabled, but still relies on the legal framework in Flanders, which is not fully adopted yet. As ThermoVault often works

closely with B2B clients (social housing companies), sessions with the residents are held to provide explanations on how the technology works.

Since ThermoVault involves a similar strategy for collective energy action as DomX, and the application of smart technology to relinquish control also plays an important role here, the study of the acceptance and usage intention of Heat DR systems was extended to cover the ThermoVault use case and is being implemented as a first step.

Additionally, communication materials in form of flyers, postcards or a newsletter are suggested to be designed, taking into account the concepts of collective efficacy and a coherent narrative as well as using the insights on possible motivations and barriers gained through the survey, targeting the final end users, that is the tenants who are the 'customers' of the social housing organizations that aim at investing in the ThermoVault technology. Again, design of communication will be based on the principles of communication for trust (Mayer, Davis, and Schoorman, 1995) and goalsetting, including the importance to strengthen commitment towards a superordinate goal (Fishbach et al., 2006). Such communication activities also go hand in hand with a possible rebound information session, including the explanations of rebounds and possible counteractions, ensuring energy-efficiency can be reached as planned. Again, such activities allow for a collaborative development, evolving over time and with more experience.

Lastly, support via an interactive webportal could be an interesting approach for ThermoVault to reach its customers and at the same time provide a platform for interaction and knowledge exchange within their customer group. This can again help to create a sense of collective efficacy and social identity. In the case of ThermoVault, it could also serve to allow for gamification elements and give comparative feedback, further fostering social norms.

TREA

Based on the goal to increase energy efficiency and living environment, the first steps taken by TREA were to declare the Kalda area as Energy Improvement District (EID) and start collecting data and preparing projects to improve the respective situation locally. Energy savings and carbon reduction in the residential sector have been considered as one of the biggest goals of Sustainable Energy and Climate Action Plan of Tartu City, which implies that the city is interested to find ways to accelerate residential sector take actions. The goals have therefore been the forming of energy communities and community agreement.

During a former project, TREA also started to engaging people from the district by inviting to events about renovation. Additionally, a workshop was held next to a building that was in renovation process in order to introduce experiences of people going through such a renovation, adding as well construction company comments. Within the same former project scope, different brochures and other material about renovation were prepared. Both this project and SECAP has had a lot of media coverage and seminars.

TREA has also been introducing the Energiamonitor, which is a web application for people to engage them into renovation plans, helping to monitor energy consumption, providing tips and calculations for achieving savings, including possible post-renovation savings. Additionally, an energy diary application with focus on raising awareness regarding energy consumption of household appliances and savings was developed and TREA is at the moment working on developing another application for devices and electronics on household level. These are planned to be integrated into a seminar series of smart living and additional workshops that focus entirely on the apps will be included.

Within the framework of DECIDE, a management board of one apartment association has been met in October 2020 to introduce and test the offer. Additionally, a hybrid (face to face and webinar) seminar was held in November in the auditorium for apartment associations within the center of the district. In order to convince potential customers to actively involve the community and to enable collaboration and participation, participatory community workshops and seminars are proposed as communication guidelines for TREA. Such tools are recommended in order to build community trust and collective emotion and establish a collective narrative, building on the already proposed processes within the SIMPEA Model (Fritsche et al., 2018). This is realized through the inclusion of different actions and a transparent communication for trust, also using the workshops / seminars to assess motivations and identities of the community.

Furthermore, it is recommended to implement a survey on energy monitoring, including elements from former described models (UTAUT2, COM-B), finding out more about the motivation and barriers of customers and getting input for further steps.

A possible further step can indeed be the setting up of a communal web dashboard, providing energy monitoring and feedback. Here, the basics of goalsetting in order to create commitment and the different ways and mechanisms to display feedback should be taken into account. Additionally, rebound information sessions as already proposed for DomX and ThermoVault could be an interesting additional element for TREA in order to ensure that current actions de facto lead to energy efficiency as strived. The implementation of such depends on close collaboration with the pilot and experiences gained within the project.

ENBRO

As ENBRO's main goal is to set up a collective project and involve stakeholders as much as possible, communication for trust as a main communication guideline is recommended. This recommendation builds up as well on the integrity, benevolence and competence model (Mayer, Davis, & Schoorman, 1995). Such a communication approach should aim to communicate realistic and transparent goals, focusing on the possibilities to interact actually given as well as to enable a good understanding of the given concepts through education and information.

HINDELANG

In Bad Hindelang, different ways of disseminating information were used to launch the project and the subsequent activities. For example, a short report on the project was published in the municipal newspaper at the start of the project in order to inform as many people in the community as possible. Likewise, a report by EWH's managing director was organized in the community's energy team, thus reaching an important stakeholder group.

In preparation for an already successfully implemented key-stakeholder workshops, a gamified survey was used as a strategy to understand the relevance of certain factors for a development towards an energy community. All participants were asked to visually arrange the relevance of different elements (actors, technologies, motives, forms of organisation and ways of life) for a successful emergence of a self-sufficient Bad Hindelang. Therefore, the stakeholders had to imagine Bad Hindelang in 2040 and consider how self-sufficiency with 100% renewable energy will have been achieved. Participants had to group the different elements together, and pull them closer to the centre based on their importance, finding out more about stakeholder views, motivations and anticipated barriers through gamification.

Additionally, the results of the game were used to guide discussions at a subsequent stakeholder workshop and further support collaboration in Bad Hindelang.

The workshop aimed to engage key stakeholders and set common, collective goals. It was also intended to support the process of reinforcing new social norms and increasing the sense of collective efficacy. Care was taken to involve existing, relevant stakeholder groups and to allow them to participate in the project process.
For further inclusion of a broader community of stakeholders, it is recommended to organize a drop-in event in form of e.g. energy days, potentially supported by flyers and surveys during the event. Such an event is suggested to create a common narrative and approach motivation, also by involving existing narratives from the community.

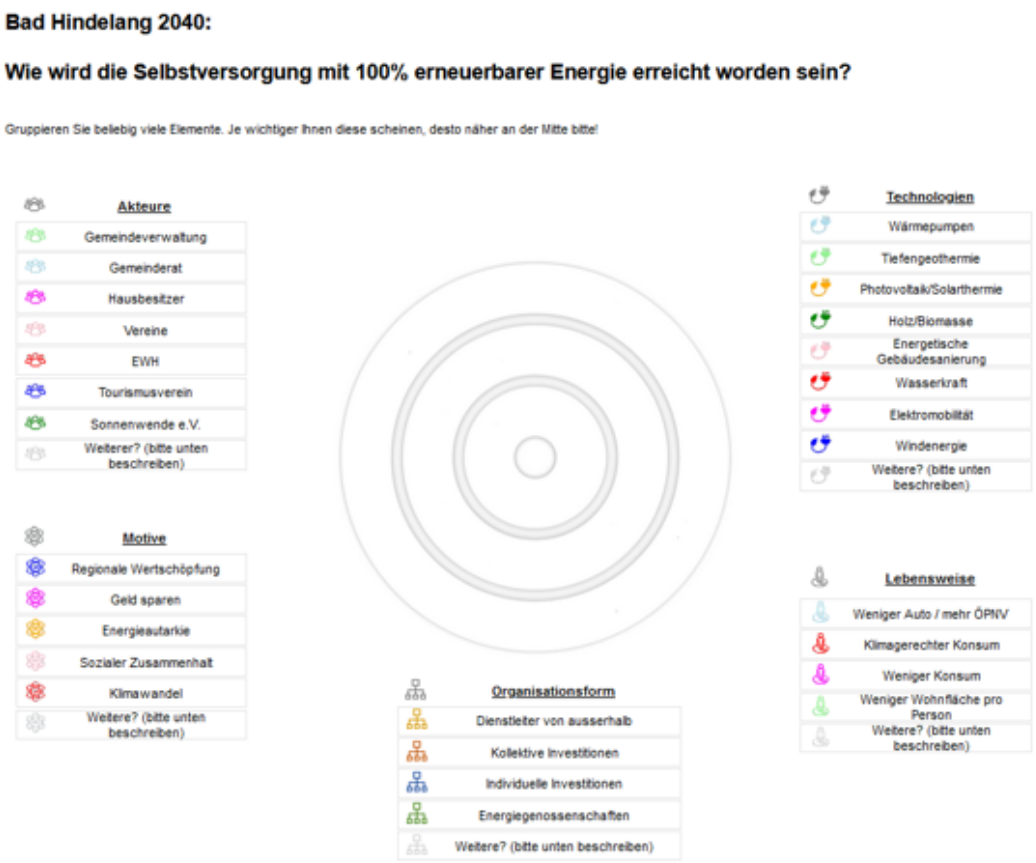
Furthermore, an official commitment on the part of local authorities can be used in such event to strengthen commitment and communicate a social, collective norm. The participatory approach of organising an event together with the local community can furthermore foster the sense of collective efficacy and collective emotions. Supporting these processes can be seen crucial in light of the SIMPEA Model of social identify (Fritsche et al., 2018).
Another approach recommended for Bad Hindelang and building on the same theoretical guideline is the establishment of a collaborative interactive webportal, which enables interactions between community members and supports connecting a digital neighbourhood with the physical neighbourhood. It can further serve for the provision of a knowledge base or joint planning of further steps and is therefore especially suited for building up a sense of collective efficacy and social identity.

5 MATERIALS AND METHODOLOGIES

The following section will provide examples of materials developed within the DECIDE project as well as other useful materials from other EU projects, taking up on best practices and based on behavioural science findings.

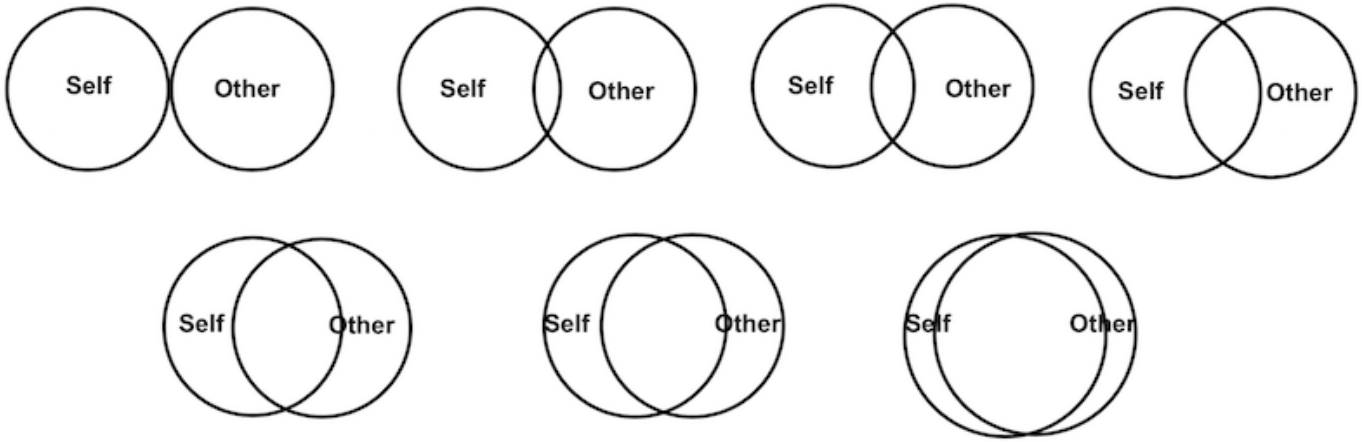
A. MATERIALS AND METHODOLOGIES DEVELOPED WITHIN DECIDE

A.1 VISUAL SURVEY IN BAD HINDLANG AS DESCRIBED SECTION 4.

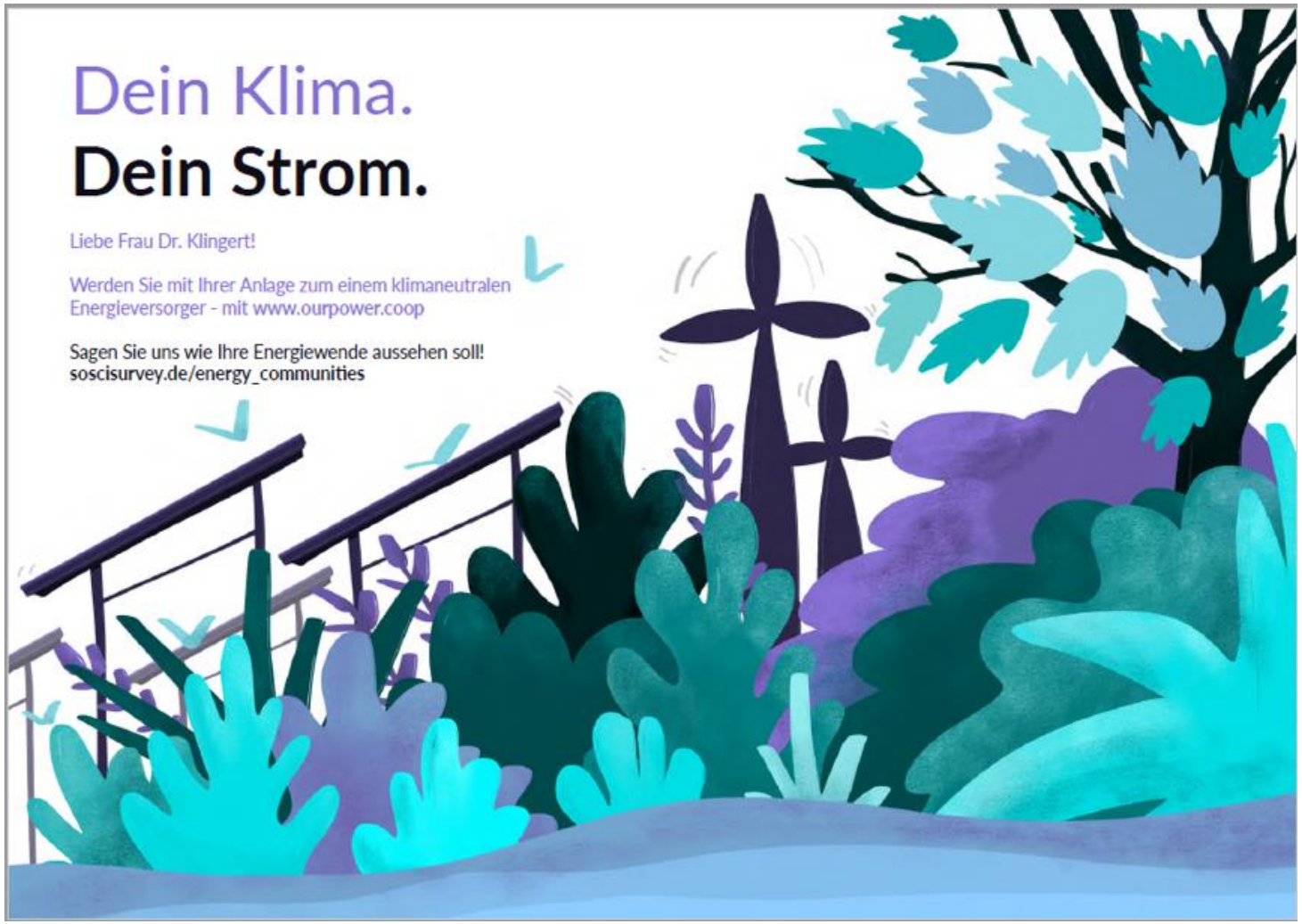


A.2 VISUAL SURVEY APPROACH TO ASSES SOCIAL INFLUENCE

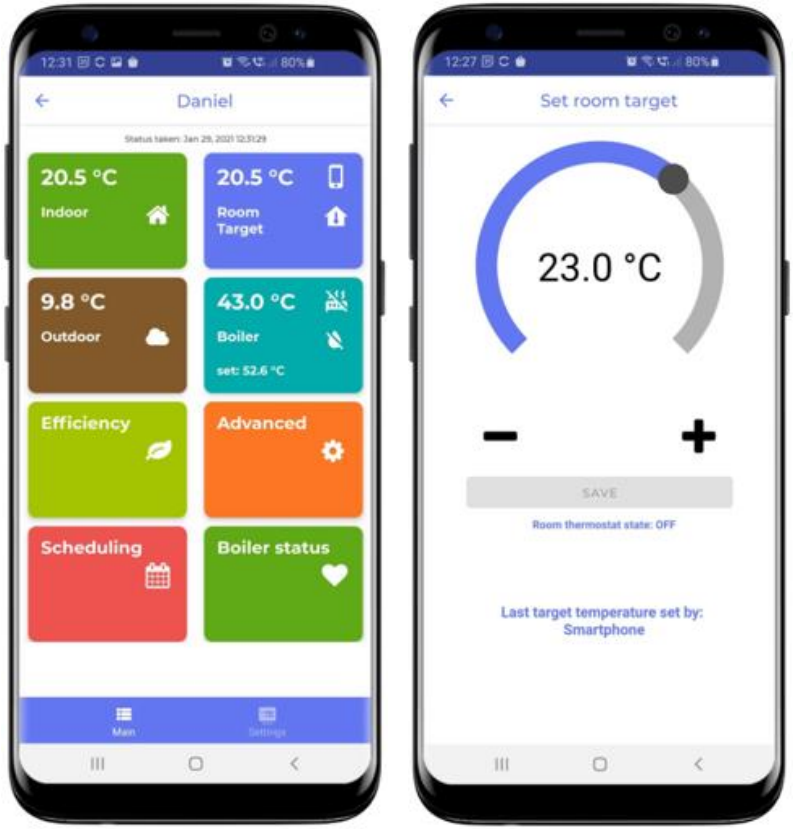
The second visual survey element is a pictoral representation of including the other in the self in a relationship based on the work of Aron, Tudor & Nelson (1991) and can be used to examine visually the relationships between neighbours or community members. Within DECIDE, this approach is used to examine the closeness of neighbourhoods within a study, finding out more about the social environment being a possible motivator or barrier for adapting a smart technology.



A.3 POSTCARD DESIGN FOR OURPOWER AS DESCRIBED IN SECTION 4


Dein Klima.
Dein Strom.
Liebe Frau Dr. Klingert!
Werden Sie mit Ihrer Anlage zum einem klimaneutralen Energieversorger - mit www.ourpower.coop
Sagen Sie uns wie Ihre Energiewende aussehen soll!
soscisurvey.de/energy_communities

A.4 FEEDBACK FOR ENERGY CONSUMPTION, PROVIDED BY DOMX



B. MATERIALS AND METHODOLOGIES IN OTHER EU PROJECTS

The following section will provide some examples and best practice materials from other projects as a starting point and orientation for further materials and methods to be developed and used within DECIDE.

Material	Sources
Newsletter & Brochure (See: B.1)	MUSE Grids Material (2019
Fridge Magnet, showing different time bands and according prices (See: B.2)	Electricity Smart Metering CBT Findings Report, 2011
Full Energy cooperative establishment brochure: LINK	Ministerium für Wirtschaft, Klimaschutz, Energie und Landesplanung, 2012
Webinar Programme: LINK	Carbon Co-op
Guidelines for community mapping: LINK	MyCommunity
Example of an interactive webportal (knowledge and assessment platform): LINK	Nature4Cities
Structure of a participatory integrated assessment and workshop series (See: B.3)	PROSEU: https://proseu.eu/resources
Energy Action Workshop Report: LINK	EVALOC

Tool supporting in the analysis, planning, implementation and evaluation of community engagement activity: LINK	VOiCE
Workshop Facilitation Guide by Clean Energy for EU Islands: LINK	REScoop.eu
Toolbox by REScoop: LINK	REscoop.eu
LICHT Methodology by REScoop for mobilising citizens: LINK	REscoop.eu
Infographics on energy prosumerism LINK	PROSEU: https://proseu.eu/resources
Mutual Learning Workshops Online Tool LINK	Biovoices.eu

B.1 NEWSLETTER & BROCHURE PROVIDED BY MUSE GRIDS PROJECT

MUSE GRIDS

Newsletter **November 2018/June 2019**

MUSE GRIDS is a lighthouse project that will pave the way for the implementation of energy communities in Europe. With two demosites in Belgium and Italy, and four virtual demosites in Spain, Israel and India, the project will develop and deploy solutions for energy communities to emerge and thrive, while reaching energy independence and being protagonists of the energy transition.

Letter from the Coordinator

*"The EU-funded project **MUSE GRIDS** was kicked off in November 2018. The objective of the project is to deliver a key contribution to the roll out of multi-energy management systems in the context of local energy communities. The project involves 18 partners from the EU, all highly motivated to unlock the potential of smart energy systems. The optimal coordination of energy services/vectors can be optimal solutions (even better than poly-generation) to maximise local energy production and increase energy efficiency at urban grids level.*
MUSE GRIDS will validate solutions for decarbonisation of local energy communities focusing not only on the technological solutions (storage systems, smart control, prediction models, energy exchange among different energy vectors), but also on consumers and on the whole socio-technological energy system involved. It will have a considerable impact on the centralised energy infrastructure, on the local economy and society, as well as in the local air quality. The final aim is to achieve an affordable energy system for everyone, creating real and sustainable energy islands with an optimal solution for each individual energy vector as well as for the new concept of Smart Energy System."

- Alessandra Cuneo, RINA Consulting

Areas of Action

In the last few years, the energy paradigm has been shifting from a centralised reality with big-sized power plants to medium-sized distributed generation plants, giving place to what can be referred to as a "smart energy system". In such a setting, physical and non-physical networks (of citizens and communities) interact, with the goal of reducing the carbon footprint of energy and ensuring an affordable power supply for all. MUSE GRIDS will demonstrate how to:

- Interconnect local **energy grids**;
- Utilise **synergies in the energy system** to maximise efficiency and reduce costs, CO2 emissions and energy losses;
- Reach **affordable energy independence** through **local renewable sources self-consumption**.

Pillars

With its goal being a widespread replication, MUSE GRIDS is structured in four pillars that can guide the implementation of an energy community in different settings:

Smart controlling of energy grids utilising demand-side management in order to integrate renewable energy sources production, storage management and demand response strategies.

Multi energy planning for EU cities thanks to an assessment framework that will allow cities and energy utilities to make informed decisions on future energy mix and investments.

A KPI-driven demonstration and replication of the energy management and technological flexibility assets, thanks to the complementarity in size, location and typology of the two demosites.

Engagement of end users and creation of energy communities that will be front runners in the uptake of new energy systems, evaluated according to social, economic and environmental impact.

Demo-sites

Osimo, Italy

The hilltop city in the Marche region will be the **MUSE** that will inspire the development of demand-side management schemes for multi-energy and polygenerative grids. The interaction among different energy networks and storage systems will contribute to the decarbonisation of the municipal microgrids.

Oud-Heverlee, Belgium

The municipality in the outskirts of Leuven will be the inspiration **MUSE** for the promotion of the concept of energy community in Europe. A neighbourhood strategy for flexibility and grid balancing will be deployed, supported by a battery. Community behaviours and interactions will be studied.

Virtual Demo-sites

San Cebrián de Campos, Spain

The District of Belén in Valladolid, Spain

Eilat, Israel

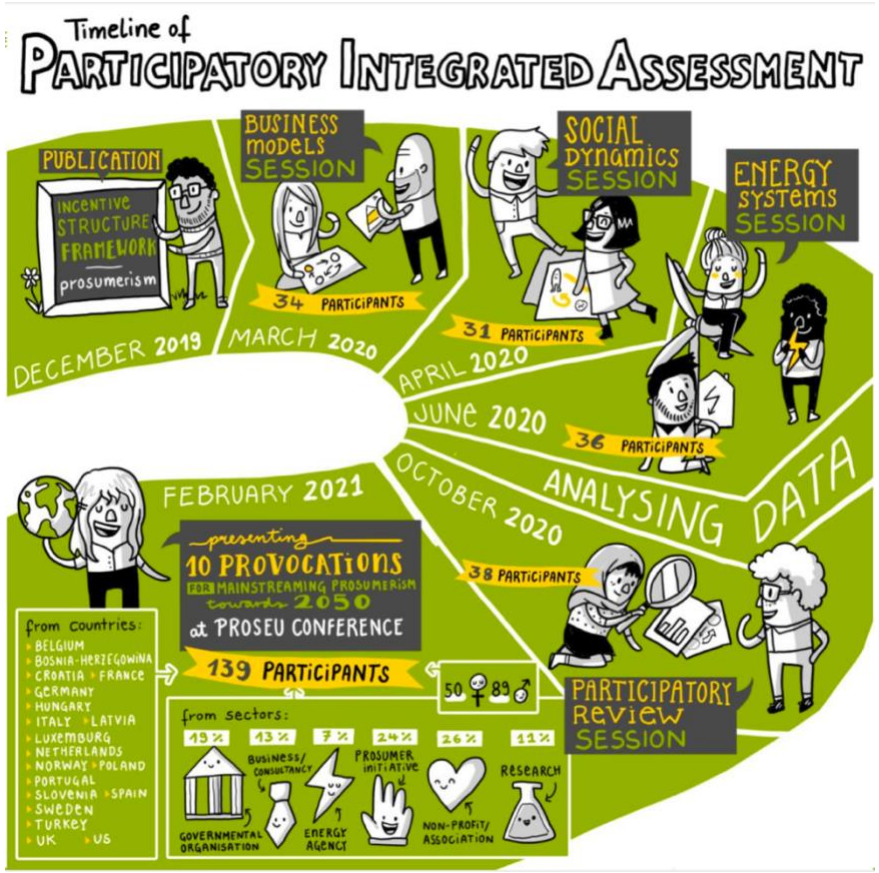
B1.2 FRIDGE MAGNET [Electricity Smart Metering CBT Findings Report, 2011]

Different times, different prices

DAY 8am - 5pm	PEAK* 5pm - 7pm	DAY 7pm - 11pm	NIGHT 11pm - 8am
14c	20c	14c	12c

* Peak rate applies Monday to Friday only excluding Public Holidays.
Time of Use pricing will apply from 1st January - 31st December 2010.
Rates may be subject to change in line with ESB Customer Supply tariff changes.
Prices exclude VAT.

B1.3 STRUCTURE OF A WORKSHOP SERIES [https://proseu.eu/resources]



ETHICS

ETHICS DOCUMENTATION DECIDE						
Checklist for DELIVERABLES/MILESTONES on ethical issues						
Introduction	The basis of DECIDE's scientific approach is the conformity of its work with ethical principles. These include respect for human beings and human dignity, the fair distribution of the benefits and burden of research, the rights and interests of research participants, and the need to ensure the free and informed consent of participants (including vulnerable groups such as children). Whenever research approaches or interventions are pursued within DECIDE that involve people or have an impact on people and their environment (e.g. interviews, workshops, ...), they must be examined for their ethical implications. The aim of this checklist is to review DECIDE's scientific products (deliverables and milestones) from an ethical point of view, but above all to enable a quick ethical review during the planning and development of these outputs. Translated with www.DeepL.com/Translator (free version)					

Remark	*In parallel to the ethics check, DECIDE data management guidelines are developed which will include: Guidelines/descriptions for procedures for data collection, storage, protection, retention, transfer, destruction or re-use. Description of the security measures that will be implemented to prevent unauthorised access to personal data or the equipment used for processing, methods of storage and exchange (LAN, cloud, etc.) Description of the anonymysation/ pseudonymisation techniques that will be implemented or explanation on why the research data will not be anonymised/ pseudonymised Detailed information on the informed consent procedures in regard to data processing*					
SUBJECT	ISSUES	Tick the box			Remarks	Sources of verification
		Y	N	n/a	n/a – does not apply	
Research ethics general						
	Do you confirm having handled research subjects with respect and care, and in accordance with legal and ethical provisions (to your best knowledge)?	x			self-assessment	
	Do you confirm having taken account of research relevant differences in age, gender, culture, religion, ethnic origin and social class (if this applies)?			x	If Y, to be mentioned in Deliverable report	Deliverable report
	Do you confirm having considered potential research related harms and risks?			x	If any, to be mentioned in Deliverable Summary	Deliverable report
	Are there any unethical ways (e.g. to stigmatise, discriminate against, harass or intimidate people) in which the methods or knowledge produced could be used?		x		If Y, what did you do to prevent this?	deliverable report

Stakeholder rights, interests and dignity						
	Has the role of your local research partners/stakeholders clearly been defined and communicated ?			x		Deliverable report; (consent forms); information leaflet
	Do local stakeholder groups/partners involved in your research have their own ethical guidelines/boards? If so, did they approve your research?			x	If any, written approval	(written approval)
	Have you been evaluating/analyzing their programs and services? If so, will they be given a copy of your findings?			x		copy sent to partners/ stakeholders
	Are there any potentially negative, unintended consequences of the research cooperation with local partners for local people?			x	If any, to be mentioned in Deliverable report including ways to avoid this	Deliverable report
	Could the research have induced psychological stress or anxiety or cause negative consequences beyond the risks encountered in normal life?			x	If any, to be mentioned in Deliverable report including ways to avoid this	Deliverable report
	Has there been the possibility that the involvement of stakeholders created a situation where they felt real or perceived coercion to participate in your research? If yes, how did you manage/prevent this situation?			x	If any, to be mentioned in Deliverable report including ways to avoid this	Deliverable report
	Have the following European fundamental rights been observed: The rights of the child; Equality between women and men; Integration of persons with disabilities?			x		Conformity to European fundamental rights
Research design/Methodology						
	Has the research design been sensitive to the particular needs and perspectives of tageted stakeholder groups?			x		Methodology description in Deliverable Report
	Does the methodology clearly describe how data have been collected and analysed during the work?			x		Methodology and data management description in Deliverable Report
	Did research involve the sharing of data or confidential information beyond the initial consents given?			x		Consent forms; amendments to consent forms; Deliverable report

	Are people other than direct research participants likely to be directly impacted by the research?			x	if Y, discuss in Deliverable report	Deliverable report
	Did you make arrangements to preserve confidentiality for participants or those potentially affected?			x	Please explain the mechanisms in place to ensure the confidentiality of private information,	DECIDE Data management guidelines; (infomation sheets);
	Has the methodology addressed ways in which sensitive information, data or sources will be handled? (e.g. personal data, data protection, tracking of people)			x		Methodology and data management description in Deliverable Report
	Have participants been asked to give informed consent in writing and have they been provided with information about the research?			x		Information sheet and consent form
	Have the research approach/aims been discussed with stakeholders involved?			x		Deliverable report
	Has information (written and verbal) about the research been provided in an appropriate form and language for potential participants?			x		Information sheet
	Did you offer any incentives (other than reasonable expenses and compensation for time) to research participants?			x	If yes, what could be the potential ethical issues arising from this?	methodology description in Deliverable report
Data management/protection	Have personal data been processed in any way (e.g. collected, shared, stored,…)?		x			Copy of questionnaire/online questionnaire url; Deliverable report methodology part; reference to DECIDE Data management guidelines; (Indication of own Data documentation systems of DECIDE partners if any)
	Have personal data been anonymized oder pseudonymized before processing?			x	Description of data processing (collection, management, storage) in deliverable . Describe how you anonymized/pseudonymized the personal data.	Deliverable report; reference to DECIDE Data management guidelines; (Indication of own Data documentation systems of DECIDE partners if any)

	Did you practise tracking or observation or profiling of participants ?		x		In the deliverable, provide explanation how the data subjects have been informed of the existence of the profiling, its possible consequences and how their fundamental rights have been safeguarded	Informed consent of participants; Deliverable report
	Did the research involve the collection of photographic or video materials?		x		Describe the purposes: if to be used in any outputs (publication, dissemination, etc.)Or to be made publicly available (e.g. in social media, magazine articles)?	Informed consent of participants with specific permission of photographic or video recording; Specific permission in case of further use (e.g. publications, social media); Deliverable report; In case of use in social media: social media statement etc must include the researcher/supervisor contact details and a statement that the study has received relevant ethical approvals

	Has there been any audio collection?		x		Describe the purposes: only for transcribing/summarising purposes? to be used in any outputs (publication, dissemination, etc.)? To be made publicly available (e.g. in social media, magazine articles)?	Informed consent of participants. In case of any use beyond transcription, specific justification is needed; in case of use in social media: social media statement etc must include the researcher/supervisor contact details and a statement that the study has received relevant ethical approvals
	Have you followed the Data management guidelines of DECIDE?			x		
	Have people providing personal data been informed on data processing including period of preservation?			x		Informed Consent Forms
	Did you define how access to the research findings of this deliverable/milestone including processed data will be regulated within DECIDE and externally?			x	Describe how you will collect, manage and store the personal data (taking into consideration the Data Protection Act and the 8 Data Protection Principles).	Intellectual property rights and Citation rules inside DECIDE
Publication and Dissemination of research results						
	Have research results in this deliverable been presented in an open, honest, transparent and accurate manner, respecting confidentiality of data or findings ?			x	self assessment	(Deliverable report)
	Have results in this deliverable reported in a way that is compatible with the standards of the discipline and can be verified?	x				Deliverable report
	Have all authors agreed on the sequence of authorship (acknowledging that authorship itself is based on a significant contribution to the design of the research, relevant data collection, or the analysis or interpretation of the results)?	x				Report history documentation (emails, sharepoint)

	Have authors of the deliverable ensured that their work is made available to colleagues in a timely, open, transparent, and accurate manner?	x				Report history documentation (emails, sharepoint)
	Have all authors of the deliverable acknowledged important work and intellectual contributions of others, including collaborators, assistants, and funders and cited related work correctly?	x			self assessment	
	Will the results of the study be offered to those participants or other parties involved who may wish to receive them?	x				Type of Deliverable; (consent forms)
Vulnerable individuals/groups incl. children						
	Did the research work involve participants who are particularly vulnerable or unable to give informed consent?		x		Provide details on type of vulnerability, details on recruitment, inclusion/exclusio criteria, informed consent procedure. Demonstrate efforts to ensure informed understanding of implications of participation; Describe procedures used to ensure that there was no coercion on participants.	Informed consent forms; Information sheets; Deliverable report

	Did the research work particularly involve children/minors?		x		Provide details on recruitment, inclusion/exclusio criteria, informed consent procedure (e.g. age ranges, children assent procedures and parental consent). Demonstrate efforts to ensure informed understanding of implications of participation; Describe procedures used to ensure that there was no coercion on participants and to ensure welfare of minors. Justify the involvement of minors	Informed consent forms; Information sheets; Deliverable report

REFERENCES

Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2005). A review of intervention studies aimed at household energy conservation. *Journal of environmental psychology*, *25*(3), 273–291.

Annala, S., Viljainen, S., Tuunanen, J., & Honkapuro, S. (2014). Does Knowledge Contribute to the Acceptance of Demand Response? *Journal of Sustainable Development of Energy, Water and Environment Systems*, *2*(1), 51–60. https://doi.org/10.13044/j.sdewes.2014.02.0005

Aron, A., Aron, E. N., Tudor, M., & Nelson, G. (1991). Close relationships as including other in the self. *Journal of personality and social psychology*, *60*(2), 241.

Boezeman, D., & de Coninck, H. (2018). Improving collaborative knowledge production for climate change mitigation: Lessons from EU Horizon 2020 experiences. *Sustainable Earth*, *1*(1), 6. https://doi.org/10.1186/s42055-018-0007-0

Breukers, S., & Jeuken, Y. (2017.). *Step-by-step guide for co-production and co- creation of Nature-based Solutions*. 30. Nature4Cities.

BRIDGE (2019*). Customer Engagement: Main Findings and Recommendations.*

BRE (2015). *Community Engagement Good Practice Guidance for Solar Farms.* N Waters, O Pendered and G Hartnell.

Carbon CO-Op & URBED (2015). *A community approach to retrofit and potential implications for the fuel poverty agenda*. A report for the Chesshire Lehmann Fund.

CHARISMA (2015). *Stakeholder Engagement Plan.*

COMERES (2021). *Stakeholder involvement and engagement plans.*

COMETS (2019). *Report on working definition of CAIs'.*

EDEN Project (o.J.). *ClayFutures community engagement case study.*

Endrejat, P. C., Klonek, F. E., & Kauffeld, S. (2015). A psychology perspective of energy consumption in organisations: The value of participatory interventions. *Indoor and Built Environment*, *24*(7), 937–949. https://doi.org/10.1177/1420326X15598820

EUKI Project. (2020). *Participatory Toolbox for Communities*.

European Commission. Joint Research Centre. (2020). *Energy communities: An overview of energy and social innovation.* Publications Office. https://data.europa.eu/doi/10.2760/180576

Faruqui, A., Sergici, S., & Sharif, A. (2010). The impact of informational feedback on energy consumption—A survey of the experimental evidence. *Energy*, *35*(4), 1598–1608. https://doi.org/10.1016/j.energy.2009.07.042

Fell, M. J., Shipworth, D., Huebner, G. M., & Elwell, C. A. (2015). Public acceptability of domestic demand-side response in Great Britain: The role of automation and direct load control. *Energy Research & Social Science*, *9*, 72–84. https://doi.org/10.1016/j.erss.2015.08.023

Fishbach, A., Dhar, R., & Zhang, Y. (2006). Subgoals as substitutes or complements: The role of goal accessibility. *Journal of Personality and Social Psychology*, *91*(2), 232–242. https://doi.org/10.1037/0022-3514.91.2.232

Fritsche, I., Barth, M., Jugert, P., Masson, T., & Reese, G. (2018). A Social Identity Model of Pro-Environmental Action (SIMPEA). *Psychological Review*, *125*(2), 245–269. https://doi.org/10.1037/rev0000090

Gangale, F., Mengolini, A., & Onyeji, I. (2013). Consumer engagement: An insight from smart grid projects in Europe. *Energy Policy*, *60*, 621–628. https://doi.org/10.1016/j.enpol.2013.05.031

Gregg, J. S., Nyborg, S., Hansen, M., Schwanitz, V. J., Wierling, A., Zeiss, J. P., Delvaux, S., Saenz, V., Polo-Alvarez, L., Candelise, C., Gilcrease, W., Arrobbio, O., Sciullo, A., & Padovan, D. (2020). Collective Action and Social Innovation in the Energy Sector: A Mobilization Model Perspective. *Energies*, *13*(3), 651. https://doi.org/10.3390/en13030651

Gui, X., & Nardi, B. (2015). *Sustainability Begins in the Street: A Story of Transition Town Totnes:* EnviroInfo and ICT for Sustainability 2015, Copenhagen, Denmark. https://doi.org/10.2991/ict4s-env-15.2015.41

Heiskanen, E., Johnson, M., & Vadovics, E. (2013). Learning about and involving users in energy saving on the local level. *Journal of Cleaner Production*, *48*, 241–249. https://doi.org/10.1016/j.jclepro.2012.08.019

Hoffman, S. M., & High-Pippert, A. (2010). From private lives to collective action: Recruitment and participation incentives for a community energy program. *Energy Policy*, *38*(12), 7567–7574. https://doi.org/10.1016/j.enpol.2009.06.054

INTEGRID (2018). *Design of Consumer's Engagement Strategies.*

Lind, E. A., & Tyler, R. (1988). *The social psychology of procedural justice.* Springer Science & Business Media.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. Academy of management review, 20(3), 709-734..

MERLON (2019). *Dissemination, Communication and Stakeholder Engagement.*

Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, *6*(1), 42. https://doi.org/10.1186/1748-5908-6-42

MUSE GRIDS (2018). *Stakeholders Engagement, Communication and Dissemination Plan.*

MUSE GRIDS (2019). *Promotional material.*

Poppen, S. (2015). *Energiegenossenschaften und deren Mitglieder: Erste Ergebnisse einer empirischen Untersuchung* (Working Paper Nr. 157). Arbeitspapiere des Instituts für Genossenschaftswesen der Westfälischen Wilhelms-Universität Münster. https://www.econstor.eu/handle/10419/123711

Radtke, J. (2014). A closer look inside collaborative action: Civic engagement and participation in community energy initiatives. *People, Place and Policy Online*, *8*(3), 235–248. https://doi.org/10.3351/ppp.0008.0003.0008

Rogers, J. C., Simmons, E. A., Convery, I., & Weatherall, A. (2008). Public perceptions of opportunities for community-based renewable energy projects. *Energy Policy*, *36*(11), 4217–4226. https://doi.org/10.1016/j.enpol.2008.07.028

S3C Consortium (2014). *Report on case analyses, success factors and best practices*.

SCENT (2016). *Stakeholder Analysis & End User Needs and Requirements.*

Stober, D., Suškevičs, M., Eiter, S., Müller, S., Martinát, S., & Buchecker, M. (2021). What is the quality of participatory renewable energy planning in Europe? A comparative analysis of innovative practices in 25 projects. *Energy Research & Social Science*, *71*, 101804. https://doi.org/10.1016/j.erss.2020.101804

Straver, K., Uyterlinde, J. C. M., & Kraan, C. M. (2014). *Report on case analyses, success factors and best practices. S3C Deliverable 3.4.* https://repository.tno.nl/islandora/object/uuid%3A42fd705d-b5e0-489e-ab3c-0532709dc61b

Stromback, J., Dromacque, C., & Yassin, M. H. (o. J.). *The potential of smart meter enabled programs to increase energy and systems efficiency: A mass pilot comparison Short name: Empower Demand*. 92.

Thibaut, J. W., & Walker, L. (1975). Thibaut, J. W., & Walker, L. (1975). Procedural justice: A psychological analysis. *L. Erlbaum Associates.*

Venkatesh, Thong, & Xu. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, *36*(1), 157. https://doi.org/10.2307/41410412

Walker, G., Devine-Wright, P., Hunter, S., High, H., & Evans, B. (2010). Trust and community Exploring the meanings, contexts and dynamics of community renewable energy. *Energy Policy*, 9.

Wright, B., & Bragge, P. (2021). Chapter 4: Stakeholder consultation to improve behavior change. In *The Method*.

Wunderlich, C. (2012). *Akzeptanz und Bürgerbeteiligung für Erneuerbare Energien: Erkenntnisse aus Akzeptanz- und Partizipationsforschung*.

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