Empowering local renewable energy communities for the decarbonisation of the energy systems

D2.1 – Methodology and results on participatory processes for tool design

08 June 2023

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Project Acronym	**LocalRES**				
Project title	Empowering local renewable energy communities for the decarbonisation of the energy systems				
Grant Agreement No.	957819				
Project Duration	48 months	**Start date**	01/05/2021	**End date**	30/04/2025
Work Package	WP2 - Community-driven local energy system planning				
Task	Task 2.1 - Co-design and participatory processes				
Deliverable No.	D2.1				
Deliverable title	Methodology and results on participatory processes for tool design				
Dissemination Level	**PU (Public)** / CO (Confidential)				
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Due date	31/03/2022		**Version date**	08/06/2023	
Status	Working version / Under revision / **Final version**				

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Description	D2.1 delivers input data for designing the planning tool in WP2 using a co-creation approach involving all relevant stakeholders. A series of workshops was conducted with project partners, representatives of the four pilot sites, as well as the citizens of the pilot sites. Information was collected during all workshops, which is of relevance when building a planning tool for the renewable energy communities. The deliverable describes and summarises all workshops and gives recommendations for the design and development of the planning tool.

Date	Version	Author	Comment
20/06/2022	V1	Julia Blanke	First full version including inputs from contributors
30/06/2022	V2	Julia Blanke	Incorporated feedback from internal review process
13/07/2022	V3	Julia Blanke	Final version (first submitted version)
08/06/2023	V3.1	CARTIF	Revised version (no changes in contents)

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Executive Summary

The European Union (EU) set a target of greenhouse gas (GHG) emissions reduction by 2030 of at least 40% below the levels of 1990. Renewable energy plays a major role in the policy framework for 2030 where the target is at least to achieve 27% of renewable energy and energy efficiency. The long-term goal until 2050 is to be 100% carbon free through socially fair and cost-efficient approaches (Directorate-General for Internal Policies of the Union, 2019). The overall goal is not just to develop a more environmentally friendly energy system but also to provide a more reliable, secure, flexible, and affordable one.

To achieve those goals the focus is on building Energy Communities to facilitate the involvement from all stakeholders including citizens to build and develop the energy system in their towns. Getting citizens actively involved in the creation process of energy system development as well as in the development of a so-called planning tool, non-energy experts will be empowered to understand and take part by making informed decisions about community goals and the future development of the energy-related alterations and improvements. The planning tool will be co-designed including all local stakeholders ranging from citizens, representatives, and experts to general citizens with no- or little knowledge in the context of energy systems.

The following deliverable will give a detailed description what Renewable Energy Communities (REC) are according to the EU Renewables directive Article 2(16). Participatory strategies will be defined to be applied during the co-design process, and an introduction of the planning tool will be given. The document will describe a sequence of workshops delivered at the demonstration sites, that were aimed at assessing the needs of involved parties for building the planning tool. The first workshop was used to identify relevant actors and communication dynamics, followed by a second phase of workshops with demonstration site representatives to determine the objectives and expected results for the project from a community representative's perspective. Based on the outcomes of these, a final engagement phase of workshops with the citizens in the four demonstration sites was conducted. Those workshops and their results will be described and presented in detail. Additionally, practical tips to organize face-to-face workshops with citizens will be also included.

A conclusion will inform about which aspects, information, and features are relevant to be integrated into the planning tool. This will ensure the usefulness of the planning tool for the participatory strategies during the co-design sessions with citizens. In summary, the outcome of the workshops was that to optimally support the creation of renewable energy communities the tool needs to support three main topics: (1) energy generation and consumption on an individual as well as on a community level should be visualised, (2) financial and economic implications of potential upgrades should be calculated, and (3) communication between community members and other relevant stakeholders should be facilitated.

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List of acronyms and abbreviations

CEP	Clean Energy Package
DSO	Distribution System Operator
EU	European Union
EV	Electric Vehicle
GHG	Greenhouse gas
KPI	Key Performance Indicator
MEVPP	Multi-Energy Virtual Power Plant
REC	Renewable Energy Community
PV	Photovoltaics
P2P	peer-to-peer
SME	Small and medium-sized enterprise
TSO	Transmission System Operator

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1/ Introduction

LocalRES "Empowering local renewable energy communities for the decarbonisation of the energy systems" is a European-funded project under the HORIZON 2020 Programme. Its main objective is to engage citizens and communities to participate in the energy transition. The focus of LocalRES is on Renewable Energy Communities (RECs), introduced by the CEP as key actors to lead the structural change towards the decarbonisation of the local energy systems through the involvement and awareness-raising of citizens and communities. LocalRES will develop a Planning Tool to enable citizen participation in the REC planning decision-making processes, and a Multi-Energy Virtual Power Plant (MEVPP) approach to optimize in real time different energy vectors and different energy and flexibility services provided by the REC according to their community preferences.

The present document, D2.1 *Methodology and results on participatory processes for tool design* constitutes the main result from Task 2.1, which is focused on the definition and performance of participatory workshops with local stakeholders in each of the four project demo sites to involve them in the co-design of the LocalRES Planning Tool, so that their inputs are considered during subsequent tasks in the definition of specifications and development of the tool.

1.1. Partners contribution

The structure and main contents of this report have been prepared by MTU as lead partner of Task 2.1. Partners constituting the LocalRES project demo teams and other partners involved in the development of the planning tool have participated in the definition of the workshops and in the performance of the different sessions with local stakeholders. Table 1 summarizes the main contributions from participant partners in the development of this deliverable:

Table 1: Main contribution of partners in this deliverable

Organisation	Contribution
MTU	Main author of deliverable. Development of methodology, literature review and collection of partners inputs, as well as development of the workshops, materials, as well as evaluation and analysis of results, writing of deliverable.
ARTELYS	Building and presenting a pre-version of the planning tool, which was used in the representative and citizen workshops as a visualisation what the planning tool can do.
CARTIF	Taking part in the organisation and facilitating the co-creation workshop with project partners as well as the representative and citizen workshops. Delivering mock-ups of the planning tool, and conducting the workshop in Ispaster.

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Demo teams[1]	Taking part in all three phases of workshops. Contributing to the representative workshop with comprehensive information, which was required for the citizen workshop as well as organising, facilitating, and conducting the workshop in Ollersdorf.
AIT	Taking part in the co-creation workshop with project partners as well as providing data for the energy simulation and presenting at the citizen workshop in Ollersdorf.

1.2. Relation to other activities of the project

Table 2 shows the relation of this deliverable with other outcomes of the LocalRES project, which should be considered along with this document for a better understanding.

Table 2: Relation to other deliverables

Deliverables	Relation
T1.2 / D1.2	Selection of REC-driven services and definition of use cases in all demo sites according to their local conditions, which were used as a reference for workshops with representatives, in the definition of examples of scenarios in each of the demo sites.
T4.1 / D4.1	The baseline studies performed in this task and included in the deliverable have been used as a reference to know about the specific technical and socio-economic conditions in each demo sites to prepare the workshops.
T2.2 / D2.2	The outcomes of the present deliverable (D2.1), namely the results of the co-design and participatory workshops, are an essential input for the task. Expectations and suggestions from the sessions will be considered during the design of the planning tool to be translated into user-driven functional and technical specifications.

[1] Main partners constituting the demo teams and participating in this task:
Kökar: Kökar Municipality, FLEXENS.
Berchidda: Berchidda Municipality (AEC), R2M Energy (and GridAbility, as linked third party).
Ispaster: Ispaster Municipality, Barrizar, Tecnalia, Aiguasol.
Ollersdorf: Ollersdorf Municipality (and Energiekompass, as subcontracted company), AIT, PASSAU.

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2/ Context

2.1. Overview

Through new EU directives as the Clean Energy Package (CEP) (European Commission and Directorate-General for Energy, 2019) in the context of decarbonization plans and the better integration of renewable sources into the energy system, the energy system undergoes a change from centralised towards decentralised and from fossil fuels to renewable energy-based approaches. That means that **citizens should get involved in the energy market by obtaining new roles** as producers and sellers of energy in the local energy market. The individual consumer becomes a prosumer, who can get actively involved in the energy sector through the concept of energy communities. Thus, through the new figures of Renewable Energy Communities (REC) or Citizen Energy Communities CEC) citizens are expected to take part from the design phase of the community until the actual creation and management of small power producers of renewable energy, or in the development and participation of local energy markets to be empowered to trade energy in peer-to-peer (P2P) schemes, as well as with the external market. These changes will also imply the energy flows becoming multidirectional, and the use of new tools such as Multi Energy Power Plants (MEVPP) to facilitate and coordinate the interactions between the different stakeholders.

To demonstrate the feasibility to change the energy system from a centralised approach to a decentralised one, four rural towns in different climate zones of Europe have been selected as project demonstration sites to potentially develop Renewable Energy Communities (RECs): Kökar, (Finland), Berchidda (Italy), Ispaster (Spain) and Ollersdorf (Austria, see also deliverable D4.1). Empowering citizens to participate in the energy transition and the decarbonisation of the local energy system as well as creating socially and economically attractive conditions which consider particularities of participants, social norms, and cultural aspects will raise awareness, motivation, and commitment to be an active part in this process. As a vehicle to achieve a functional REC, a digital planning tool will be developed based on the Artelys Crystal platform (Artelys Crystal, 2022), and co-designed with the citizens. The LocalRES planning tool will **support the decision-making processes** to assess if a community energy project is suitable, and give required information on how to generate, store, consume and sell their own energy. Up until now, decision-making tools are mainly addressing experts and are not developed for non-professional stakeholders (Ferrari, Zagarella, Caputo, & Bonomolo, 2019). The planning tool will deliver all necessary technical, economic, environmental, and social information, including benefits and drawbacks of each scenario, in **an easy language so that the general public can understand** it and informed decisions can be made. Such a planning tool (see also deliverable D2.2) is essential if the perceived complexity by citizens of the energy system should be overcome, and discouragement reduced.

In the context of WP2, four workshops in the four different pilot sites were organised to **co-create the planning tool and ensure that all relevant information in an appropriate language for the citizens** is included. Prior to the citizens workshops, pre-workshops took place, also in the four different pilot sites with representatives, to build energy community scenarios based on community

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requirements, which could be presented at the citizens workshops as a starting point for the discussion.

2.2. Co-design and participatory processes

Participatory design or co-design is an approach attempting to **actively involve all stakeholders in the design process** to democratizing the design process, empower participants (Harrington, Erete, & Piper, 2019) and to help to ensure the result meets everyone's needs and interests. Participatory design is an approach which is focused on processes and procedures of design and is not a design style (Sanders E. B.-N., 2005). Co-design can be understood as a modern term or a further development of participatory design, referring to "the creativity of designers and people not trained in design working together in the design development process" (Sanders & Stappers, 2008). The key principals are to involve all stakeholders in the design process ensuring that all needs and high adoption rates are met regarding the final result, outcome or end-product (Steinmueller, 2001). The goal is to **create a shared vision and mutual understanding through social learning**, taking into account that all stakeholders involved in the design process have most likely different perspectives, interests and expectations, which need to be expressed and considered (Fien, et al., 2007). Co-design is a bottom-up approach (Cumbula, Sabiescu, & Cantoni, 2013) assuming that the benefits are lying in higher quality of system requirements and that the system is better usable by users with higher satisfaction (Kaza, 1988), commitment and sense of ownership (Scariot, Heemann, & Padovani, 2012) as well as reduced development time and costs (Steen, Manschot, & De Koning, 2011). According to Heeks and Kenny (2002) a stakeholder can be defined as an organisation, a social group, a community, or an individual who can influence or is influenced through the design process and its outcomes. The co-design process offers opportunities for communities and individuals to **give insights based on their social and cultural knowledge informing designers about the local context** (Cumbula, Sabiescu, & Cantoni, 2013) and relevant aspects for the community, which need to be integrated in the final results, particularly if the initiative is based on local knowledge and communication [e.g., (Rodil, Winschiers-Theophilus, & Jensen, 2012; Winschiers-Theophilus, Chivuno-Kuria, Kapuire, Bidwell, & Blake, 2010)]. Social acceptance can be improved by involving influential and important people of the community, which are also called "Hero", "Role Model" or "Champion". To improve the success and sustainability of a project as well as the integration of the designed system into people's day to day life, **participating and creating a sense of ownership regarding the end-result or technological system is crucial**. The "ownership of the problem and its solution" can be achieved through meaningful contributions by the community from the very beginning of the design process onwards, defining needs, priorities, and interests (Ramirez, 2008).

The entire design process offers the opportunity for learning. Individuals learn about a topic, but also social learning is involved where the communication between the community and the design team as well as the communication between members of the community takes place, and knowledge is enhanced through the exchange of ideas (Conruyt, 2006; Sanders & Stappers, 2008). By learning and collecting information regarding local identity, culture, and background knowledge about the project and the system under development will help the designer team to **better**

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understand the circumstances and needs of the participants and users (Verran, Christie, Anbins-King, & van Weeren, 2006).

However, there are some aspects which need to be kept in mind when using a co-design approach, the so called "design-reality gaps" (Proenza, 2001) or participation gaps. For example, gaps in participation occur when people are excluded from taking part for various reasons even if their interests are at stake. This can often be seen in the context of gender where women are less represented than men (Kanji & Greenwood, 2001) or where a community is represented by a single person of relevance (Parker, 2007).

2.3. Definition of "Renewable Energy Community" (REC)

According to the EU Renewables directive Article 2(16) Renewables Directive (European Union, 2018) – 'Renewable Energy Community' can be defined as

> *A legal entity:*
>
> *(a) which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity;*
>
> *(b) the shareholders or members of which are natural persons, SMEs, or local authorities, including municipalities;*
>
> *(c) the primary purpose of which is to provide environmental, economic, or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits.*

RECs are constituting a new type of entity which distinguishes from other market players as a non-commercial actor in the market which should be empowered to produce, consume, store, sell and share renewable energy by participating in all relevant markets, based on an adequate legal framework. The REC must therefore be structured as a legal entity with a governance body; for example, participants who are citizens, local authorities and/or smaller businesses whose economic activity is not primarily the involvement in the energy sector, who are empowered with effective control. It is important that the **REC is inclusive, voluntary, open to new participants and act as a collective**. Furthermore, the community also should try to be value-driven based on non-commercial purposes, such as social, environmental, or economic community benefits, and not only emphasising on individual's financial gains like traditional market players (Ghiani, Giordano, Nieddu, Rosetti, & Pilo, 2019; Roberts, Frieden, & d'Herbemont, 2019).

Member States need to create and develop frameworks in the context of their national renewable energy policies, which facilitate the implementation of RECs to ensure access to the local energy market without discrimination through regulatory and administrative barriers.

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2.4. Introduction of the Planning Tool

The LocalRES Planning Tool will be a major element to satisfy the objective of **putting the design of the energy system in the hands of the community and the citizens**. It will provide them with a complete and synthetic view of the current energy system. Based on the features of the community (such as size, weather, extant network, etc.), it will then propose "scenarios", which are a set of actions that can be taken to reduce the emissions and/or the energy cost of the community, as well as making the system more sustainable. The citizens will also have the opportunity to design their own scenarios, and assess the impacts in term of emissions, energy, costs or security of supply.

The Planning Tool will be based on Artelys Crystal, which, as many of traditional "planning tools", is historically designed for the expert players of the energy system: Distribution and Transmission System Operators (DSOs/TSOs), local authorities, main energy producers, etc. However, in RECs, the major players of the energy system are the citizens. One main challenge of this project is to design a planning tool that both provides relevant scenarios with associated Key Performance Indicators (KPIs) and is simple and user-friendly enough to be put in the hands of non-expert users. The other challenge is to be able to adapt to the diversity of RECs: the tool needs to be as relevant for a 3000-inhabitant town in Sardinia, as for a 200-inhabitant island in the Baltic Sea.

3/ Workshops

The co-creation workshops were held in three phases. First, an initial working session amongst the project partners (including local stakeholders from the LocalRES demo sites) was held to gain a common understanding of the existing communities and identify potential topics of interest. Then, for each pilot site a representative workshop was held to identify site specific goals and scenarios and to prepare for the third phase of workshops. In this third phase, citizens in the four pilot sites were engaged directly and their feedback was collected for the benefit of the project.

3.1. Working session amongst LocalRES partners

3.1.1. Scope

The scope of this working session was to gain a general understanding about the existing communities in the demo sites, identify potential stakeholder groups in the pilot communities, study how the communication channels are and identify topics of interest for the pilot communities. Particularly, the communication channels to address or reach potentially interested parties to be engaged were of interest, so that future activities like community meetings could be organised.

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3.1.2. Design

The workshop was part of the first consortium meeting and took place on the 20th of October 2021 as a hybrid event in Nice. Due to COVID restrictions most participants were online, while only a small group were present there.

To facilitate the working session a Google Jamboard was used where single questions were presented. By creating breakout groups during the meeting people could discuss the questions in smaller groups and add their results as virtual sticky notes on the Google Jamboard (Figure 27; 7.1). Each pilot site had its own colour of sticky note to identify differences between them. After a set of questions people came back together to discuss some of the main outcomes before going into the next round of breakout groups.

The following questions were asked:

- What do you understand under the term community?
- What kind of structure of the community/communities exist? How is/are the community/communities organised? What is/are the community/communities for?
- How many people engage in the community?
- How does the community communicate with each other? How do the individuals participate?
- What would be the best way for us to engage/communicate with the participants/community?
- Could these ways of communication be used to introduce the RES? If not, what other communication channels would you suggest?

Those questions led to **a broad overview of topics which are relevant for the individual communities in the pilot sites from the perspective of project partners**. As it can be seen later, particularly during the citizens workshops, many of those topics are named from participants of those workshops as well (4.4).

3.1.3. Results

The outcome of the workshop gave some general indications, which are of relevance for energy communities from the perspective of all project partners and pilot site representatives (see appendix 7.1 for the full results). A summary of the most important points is proved in Figure 1. It was found that **general scenarios or goals need to address cost savings, reliability, self-sufficiency, and infrastructure investments, while cost-savings were perceived as the most relevant variable**. Environmental impact as well as the opportunity to learn something about the energy topic and energy community for citizens was named as a topic of interest as well as giving the energy community the opportunity to become a role model for other towns.

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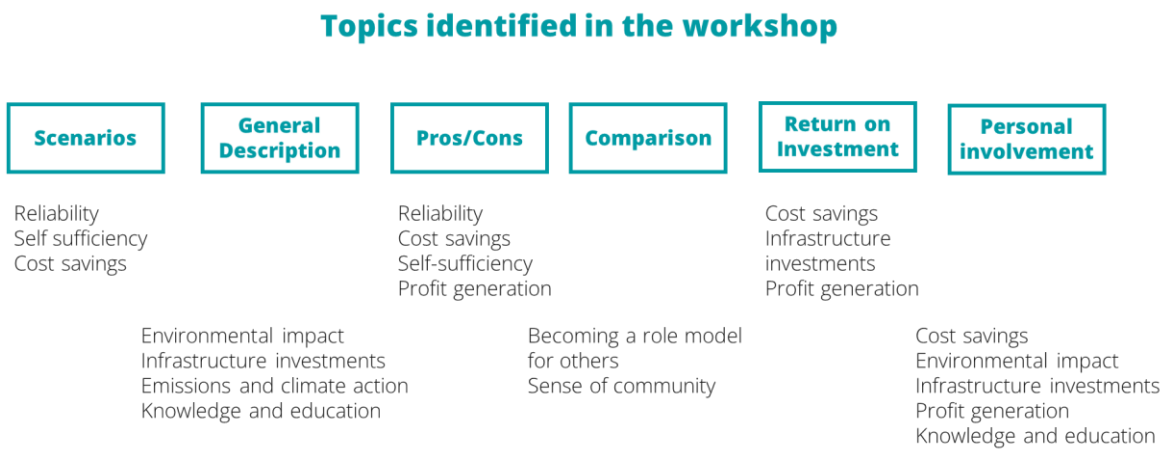

Figure 1: Relevant topics identified during the co-creation working session

Another noteworthy outcome was that community was defined very similar in all four pilot sites as "a group of entities with common interests and common goals". To communicate with and engage citizens there was a **strong preference for face-to-face interaction** as well as meetings but also social media, webpage of the municipality or notice board and paper-based approaches were named to communicate with citizens. Local heroes or energy champions, which represent the energy community from the inside but at the same time have a close contact with energy experts and the municipality at the same time can support the communication between citizens and experts as well as engaging more potential interested parties.

3.2. Workshops with representatives of the pilot sites

3.2.1. Scope

To make the co-design and participatory process with citizens more tangible and relevant to citizens the aim was to **identify the specific scenarios for planning a community supported local energy system with pilot site representatives**. This included assets and connections which already exist in the community, and what future assets, upgrades, or alterations are of interest to further contribute to the community renewable energy system goals.

The main reason for this approach is that the follow-up citizen co-design workshops should be supported by different instances of the planning tool mock-ups informed and prepared for the specific most relevant scenarios, as identified in the previous step. The outcomes of the co-design-process will drive the requirements on the LocalRES planning tool, which will be adapted accordingly to provide decision support to the local energy community.

The following series of workshops were all aiming at gathering insights to inform about which aspects, information, and features to be included in the planning tool would be of relevance for the users, so that they can be implemented to achieve energy improvements in the community. The identified stakeholders (Figure 2), who are expected to be the users of the planning tool as a vehicle

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to create and achieve energy related goals in the community are the so called "energy experts" and the non-experts the "citizens". The energy expert can be defined as someone who has a profound knowledge in the energy field, but not necessarily a deep knowledge of the planning tool itself. To overcome this hurdle, energy experts will need a good introduction and good instruction documentation of the planning tool to be able to manoeuvre through the expert part of the planning tool, as well as to be able to explain the functionalities of the non-expert part or answer questions to citizens. The energy expert has a good knowledge of the community or is even part of it or a representative of the same, so this type of user can be also the municipality. They will assist the researcher and/or designer team in the development of relevant scenarios for the community and facilitate the communication with citizens. The non-experts or citizens do not have any knowledge of the planning tool at the start of the designing process. Through co-design, the citizens will potentially build an Energy Community with joint goals and will be able to influence the layout of the planning tool so that, at the end, they can use the planning tool without any instructions.

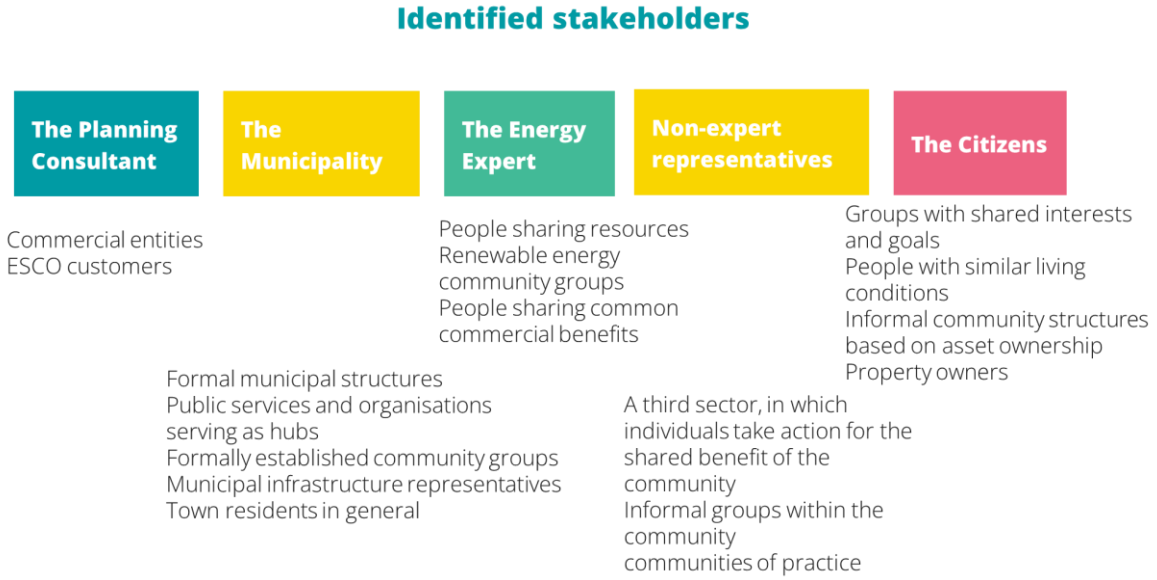

Figure 2: Identified stakeholders

The non-expert representatives can be understood as part of the citizens also called *local heroes* or *energy champions*. Participants from the energy community presenting the same, who have some further knowledge about the project and the planning tool and are in close contact with the energy experts and the municipality.

The planning consultant are, among others, those who have an overview of the community and can deliver real data for the planning tool.

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3.2.2. Design

The first four workshops were run to involve the first described stakeholders, the energy experts, or representatives of the four pilot sites. The workshops were set up in an online style format for each pilot site individually. All participants got an agenda via e-mail (section 7.2.1) and the workshops aim was to **create very specific scenarios for each demo site**, which could be then presented to the second group of described stakeholders, the citizens. The scenarios were meant **to give citizens an idea of community goals and feasibility of certain energy systems in their town**. The developed scenarios were not meant to be static but open for discussion in the citizens workshops to get the views of the same and develop them further according to the interests and needs of everyone involved.

The representative-online workshops took place on the

- 21/03/2022 for Ollersdorf, Austria
- 22/03/2022 for Berchida, Italy
- 25/03/2022 for Kökar, Finnland
- 01/04/2022 for Ispaster, Spain

and lasted for two hours each. They started with a short introduction and explanation of the purpose of the workshop. The planning tool was introduced and previous workshop results (see also D1.2) in the context of use cases (see example presentation from Ollersdorf in section 7.2.2) were presented as a re-cap and starting point to go from those very general scenarios into more detailed ones, always keeping in mind that the citizens need to understand and identify with those developed community goals and scenarios.

To build the scenarios, the first step was to define community goals based on the following definition: **community goals are a vision of what should be achieved in a specific area and/or community**, such as but not limited to reduction of cost, environmental impacts, supply security, etc. The creation of the scenarios was based on the following questions:

- What assets are currently installed in a specific area and what assets can potentially be installed in the future to reach a community goal?
- Which specific households are currently connected, and what assets do these have installed?
- What upgrades or alterations are specific households able to undertake?

That definition led to the specification of existing assets and to potential alterations or upgrades on the community level, and also on the household level, where applicable.

The final part of the workshop was about planning and organizing the related citizen workshop, such as the identification of potential participants. Recruitment should follow the identified communication channels from workshop one (3.1.3; 7.1). The availability of a potential venue was discussed, as well as the timeframe of the workshop, potential COVID restrictions, who would be present, who would run the workshop in the local language and if some hospitality like food or childcare would be provided.

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3.2.3. Outcomes

OLLERSDORF, AUSTRIA

The outline for the representative workshop for Ollersdorf was developed by MTU in collaboration with CARTIF, and ARTELYS. Ollersdorf was represented by its mayor and the subcontracted company Energie Kompass.

The outcome of the Ollersdorf representative workshop were three community goals (Figure 56):

- Achieve 100% renewable energy for the community
- Achieve energy self-sufficiency for the community
- Achieve energy supply security

and three specific scenarios (Figure 57; Figure 58; Figure 59; 7.4; 7.4.4):

1. Explore how photovoltaics (PV) generation, private or communal, or other energy sources, such as biomass, can deliver on the goal of 100% renewable energy for the community
2. Explore how battery storage, private or communal, can contribute to the goals of supply security and energy self sufficiency
3. Explore how small-scale district heating, using recovered heat from sewage system or other sources, can contribute to the goal of 100% renewable energy for the community

Regarding the current situation of scenario 1 (PV installation), there are PV installations on public buildings such as:

- Town hall,
- Fire station
- GP surgery
- Electric vehicle (EV) charging station
- Primary school
- Kindergarten
- Church

To achieve the goal of 100% renewable energy for the community it would be necessary to find out how many additional private PV installations would be needed as well as how much additional communal PV generation would be desirable taking current installation rules into consideration. Additionally, the extra energy that would be potentially necessary to be supplemented through additional renewable generation should be also considered (e.g. biomass).

In terms of the current situation for scenario 2, *How battery storage, private or communal, can contribute to the goals of supply security and energy self-sufficiency*, battery storage is already installed in public buildings, such as in:

- Town hall (currently 30kWh, planned +100kWh)
- Fire station
- Church (6-8kWh)

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With this regard, private battery installations would need to be estimated/specified further.

To reach the goals of supply security and energy self-sufficiency the following questions would need to be answered:

- How much additional battery storage is required to achieve self-sufficiency?
- How much of this battery storage should be communal, how much should be private?
- How much battery storage is required to guarantee security of supply for households?

The final scenario (3), *Explore how small-scale district heating, using recovered heat from sewage system or other sources, can contribute to the goal of 100% renewable energy for the community* showed that there is interest in recovering heat from sewage from the town hall and the school, and they are already evaluating the feasibility of this approach.

BERCHIDDA, ITALY

The outline for the representative workshop for Berchidda was developed by MTU in collaboration with CARTIF, and ARTELYS. Berchidda was represented by R2M and its linked third party GridAbility and AEC (Municipality of Bechirdda).

The results from the Berchidda representative workshop delivered the following community goals:

- Save on the cost of energy and maximise the return on investment
- Achieve energy self-sufficiency for the community
- Enable freedom of choice to install equipment

Four scenarios were identified, which were:

1. Explore how distributed PV generation, private or communal, can save energy costs and deliver a return on investment
2. Explore how the installation of private heat pumps and thermal storage can improve self-sufficiency, save energy costs, and deliver a return on investment
3. Explore how autonomous micro grids in the rural areas combined with power purchase agreements can improve self-sufficiency, save energy costs, and deliver a return on investment
4. Explore the extent to which EV charging infrastructure, private or public, can be installed without impacting the freedom of choice of citizens to install further connected equipment

The current situation for scenario 1 *How distributed PV generation, private or communal, can save energy costs and deliver a return on investment* includes 67 private dwellings with PVs, PV installations on public buildings such as elementary school, middle school, Belvedere, wine museum, sports field and PVs on commercial buildings such as the local winery (100kW) and the cork factory, with 300kW for self-consumption. To upgrade or improve the current situation the following questions would need to be answered:

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- What are the energy cost savings and the return on investment for a private PV installation?
- What are the energy cost savings and the return on investment for a communal PV installation?

Scenario 2 concerned *How the installation of private heat pumps and thermal storage can improve self-sufficiency, save energy costs, and deliver a return on investment*, with the current situation being that up to 50 private dwellings are planning to install heat pumps and thermal storage. To support the interest of citizens in this scenario, the citizens need to get some information on energy cost savings and the return on investment for a private heat pump and thermal storage installation.

Scenario 3 *Explore how autonomous micro grids in the rural areas combined with power purchase agreements can improve self-sufficiency, save energy costs, and deliver a return on investment* was a very specific scenario, which was believed to interest only affected parties. The unfolding situation was that rural communities in the surrounding area of Berchidda were currently planning to operate a micro grid and limit the exchange with the public medium-voltage (MV) grid. The options which could be explored referred to the energy cost savings for the community that can be achieved through demand response and power purchase agreements (PPAs), and the level of self-sufficiency which could be achieved and how much energy would need to be exchanged with the grid.

Looking at the final scenario (4) which was developed during the workshop, *Explore the extent to which EV charging infrastructure, private or public, could be installed without impacting the freedom of choice of citizens to install further connected equipment*, the current situation includes four public EV charging stations and the plan of 70 households to install private EV charging infrastructure. To achieve this goal, the first aspect which needs to be clarified is how many EV charging stations are feasible given the grid constraints. Second, the investment cost in the infrastructure to facilitate the freedom of choice in relation to EV charging stations for citizens needs to be calculated.

KÖKAR, FINLAND

The outline for the representative workshop for Kökar was developed by MTU in collaboration with CARTIF, and ARTELYS. The participating representatives of Kökar were from FLEXENS, the municipality and a representative of the community itself.

In Kökar, four community goals were identified:

- Increase renewable asset utilisation
- Achieve self-sufficiency on the island
- Increase the reliability of the electricity supply on the island
- Facilitate increased demand for EV charging infrastructure on the island

In this case, four main scenarios in terms of area or system of interest were developed, with two different "subscenarios" for each of the areas:

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1. Sommarängen nursing home:
    a. Explore how the PV, battery, and heat-pump installation in the Sommarängen nursing home can maximise its self-consumption and reduce its carbon footprint, potentially with increased PV capacity.
    b. Explore how the assets installed in the Sommarängen nursing home together with its operational energy demand can contribute to facilitate more distributed PV capacity across the island.
2. Mika wind turbine and the Sommarängen nursing home:
    a. Explore what upgrades to the Mika wind turbines, the grid, communal storage as well as distributed PV, storage, and heat-pump installations are required to achieve self-sufficiency and to maintain reliable electricity supply on the island.
    b. Explore how the emergency Diesel generators in the Sommarängen nursing home can be supplemented with battery capacity charged by PVs, private or communal, to reduce the dependence on non-renewable energy sources even for these emergency scenarios.
3. Karlby centre:
    a. Explore how many households can be connected to a small-scale district heating network operated from the Karlby centre, and how many existing oil boilers can be replaced.
    b. Explore how the PV, wind turbine, heat pumps, and power-to-heat conversion and storage at the Karlby centre can contribute to maximising communal and private self-consumption and reduce the dependency from imported energy supply.
4. EV charging infrastructure on the island:
    a. Explore how many EV charging stations, private or communal and both for car as well as for boats, can be installed given the current grid constraints on the island to facilitate the increased demand for EV charging capacity.
    b. Explore if vehicle-to-grid solutions, in particular provided by boats not being used otherwise during the winter months, can contribute to the island's self-consumption and increase self-sufficiency and reliability of supply.

The *Sommarängen nursing home* as the first scenario already has PVs, batteries and a heat pump installed. The biggest concern was that the kitchen is the largest energy consumer in the island and needs to be addressed accordingly. Therefore, the following options to assess were pointed out:

- What additional assets or operational changes are needed in the Sommarängen nursing home to maximise self-consumption?
- How can the over-consumption and battery in the Sommarängen nursing home benefit private PV installations in the community by allowing to consume excess energy and thereby improve community level self-consumption? How much additional distributed PV capacity does this enable?
- What additional CO_2 savings can be achieved in the future by additional installation of PV capacity at the Sommarängen nursing home?

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The combined scenario 2, *Mika wind turbine and the Sommarängen nursing home* showed that the Mika wind turbine (500kW) currently generates approximately 50% of the island's electricity supply and that the Sommarängen nursing home is maintaining an emergency diesel generator for the island community. To address this situation the following questions could be explored…

- What grid updates, communal or private storage capacity is required to keep the power supply from the Mika wind turbine connected, even if the mainland connection is down?
- How much additional wind energy needs to be installed to make the island completely self-sufficient?
- How can the battery installed in the Sommarängen nursing home help to avoid falling back on Diesel generation in case of a disconnection from the mainland power line?
- How can private PV and heat pump installations contribute to keeping the communal batteries charged for these emergency scenarios?

Scenario 3, the *Karlby centre*, already plans to install in the scope of the project PV installed on the school building, a small wind turbine, a heat pump to replace existing oil boiler and a power-to-heat storage system. To improve this scenario to achieve the community goals there were three options which needed to be answered:

- How many nearby households can be connected to a small-scale district heating system operated from the heat pump, PV and power to heat storage system installed in the Karlby centre?
- How much can the power to heat storage contribute to communal and private self-consumption, and how much energy needs to be imported from the grid?
- How much private PV generation can be stored in the power to heat storage system?

The current situation for scenario 4, the *EV charging infrastructure,* includes one public EV charging station available and two EV charging points to be installed within LocalRES project, as well as several private EV charging stations across the island; i.e. four EVs are currently operated by Kökar service and charged on the company premises. Options which could be explored in this context are:

- How many additional EV charging stations, both for cars as well as for boats, could be installed on the island considering the grid capacity? How many electric cars/boats does this facilitate?
- How can vehicle-to-grid solutions provided in particular by electric boats not used during the winter months contribute to the island's energy system?

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ISPASTER, SPAIN

The outline for the representative workshop for Ispaster was developed by MTU in collaboration with CARTIF, and ARTELYS. Ispaster was represented by the mayoress and one town councillor, BARRIZAR, TECNALIA and AIGUASOL.

The representative workshop in Ispaster identified several goals:

- Supply all public buildings with 100% renewable energy
- Energy self-sufficiency or positive energy system in the school
- Reduce the dependency on external energy supply, i.e. the main grid
- Achieve energy autonomy of the town (excluding transport, due to reliance on private transport)
- Promote more communal energy production and assets in addition to individual private initiatives

Together with three specific scenarios:

1. Explore how upgrades to the local school building can contribute to achieve more self-sufficiency in the community and if it is possible to become energy positive, potentially supplying energy to surrounding areas?
2. Explore how upgrades to all public buildings can achieve 100% renewable energy supply on average over the year?
3. Explore how community owned PV installations, on private or communal property, can be promoted to increase renewable energy production in the community?

The first scenario deals with upgrades to the school building, pointing out that the school building will be completely rebuilt, introducing PV installation and a geothermal heat pump (ground-source heat pump), so that the school building will become the largest energy prosumer in the community. For this scenario, answers would need to be given regarding:

- How much can passive measures, such as improved insulation, contribute to the energy demand profile of the school building?
- How much PV and geo-thermal heat pump capacity is necessary to facilitate connecting the school to the local small-scale district heating network, and how many households can be supplied with heat?

While the first scenario is only focusing on the school building, the second scenario looks at further public buildings and possible upgrades. At the moment, some of those buildings are already connected to an electric micro-grid, and more buildings are expected to be connected as well. Furthermore, all public buildings will be connected to a small-scale district heating network, with the option to also connect them to the electric micro-grid. The questions which arose in this context were:

- How many and which public buildings can be connected to the existing and the future heating network and electrical micro-grid?

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- How many private dwellings can be supported by the existing and future heating network and electrical micro-grid?
- How would heat pumps connected to the micro grid compare to a connection to the district heating network?

The final scenario (3) asked about community-owned PVs and the understanding that currently no community-owned PVs are installed in town. The options which could be explored in this context include:

- How many roofs on private dwellings are available for community owned PV panels, how much energy are these going to produce, and what would be the energy cost and return on investment for these installations?
- How much community owned PV can be installed on public land and properties, e.g. the church or business park, and what are the shared benefits for the community?

3.2.4. Summary

The representative workshops were in all four cases very productive. For each individual demo site **community goals and between 3 and 5 scenarios were developed representing the view of the community leaders** with respect to technical, social, and financing concerns in the respective demonstration sites. Those results were prepared to achieve the highest level of identification of the citizens in the following workshops. Therefore, maps and pictures of the town and relevant buildings were used to visualise the described scenarios. The description of the scenarios was followed by potential questions which the planning tool could answer and the importance of the opinion of participants.

3.3. Workshops with citizens of the pilot sites

3.3.1. Scope

The scope of the citizens workshops was to introduce the concept of Renewable Energy Communities emphasising that not only the technical development, but also the social dimension of the energy transition plays a role, and that each individual can contribute to the superordinate community goals. The main focus of the workshops was to **gather information about the planning tool from the perspective of non-experts/ citizens**, who should give their feedback and views. It is Important to collect data to personalise the tool to the needs, expectations, and interests of the individual pilot sites, communities and individuals involved, therefore the outcomes of the representative workshops (goals/ scenarios) were presented and used as a starting point for discussion and development of further relevant goals and scenarios.

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It was emphasized why a Renewable Energy Community can be beneficial to the town and how a planning tool can support the community to reach their goals. The purpose of the planning tool is to give all involved actors the bigger picture about what should be achieved and how, to offer the opportunity to look at possible scenarios, and also to create new ones and discuss those with the community, which could help the communication in between the community members but also to engage new interested parties.

3.3.2. Design

Using the outcomes of the representative workshops, a questionnaire for each pilot site was developed including the individual goals and scenarios for each community (see appendix 7.3). The first questions were the same for all participants. The questionnaires differed in relation to the community goals and scenarios. All questionnaires were translated into the local language, and in the case of Ispaster the participants could choose between a Spanish version and a version in Euskera. However, the questionnaire was not meant as a classical point of collecting empirical data, but as **a starting point for discussion and motivating participants to make comments**. Therefore, participants were free to discuss the questions with people sitting next to them or at the same table. Nevertheless, some of the statistical results can give an indication of the interests of participants.

Before the questionnaire was distributed during the workshop, a presentation was given in local language, which contained general information about the LocalRES project as well as the current and planned status of the project (see section 7.4.2). Furthermore, the goals and scenarios were presented which concerned the individual community together with the kind of questions the planning tool could answer in this regard (Berchidda, section 7.4.3; Ollersdorf, section 7.4.4; Ispaster, section 7.4.5; Kökar, section 7.4.6). An introduction to the planning tool via mock-ups was given as well (see section 7.4.1), emphasizing that the presented mock-ups are just a first layout and that the actual tool may significantly differ, since further development of the planning tool will consider the input that participants will provide. After the presentation, participants had the opportunity to fill out the questionnaire, which was voluntary and anonymous. The questions from the questionnaire were then used to start the discussion about the understandability of the planning tool, the goals and scenarios, as well as other goals and scenarios of interest and the community development in general.

A detailed documentation of the discussions and minutes was gathered (see appendix 7.4).

BERCHIDDA

The outline for the citizen workshop in Berchidda was developed by GridAbility in collaboration with MTU (7.4.7). Further to that, the mayor and the town council were involved in the organisation. The workshop was held on the 14th of April 2022 in the wine museum, lasted for two hours, and refreshments were offered at the end. The citizen co-design workshop in Berchidda was part of a

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three-day event dedicated to different EU projects (HESTIA, NEON and LocalRES). It was conducted in Italian and facilitated by GridAbility.

The recruitment happened via the official Municipality website and publicized on the Municipality Facebook page, addressing all 3,000 citizens of Berchidda. Personal e-mails were sent to those who agreed to get involved in the LocalRES heat pump installation. 13 households were present plus the mayor and town hall representatives.

In Berchidda there was a lively discussion, particularly when dialoguing about the first questions of the questionnaire, goals and scenarios in a plenary setting. The atmosphere was relaxed, cooperative and most participants already knew each other at a personal level. *Citizens appeared generally concerned about surging energy costs, debating about the foreseen increase in their domestic energy bills. This aspect occurred as a positive driver for the citizens, who perceived the opportunity, via the formation of the energy community, to become independent from the local energy provider and decrease the risk generated by energy dependency from the national grid.*

A representation of the Municipality Townhall, the local DSO together with the mayor attended the event and sat at the discussion tables together with the citizens. This increased the mixite' of the dialogues, the perspectives discussed, enabling internal problem-solving debates that concluded with several clarifications and doubts clearance for the citizens (7.4.7).

There were other goals mentioned, which participants found relevant for their community (7.4.7):

- *Energy Savings*
- *Installing Wind Turbines*
- *Involving those people who have doubts about the importance of the energy community*
- *Making a technical assessment of production - consumption in the community and to identify the surface area required to achieve the necessary mass*
- *Exploiting abandoned land to produce a commodity such as energy that is useful to the community*
- *Achieving self-consumption for the whole community for the smart grid to be perfect, so that the amount of energy taken from the grid must be zero*.

In the context of scenarios, the following topics emerged during the discussion:

- *Exploiting all rural infrastructures, apart from wind turbines*
- *Exploiting the combination of other types of RES, such as wind turbines and/or mini turbines in combination with PV systems with storage*
- *Investigating and seeking European - national incentives*
- *Producing energy in order to no longer be connected to a charging distributor*
- *Increasing the sharing energy quota with the community*
- *With regard to future scenarios, it emerged relevant to have a continuous expansion of the community.*

A diffuse concern related to the actual benefits of the energy community was expressed by some participants, especially from the ones who already have some PV generation installed and already take

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advantage from their individual self-consumption. The main pain point is associated to the additional installation costs connected to the new installations and the worry the overall return of investment would not be convenient for the individuals. In this context, the exploitation of local, national, or even EU-level incentives for the coverage of new installation was proposed from the citizens as possible solution to overcome the economic exposure and make the energy community sustainable and profitable (7.4.7). Another aspect which had a big relevance were privacy concerns, which is a very sensitive topic for the citizens.

At the end of the workshop there was also information given for the installation of 20 domestic heat pumps as part of one demonstration action within LocalRES project, to get more households interested to take part.

OLLERSDORF

The outline for the citizen workshop in Ollersdorf was developed by the mayor of Ollersdorf and the subcontracted company Energiekompass, in collaboration with MTU and AIT (see section 7.4.8). The workshop was held on the 26th of April 2022 in the community hall, lasted for two and a half hours, and refreshments and coffee were offered during the workshop. The citizen co-design workshop in Ollersdorf was a stand-alone workshop with no other topics discussed. It was conducted in German and English with translation, and facilitated by the mayor of Ollersdorf and Energieakompass. Three presentations were given, of which one was in English with real data for the scenarios in Ollersdorf, which was translated during the presentation into German. Considering the fact that Ollersdorf is already a very advanced energy community, it was the only demo site which got real data for the presented scenarios.

The invitation happened via the official municipal newsletter sent by post, where every household in Ollersdorf was informed and invited. In addition, the invitation was shared on social media channels (Facebook) with a turnout of 22 households plus the mayor.

While in Berchidda people were strongly interacting with each other, in Ollersdorf participants were very focused and interested in the information given. Participants were informed about where the current status of the LocalRES project is, and also including an update about all activities and installations which already took place, as well as an overview about what will happen next.

Many energy topics around Ollersdorf were brought up and discussed, for example (7.4.8):

- *Expansion of PV plants*
- *Energy production of PV is as expensive as wind turbines*
- *Calculation model of electric cars*
- *Local heating network in the questionnaire, but local transport was mentioned in the presentation - was a bit confusing for the people*
- *Do you change the community or your own household with this project? What about the individual level?*
- *Energy flows, where is there surplus? E-charging infrastructure planning*

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- *App: what does the EEG generate/consume?*
- *Where does one save the most energy in the household?*
- *Biomass, local heating networks would make sense*
- *Where will we get our biomass in the future? What would make sense? What is the potential? How much capacity do we have? Green waste, waste*
- *Wind turbine for Ollersdorf, if not allowed here, maybe at Masenberg (a municipality a bit further away)?*
- *Cost factor? What does it cost and who pays for it? Financially reasonable solutions are essential, solutions that are financially affordable.*
- *Batteries? What resources are there? Lithium-ion storage is not resource efficient. In the field of batteries, one should think, for example battery as heat storage. Hydrogen storage, gas storage, …*

Another topic of interest, which participants would like to have included in the planning tool, is receiving information about how to be sustainable with water supply or buying food.

ISPASTER

The outline for the citizen workshop in Ispaster was developed by the mayor of Ispaster, BARRIZAR, CARTIF, TECNALIA and AIGUASOL in collaboration with MTU (7.4.9). The workshop was held on the 5th of May 2022 in the *Casa de la cultura*, lasted for two hours, and participants were invited to have dinner afterwards. The citizen co-design workshop in Ispaster was not embedded in other workshops or community concerning topics. It was conducted in Spanish and run by CARTIF. However, the distributed questionnaire had an option in Spanish or Euskera to allow participants to answer in the language they felt most comfortable with.

The recruitment of participants happened through the mayor, who personally addressed potential interested parties, resulting in an attendance rate of 13 households present.

As in the other pilot sites, the workshop started with an overview of the LocalRES project as a catch-up, and the layout of further plans for the community regarding energy related projects. Right at the beginning there was a comment highlighting that this person found it more important to work on general objectives of the town than focusing on the planning tool. Clarification was needed about what the goal of the workshop was, but if the community objectives are relevant for the participants, this could be a topic of discussion as well. There was also an extended interest to broaden the scope of the energy community and look at socioeconomic activities such as supporting businesses in the industrial area. Another suggestion was to use local heroes to engage citizens and promote the planned projects. When the discussion picked up people seemed honestly interested, however the question about how to engage more people was a reoccurring topic.

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KÖKAR

The outline for the citizen workshop in Kökar was developed by FLEXENS in collaboration with MTU (7.4.10). The workshop was held on the 16th of May 2022 in the Karlby school, lasted for two hours, and refreshments were offered during the workshop. The citizen co-design workshop in Kökar was a stand-alone workshop where no other topics of the community were discussed. It was conducted in Swedish and facilitated by FLEXENS.

The invitation happened via post to all households and via social media on Facebook. 17 participants showed up who represented 15 households.

During the introduction participants were encouraged to ask questions, make comments, and discuss occurring topics. Participants used this opportunity already during the presentation, which was a different outcome than in the other pilot sites, where first the presentation was given and then the discussion was initiated. There was a high interest of participants to share their ideas, views and thoughts. While the main focus was the community in Kökar, participants showed an extended interest in the other demo sites, their solutions, the consortium and the general LocalRes project. Participants seemed to appreciate the idea to be part of a European project. While the scenarios presented seemed difficult to understand through a lot of technical detail, the planning tool approach was well perceived. However, the questions of the questionnaire seemed to be hard to understand and caused discussion itself. And there was also a gap between some participants who already have a good knowledge of the energy situation in the community and those who do not have this knowledge and vocabulary yet. Interested participants, who want to change things in the community are currently lacking the knowledge how to initiate and progress with it and how to form local energy champions. Another discussion point was the fact that there is someone in the community who tries to boycott the project which raised a lot of concerns amongst the present citizens.

3.3.3. Outcomes

Whilst the purpose of the workshops and the questionnaires was to initiate a discussion and to gather qualitative feedback on the planning tool, **a quantitative evaluation of the data** has also been carried out. The complete statistical evaluation can be found in appendix 7.5 and the verbatim feedback can be found in appendix 7.6. The statistical analysis follows the recommendations and notation of the American Psychological Association (2020) and only statistically significant results are presented.

QUANTITATIVE ANALYSIS

I. Age distribution

Comparing the age distribution between the pilot sites it can be seen that participants in Ollersdorf were significantly older (m=5.01, SD=0.97) compared to participants in Ispaster (m=3.86, SD=1.35), $t(21.52)=2.96$, $p<0.01$ (Table 47; Table 48). That can also be seen in the next tables (Table 3;Table 4)

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and figures (Figure 3; Figure 4), indicating that the participants in Ispaster were younger than in the other pilot sides.

Table 3: Age distribution (absolute)

	18-24	25-34	35-44	45-54	55-64	65+	Total
Berchidda	0	2	2	3	1	5	**13**
Ollersdorf	0	0	2	3	8	9	**22**
Ispaster	1	1	3	4	4	1	**14**
Kökar	0	3	0	2	6	4	**15**

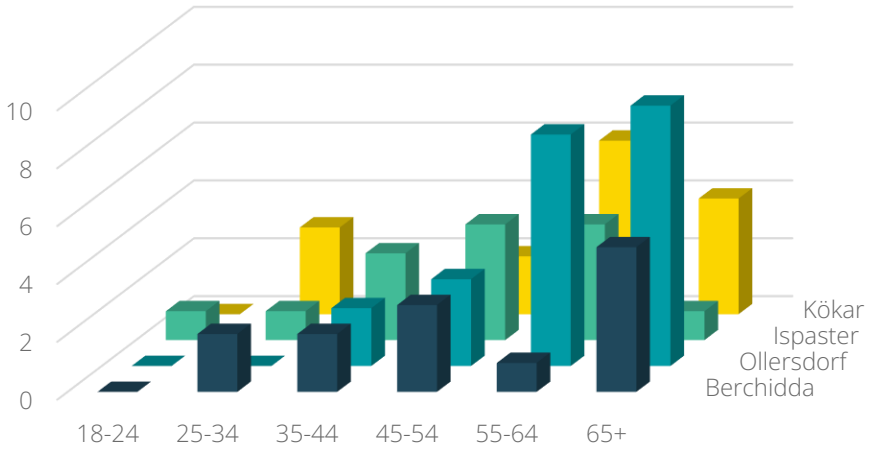

Figure 3: Age distribution (absolute)

Another aspect which the data analysis revealed is that amongst all participants there has been a correlation between age and gender, $r(60)=-0.3$, $p=0.02$, with female participants being older than the male participants (Table 36). However, in Ollersdorf there was a negative correlation between age and gender, $r(20)=-0.43$, $p=0.05$, with male participants being older than the female participants (Table 38).

Table 4: Age distribution (relative)

	18-24	25-34	35-44	45-54	55-64	65+
Berchidda	0%	15%	15%	23%	8%	38%
Ollersdorf	0%	0%	9%	14%	36%	41%
Ispaster	7%	7%	21%	29%	29%	7%
Kökar	0%	20%	0%	13%	40%	27%

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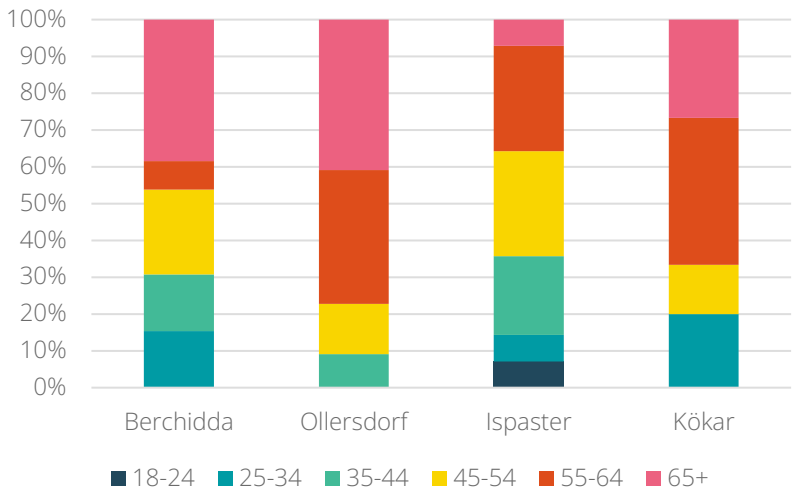

Figure 4: Age distribution (relative)

A positive correlation was found between age and a preference to use other means of user interfaces than web page or mobile phone application, $r(62)=-0.27$, $p=0.03$ (Table 36). Older participants preferred for example paper-based information, while In Berchidda, there is a negative correlation between age and the preference to use the tool through a mobile phone application, $r(11)=-0.72$, $p<0.01$ (Table 37). That means that older participants do not prefer a mobile application. In Ispaster, there is a similar picture with older participants, not preferring to use a mobile phone application, $r(12)=-0.57$, $p=0.03$ (Table 39).

In Ollersdorf, older participants were less likely to prefer mainly expert use of the tool, $r(20)=-0.48$, $p=0.03$, but they also do not want to use the tool on their own, $r(20)=-0.57$, $p<0.01$ (Table 38).

II. Gender distribution

In the tables (Table 5; Table 6) and the figures (Figure 5; Figure 6) below, it can be seen that the majority of participants were male.

As mentioned above, gender and age are correlated, $r(60)=-0.3$, $p=0.02$, with male participants being younger than the female participants (Table 36).

Table 5: Gender distribution (absolute)

	Female	Male	Total
Berchidda	4	9	**13**
Ollersdorf	9	14	**23**
Ispaster	2	12	**14**
Kökar	5	8	**13**

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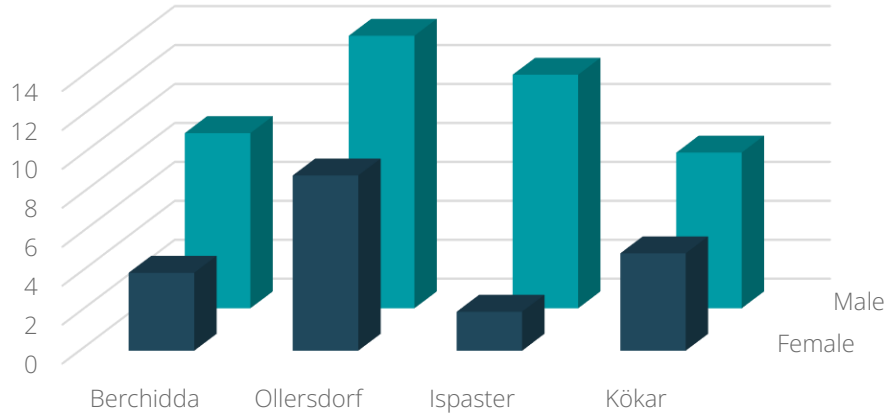

Figure 5: Gender distribution (absolute)

Table 6: Gender distribution (relative)

	Female	Male
Berchidda	31%	69%
Ollersdorf	39%	61%
Ispaster	14%	86%
Kökar	38%	62%

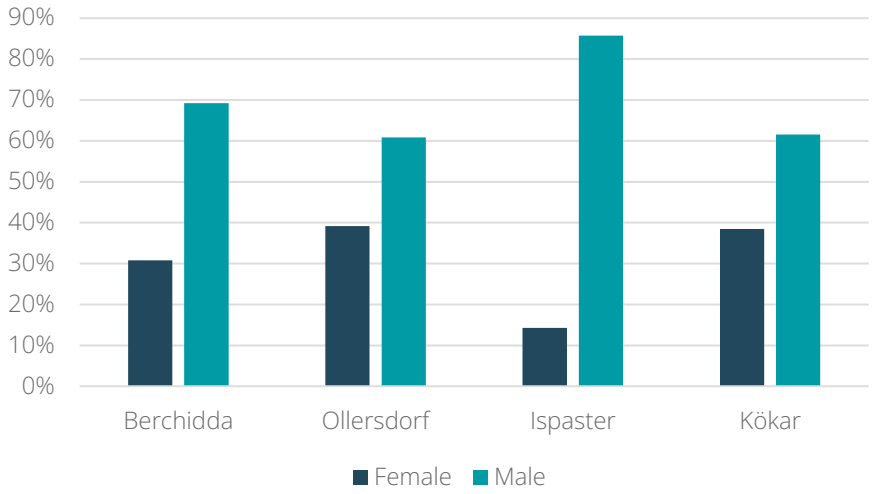

Figure 6: Gender distribution (relative)

Amongst all participants gender was correlated with community engagement, $r(61)=0.31$, $p=0.01$, with male participants more likely to believe that others would take part in the community (Table 36). That also was a particular outcome in Ollersdorf, where gender and community engagement

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were correlated, $r(21)=0.54$, $p<0.01$, and female participants were less likely to believe that others would take part in the community (Table 38).

As mentioned above, in Ollersdorf there was a negative correlation between age and gender, $r(20)=-0.43$, $p=0.05$, with female participants being younger than the male participants (Table 38). And female participants preferred using the mobile phone interface for the planning tool, $r(21)=-0.44$, $p=0.04$ (Table 38).

III. How likely do you think it is in your community that people would engage in common energy related activities?

In the tables (Table 7; Table 8) and figures (Figure 7; Figure 8) below it can be seen that there is a tendency to believe that people are generally interested in energy related activities concerning their community. However, it can be also seen that different aspects correlate with this question between and in-between pilot sites.

Table 7: How likely do you think it is in your community that people would engage in common energy related activities? (absolute)

	Unlikely	Maybe	Likely	Total
Berchidda	0	5	8	**13**
Ollersdorf	1	3	19	**23**
Ispaster	0	8	6	**14**
Kökar	0	6	9	**15**

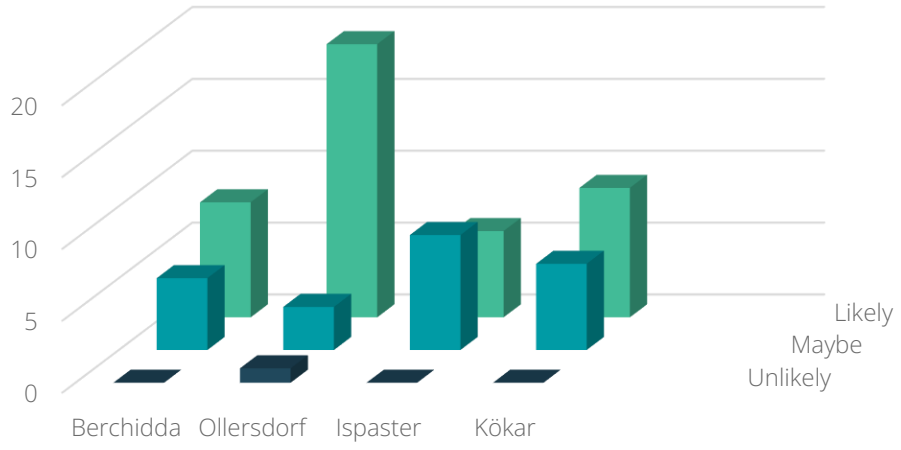

Figure 7: How likely do you think it is in your community that people would engage in common energy related activities? (absolute)

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Table 8: How likely do you think it is in your community that people would engage in common energy related activities? (relative)

	Unlikely	Maybe	Likely
Berchidda	0%	38%	62%
Ollersdorf	4%	13%	83%
Ispaster	0%	57%	43%
Kökar	0%	40%	60%

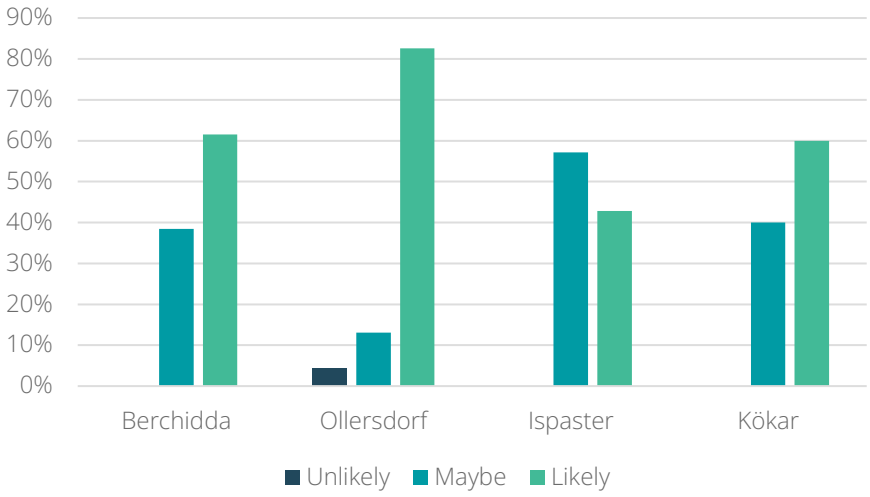

Figure 8: How likely do you think it is in your community that people would engage in common energy related activities? (relative)

As said before, amongst all participants gender was correlated with the believe that others would like to engage in community-based, energy-related activities, $r(61)=0.31$, $p=0.01$, with male participants more likely to believe that others would take part in the community (Table 36). This tendency could also be found In Ollersdorf specifically, $r(21)=0.54$, $p<0.01$ (Table 38)

In Berchidda, those who are interested in using the tool themselves also believe that others would be interested in partaking in the community, $r(9)=0.61$, $p=0.05$, and those who prefer to use the tool in group settings seemed to have a similar mind set believing that people would like to participate in the community, $r(11)=0.68$, $p=0.01$ (Table 37).

In Ollersdorf, participants who believe that people are interested in taking part in the community do not think expert use is the preferred option for the planning tool, $r(21)=-0.48$, $p=0.02$ (Table 38), indicating that a mainly expert-oriented use of the planning tool might not be the best way to engage people in the community.

In Ispaster, participants who are interested in the planning tool do not think that others would be engaging in decision-making for the community, $r(12)=-0.55$, $p=0.04$ (Table 39). This result could

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indicate that interested parties think that others might not be interested in the energy topic at all and therefore do not need any decision support in this regard.

There was also the opportunity for participants to give comments to the single questions, which are summarised for each pilot site individually in the following sections and reflect what participants find most relevant to share or to consider when it comes to their energy community and the different aspects concerning the same.

Regarding the question "How likely do you think it is in your community that people would engage in common energy related activities?" (7.6.1) it was pointed out in Ollersdorf that to engage or attract people to join the community, personal benefits would need to be made visible.

IV. Are you personally interested in partaking in the decisions made relating to common energy issues?

The general tendency of participants being interested in getting involved in decision making processes regarding energy issues was positive. However, in Berchidda there were some indicating that they were not too interested in the decision process themselves (Table 9; Table 10; Figure 9; Figure 10).

Table 9: Are you personally interested in partaking in the decisions made relating to common energy issues? (absolute)

	No interest at all	Not so much interested	Neutral	Intereste d	Very interested	Total
Berchidda	0	3	1	3	6	**13**
Ollersdorf	0	0	1	10	12	**23**
Ispaster	0	0	0	8	6	**14**
Kökar	0	0	0	6	9	**15**

Table 10: Are you personally interested in partaking in the decisions made relating to common energy issues? (relative)

	No interest at all	Not so much interested	Neutral	Interested	Very interested
Berchidda	0%	23%	8%	23%	46%
Ollersdorf	0%	0%	4%	43%	52%
Ispaster	0%	0%	0%	57%	43%
Kökar	0%	0%	0%	40%	60%

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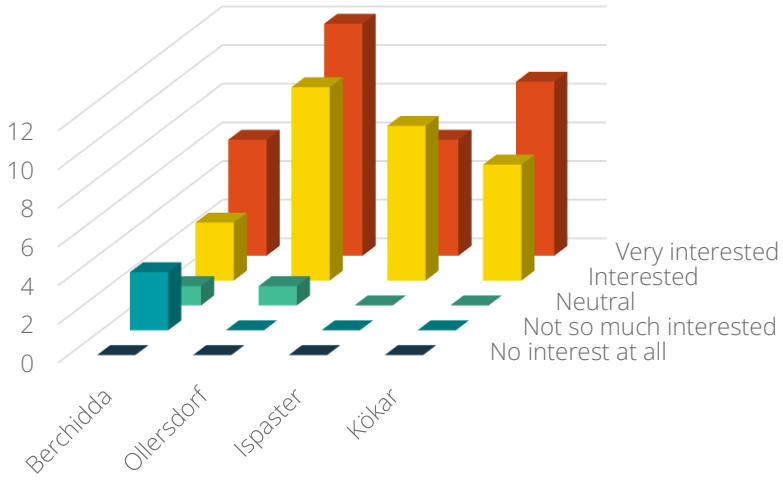

Figure 9: Are you personally interested in partaking in the decisions made relating to common energy issues? (absolute)

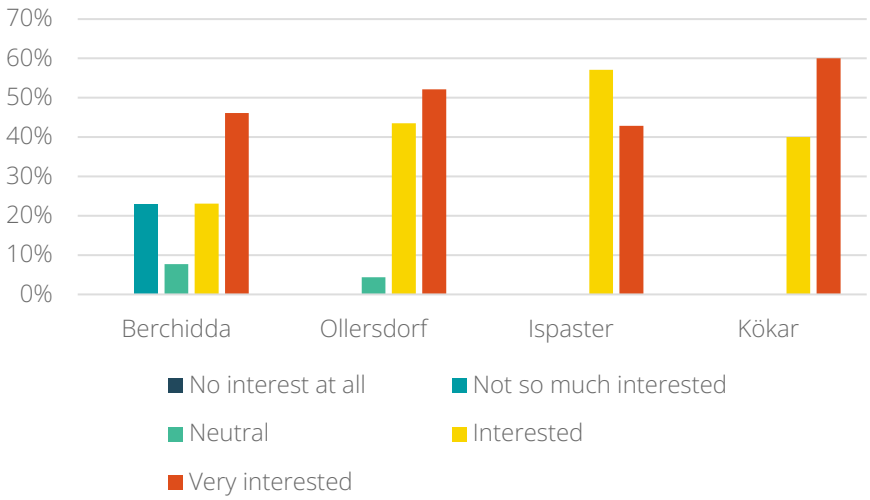

Figure 10: Are you personally interested in partaking in the decisions made relating to common energy issues? (relative)

Amongst all participants, those who were personally interested in partaking in the decisions related to the community were also those who would find a tool helpful for the community, $r(63)=0.37$, $p<0.01$, would use the tool themselves, $r(59)=0.37$, $p<0.01$, and prefer a website interface for the tool, $r(63)=0.28$, $p=0.03$ (Table 36).

The general tendency of those who were personally interested in partaking in the decisions related to the community and at the same time finding a tool helpful for the community, could be also found in Berchidda $r(11)=0.74$, $p<0.01$ (Table 37).

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In Ispaster, those who were interested in making decisions for the community were also personally interested in using the planning tool, $r(12)=0.73$, $p<0.01$ (Table 39).

V. *Do you think a tool like the one presented earlier would be helpful for the community activities?*

The tables (Table 11; Table 12) and figures (Figure 11; Figure 12) below indicate that the planning tool, which was presented during the introduction to the workshop, was considered as helpful for community activities. However, up to 1/3 of the participants answered "maybe". Except for Ollersdorf, where a strong tendency towards the usefulness of the planning tool was expressed. That could be explained by the fact that Ollersdorf has a very strong and well-established energy community already, which is interested in new and innovative approaches to progress. Also, the fact that Ollersdorf was the only community presented with real data supporting the scenarios could be a factor.

Table 11: Do you think a tool like the one presented earlier would be helpful for the community activities? (absolute)

	No	Maybe	Yes	Total
Berchidda	0	5	8	**13**
Ollersdorf	0	2	21	**23**
Ispaster	0	4	10	**14**
Kökar	0	4	11	**15**

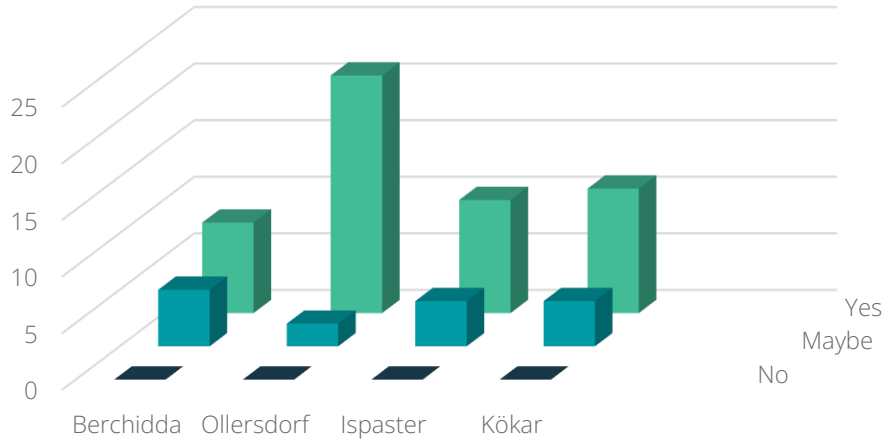

Figure 11: Do you think a tool like the one presented earlier would be helpful for the community activities? (absolute)

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Table 12: Do you think a tool like the one presented earlier would be helpful for the community activities? (relative)

	No	Maybe	Yes
Berchidda	0%	38%	62%
Ollersdorf	0%	9%	91%
Ispaster	0%	29%	71%
Kökar	0%	27%	73%

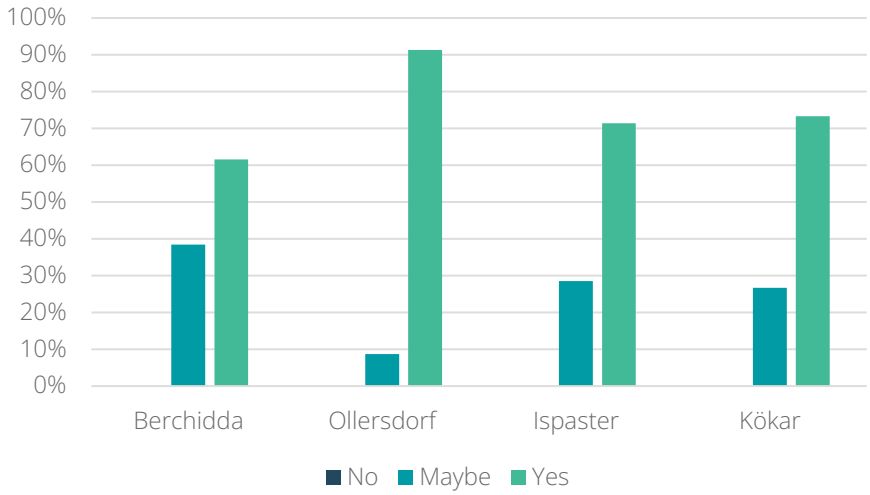

Figure 12: Do you think a tool like the one presented earlier would be helpful for the community activities? (relative)

Amongst all participants, those who are personally interested in partaking in the decisions related to the community are also those who would find a tool helpful for the community, $r(63)=0.37$, $p<0.01$. A personal interest in using the tool themselves was also correlated with those who would find a tool helpful for the community, $r(59)=0.34$, $p<0.01$ (Table 36).

In Berchidda carious correlations could be identified between the impression that the planning tool would be helpful and, for example, the personal interest in partaking in the decision process for the community $r(11)=0.74$, $p<0.01$, as well as the interested in using the tool themselves $r(9)=0.68$, $p=0.02$. Another correlation in the context of finding the presented planning tool helpful were privacy concerns $r(11)=0.7$, $p<0.01$ and the preference to use the tool through a webpage interface $r(11)=0.73$, $p<0.01$ (Table 37).

While in Ispaster, those who are interested in using the tool on their own found such a tool helpful, $r(12)=0.55$, $p=0.04$ (Table 39), in Kökar, the outcome was reversed, and those who preferred to use the tool on their own did not find the presented tool helpful, $r(13)=-0.56$, $p=0.03$ (Table 40).

Regarding the following question: *"Do you think a tool like the one presented earlier would be helpful for the community activities? Why, or why not?"* (7.6.2) participants in Ollersdorf had a wide range of

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thoughts, which they communicated by writing down comments. In Ollersdorf, a common understanding seemed to be that the planning tool is the next step for the energy community and that it was perceived as helpful to achieve further community goals. The helpfulness of the presented planning tool was seen as an instrument for decision support and giving guidance. Because community projects need solid planning, the planning tool needs to inform interested parties who should be involved in which scenario. By having the opportunity to try out different scenarios with real collected data, individual benefits could be calculated as for example investment costs, savings, amortisation and inform the interested party if and how to get involved. Another important topic which arose was the interest to use the planning tool as a communication tool between all involved to better coordinate planning and actions as well as to communicate different thoughts of participants, interesting developments and improve research. It was also suggested to use the planning tool for networking. However, some participants mentioned that they liked the idea of the presented planning tool, but it seemed too scientific and only suitable for people with some technological knowledge.

In Berchidda, no comments were written to this question, but in the discussion, participants expressed that they think that such a tool could be beneficial for the community (7.4.7). The comments in Ispaster had another focus compared to Ollersdorf, where the planning tool was perceived as helpful, since it was not seen as a natural progression of the community but as a start to get to know the project at all and build a community. The tool could contribute to shape the community, see the advantages to work together and show how the project progresses. Another important comment which also arose during the general discussion, was that the tool should facilitate other community activities to engage more people and promote more collaboration. Despite the community creating focus, there were also comments about how the tool could be useful if real data were used to simulate scenarios, giving the different point of views, raising awareness for the importance of self-consumption as well as getting independent from the private network. However, one participant mentioned that it was difficult to understand how the presented planning tool worked.

Participants in Kökar found the planning tool in general helpful, and considered that it could support plans made even if those plans changed over the course of the project. However, one participant wrote that evaluating the helpfulness of the tool is not possible because of the little knowledge they have on it.

VI. Would you personally be interested in using such a tool?

According to the tables (Table 13; Table 14) and figures (Figure 13; Figure 14) below, most participants across all pilot sites are “interested” or “very interested” in using the planning tool themselves.

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Table 13: Would you personally be interested in using such a tool? (absolute)

	No interest at all	Not so much interested	Neutral	Interested	Very interested	Total
Berchidda	1	0	2	7	1	**11**
Ollersdorf	0	0	2	13	6	**21**
Ispaster	0	0	0	10	4	**14**
Kökar	0	0	1	8	6	**15**

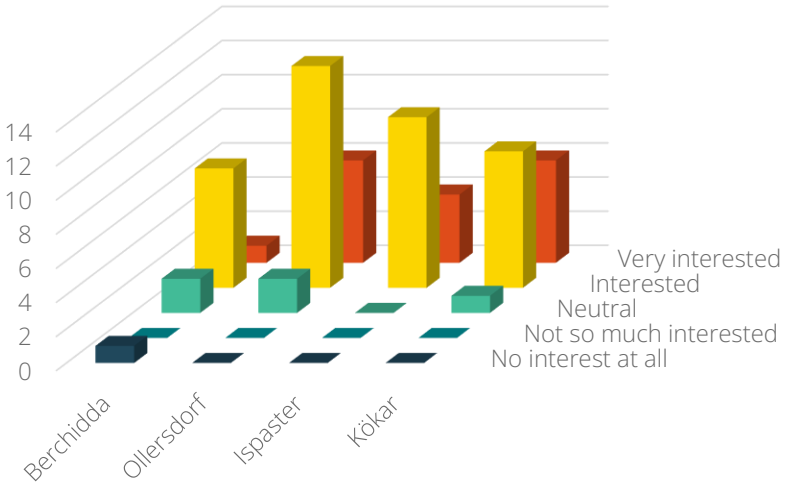

Figure 13: Would you personally be interested in using such a tool? (absolute)

Table 14: Would you personally be interested in using such a tool? (relative)

	No interest at all	Not so much interested	Neutral	Interested	Very interested
Berchidda	9%	0%	18%	64%	9%
Ollersdorf	0%	0%	10%	62%	29%
Ispaster	0%	0%	0%	71%	29%
Kökar	0%	0%	7%	53%	40%

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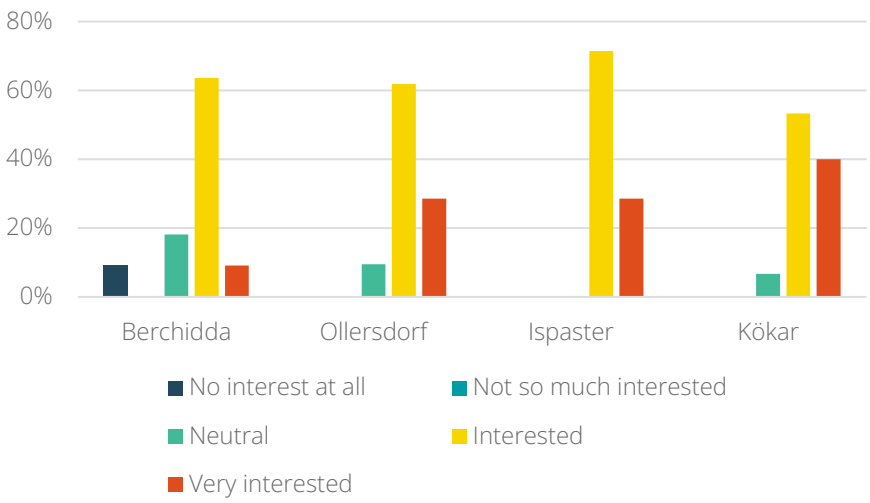

Figure 14: Would you personally be interested in using such a tool? (relative)

It can be seen that, amongst all participants, those who are personally interested in partaking in the decisions related to the community are also interested in using the tool themselves, $r(59)=0.37$, $p<0.01$. The personal interest for using the tool themselves is also correlated with the view that such a tool could be helpful for the community, $r(59)=0.34$, $p<0.01$ (Table 36). The latter result could also be found in Berchidda specifically, $r(9)=0.68$, $p=0.02$ (Table 37).

Furthermore, in Berchidda those who are interested in using the tool themselves also believe that others would be interested in partaking in the community, $r(9)=0.61$, $p=0.05$ (Table 37). That is the opposite result to Ispaster, where participants who are interested in the planning tool do not think that others would be engaging in decision-making for the community, $r(12)=-0.55$, $p=0.04$ (Table 39). However, those participants in Ispaster who are interested in the planning tool also have a personal interest in making decisions for the community, $r(12)=0.73$, $p<0.01$ (Table 39).

The only comment concerning the question *"Would you personally be interested in using such a tool?"* (7.6.3) was made in Kökar indicating that they would use the planning tool if it were good.

VII. A planning tool can be designed for different levels of expertise. Would you prefer the planning tool to be primarily used by…

This question allowed participants to give multiple answers, therefore only the absolute numbers are presented.

Looking at table (Table 15) and figure (Figure 15), it can be observed that the use of the planning tool in a group setting is the preferred option in all pilot sites except for Kökar. However, individual use is also a much-liked option.

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Table 15: A planning tool can be designed for different levels of expertise. Would you prefer the planning tool to be primarily used by…an expert consultant only? … during guided collaborative community events? … by every individual citizen?

	Expert	Group	Individual	Total
Berchidda	1	8	4	**13**
Ollersdorf	2	14	10	**26**
Ispaster	1	9	6	**16**
Kökar	1	7	8	**16**

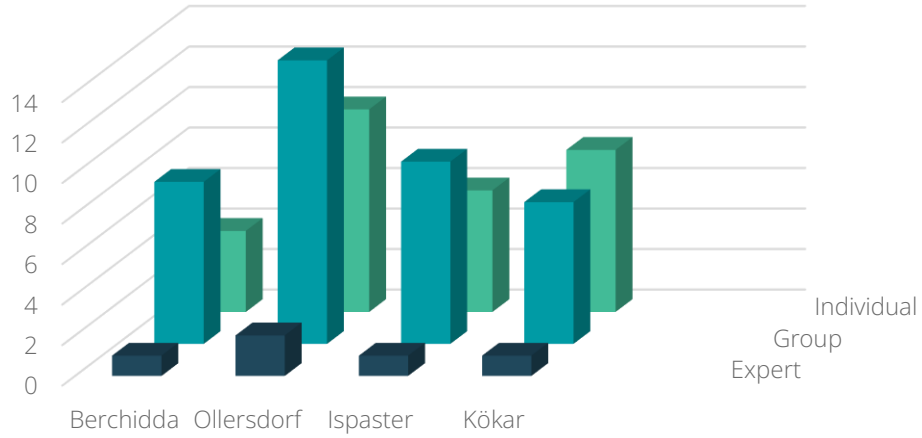

Figure 15: A planning tool can be designed for different levels of expertise. Would you prefer the planning tool to be primarily used by…an expert consultant only? … during guided collaborative community events? … by every individual citizen?

Looking at all participants there is a negative correlation between those who want to use the tool individually and those who want to use the tool as part of a group setting, $r(63)=-0.59$, $p<0.001$(Table 36), i.e. there is a portion of participants who prefer individual use and a distinct portion of participants who prefer the use of the tool in a group setting. This result can be also seen in Berchidda, $r(11)=-0.84$, $p<0.001$ (Table 37). In Kökar, a similar picture could be observed, where those who would prefer to use the tool on their own did not want to also use it in a group setting, $r(13)=-0.73$, $p<0.01$ (Table 40).

In Ollersdorf, older participants were less likely to prefer mainly expert use of the tool, $r(20)=-0.48$, $p=0.03$ and, at the same time, older participants did not want to use the tool on their own, $r(20)=-0.57$, $p<0.01$, which reflects the general result from the section above (Table 38).

While in Berchidda those who preferred to use the tool in group settings were also believing that people would like to participate in the community, $r(11)=0.68$, $p=0.01$ (Table 37), in Ollersdorf, participants who believed that people would be interested in taking part in the community did not think expert use were the preferred option for the planning tool, $r(21)=-0.48$, $p=0.02$ (Table 38).

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In Kökar, those who prefer the tool to be used by experts also think that a mobile phone application would be helpful, $r(13)=0.54$, $p=0.04$, while experts being the main users of the tool as the preferred option would mean that a web page interface would not be adequate, $r(13)=-0.68$, $p<0.01$ (Table 40). However, focusing the planning tool on mainly expert use only, correlates with low concerns regarding privacy issues $r(11)=-0.58$, $p=0.04$ (Table 40).

Kökar was the only pilot site which showed a significant correlation between those who would prefer using the tool on their own and not finding the presented tool helpful, $r(13)=-0.56$, $p=0.03$ (Table 40).

Regarding the following question: *"A planning tool can be designed for different levels of expertise. Would you prefer the planning tool to be primarily used …"* (7.6.4) there was a comment from Ollersdorf pointing out that the planning tool needs to be much simpler and more specific to be usable for all citizens.

VIII. What platform would you prefer the tool to run on?

As with the previous question, participants had the option to give multiple answers. It can be seen that the webpage was the preferred option when it comes to the platform the planning tool should run on (Table 16; Figure 16).

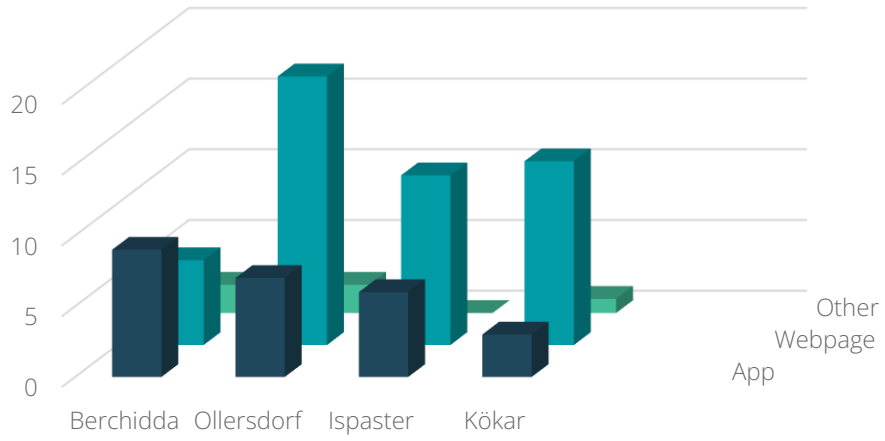

Figure 16: What platform would you prefer the tool to run on?

Table 16: What platform would you prefer the tool to run on?

	App	Webpage	Other	Total
Berchidda	9	6	2	**17**
Ollersdorf	7	19	2	**28**
Ispaster	6	12	0	**18**
Kökar	3	13	1	**17**

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A variety of differences could be observed between the pilot sites. Participants in Berchidda were more interested in a mobile application (m=0.69, SD=0.48) in comparison to participants in Ollersdorf (m=0.3, SD=0.47), t(24.6)=2.34, p=0.03 (Table 41; Table 42) and in Ollersdorf there was a bigger interest in a web page (m=0.83, SD=0.39) than in Berchidda (m=0.46, SD=0.52), t(19.69)=2.21, p=0.04 (Table 41; Table 42). A similar result could be revealed between Ispaster, with a higher interest in a web page (m=0.86, SD=0.36), compared to Berchidda (m=0.46, SD=0.52), t(21.33)=2.28, p=0.03 (Table 43; Table 44). The stronger interest in a mobile application in Berchidda (m=0.69, SD=0.48) is also reflected in comparison with Kökar (m=0.2, SD=0.41), t(23.93)=2.88, p<0.01(Table 45; Table 46), where participants were more interested in a webpage (m=0.87, SD=0.35) compared to Berchidda (m=0.46, SD=0.52), t(20.66)=2.38, p=0.03 (Table 45; Table 46).

The differences between the pilot sites can be seen in the table (Table 16) and figure (Figure 16) above, and are also reflected in the correlations amongst all participants (Table 36). Here, there was a negative correlation between those who wanted to use the tool through a web interface and those who wanted to use the tool as a mobile application, $r(63)=-0.54$, $p<0.001$, i.e. there were a portion of participants who preferred a webpage and a distinct portion of participants who preferred a mobile application for the planning tool.

Furthermore, the following correlations could be found amongst all participants. Those who were personally interested in the decisions made in relation to the community preferred a website interface for the tool, $r(63)=0.28$, $p=0.03$. Age and preference to use other means of user interfaces like paper-based information than webpage or mobile application was correlated, $r(62)=0.27$, $p=0.03$. That means that older people prefer non-electronic information regarding the planning tool. A similar correlation could be found in Berchidda, where a negative correlation between age and the preference to use the tool through a mobile application, $r(11)=-0.72$, $p<0.01$ appeared. That leads to the conclusion that the older the participants the less they want to use a mobile application. Furthermore, the results showed a negative correlation between a preference to use the tool through a mobile application interface and the use through other means in Berchidda, $r(11)=-0.64$, $p=0.02$. This indicates that there is a group of participants who prefer the mobile application and a group of participants who prefer other user interfaces to interact with the planning tool. And the final two correlations found in Berchida refer to the impression of participants about the planning tool being helpful and at the same time preferring to use it through a webpage interface, $r(11)=0.73$, $p<0.01$. However, those who prefer a webpage interface for the tool also have stronger privacy concerns, $r(11)=0.58$, $p=0.04$.

In Ollersdorf, female participants prefer using the mobile phone interface to the planning tool, $r(21)=-0.44$, $p=0.04$, while male participants preferred using the webpage interface to the planning tool, $r(21)=0.57$, $p<0.01$. This difference can be also seen in the negative correlation that a portion of participants preferred a mobile phone interface while another group of participants preferred a webpage interface, $r(21)=-0.69$, $p<0.001$.

In Ispaster, a similar result could be observed as in Berchidda, with older participants not preferring the use of a mobile phone application, $r(12)=-0.57$, $p=0.03$. However, those who were interested in using the tool on their own would also find such a tool helpful, $r(12)=0.55$, $p=0.04$ and those who

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were interested in using the tool on their own did not want to use it in a group setting, $r(12)=-0.56$, $p=0.04$.

As already seen in other pilot sites such as Ollersdorf, in Kökar the preference for a mobile application interface and the preference for a webpage interface were anti-correlated, $r(13)=-0.78$, $p<0.01$, showing that some participants prefer a mobile phone application and some prefer a webpage to engage with the planning tool. Those who preferred the tool to be primarily used by experts also thought that a mobile phone application would be helpful, $r(13)=0.54$, $p=0.04$. and at the same time, those who preferred the tool to be primarily used by experts did not think that a web page interface would be adequate, $r(13)=-0.68$, $p<0.01$.

In the context of the question *"What platform would you prefer the tool to run on?"* (7.6.5), participants in Ollersdorf said that they would like to have a paper version as well as an information leaflet.

IX. The more data the tool is based on, the more accurate the results. In this context, how important is privacy for you?

The picture regarding privacy concerns is quite diverse. While in Ollersdorf privacy issues play a secondary role, particularly participants in Ispaster but also in Berchidda found privacy aspects important (Table 17, Figure 17, Table 18, Figure 18).

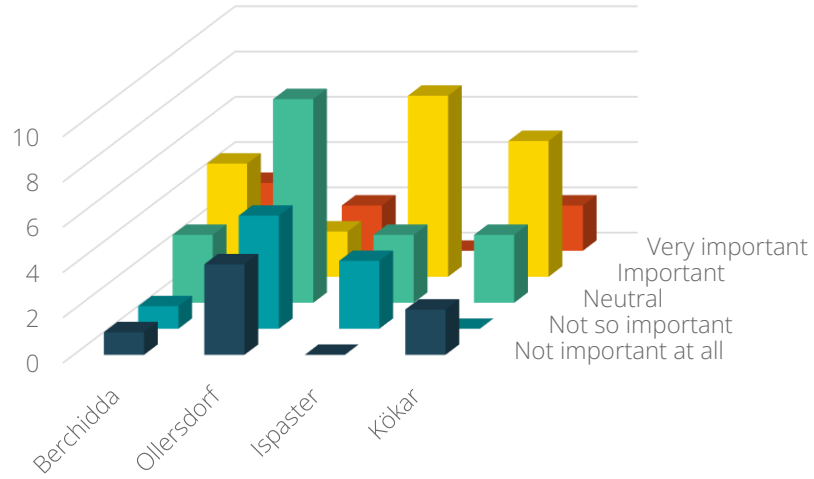

Figure 17: The more data the tool is based on, the more accurate the results. In this context, how important is privacy for you? (absolute)

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Table 17: The more data the tool is based on, the more accurate the results. In this context, how important is privacy for you? (absolute)

	Not important at all	Not so important	Neutral	Important	Very important	Total
Berchidda	1	1	3	5	3	**13**
Ollersdorf	4	5	9	2	2	**22**
Ispaster	0	3	3	8	0	**14**
Kökar	2	0	3	6	2	**13**

Table 18: The more data the tool is based on, the more accurate the results. In this context, how important is privacy for you? (relative)

	Not important at all	Not so important	Neutral	Important	Very important
Berchidda	8%	8%	23%	38%	23%
Ollersdorf	18%	23%	41%	9%	9%
Ispaster	0%	21%	21%	57%	0%
Kökar	15%	0%	23%	46%	15%

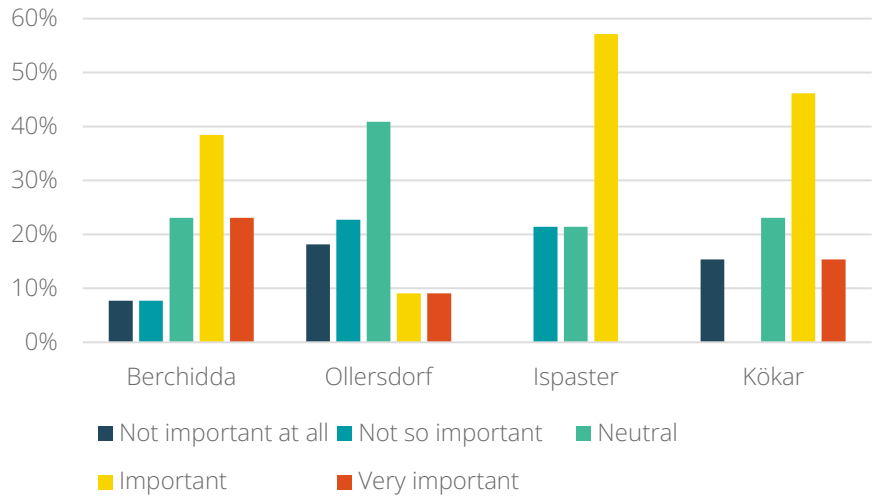

Figure 18: The more data the tool is based on, the more accurate the results. In this context, how important is privacy for you? (relative)

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Looking at the differences between the pilot sites it could be observed that participants in Berchidda found privacy (m=0.62, SD=1.19) more relevant in comparison to participants in Ollersdorf (m=-0.32, SD=1.17), t(24.93)=2.25, p=0.03.

In Berchidda, some additional correlations can be found; for example, those who would find a tool helpful also had stronger privacy concerns, $r(11)=0.7$, $p<0.01$. That was similar for those who preferred a webpage interface for the tool, who showed stronger privacy concerns, $r(11)=0.58$, $p=0.04$.

In Kökar, those who favoured the use of the tool by experts did not have privacy concerns for the tool, $r(11)=-0.58$, $p=0.04$. That could mean that the perception from participants were that if experts use the tool no personal data is needed from the participants, or that experts would handle personal data more carefully.

The question concerning privacy issues: "*The more data the tool is based on, the more accurate the results. In this context, how important is privacy for you?*" (7.6.6) was only commented in Ollersdorf, stating that people share everything on Facebook anyway and that this project would be beneficial for future generations. Therefore, data needs to be accessible for research and development and that the more data the more results.

GOALS AND SCENARIOS

Goals and scenarios are specific to the individual pilot sites. Therefore, results relating to these will be organised accordingly in the following pages.

Berchidda

GOALS

During the representative workshops three goals were identified, which are relevant for the energy community:

- Goal 1: Save on the cost of energy and maximise the return on investment.
- Goal 2: Achieve energy self-sufficiency for the community.
- Goal 3: Enable freedom of choice to install equipment

The first two goals were seen as relevant from all participants, while the last goal "Enable freedom of choice to install equipment" was also perceived as "neutral" or "not relevant" (Table 19; Table 20; Figure 19).

Table 19: Relevance of goals in Berchidda (absolute)

Goals	Not relevant	Neutral	Relevant	Total
#1	0	0	13	**13**
#2	0	0	13	**13**
#3	1	1	11	**13**

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Table 20: Relevance of goals in Berchidda (relative)

Goals	Not relevant	Neutral	Relevant
#1	0%	0%	100%
#2	0%	0%	100%
#3	8%	8%	85%

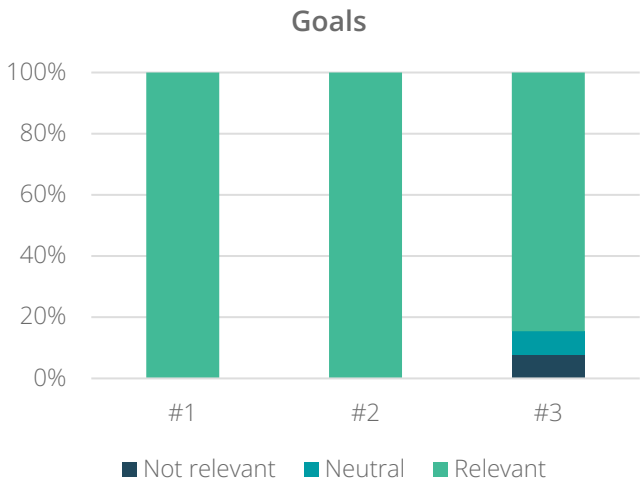

Figure 19: Relevance of goals in Berchidda (relative)

Comments of participants

The question "*Are there any other goals that you think are relevant for your community?*" (7.6.7) elevated some recurrent answers. Energy saving as a goal was mentioned four times. There was an interest in a wind turbine, which fits well with the comment to exploit abandoned land to produce, for example, energy as a useful resource for the community. Another aspect which was mentioned was the need to make a technical assessment of energy production and consumption in the community to identify the surface space required to cover the demand. Someone emphasised the importance of self-consumption for the entire community to be independent. Another mentioned goal was that the involvement of people who are sceptical towards the energy community should be addressed.

SCENARIOS

There were four scenarios developed in the representative workshop to specify different options in Berchidda, which then could be presented to the citizens (see more details in section 3.2.3).

- Scenario 1: PV generation
- Scenario 2: Heat pumps
- Scenario 3: Rural micro-grids
- Scenario 4: Electrical vehicles

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As visualised in the tables and figure below (Table 21; Table 22; Figure 20) all four scenarios were perceived as relevant.

Table 21: Relevance of scenarios in Berchidda (absolute)

Scenarios	Not relevant	Neutral	Relevant	Total
#1	0	0	13	**13**
#2	0	0	13	**13**
#3	0	0	13	**13**
#4	0	2	11	**13**

Table 22: Relevance of scenarios in Berchidda (relative)

Scenarios	Not relevant	Neutral	Relevant
#1	0%	0%	100%
#2	0%	0%	100%
#3	0%	0%	100%
#4	0%	15%	85%

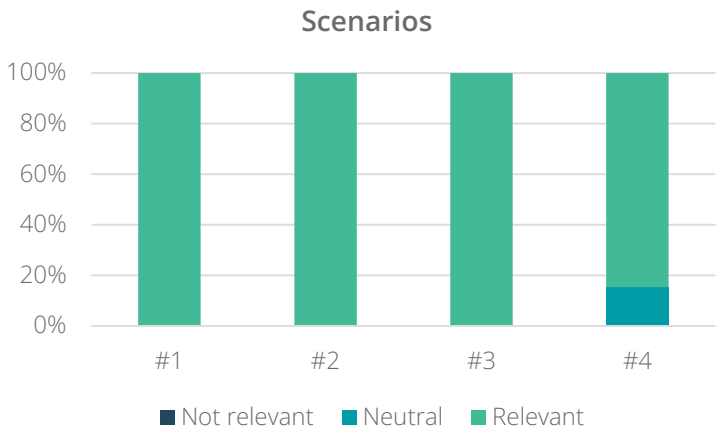

Figure 20: Relevance of scenarios in Berchidda (relative)

Comments of participants

Asking: *"Are there any other scenarios that you think are relevant for your community?"* (7.6.8) the following responses were given, with a strong focus on possibilities like wind turbines, mini turbines and combining wind turbines with photovoltaic (PVs) and energy storage. Despite wind turbines, it was suggested to explore all rural infrastructure for energy exploitation. And that energy should be shared in between the community. All those suggested scenarios should lead to energy self-sufficiency and independence from the main energy provider. Furthermore, someone pointed out that it would be good to research incentive schemes on National and European level. To develop and realize future scenarios the energy community would need to grow.

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Ollersdorf

GOALS

The following goals:

- Goal 1: Achieve 100% renewable energy for the community
- Goal 2: Achieve energy self-sufficiency for the community
- Goal 3: Achieve energy supply security

were built during the representative workshop in Ollersdorf, and citizens found those goals relevant for their community or they were neutral towards the goal (Table 23; Table 24; Figure 21).

Table 23: Relevance of goals in Ollersdorf (absolute)

Goals	Not relevant	Neutral	Relevant	Total
#1	0	6	17	**23**
#2	0	3	20	**23**
#3	0	2	21	**23**

Table 24: Relevance of goals in Ollersdorf (relative)

Goals	Not relevant	Neutral	Relevant
#1	0%	26%	74%
#2	0%	13%	87%
#3	0%	9%	91%

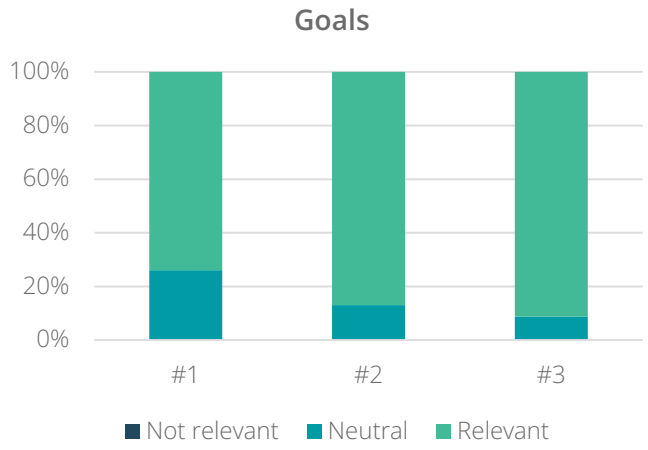

Figure 21: Relevance of goals in Ollersdorf (relative)

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Comments of participants

In Ollersdorf there was a variety of comments given regarding the different goals. Starting with goal 1: *"Achieve 100% renewable energy for the community."* (7.6.7) someone shared the opinion that there is currently a lot of local investment going into projects and he/she was wondering how this will be in the future.

In the context of goal 2: *"Achieve energy self-sufficiency for the community"* it was indicated that this was mainly facilitated through public buildings.

When it came to the question "*Are there any other goals that you think are relevant for your community?* many suggestions were made. Participants in Ollersdorf suggested to look at water supply, sewage, cooling and food related aspects as well as CO_2 reduction in general. Furthermore, fire and flood protection as well as vehicle and technical equipment was mentioned as potential community goals. Fitting a battery as energy storage at the grocery store to facilitate to shop during a potential blackout scenario was another concern. There was also an interest in being independent from the utility company or energy provider.

A general goal was a healthy and viable environment. Information about alternative energy savings could help to support such a goal, including, for example, the topic of food but also how to save energy in the household and what to do about old appliances. Would it be for example more efficient to replace them?

One participant wanted to get information regarding the decision-making process in the energy community, which indicates that transparency could be relevant, while someone else stressed that the Ollersdorf community could be a role model community for others and presenting the real-life outcomes to others.

SCENARIOS

Looking at the developed scenarios during the representative workshop, four scenarios were identified (see more details in section 3.2.3):

- Scenario 1: PV installation
- Scenario 2: Battery storage
- Scenario 3: Waste heat recovery

While the first scenario was perceived as "relevant" from all participants, there were 1/3 of participants who were "neutral" towards the battery storage scenario and 1/5 who thought the 3rd scenario is "not relevant" at all (Table 25; Table 26; Figure 22).

Table 25: Relevance of scenarios in Ollersdorf (absolute)

Scenarios	Not relevant	Neutral	Relevant	Total
#1	0	0	22	**22**
#2	0	7	16	**23**
#3	4	8	10	**22**

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Table 26: Relevance of scenarios in Ollersdorf (relative)

Scenarios	Not relevant	Neutral	Relevant
#1	0%	0%	100%
#2	0%	30%	70%
#3	18%	36%	45%

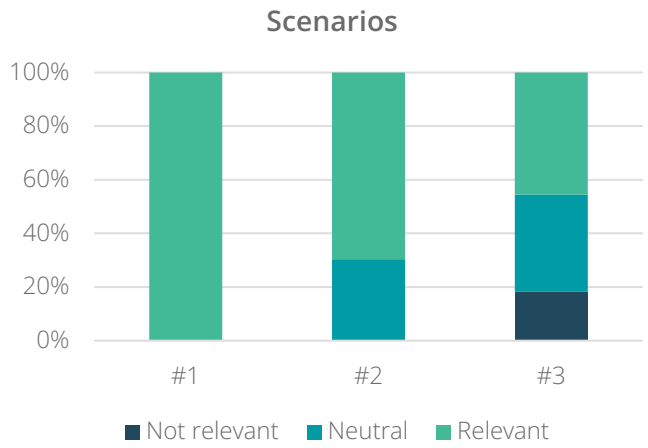

Figure 22: Relevance of Scenarios in Ollersdorf (relative)

Comments of participants

There was a lively discussion about scenarios as well as a big contribution of comments during the citizen workshop in Ollersdorf (7.6.8).

The first scenario: "*PV installation"* caused a question about why not all roof space is in use.

Regarding *the question "Do you understand the scenario? What additional information do you think would be helpful?"* many people answered that the scenario is well understandable. However, a lot of suggestions were given, including which additional information could be helpful. Participants would prefer to get some data on cost-benefits particularly for the individual household, and they would be also interested in PV-centred feasibility studies for all houses. That could also solve the problem of knowing if PVs make sense for single-person households and how to make personal roof space available. Furthermore, funding opportunities should be communicated, and field trips were suggested to inform interested parties about the technology and possibilities in the real environment. Another idea was to present the energy balance and flows of the big PV energy producers in the community via an app to get some insights in the current energy load.

There was a request for information on the availability of alternative energy sources as well as the suggestion to look at other projects in other regions; for example, H2-production and public transport.

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Looking at *"What information do you need to make an informed decision on the scenario?"* the main request was a cost-benefit analysis, which needs to be specific for each individual household. Such an analysis needs to include information about the potential size of the PV system for each house. Despite the return-on-investment aspect, participants also wanted to know something about the resources needed, the sustainability of the system (PV-installations) and reusability. Also, the cost of maintenance, repairs, transport, and logistics were of interest.

Having information about available and suitable space was mentioned, as well as, the wish to discuss this topic with experts and being informed and updated regularly.

One participant found the given information regarding this scenario sufficient.

The second scenario *"Battery storage"* and the question "*Do you understand the scenario? What additional information do you think would be helpful?"* revealed that many participants found the scenario understandable, except for one. However, there were also a lot of questions for guidance. For example, the financial questions emerged again, as well as the feasibility and the lifespan of such storage. But also, data regarding the size of the energy storage for residential homes were requested as well as the storage type, and whether battery storage could be used together. The latter one can be split in the question of how many storage units are reasonable and the benefits of installing one central unit instead of many smaller units. One additional question was focused on the type of batteries, because this participant commented that saltwater batteries were no alternative in regards to space, cost and benefit.

As an answer to the question "*What information do you need to make an informed decision on the scenario?"* the main response was to get information about the costs, but also information about grants were mentioned and, very specifically to Ollersdorf, about local storage (e.g. Greenrock, V2G -Vehicle to Grid-, and V2H -Vehicle to Home). How much storage would be necessary to achieve a joint utilization and what should be supplied with electricity in case of a blackout in the community and in the household were further asked questions.

One participant's comment regarding scenario 3: *"Waste heat recovery"* stated that small-scale district heating would be ok, while large-scale district heating would be not. In the opinion of the participant, there would be too much heat loss if the heat would not be produced where it is consumed.

"Do you understand the scenario? What additional information do you think would be helpful?"

As with the scenario before, some participants found the given information sufficient, while others did not understand the scenario or found that there is a lot of information which would be good to have as a handout to also pass it on to family and friends. Again, there would be an interest in feasibility and cost-benefit studies, as well as deeper understanding of which systems are already in use, where are the energy sources coming from and which companies would qualify for it in Ollersdorf. It was said that the scenario about waste heat recovery was currently undervalued and that it would have potential.

"What information do you need to make an informed decision on the scenario?"

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The answers to this question showed that there are many topics which citizens are interested in and would like to explore. However, the main comments were the cost-benefit and feasibility analysis as something relevant to make an informed decision. There was also the wish to get more information on small-scale district heating and combined heat and power. While the question about the existence of a general interest in the community for this scenario and how many would take part was expressed, someone else wrote that he/she is not able yet to make an informed decision.

"Considering the presented mock-ups, do you understand what information is presented? Do you have any suggestions, how the results can be presented better?"

The overall response to the presented mock-ups was positive. However, some found it a lot of information, a lot of facts, very technical and only partly understandable. One suggestion was that the energy community would need to be based on real data, and realistic examples, so that every new user/participant could see their individual benefits in case of joining. The personal benefits need to be emphasised but also what the individual can do to improve their household to contribute to the community goals. And there was a general question how to motivate others to participate.

"Are there any other scenarios that you think are relevant for your community?"

The mentioned additional scenarios were wind turbines, where to place them and information on why wind turbines are currently not available. The collective purchase of additional energy and the collective use and /or selling of excess energy were mentioned, as well as the usage of waste heat and heat pumps.

Ispaster

GOALS

The representative workshop in Ispaster led to five goals

- Goal 1: Supply all public buildings with 100% renewable energy
- Goal 2: Energy self-sufficiency or positive energy system in the school
- Goal 3: Reduce the dependency on external energy supply, i.e. the main grid
- Goal 4: Achieve energy autonomy of the town (excluding transport, due to reliance on private transport)
- Goal 5: Promote more communal energy production and assets in addition to individual private initiatives

for which the citizen workshop showed that the majority found all goals relevant. However, particularly goal 4, *Achieve energy autonomy of the town (excluding transport, due to reliance on private transport),* and goal 5 ,*Promote more communal energy production and assets in addition to individual private initiatives,* showed some tendency towards neutral perception (Table 27; Table 28; Figure 23).

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Table 27: Relevance of goals in Ispaster (absolute)

Goals	Not relevant	Neutral	Relevant	Total
#1	0	1	13	**14**
#2	0	0	14	**14**
#3	0	1	13	**14**
#4	0	3	11	**14**
#5	0	2	12	**14**

Table 28: Relevance of goals in Ispaster (relative)

Goals	Not relevant	Neutral	Relevant
#1	0%	7%	**93%**
#2	0%	0%	**100%**
#3	0%	7%	**93%**
#4	0%	21%	**79%**
#5	0%	14%	**86%**

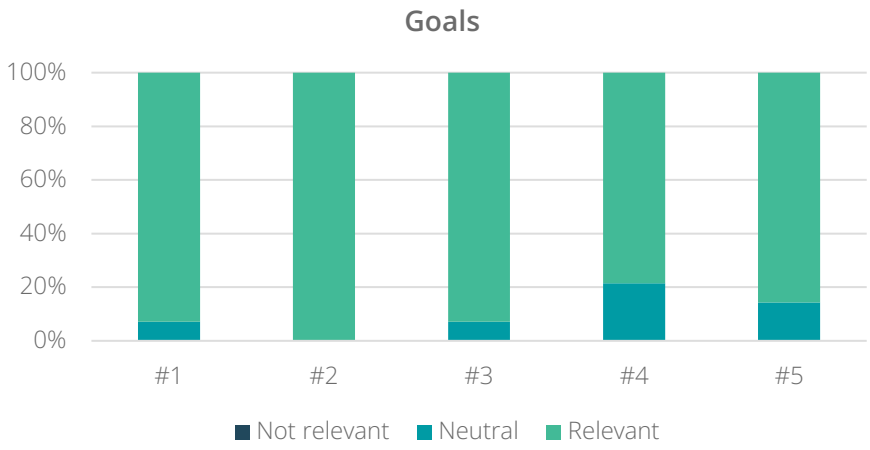

Figure 23: Relevance of goals in Ispaster (relative)

Comments of participants

Regarding the question *"Are there any other goals that you think are relevant for your community?"* the comments included in section 7.6.7 were given. In particular, considering the wide spread of the community over the municipal area with Elexalde district concentrating most of the energy-related actions, it was suggested to "exit from the Elexalde centre" in terms of the main target for these actions, and involve other areas and all neighbours to reach autonomy. That corresponds with the comment to reach full or partial self-sufficiency for the town. Despite the more energy-oriented comments, there was a big interest towards the development of the community, which was not only perceived as an energy community. Economic development was mentioned as

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something that should be considered to get people interested as well as to raise awareness. There was some frustration about the speed with which the project was progressing, and the wish was to find an easier and faster way to continue and also get some administrative support.

SCENARIOS

The identified scenarios in Ispaster were (see more details in section 3.2.3):

- Scenario 1: School building upgrades
- Scenario 2: Public building upgrades
- Scenario 3: Community owned PV

All scenarios were of relevance to the participants (Table 29; Table 30; Figure 24).

Table 29: Relevance of Scenarios in Ispaster (absolute)

Scenarios	Not relevant	Neutral	Relevant	Total
#1	0	0	13	13
#2	0	1	12	13
#3	0	0	13	13

Table 30: Relevance of Scenarios in Ispaster (relative)

Scenarios	Not relevant	Neutral	Relevant
#1	0%	0%	100%
#2	0%	8%	92%
#3	0%	0%	100%

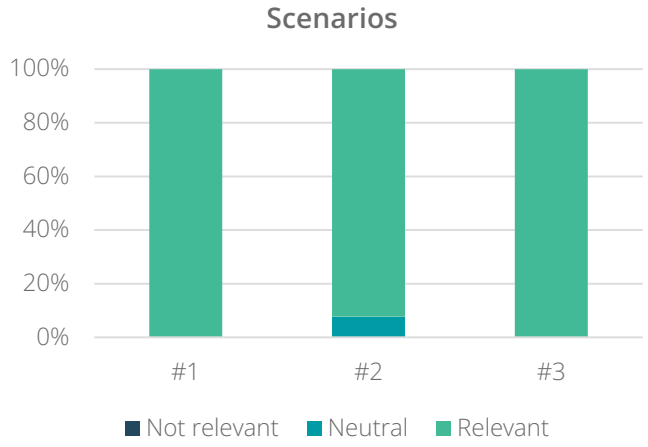

Figure 24: Relevance of Scenarios in Ispaster (relative)

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Comments of participants

In Ispaster there was also a lively discussion, and many comments were given (see section 7.6.8). Regarding the first scenario *"School building upgrades"*, there were some comments requesting more information about the renewable energy sources as well as about energy efficiency improvements for the building.

"*Do you understand the scenario? What additional information do you think would be helpful?"*

There was a high agreement that the scenario is well understandable and that it could be an opportunity for the town to improve the energy efficiency of the school. However, some information was missing. For example, participants asked for simply described technical data to be able to make the right decision. Therefore, there were questions about the current condition of the building in energy terms, the currently used system and the future installed system, as well as the current and expected energy consumption and production.

"What information do you need to make an informed decision on the scenario?"

This question led to responses stating that real requirements and possibilities together with real data for the generated and consumed energy should be given, as well as an overview of how the system interacts with the other energy systems in Ispaster. Someone would have liked the opportunity to see how different renewable energy modules would influence the input and output of the system. Also, the cost savings were a dominant topic, which was mentioned a couple of times, and the question of who is the beneficiary of the school upgrade was aroused.

The scenario 2: *"Public building upgrades"* and the corresponding question *"Do you understand the scenario? What additional information do you think would be helpful?"* brought up different comments. For example, it was mentioned that this scenario would be an opportunity to improve the energy efficiency of public buildings, also questioning if the church would be included as well. Another question was if the buildings would be upgraded individually or if a general upgrade to the grid is planned. Other than that, participants found the scenario understandable, but some asked for more information.

Scenario 3: *"Community owned PV"* and the question "*Do you understand the scenario? What additional information do you think would be helpful?"* brought up the following reactions: first of all, for some the scenario was well described, but, there was a demand for clarification on costs, current consumption and energy savings, as well as on feasibility. There was also a comment about the installation of photovoltaics on buildings in Elexalde, with a further question about the possibility of expanding this scenario to the industrial area of Ispaster. In any case, potential locations for PVs should be discussed with citizens.

"What information do you need to make an informed decision on the scenario?"

While one participant said that there is not enough information given regarding this scenario, particularly to get more people interested and involved, others asked to get real data with only feasible options. Furthermore, there was a request for the costs and available incentives or grants.

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The next question "*Considering the presented mock-ups, do you understand what information is presented? Do you have any suggestions, how the results can be presented better?*" aimed at the planning tool and possible suggestions to improve the same. There were mixed responses. Some found the presented mock-ups helpful while others thought the given information was very basic and not very detailed. Participants liked better background information about the energy generation as well about the energy costs and how the investment cost are divided between the relevant parties.

"Are there any other scenarios that you think are relevant for your community?" led to the suggestion of expanding the described scenarios to all buildings in town, therefore the adaption strategies would need to be developed. And, as the final comment, it was emphasized that there is still a long way to go but that these initiatives are very welcome. The suggestion was to make Ispaster a role model for bigger towns, even if this would be a challenge.

Kökar

GOALS

For Kökar, the representative workshop identified the following goals, which were used for the citizen workshop as a starting point for discussion.

- Goal 1: Increase renewable asset utilization across the community
- Goal 2: Achieve self-sufficiency on the island
- Goal 3: Increase the reliability of the electricity supply on the island
- Goal 4: Facilitate increased demand for EV charging infrastructure on the island

Most participants found the goals relevant for their community. Mainly goal 3, *Increase the reliability of the electricity supply on the island*, led to some neutral responses (Table 31; Table 32; Figure 25).

Table 31: Relevance of goals in Kökar (absolute)

Goals	Not relevant	Neutral	Relevant	Total
#1	0	1	14	**15**
#2	0	0	15	**15**
#3	0	2	13	**15**
#4	0	1	14	**15**

Table 32: Relevance of goals in Kökar (relative)

Goals	Not relevant	Neutral	Relevant
#1	0%	7%	**93%**
#2	0%	0%	**100%**
#3	0%	13%	**87%**
#4	0%	7%	**93%**

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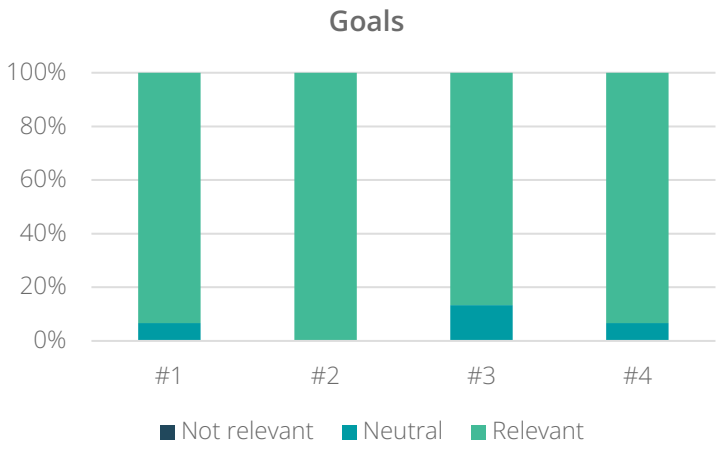

Figure 25: Relevance of goals Kökar (relative)

Comments of participants

Regarding the question "*Are there any other goals that you think are relevant for your community?*" there were some different responses to what is seen in the other three pilot sites (see section 7.6.7). There was a suggestion to look at the energy situation in the long-term, use all available assets and learn how to save energy. Also, lower the energy cost in general and in particularly for families with children was replied to the question. Another mentioned goal was to attract people to move to Kökar.

SCENARIOS

The developed scenarios for Kökar were split into:

- Scenario 1: Sommarängen
- Scenario 2: Mika/Sommarängen
- Scenario 3: Karlby
- Scenario 4: Electric vehicles

All scenarios (see more details in section 3.2.3) were mainly perceived as relevant, with particularly one participant being neutral about the first three scenarios (Table 33; Table 34; Figure 26).

Table 33: Relevance of scenarios in Kökar (absolute)

Scenarios	Not relevant	Neutral	Relevant	Total
#1	0	1	13	**14**
#2	0	1	12	**13**
#3	0	1	12	**13**
#4	0	0	11	**11**

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Table 34: Relevance of scenarios in Kökar (relative)

Scenarios	Not relevant	Neutral	Relevant
#1	0%	7%	93%
#2	0%	8%	92%
#3	0%	8%	92%
#4	0%	0%	100%

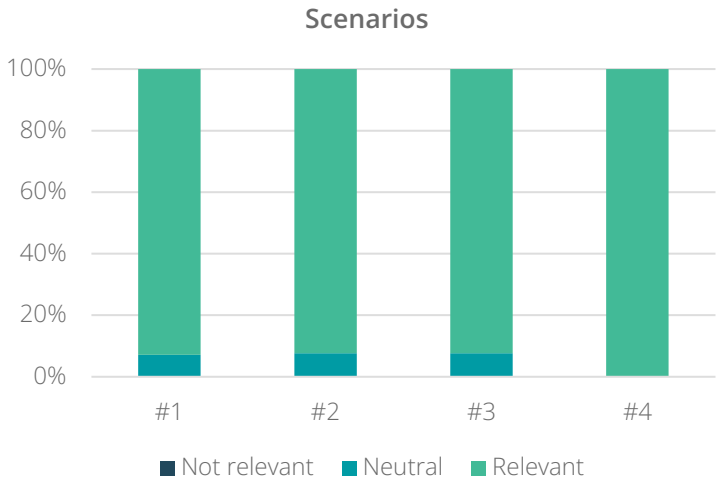

Figure 26: Relevance of scenarios in Kökar (relative)

Comments of participants

For scenario 1: *"Sommarängen"* the following question "*Do you understand the scenario? What additional information do you think would be helpful?"* was answered (7.6.8) by pointing out that Sommarängen and Barnängen should belong together and that there are benefits for people living in this area. However, the electricity consumption of the kitchen in Sommarängen should be addressed separately. There was a good understanding of the scenario and an extended interest to start the project as soon as possible. Public information and better information about the energy side of the scenario would be required, while there was also an interest expressed to get general information about how to be more sustainable in the areas of cleaning, washing, compost, food or locally produced food, water use and traffic.

"What information do you need to make an informed decision on the scenario?"

There were some responses about the information given being sufficient, but there was a desire to get some extra inputs on battery storage, the environmental improvements, economic benefits for the municipality and the individual, as well as the disadvantages.

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Scenario 2: *"Mika/Sommarängen" "Do you understand the scenario? What additional information do you think would be helpful?"* caused similar responses as scenario 1. Participants understood most of the given information and there was a high interest to start with this project as soon as possible.

"*What information do you need to make an informed decision on the scenario?"*

The required information concerned the costs for the municipality, but no further information was needed.

For scenario 3: *"Karlby" "Do you understand the scenario? What additional information do you think would be helpful?"* again some answers were the same as before. Quite a few participants found the scenario understandable, but more information about what should be done and achieved would be preferable. One important point was raised concerning the question of the possibility of starting the project even if some citizens are against it.

"*What information do you need to make an informed decision on the scenario?"*

There was no need for further information

The scenario 4: *"Electric vehicles" "Do you understand the scenario? What additional information do you think would be helpful?"* was well understood and had similar comments as described in the scenarios above. The wish for more EV charging stations and information on a website where it is possible to charge your vehicle was mentioned.

The comment given regarding "*What information do you need to make an informed decision on the scenario?"* was that there was no need for more information.

"Considering the presented mock-ups, do you understand what information is presented? Do you have any suggestions, how the results can be presented better?"

The information was well presented and understandable. It was appreciated that the information was given in a community setting and that there was room for an open discussion. It also was mentioned that the citizens should be involved as early as possible through meetings.

As a result, from the following question *"Are there any other scenarios that you think are relevant for your community?"* ideas were written down concerning more wind power, private cars versus public transport and the high fuel prices. Other than that, one participant found the info-session sufficient.

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4/ Limitations and conclusion

4.1. Selection bias

Recruitment of participants was a challenge in Berchidda, Ispaster and Kökar. Through the fact that Ollersdorf has already a well-established energy community with broad support in the community and a lot of interest from individuals, the recruitment was much more straight forward than in the other pilot sites. All pilot sites managed to motivate a good number of participants. Particularly in Ispaster the turnout was perceived as very positive considering that initially almost no one seemed interested at all. However, it needs to be considered that only interested parties showed up to the workshops, who already have some basic knowledge about the energy project in their community and who could better understand and anticipate the usefulness of the planning tool as most likely those who do not have any interest in this project at all. Other than that, small towns or communities have their own dynamics when it comes to the interaction between people, which could have an impact on who took part and who did not. As the example in Kökar shows, there can be open boycott against community projects, which can cause unpleasant situations and atmospheres and minimize the feeling of being in control between interested parties, and influence the participation rate. Another aspect which raises concerns is the fact that mainly older people participated and the majority of them was male. Therefore, considering all said a selection bias cannot be ruled out when looking at participation type and numbers.

4.2. Implications due to COVID

COVID had a major impact on the workshops. There were initial workshops with citizens to engage people and introduce the LocalRES project. The time between the initial meetings and the co-creation workshops was very long due to COVID restrictions and caused interested parties to get impatient and also annoyed that the projects did not move forward.

The co-creation workshops were postponed until face-to-face meetings were allowed again in the countries of the demo sites. Except for Berchidda, all COVID restrictions concerning mask-wearing or social distancing were lifted at the time the workshops were held.

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4.3. Practical tips to organize face-to-face workshops with citizens

Based on the experiences gained in both the different sessions within LocalRES project and previous cases before the project, some practical tips have been listed as lessons learnt to be considered in the organization of similar workshops. Despite all of them reflect relevant aspects to be taken into account for a successful experience, they refer to particular sessions and may not be applicable to all scenarios:

- When organizing the session and recruiting potential participants, **identifying the most relevant communication channels for the targeted public** is essential, so that as many as possible can be covered to try to maximize the attendance rates.
- While a broad participation is in general pursued, depending on the particular aim of the session **the attendance may be limited or not open to the general public**, since a very numerous audience can lead to a less active participation of attendees. This is also applicable in cases where very specific profiles of attendees are targeted.
- **Breakout groups are usually preferable from a certain number of attendees** to promote the active involvement of all participants and to avoid that some motivated attendees take up most of the discussion.
- People are generally more interested in participating in this type of sessions if they see a clear benefit associated to it. Therefore, **the expected outcomes of the workshop should be clearly specified** beforehand if possible. Nevertheless, not providing the expected outcomes is a very negative aspect, and should be avoided at all costs.
- **Being honest and transparent with the participants to build a channel of trust** with the citizens and promoting their sense of ownership with the project is always more important than promising something that they may not have in the end.
- **Offering a sense of professionality** during both the organization and the performance of the session always support a positive attitude and feedback from citizens, as well as a good image about the project and the team and new opportunities to participate in future events.
- **The workshop must be useful for them**, so knowing in advance what would be of interest for the participants and organizing the session accordingly should be part of the preparation.
- Despite the workshop may have a very specific objective, it is always advisable to **"go with the flow" and adapt the session on the go** to the interest and instant feedback of the participants, while trying to take back the discussion to the main topic in a smooth manner.
- **Appropriate material relatable to citizens** should be specifically prepared for the session, that can be self-explanatory, easily understandable and considered of interest by the participants; e.g. slides, digital or printed material to support the discussion.
- In the particular case of Energy Communities in a rural context, **actively involving representatives of the municipality** can be very good to promote a favourable attitude from the citizens. Options for the active involvement of representatives can include collaborating in the communication about the event and in the recruitment process, providing an institutional introduction to the session, or participating in the session

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together with the rest of citizens, which is usually very positive because they are typically seen as a **role model, local hero or local champion**.

- Before starting with the main topic, **setting the context of the workshop** is important to ensure that all participants are on the same page. This includes presenting the project, explaining why this project exists, what is the purpose of the event, how they are represented in the project and what are their expected contribution within the project.
- During the event, the atmosphere needs to **make citizens feel that they are the centre; they are important and their feedback and personal perspective is relevant** for the success of the workshop.
- In case of EU-funded projects, **involving local actors** to manage the session or at least collaborate during the workshop is important. In that case, the participation in the session of persons **fluent both in English and in local language** is essential to ensure good communication between the team and
- As a potential risk, participants may be conditioned by previous experiences (in particular by other EU-funded projects), and replicate similar behaviours than those of other similar events, which may constitute a source of bias or may result in a response that does not correspond to what was expected from them.
- Regarding the venue, **a place where citizens "feel proud to be in"** should be prioritized, such as a townhall or a representative space for them. Nevertheless, a very big room at the first place should be avoided, to avoid a feeling of unsuccessfulness in case not many participants show up. Alternatively, **a smaller room is preferable** first, so that in case it is eventually occupied, the session may be shifted to a bigger room. This situation may cause a sense of "success of the event", which is typically positive for the participants.
- **Offering some refreshments, food or small gifts** to show them gratitude for their collaboration can increase their willingness to participate.
- **Offering someone to take care of children during the event** should be considered to promote the participation of families, parents with a young offspring, or women, which in may contexts are mostly in charge of children.
- Every effort should be made to **include underrepresented groups** as women, younger people, vulnerable people, people without their own property or people who suffer from energy poverty.

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4.4. Conclusions

All workshops had a good turnout considering the circumstances in the different pilot sites and discussions brought up a lot of interesting results, which in some cases were very specific to the demo sites. Ollersdorf was the most advanced community with a general good understanding of the energy community and the interest in progressing by also using a planning tool. The discussion was very focused on the needs and interests around the possibilities to implement new energy relevant systems. There was also an extended interest to broaden the scope of the planning tool by including general aspects of sustainability such as water usage or the topic of food.

Berchidda had a very lively discussion with strong concerns around costs and financial issues, particularly in the light of increasing energy costs and if investments would really bring the right return. Therefore, there was a proposition from participants to look for local, national, or even EU-level incentives and grants to cover installation costs as a solution to make the energy community not just sustainable but also profitable. Another issue which arose were privacy concerns, which was a very sensitive topic for the citizens.

Ispaster had a strong focus regarding the community itself. Reoccurring topics were how to engage more people in the community or to broaden the scope of the community by integrating socioeconomic activities to support the development of local businesses in the industrial area. One suggestion was to use local heroes or energy champions to approach and engage more citizens in energy activities.

In Kökar, participants were very communicative to share personal views and ideas but they also showed a high interest in the other demo sites and the LocalRES project in general. However, the understanding of the scenarios and the questions from the questionnaire needed some explanation from the organiser's side. During the workshop it was shown that participants were on different levels regarding knowledge about energy topics, and some struggled to express their wishes and needs in adequate or more technical terms. As in Ispaster, there was an interest to implement the role of energy champions or local heroes who can communicate between more advanced citizens or experts and those who need more detailed information.

Amongst all participants **the age distribution was shifted towards older ages**, with Ispaster having the youngest and Ollersdorf the oldest participants in the workshops, and **with male participants being the biggest group**. Such shifts in age and gender can have a variety of reasons; for example, younger people might have small children they have to take care of and therefore do not have the opportunity to join such meetings in the evening without organising someone who can take care of the children. Another point can be that younger people might not own their own property yet and do not feel that they can contribute much to an energy community, because they cannot for example install PVs or have the financial resources to make alterations or improvements to their property.

Gender distribution and participation can be caused through different aspects as well. As shown in other EU Horizon 2020 projects (HESTIA project, 2022) there seems to be a reduced interest from females to engage in technical issues like energy systems. It can also mean that more women are

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more focused on the family and therefore, having the major role to take care of the children (Sevilla & Smith, 2020). Therefore, to get younger people involved and females the energy community maybe needs to extend its purpose and offer topics which are of interest to such groups, accommodating different needs, like childcare, for participants.

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5/ Implications for the planning tool

To achieve the best possible outcome of the planning tool, it needs to consider different aspects as it must be useful for the user and to solve problems. **The majority perceived the tool as helpful, however, the individuality of each demo site and the different levels of development of the community itself at each pilot site needs to be reflected in the structure of the tool**. While in Ollersdorf participants see the planning tool as a natural progression for the energy community to achieve further goals, in other pilot sites the tool was understood as an opportunity to build the community in the first place.

As mentioned in the section before, age and gender are two aspects which occur as relevant, and which need to be addressed. **Further investigations might be needed to find out why younger people and women are underrepresented in energy communities and what are suitable tools to address this issue**. To broaden the scope of the community to get more people involved was a clear outcome from the workshops, however this request was not specifically addressed at females or younger people but considered as a general approach.

One of the main outcomes of the citizen workshops was that the planning tool needs to be individualised. That means that **community goals and scenarios need to be adaptable to each participating community** as well as real data needs to be used. A reoccurring topic connected to the mentioned outcome of individualisation were the question of investment costs, benefits and disadvantages. This information needs to be easy to find, individually adjustable and based on real data. Participants want to know the real return-on-investment for their personal involvement. Also, there was a demand for not just seeing results on the community level but to really know what that means for the individual participant and how they would need to get involved. **Feasibility studies on the community level as well as on the individual level** was a conclusion of the discussions in some pilot sites. **Information on grants, incentives and funding opportunities** on both levels needs to be made available as well as help on the administrative side to apply for it. There was a suggestion to be able to see the energy flow and energy balance in the community to get a better understanding of the energy load and eventually adapt personal behaviour accordingly. Despite **information concerning a cost-benefit analysis**, other very practical questions appeared, which the tool needs to address. For example, cost of maintenance, repairs, transport, logistics and who is eligible to install the systems, as well as general information about the existing energy system in town. **The more information is given the more participants feel empowered to make informed decisions or take actions**.

Taking part in the decision process was another aspect which needs to be considered in the planning tool. **The planning tool needs to facilitate participation, communication, and the feeling to be heard and involved**. The ability to communicate between all involved to better coordinate planning and actions as well as communicate different thoughts, interesting developments or just networking was a strong request.

There was the feedback from some participants across the different pilot sites that the presented planning tool seems very difficult and technical, therefore the planning tool needs to adjust to

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people with little technical literacy meaning that **the tool needs to be very intuitive and simple** to use on the one hand and on the other hand it **needs to give guidance and relevant information** regarding scenarios and personal involvement to address less knowledgeable people in this area. For example, good descriptions of the available or future renewable energy sources, as well as energy efficiency of the system and future alterations or improvements and the current and expected energy consumption and production of the system. Also, the interaction between systems, public, private and supplier is a topic of interest.

Further to that, privacy aspects need to be taken seriously which means that **only absolutely necessary data should be collected so that users can build trust towards the planning tool** as well as being as transparent as possible.

Another outcome was that there was a high preference for using the planning tool not just alone but also in group settings. Therefore, **the planning tool should provide results and information in a way that it also can be used and discussed together in groups or offline**.

Different user interfaces were preferred which means that the planning tool needs to be able to run as a webpage as well as a mobile application, and even paper versions were requested indicating that not all participants felt comfortable to use an electronic device or at least preferred also other options as well.

An important outcome, which matches the wish to broaden the scope of the community was that **other topics should be considered in the context of a healthy, sustainable, and viable environment**. Therefore, points like cleaning, washing, compost, food or locally produced food, water use, traffic, water supply, sewage, and cooling aspects as well as alternative CO_2 and energy reduction were named (e.g. how to save energy in the household or what to do about old appliances). Fire and flood protection were mentioned as extra areas of interest, and looking at the development of economic aspects as businesses and employment strategies in the community.

There was an interest to become a role model as an energy community for other communities, what could mean for the planning tool that **information and data about successful community projects should be available** for newly founded energy communities, but also for existing communities to learn from and compare with other communities.

A general interest was expressed about **motivating others to participate and join the energy community** and as a relevant aspect it was mentioned that the presentation of personal benefits could be a vehicle to achieve that goal.

In summary, to optimally support the creation of renewable energy communities the planning tool should support technical, financial, and social dimensions. It should **(1) visualise energy generation and consumption on an individual as well as on a community level, (2) provide financial and economic implications of potential upgrades, and (3) facilitate the communication between community members and/or other relevant stakeholders**.

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7/ Appendix

7.1. Results of the co-creation working session

Figure 27: Example results from the Google Jamboard

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Table 35: Detailed results from the working session

Ispaster	Berchida	Kökar	Ollersdorf	Implication for T2.1 and the design of the planning tool
Who needs to be addressed?				
What do you understand under the term community?				
A group of entities with common interests and common goals	A group of entities with common interests and common goals	A group of entities with common interests and common goals	A group of entities with common interests and common goals	**Groups with shared interests and goals**
People living under similar conditions (live, work, and use the same services together) and having the same needs	Local people working and collaborating together			**People with similar living conditions**
		A formal structure represented by the municipality and political administration		**Formal municipal structures**
People owning material assets in the community (e.g. property owners)		An informal structure represented by local businesses and (summer) residents		**Informal community structures based on asset ownership**
	Individual actions for the benefit of the community	Third sector (non-governmental and non-profit-making organizations or associations, including charities, voluntary and community groups, cooperatives, etc.)		**A third sector, in which individuals take action for the shared benefit of the community**
			Expectation of shared benefits (e.g. pricing, reliability)	**People sharing common commercial benefits**
			Shared resources and knowledge (although this is not mandatory)	**People sharing resources**

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What kind of structure of the community/communities exist? How is/are the community/communities organised? What is/are the community/communities for?				
Renewable energy cooperative		Voluntary group of interested citizens managed by Flexens with the purpose of cost savings and emission reduction	Citizen funded PV community based on municipal project; organised based on interest not proximity	**Renewable energy community groups**
Public services in the community (e.g. local school)				**Public services and organisations serving as hubs for communities of practice**
Property owners' associations (apartment buildings)				**Property owners**
Formally structured groups with well-defined rules and roles		Formal structure following the political process	Private investment opportunities into PV installations on municipal and private buildings	**Formally established community groups**
Organically evolved community groups based on circumstances	Organically strong local community (village)	Informal more flexible needs driven structures to support achieving common goals and visions	Public interest in blackout prevention	**Informal groups within the community**
		Market and technology driven stakeholder groups		**Commercial entities**
How many people engage in the community?				
Town has 350 inhabitants	Every resident is part of the local community	130 residents (out of 230) were actively involved in the LocalRES project preparation	30-50 local households and companies	**Town residents in general**
10 dwellings are customers of Barrizar ESCO				**ESCO customers**
12 public buildings			Municipality	**Municipal infrastructure representatives**
Local school with 62 children		60-70 people across local school, nursing home, and associated households		**Communities of practice**

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What communication channels should be targeted?				
How does the community communicate inside the community? How do the individuals participate?				
Small town informal face to face interactions	Informal verbal communication in the community	Social interaction, informal chats (e.g. on the ferry)	Personal face-to-face communication	**Informal face to face communication**
Local school represents the main communication hub				**Community of practice communication hubs**
	Local physical events	Municipal assembly, communal meetings and committees	Municipal administration	**Formal municipal meetings**
		Social media	Website and Facebook	**Social media**
		Municipal notice board	Paper-based newsletter	**Traditional media**
What would be the best way for us to engage/communicate with the participants/community?				
Social events and workshops	Physical events organised with the municipality	Local energy group, i.e. selected active residents who are interested in energy issues		**Events and workshops**
Social media	Facebook, WhatsApp, Video meetings			**Social media**
	Local promoters and role models (HEROES)	Specific influential members of the community	Mayor and his team	**Role models**
		Notice board in the local store	Open letters and posters by the administration, local newspaper	**Traditional media communications**
Could these ways of communication be used to introduce the RES? If not, what other communication channels would you suggest?				
Yes	Yes, mayor's Facebook page	Yes	Yes	**All communication channels are available for LocalRES**
				What topics should be communicated?

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What motivated the community to install already existing RESs?				
Reliability and blackout prevention		Reliability through more on-site production		**Reliability**
	Incentives (e.g. installation cost reduction through project participation, short payback periods, cost savings)	Economic considerations and cost reduction	Cost savings (installation costs funded by EU projects, cheaper electricity through PV self-consumption)	**Cost savings**
		Environmental and ecological issues	Climate change and ecological responsibility	**Environmental impact**
		Self sufficiency		**Self sufficiency**
			Act as role model for other municipalities	**Becoming a role model for others**
What motivates the community to continue?				
Existing infrastructure needs continuous improvement to guarantee reliable service		Reliability and self-sufficiency		**Infrastructure investments**
Price stability	Generate more cost savings, also for residents unable to install their own PV	Cost reduction	Financial benefits	**Cost savings**
	Generate revenue by selling the self-produced energy to the local community			**Profit generation**
		Emission reduction	Show that climate neutrality can be achieved	**Emissions and climate action**
		Leading by example	Sense of collaboration and positive impact on the region	**Sense of community**
			Learning and gaining experience with RES	**Knowledge and education**

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7.2. Representative workshops layout

7.2.1. Agenda

Agenda

1. Introduction (3 min)
2. Presentation of potential planning tool features and capabilities (15 min)
3. Re-cap of the outcomes of the use-case workshop (5 min)
4. Identification of specific scenarios to be presented at the citizen workshops (20-30 min/scenario)
    a. Selection of specific local areas of interest
    b. Specification of existing assets and energy flows on
        i. the community level
        ii. the household level
    c. Reflection on different options for potential upgrades and/or alterations to
        i. community assets
        ii. household assets
        iii. energy flows
5. Organisation of the citizen workshop (20 min)
    a. Identification of potential participants and recruitment
    b. Review of identified communication channels
    c. Venue and hospitality
    d. Timeframe and Covid restrictions
    e. Local organisers (hosting, minutes, child care?, etc.)

AOB

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7.2.2. Presentation example Ollersdorf

Figure 28: Presentation example, Ollersdorf demo site

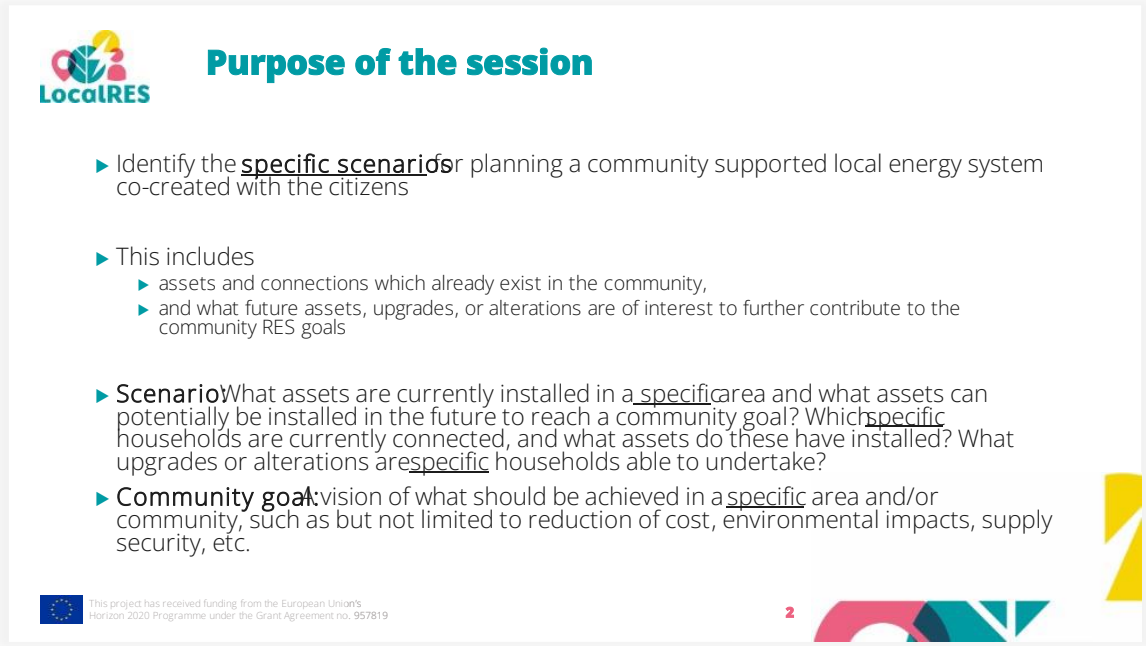

Figure 29: Introduction to the workshop

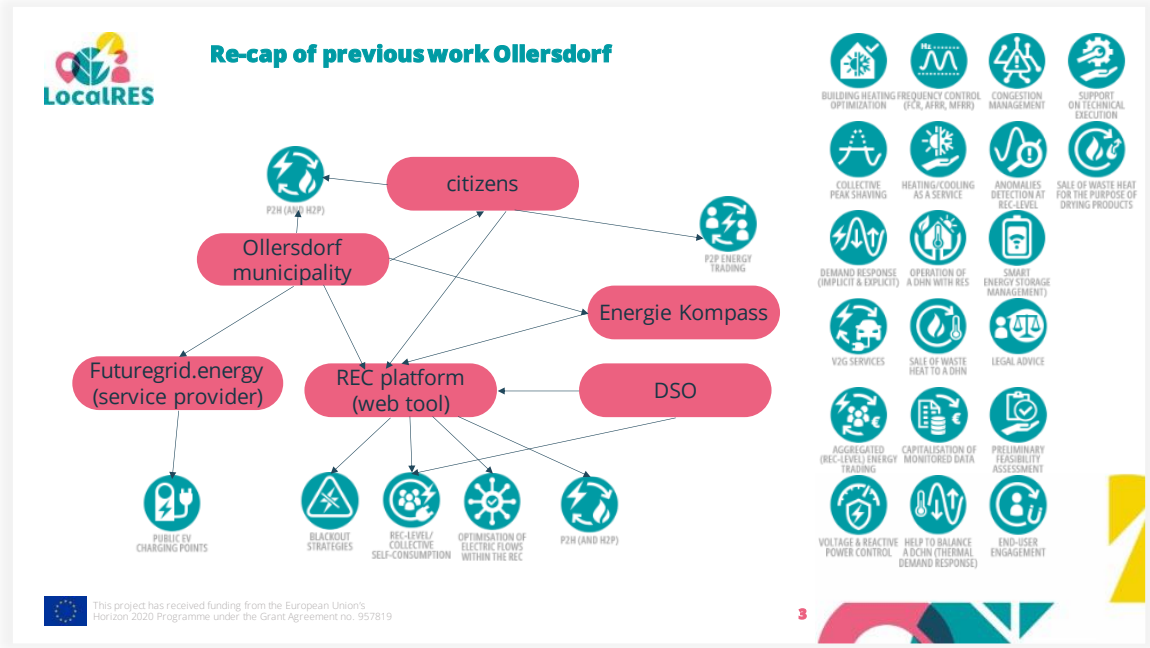

Figure 30: Outcome from a previous workshop with Ollersdorf

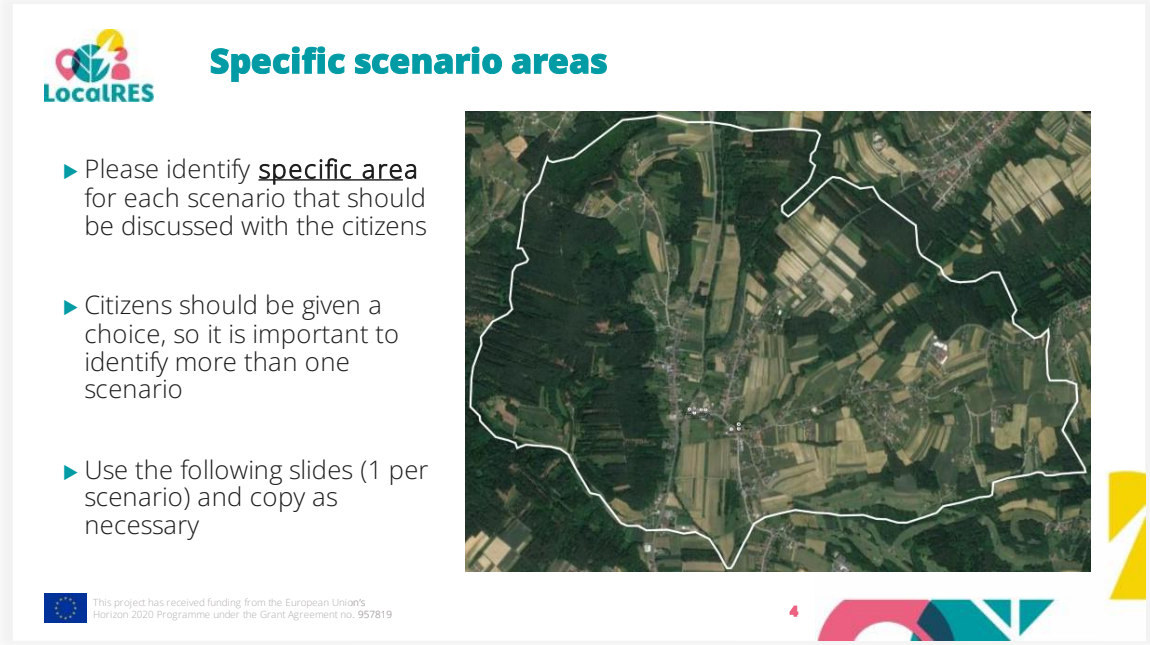

Figure 31: Instructions for building specific scenarios

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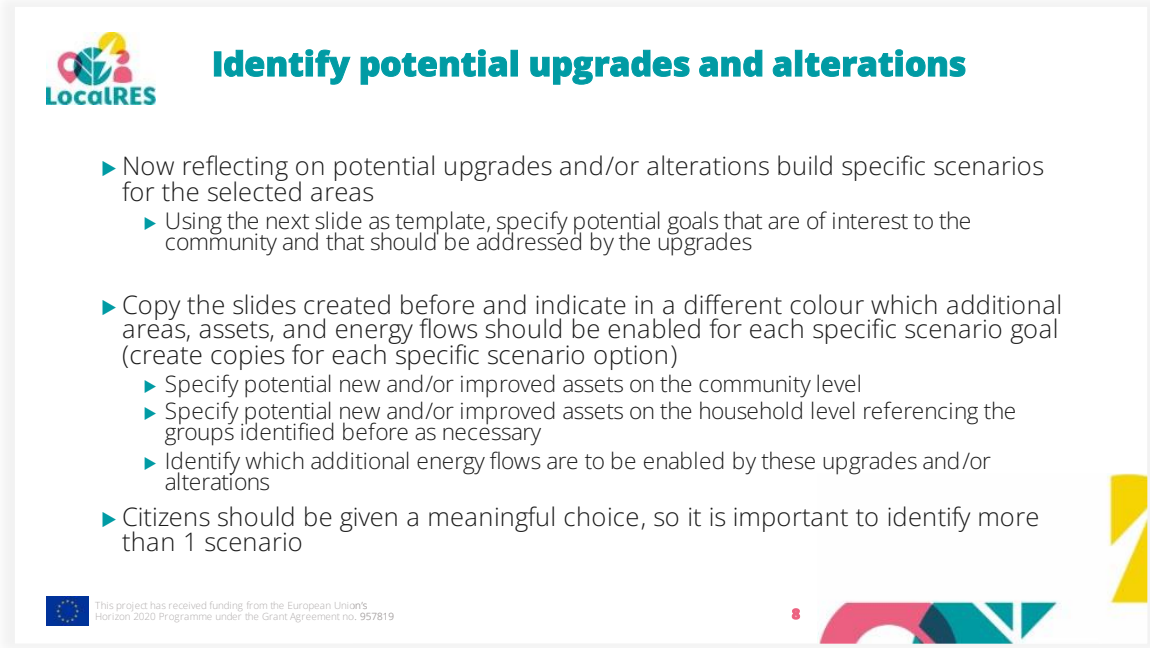

Figure 32: Identification of upgrades and/or alterations

7.3. Citizen workshop questionnaire

DEMOGRAPHICS	
Age	
Gender	

ENERGY COMMUNITY					
How likely do you think it is in your community that people would engage in common energy related activities?	Unlikely		Maybe		Likely
Are you personally interested in partaking in the decisions made relating to common energy issues?	Not interested at all	Not so much interested	Neutral	Interested	Very interested

PLANNING TOOL					
Do you think a tool like the one presented earlier would be helpful for the community activities?	No		Maybe		Yes
	Why, or why not?				
Would you personally be interested in using such a tool?	Not interested at all	Not so much interested	Neutral	Interested	Very interested

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A planning tool can be designed for different levels of expertise. Would you prefer the planning tool to be primarily used ...	... by an expert consultant only?		... during guided collaborative community events?		... by every individual citizen?
What platform would you prefer the tool to run on?	Phone App		Webpage		Other
The more data the tool is based on, the more accurate the results. In this context, how important is privacy for you?	Not important at all	Not so important	Neutral	Important	Very important

COMMUNITY GOALS			
For the following community goals, please indicate how relevant you think they are for your community?			
Goal 1:	Not relevant	Neutral	Relevant
Goal 2:	Not relevant	Neutral	Relevant
Goal 3:	Not relevant	Neutral	Relevant
Goal 4:	Not relevant	Neutral	Relevant
Goal 5:	Not relevant	Neutral	Relevant
Are there any other goals that you think are relevant for your community?			

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SCENARIOS

Scenario 1:			
For the following scenario, please indicate how relevant you think it is for your community?	Not relevant	Neutral	Relevant
Do you understand the scenario? What additional information do you think would be helpful?			
What information do you need to make an informed decision on the scenario?			

Scenario 2:			
For the following scenario, please indicate how relevant you think it is for your community?	Not relevant	Neutral	Relevant
Do you understand the scenario? What additional information do you think would be helpful?			
What information do you need to make an informed decision on the scenario?			

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Scenario 3:			
For the following scenario, please indicate how relevant you think it is for your community?	Not relevant	Neutral	Relevant
Do you understand the scenario? What additional information do you think would be helpful?			
What information do you need to make an informed decision on the scenario?			

General Feedback	
Considering the presented mock-ups, do you understand what information is presented? Do you have any suggestions, how the results can be presented better?	
Are there any other scenarios that you think are relevant for your community?	

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7.4. Citizen workshop presentations and documentations

7.4.1. Mock-ups of the planning tool

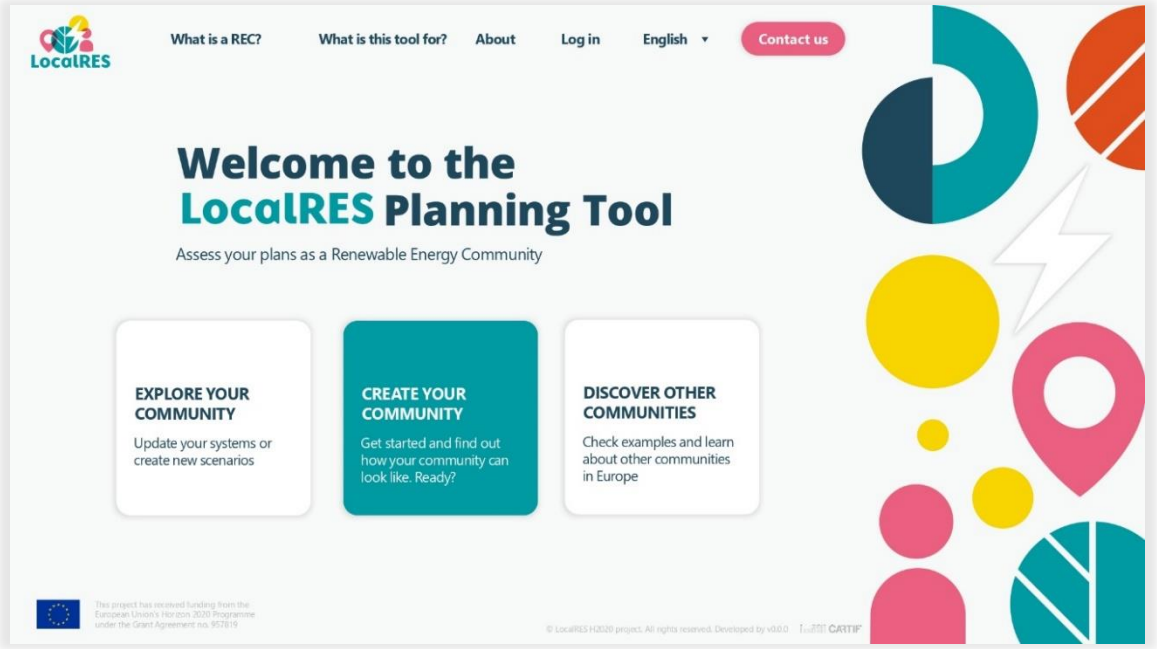

Figure 33: Example of mock-up of the planning tool: Starting page

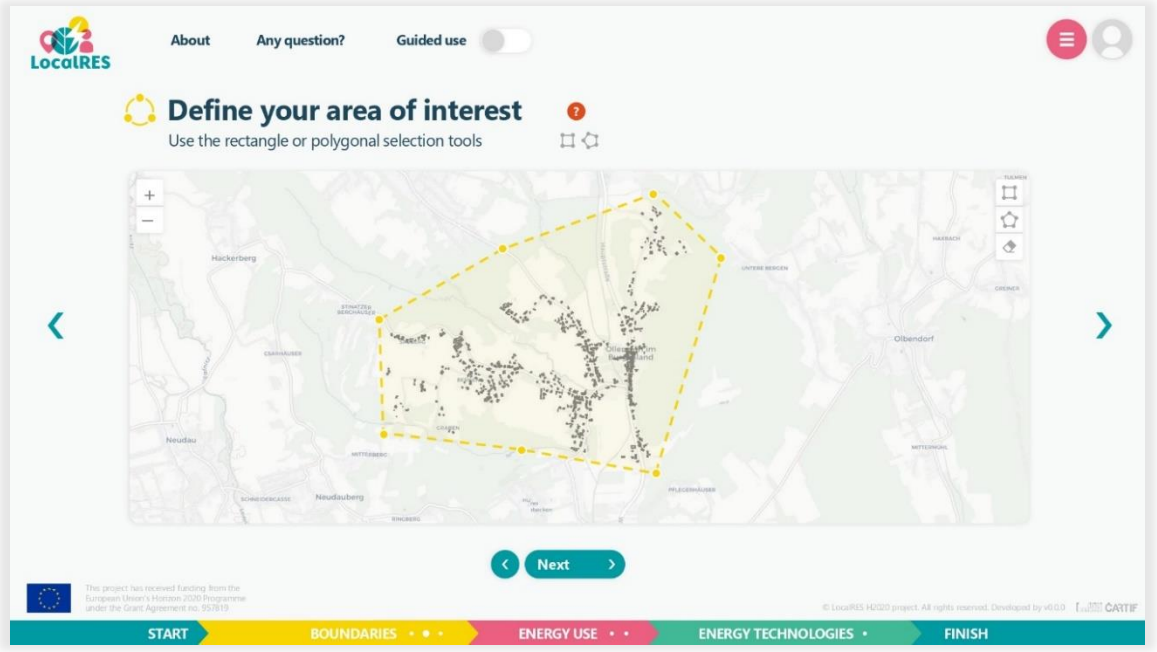

Figure 34: Example of mock-up of the planning tool: Definition of the area of interest

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

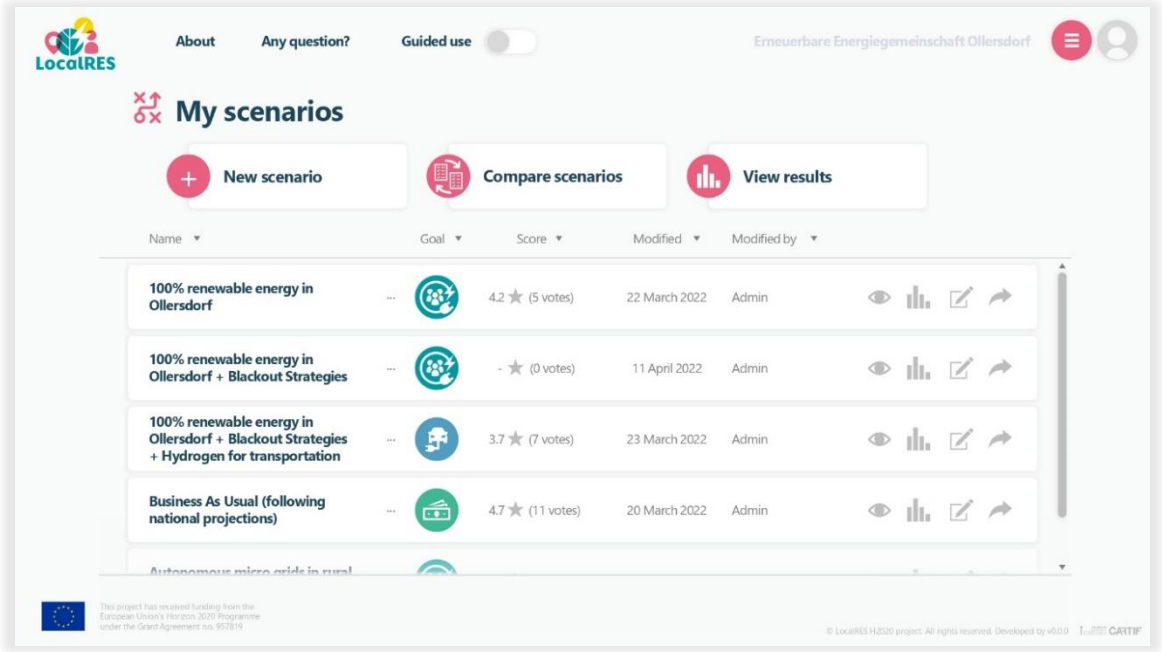

Figure 35: Example of mock-up of the planning tool: My scenarios

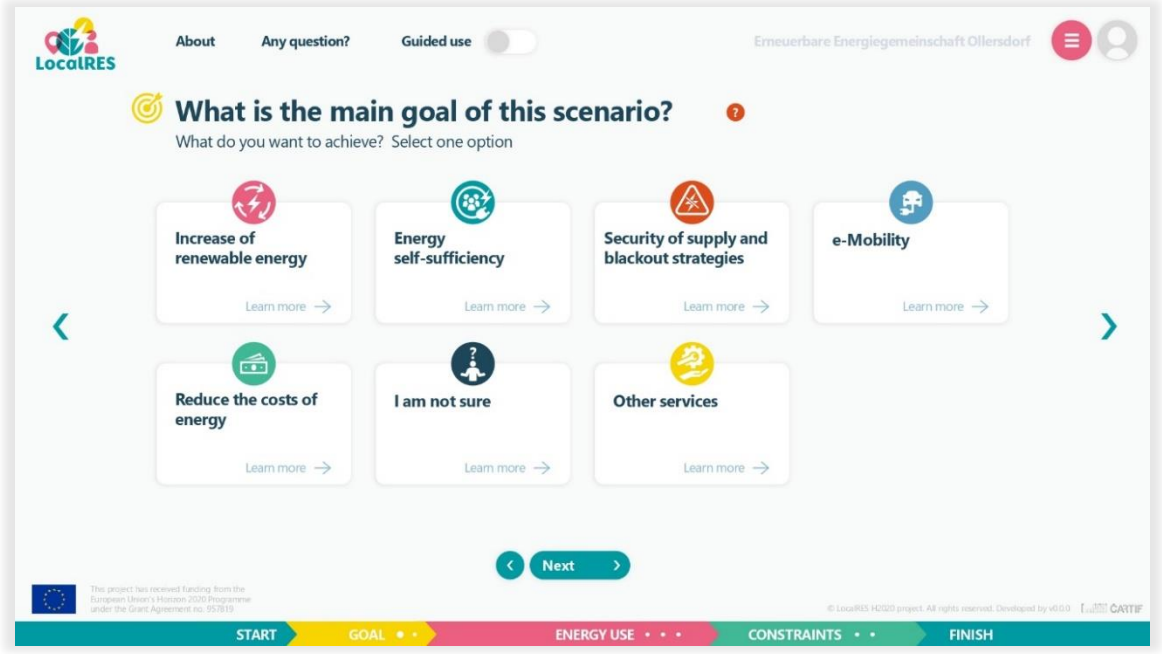

Figure 36: Example of mock-up of the planning tool: Definition of the goal of the scenario

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

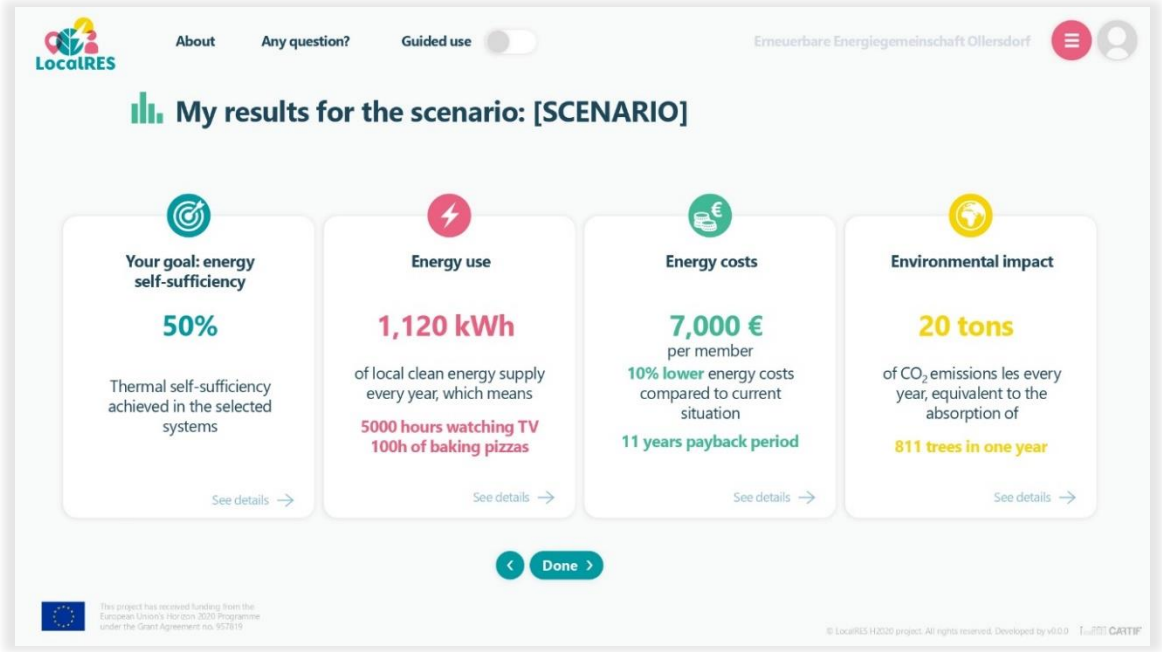

Figure 37: Example of mock-up of the planning tool: My scenarios

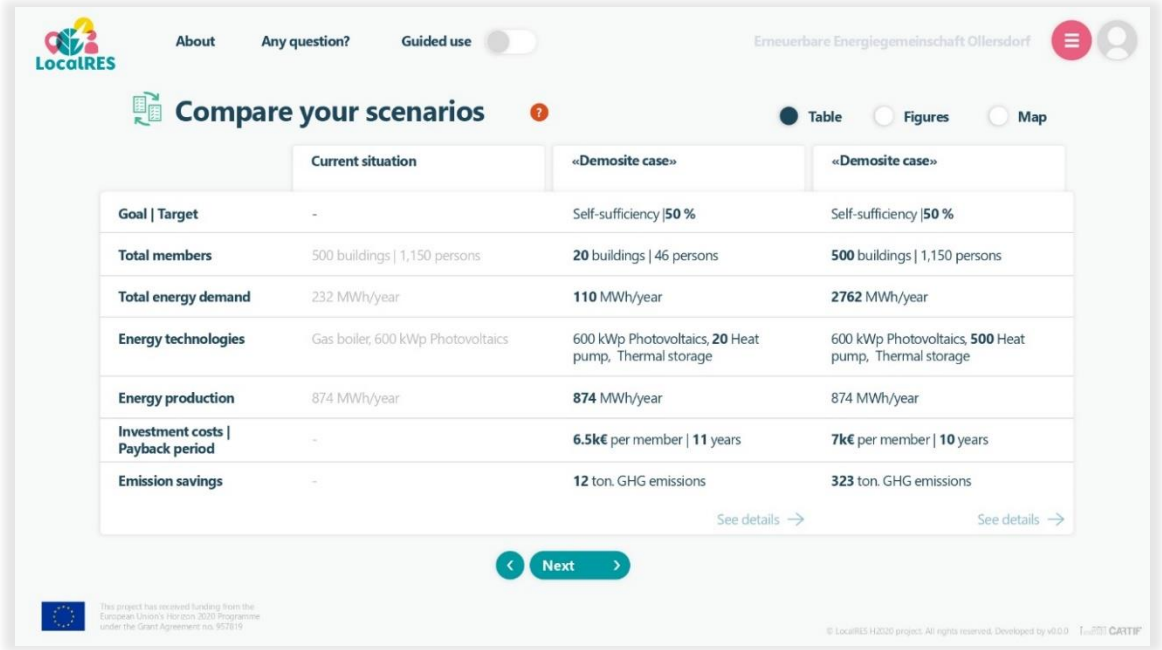

Figure 38: Example of mock-up of the planning tool: Comparison of scenarios

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

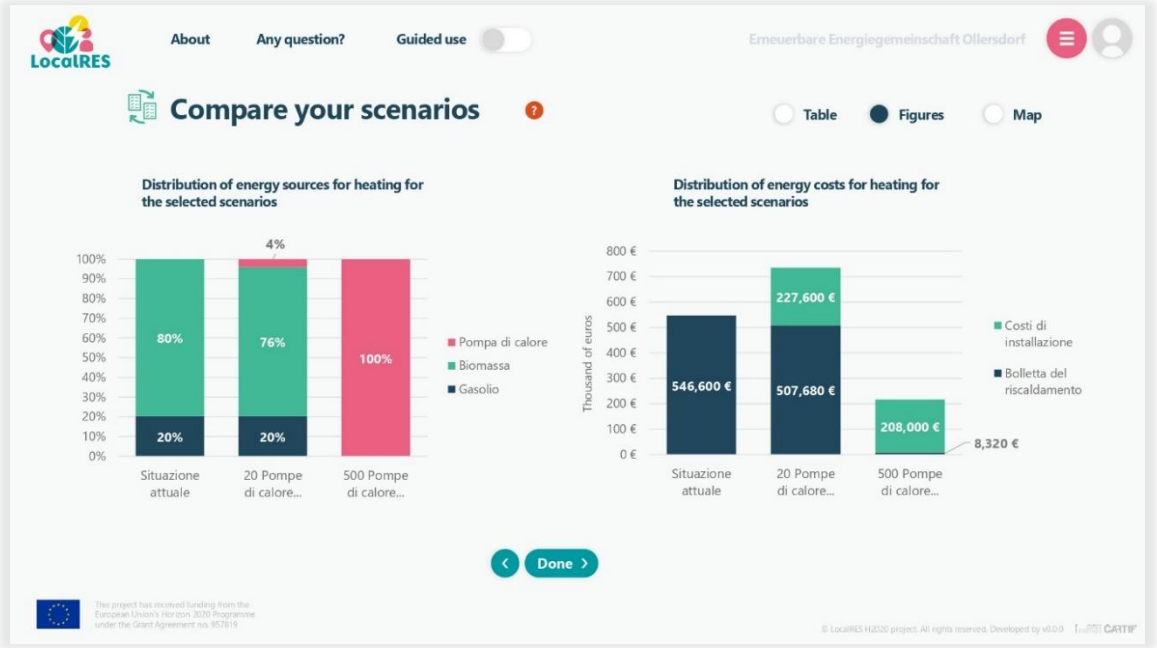

Figure 39: Example of mock-up of the planning tool: Comparison of scenarios as tables

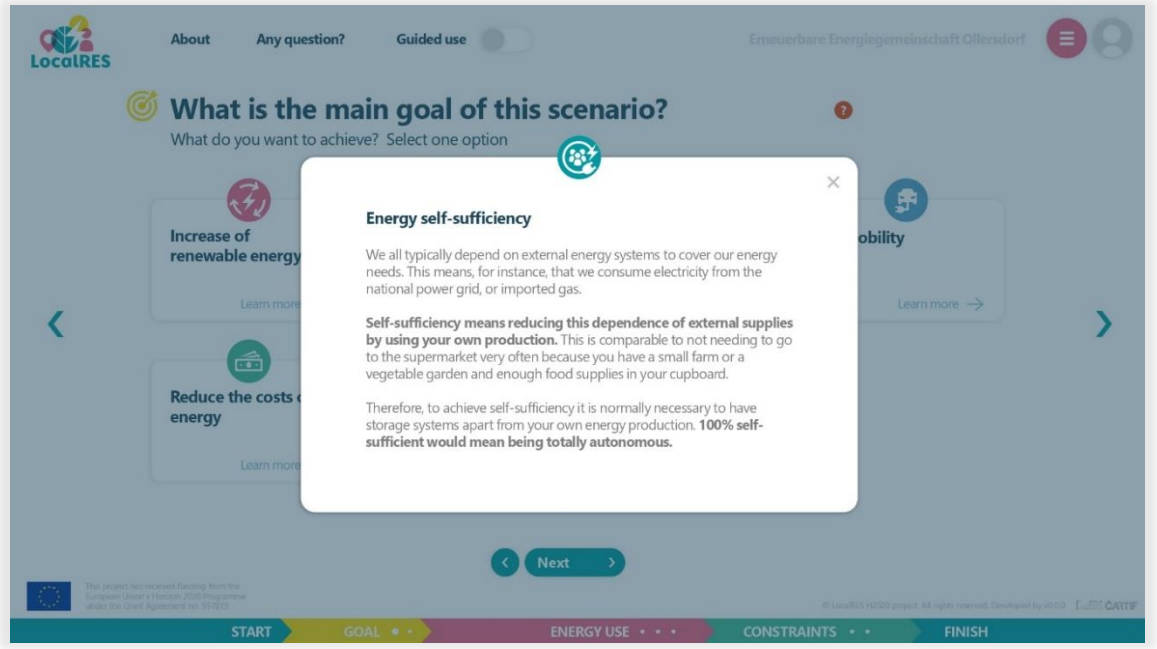

Figure 40: Example of mock-up of the planning tool: Explanation of energy concepts and terms

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7.4.2. Presentation introduction slides

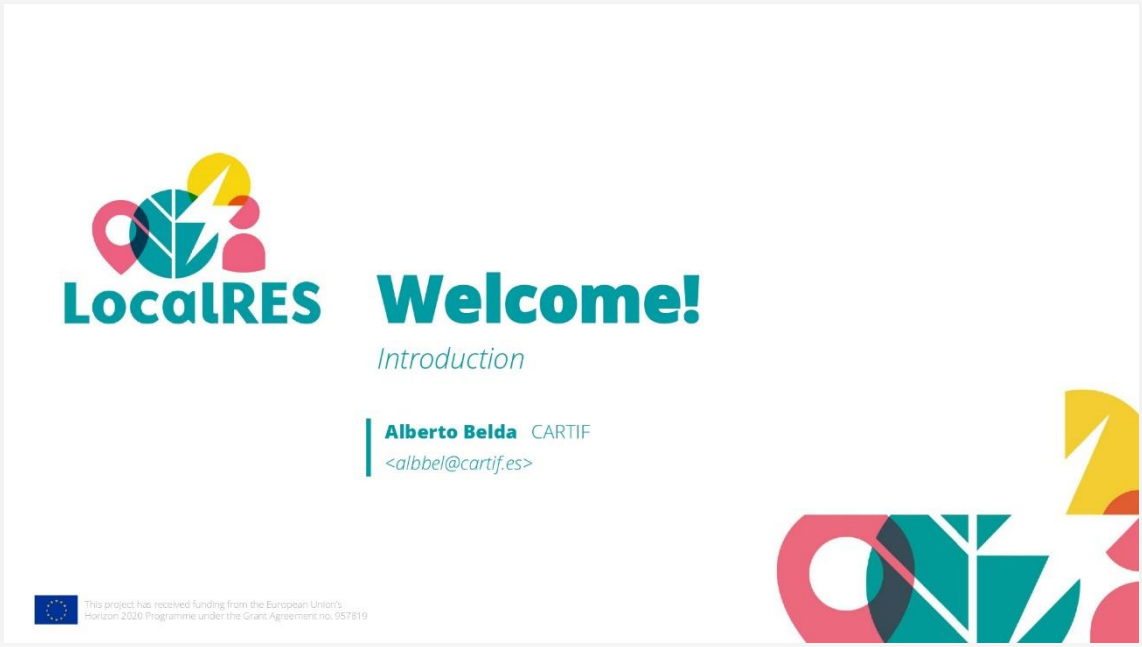

Figure 41: Introduction slide

Figure 42: Agenda for the workshop

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

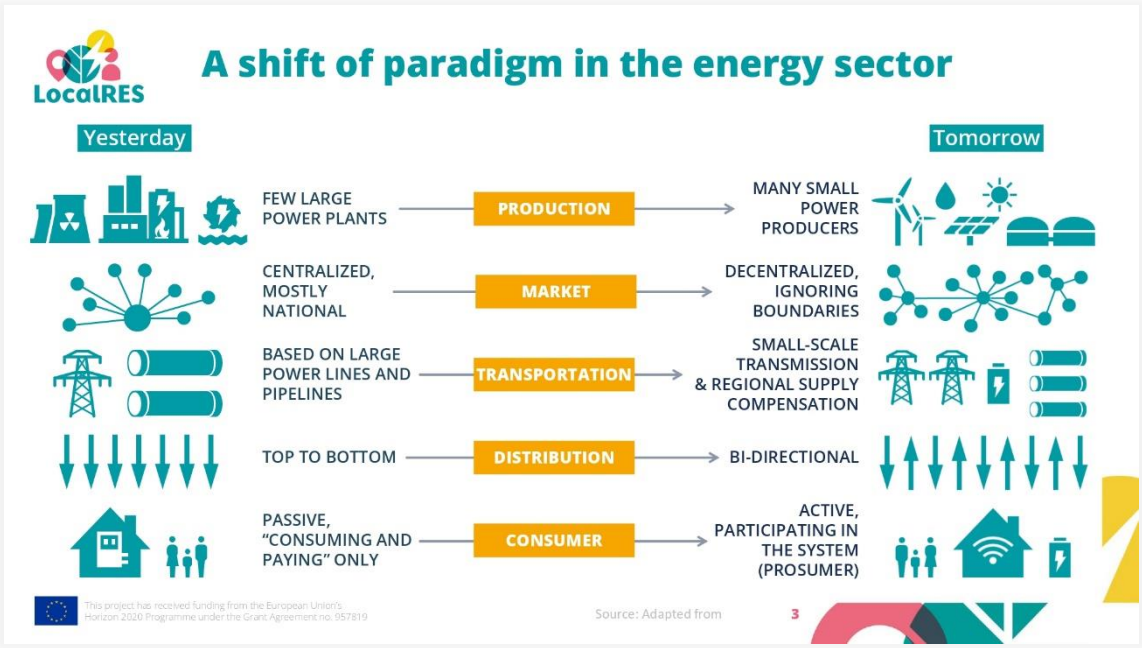

Figure 43: Changes in the energy sector

Figure 44: Energy communities in the bigger picture

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

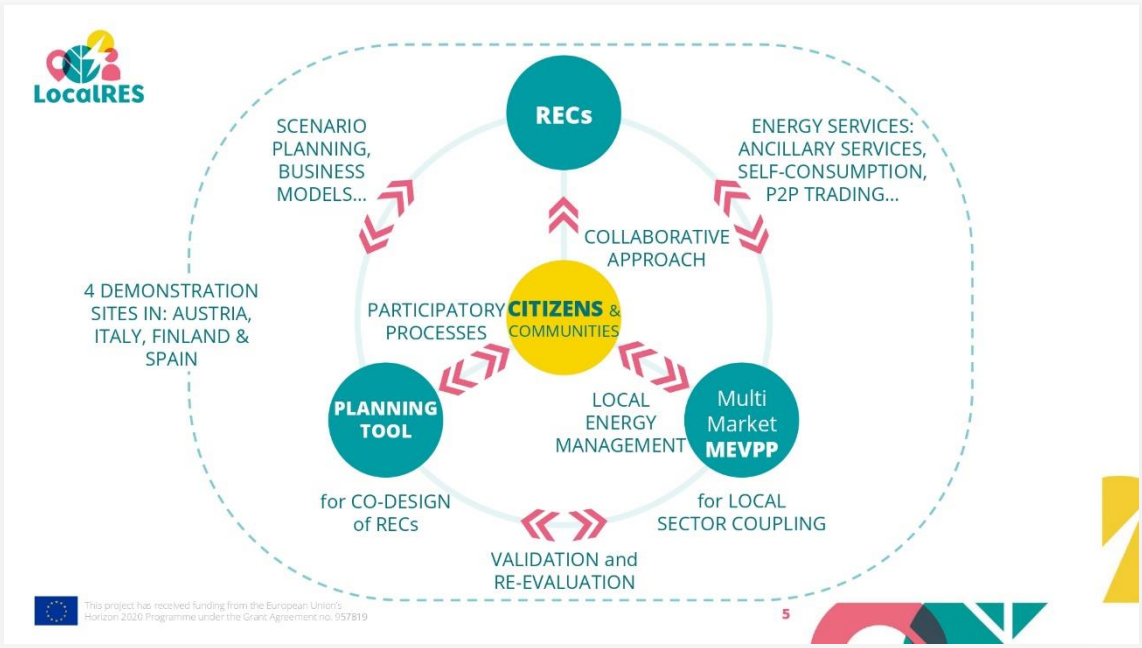

Figure 45: Energy Communities in the context of the LocalRES project

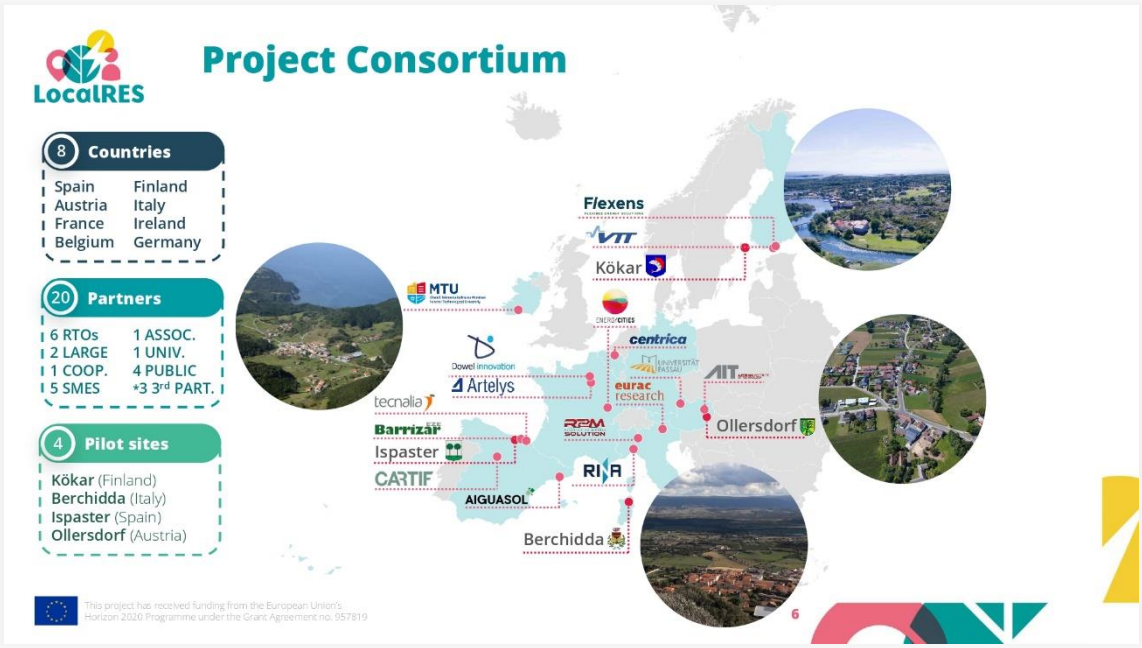

Figure 46: LocalRES Project Consortium

7.4.3. Presentation in Berchidda demo site

Figure 47: Overview of Berchidda demo site

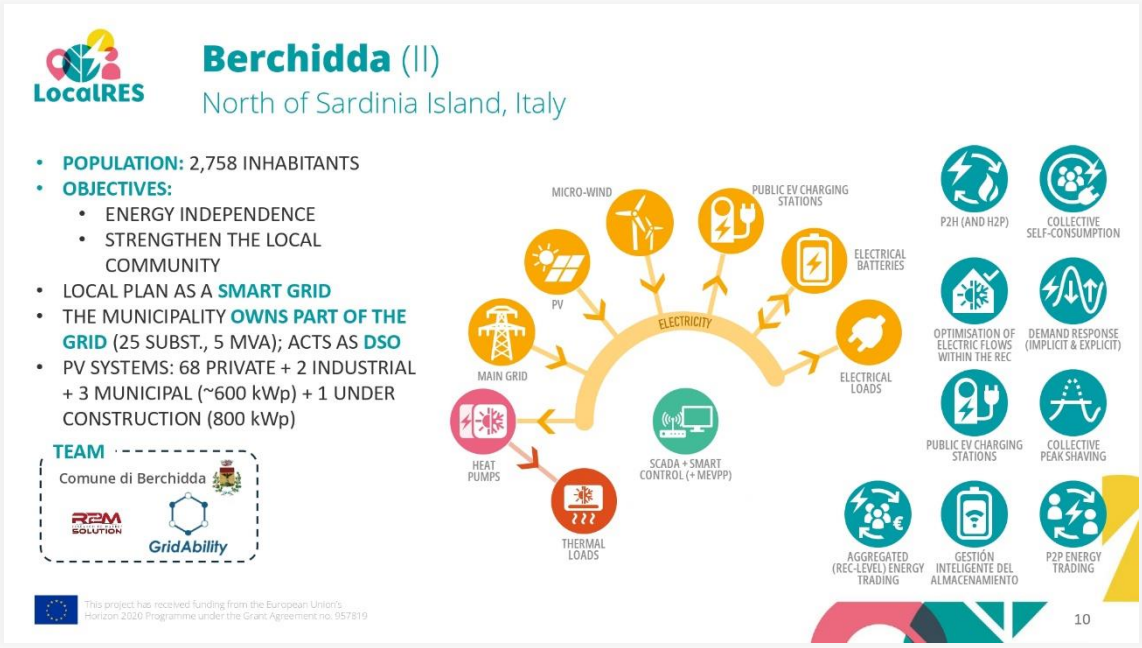

Figure 48: Summary of the energy system in Berchidda demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

Figure 49: Workshop presentation slide - community goals, Berchidda demo site

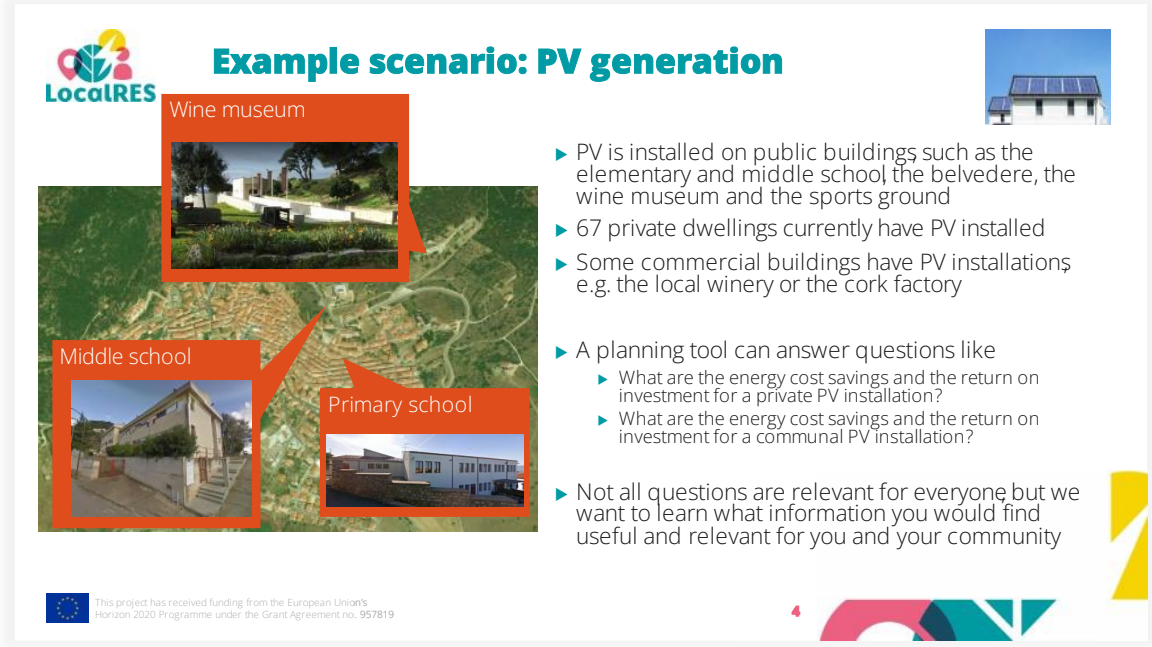

Figure 50: Workshop presentation slide – Scenario 1, Berchidda demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

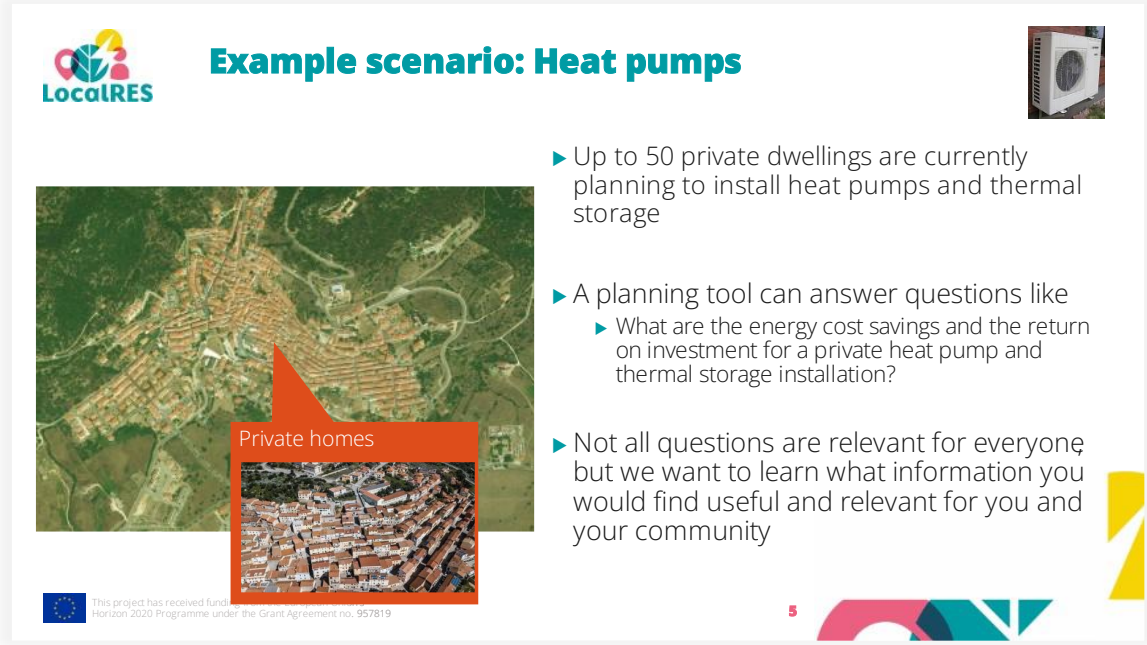

Figure 51: Workshop presentation slide – scenario 2, Berchidda demo site

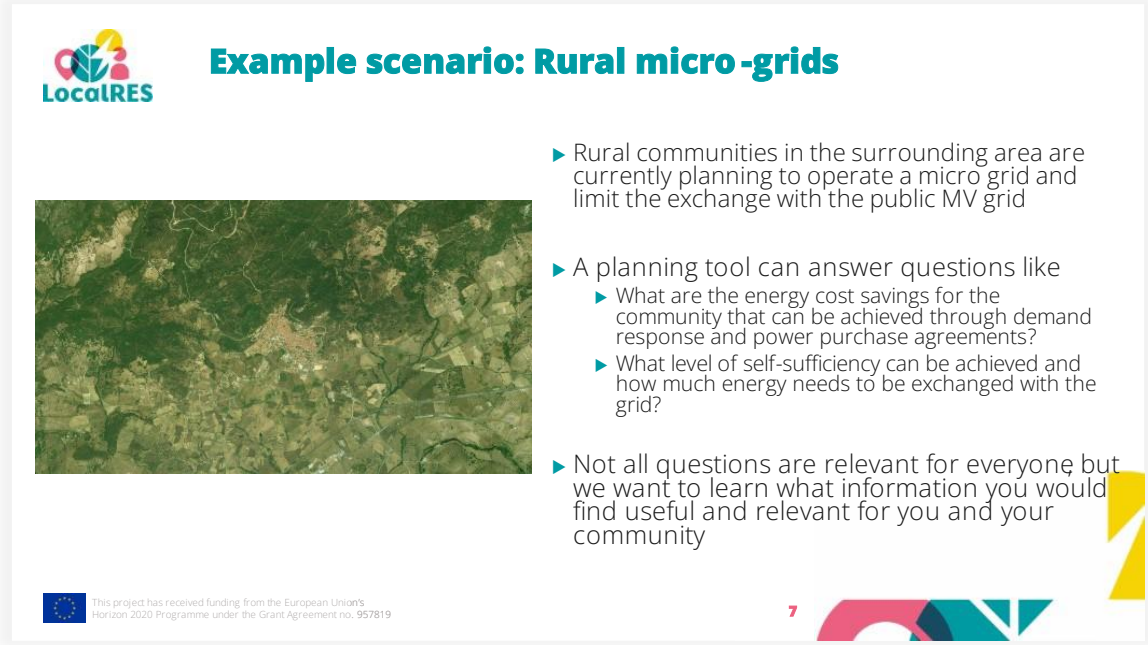

Figure 52: Workshop presentation slide – scenario 3, Berchidda demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

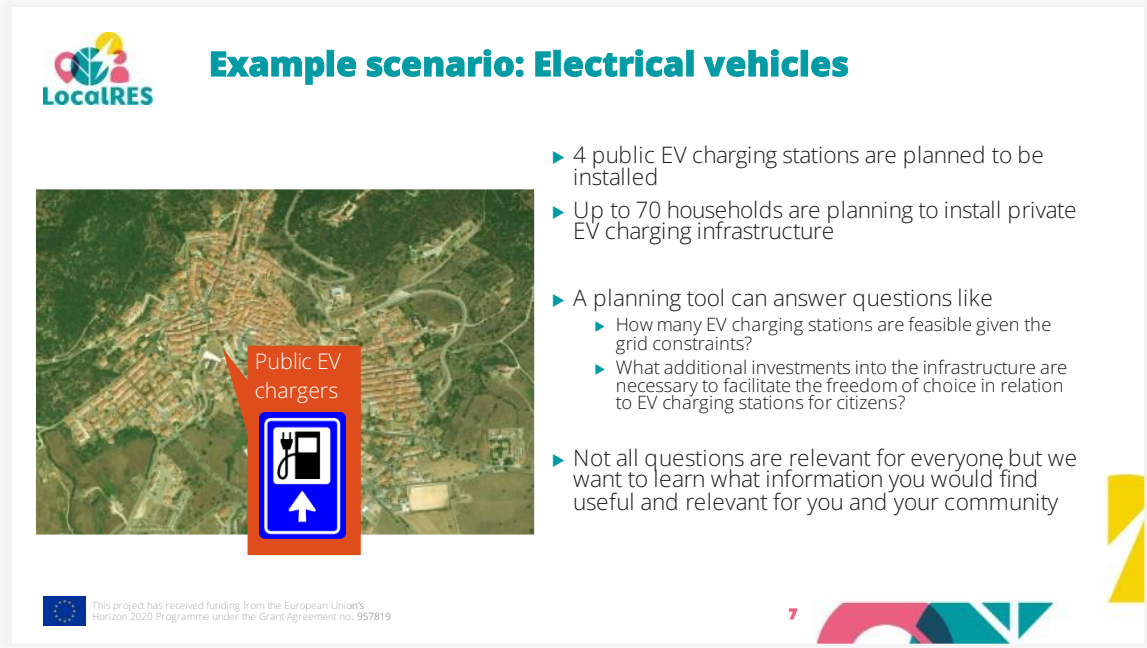

Figure 53: Workshop presentation slide – scenario 4, Berchidda demo site

7.4.4. Presentation Ollersdorf

Figure 54: Overview of Ollersdorf demo site

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Figure 55: Summary of the energy system in Ollersdorf demo site

Figure 56: Workshop presentation slide – community goals, Ollersdorf demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

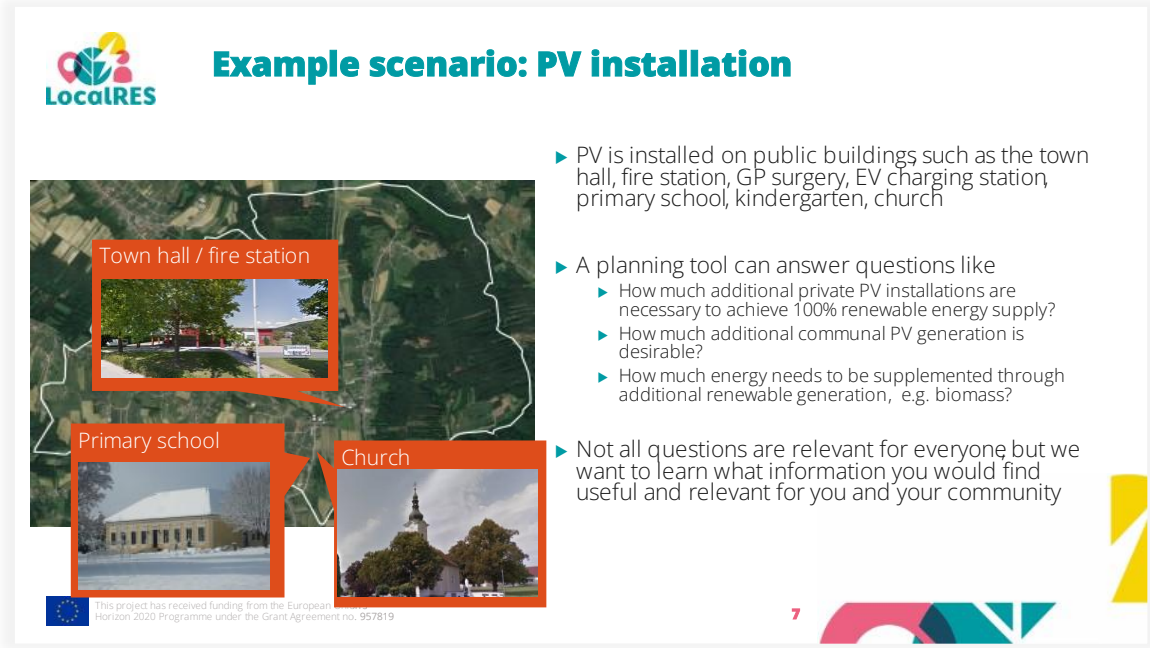

Figure 57: Workshop presentation slide – scenario 1, Ollersdorf demo site

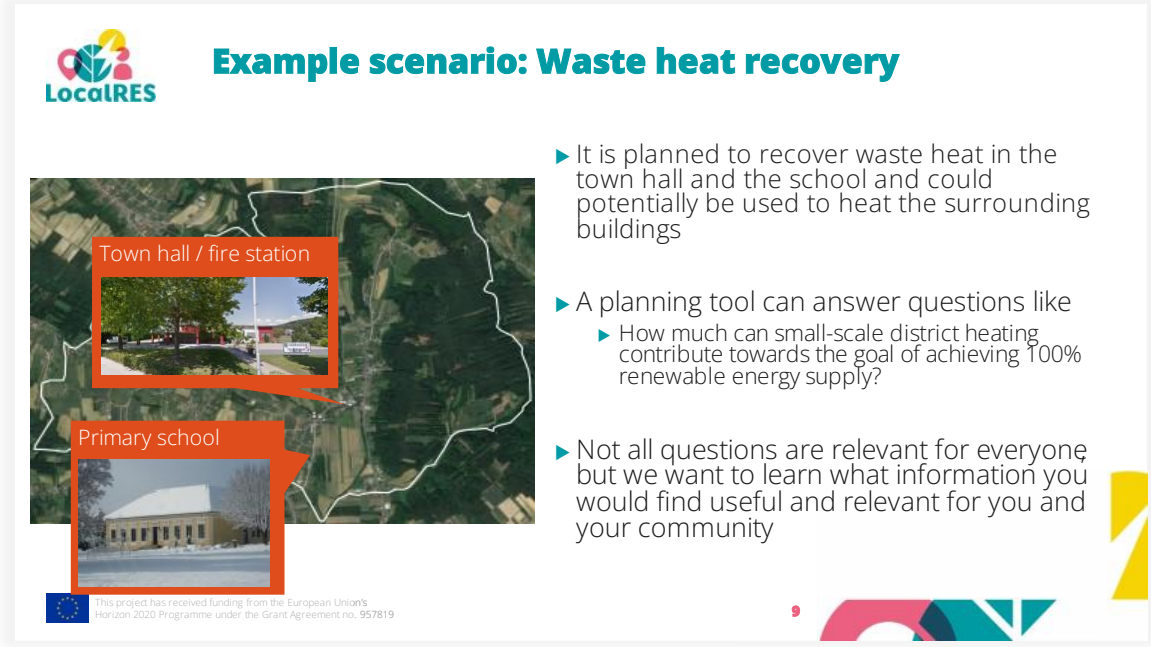

Figure 58: Workshop presentation slide – scenario 2, Ollersdorf demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

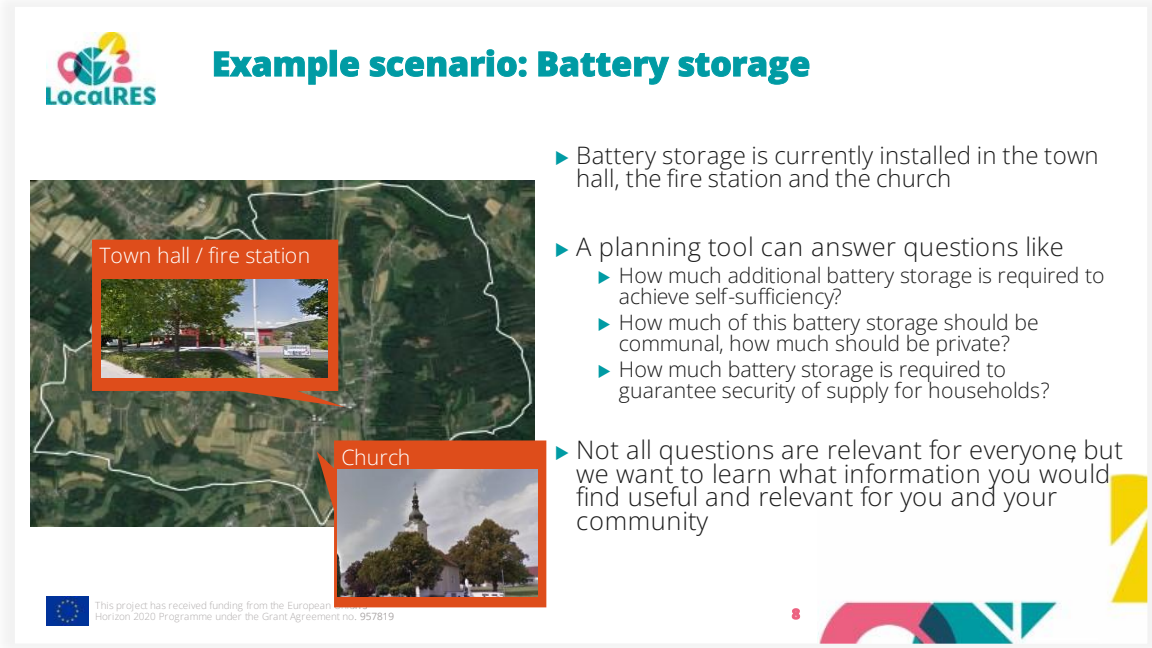

Figure 59: Workshop presentation slide – scenario 3, Ollersdorf demo site

7.4.5. Presentation Ispaster

Figure 60: Overview of Ispaster demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

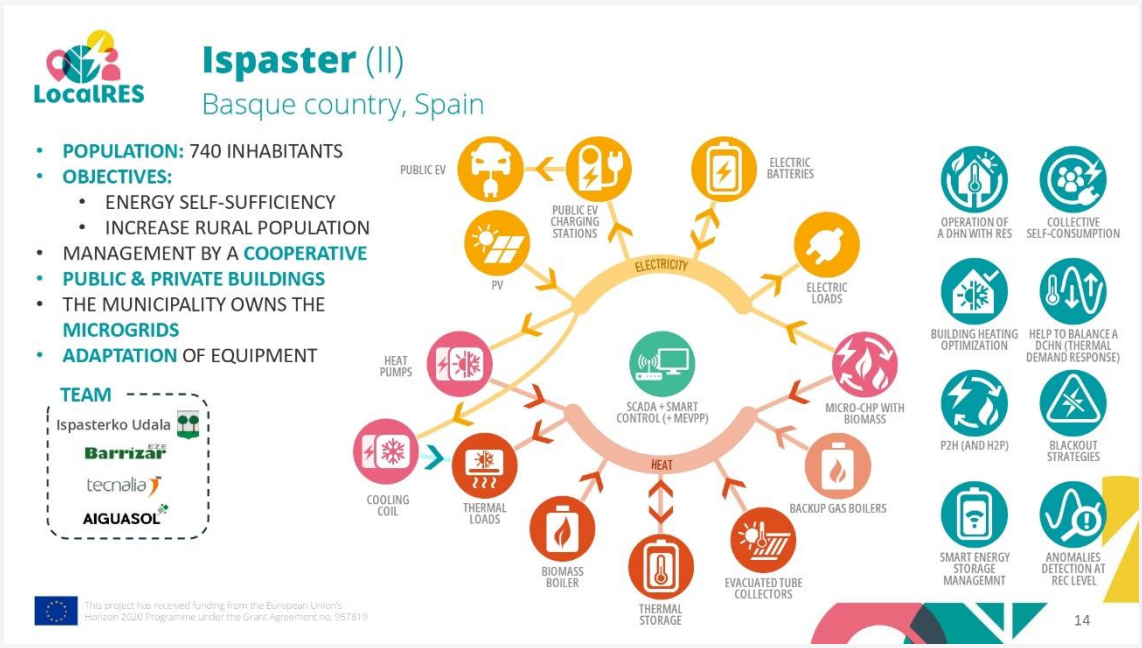

Figure 61: Summary of the energy system in Ispaster demo site

Figure 62: Workshop presentation slide – community goals, Ispaster demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

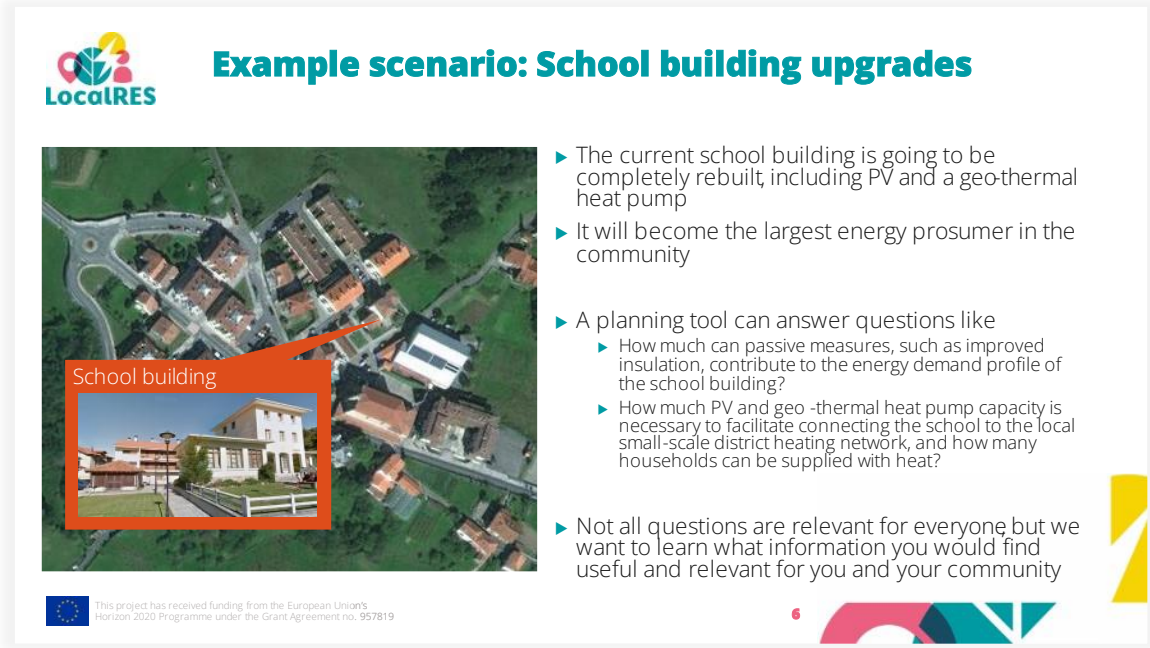

Figure 63: Workshop presentation slide – scenario 1, Ispaster demo site

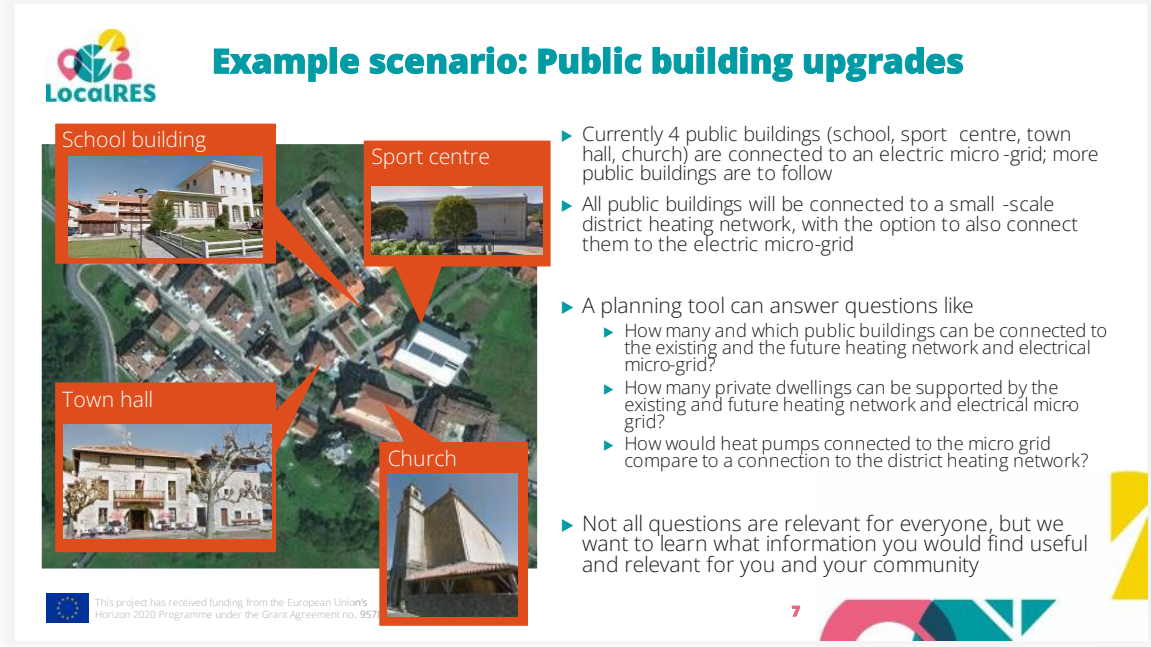

Figure 64: Workshop presentation slide – scenario 2, Ispaster demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

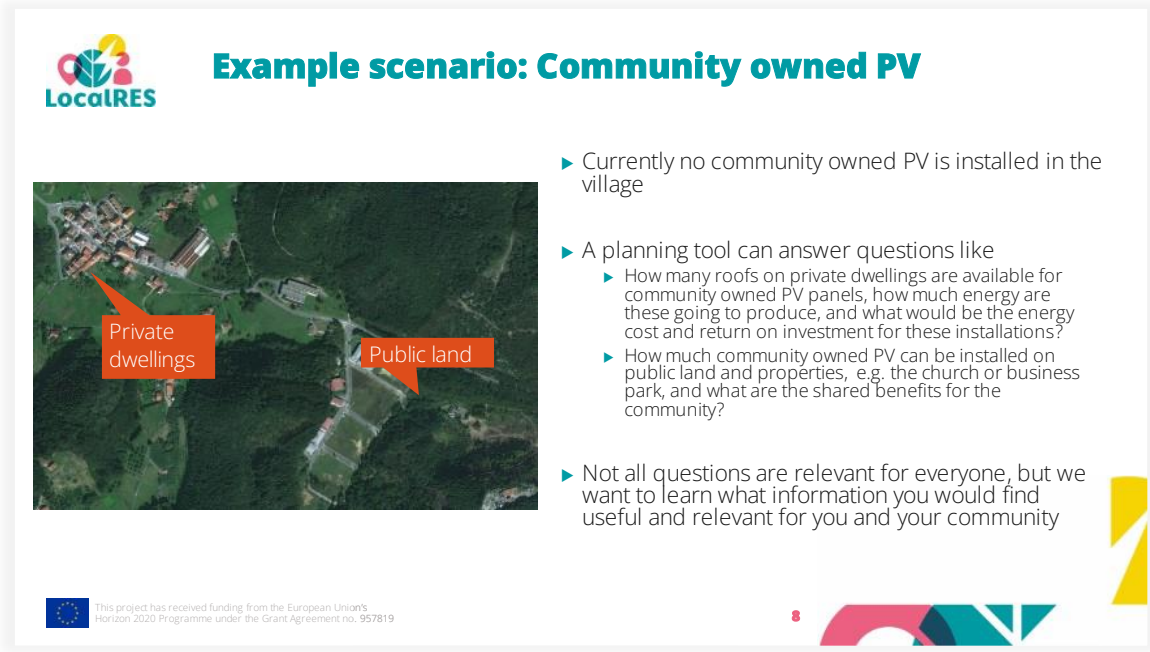

Figure 65: Workshop presentation slide – scenario 3, Ispaster demo site

7.4.6. Presentation Kökar

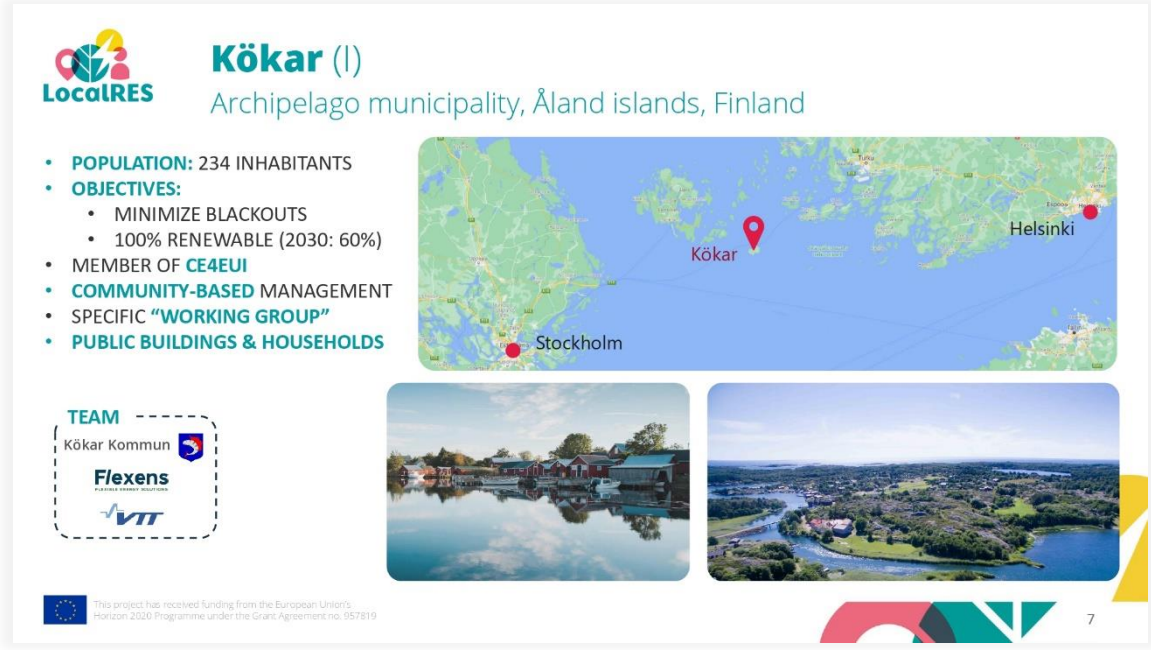

Figure 66: Overview of Kökar demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

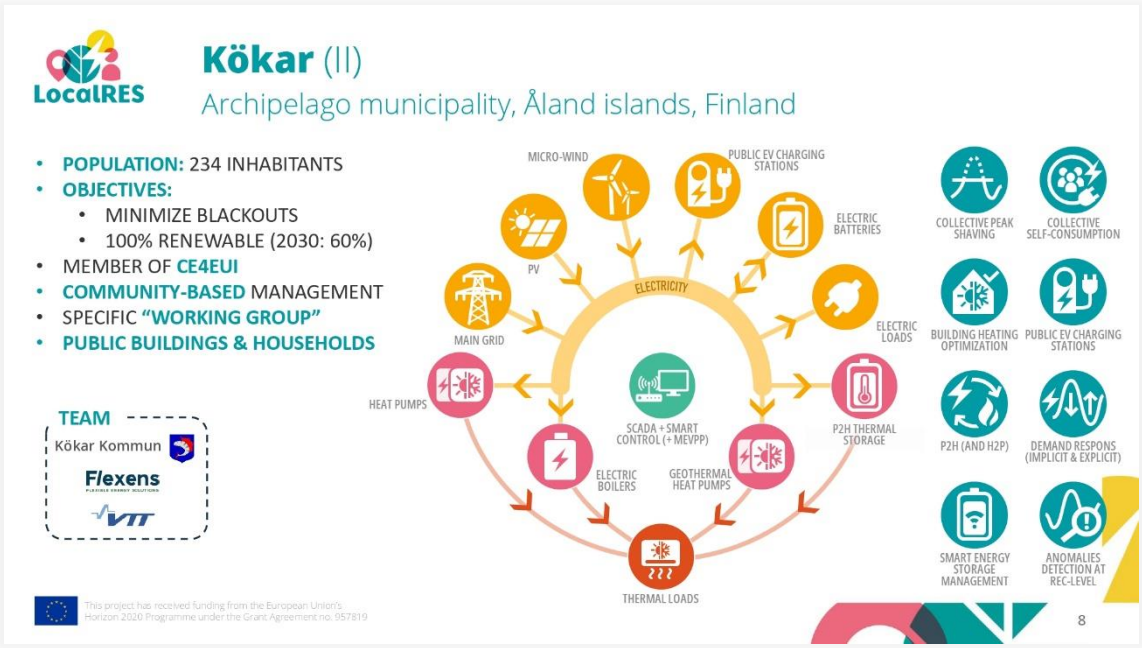

Figure 67: Summary of the energy system in Kökar demo site

Figure 68: Workshop presentation slide – community goals, Kökar demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

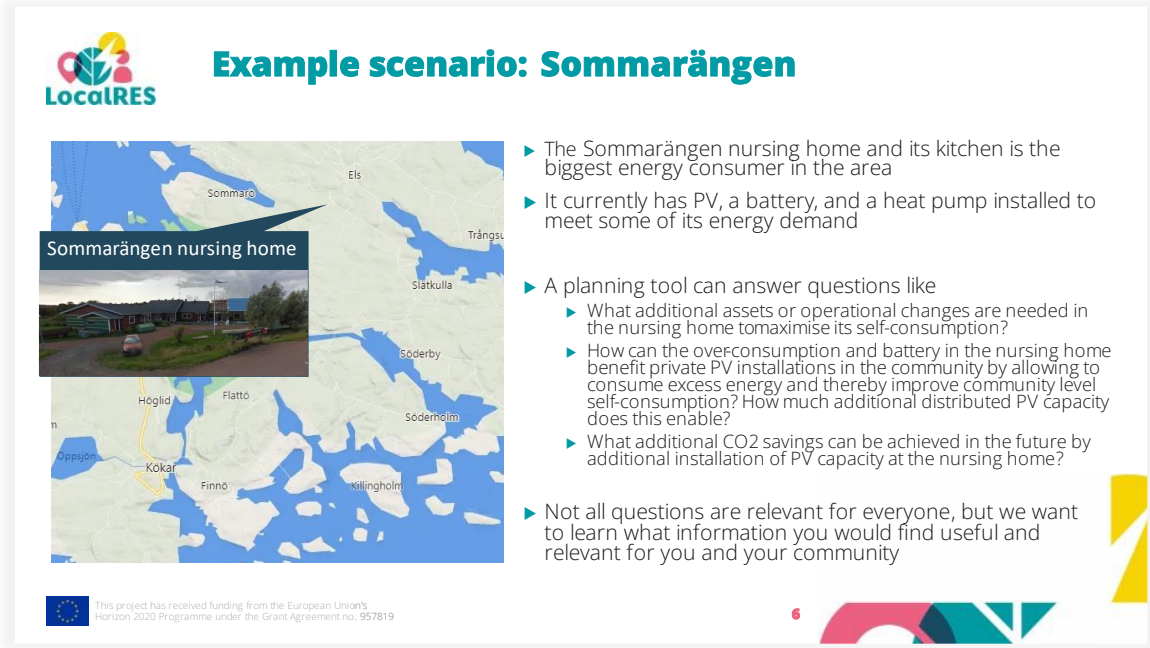

Figure 69: Workshop presentation slide – scenario 1, Kökar demo site

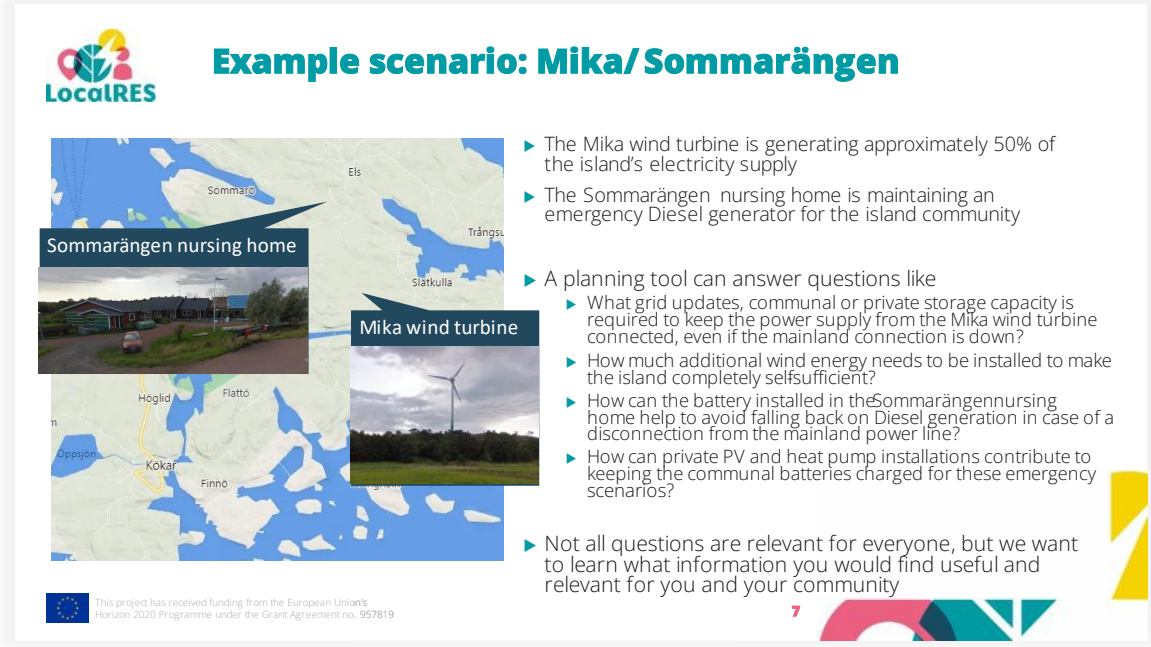

Figure 70: Workshop presentation slide – scenario 2, Kökar demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

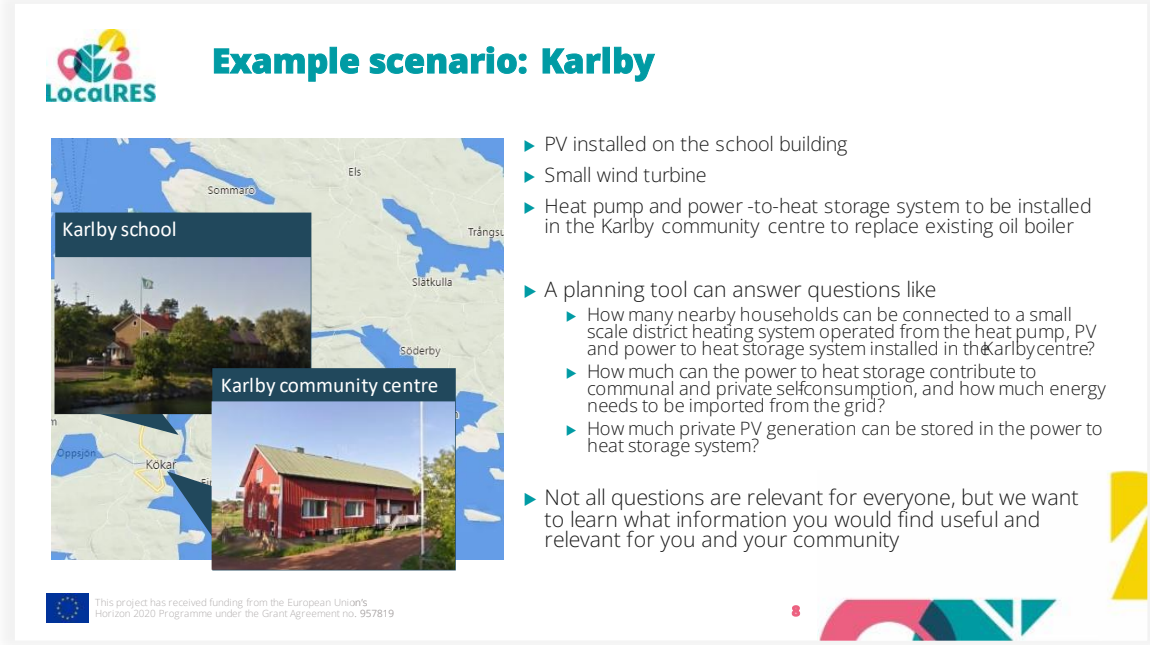

Figure 71: Workshop presentation slide – scenario 3, Kökar demo site

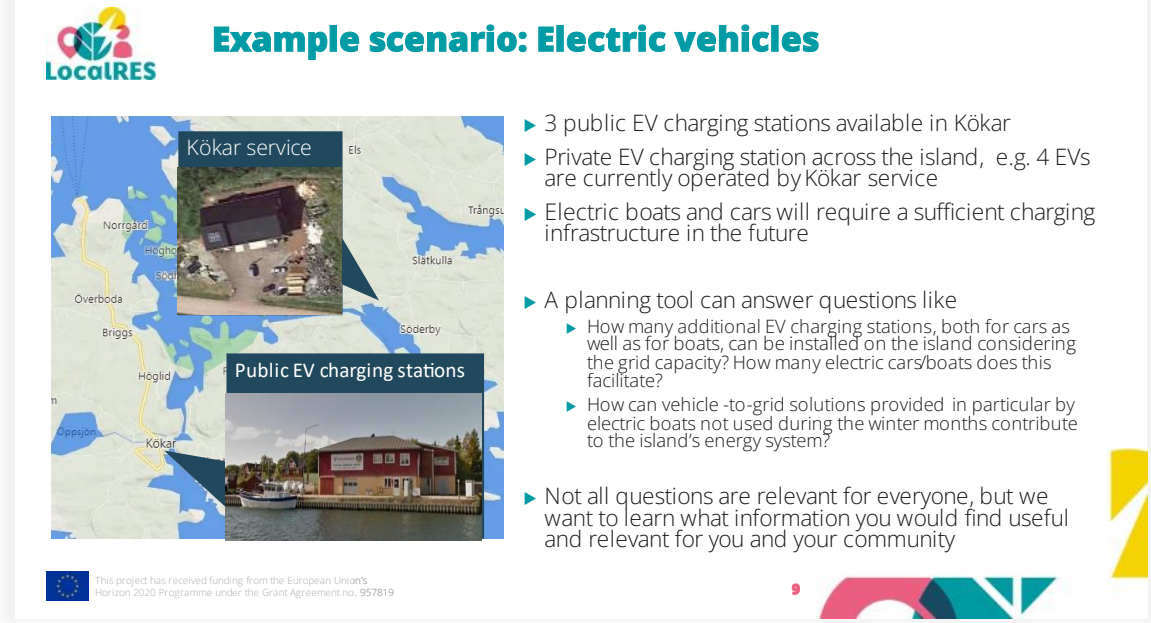

Figure 72: Workshop presentation slide – scenario 4, Kökar demo site

7.4.7. Documentation Berchidda

Empowering local renewable energy communities for the decarbonisation of the energy systems

WP2 - Community-driven local energy system planning

Task 2.1 - Co-design and participatory processes

Citizen workshop documentation

Berchidda

Date: **31 March 2022**

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

ORGANISATION	
Start time	18:30
End time	20:30
Venue	Berchidda Wine Museum
Hospitality (e.g. coffee, food, etc.)	Local wine and refreshments offered at the end of the workshop
Context (e.g. if held as part of another event)	3 days event dedicated to the EU projects involving Berchidda as pilot Community (HESTIA, LocalRES and NEON)
Presenters and project representatives present	Simona d'Oca (chair) – GridAbility Emilio Ghiani – AEC Raphaelle Papa – R2M Energy Julia Blanke and Martin Klepal - MTU
Additional comments on the organisation of the workshop	The event has been organized with the participation of the Mayor of the Municipality and the Town Council

PARTICIPANTS AND RECRUITMENT						
Modes of recruitment	A public invite addressing all Berchidda citizens (3000) has been posted on the official Municipality Website and publicized on the Municipality Facebook page					
Number of invitations sent to households (by mode of recruitment if applicable)	Invitation posted publicly, open to all Berchidda citizens					
Number of households present	13 + Mayor and Municipality Townhall representatives					
Number of participants in total	*Female* 4		*Male* 9		*Total* 13	
Number of participants in total by age category	*18-24* -	*25-34* 2	*35-44* 2	*45-54* 3	*55-64* 1	*65+* 5
Additional comments on the recruitment process	A citizen recruitment form for the installation of the LocalRES heat pumps has been published on the Municipality Website. The recruitment form contained an introduction to the LocalRES project and the mandatory / rewarding selection criteria for the installation. A personal email was sent to all the citizens who submitted the model of recruitment to invite them to the participation of the event.					

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MINUTES OF THE WORKSHOP	
Agenda	**Comments**
Introduction	The following agenda has been followed for the organization of the event: 18:00 - Welcome and registration of participants 18:10 - Welcome Dr Simona D'Oca, LocalRES project manager 18:20 - Institutional greetings Mayor Andrea Nieddu 18:30 - Introduction to the objectives of the workshop 18:40 - Introduction to the Planning Tool 19:00 - Interactive plenary sessions 20:00 - Introduction to the heat pump installation plan 20:30 - Acknowledgements and conclusions 20:30 – Refreshments and drinks offered by GridAbility The event started by introducing the overall concept of Renewable Energy Communities. It was mentioned clearly that, apart from the technological advancements the social dimension of the energy transition is key, where the individual's behaviour matters, and everybody can contribute their part. We then illustrated that the LocalRES project objective at large is to develop a planning tool that can support RECs across Europe, while the workshop goal specifically is to gather their feedback so that the LocalRES team can better understand and can learn what matters and what they would find most useful in the Berchidda community. It has been mentioned that, in fact, every REC could have their own goals and ideas on how to create a more sustainable future, and examples for community goals are introduced, such as: • Save on the cost of energy and maximize the return on investment • Achieve energy self-sufficiency for the community • Enable freedom of choice to install equipment We mentioned that with this workshop we are exquisitely interested in understanding what are the most pressing goals for the Berchidda REC.
Presentation of the scenarios and planning tool	After the introduction, four main scenarios have been illustrated, including a detailed explanation of the interested energy services: • Scenario 1: PV generation • Scenario 2: Heat pumps • Scenario 3: Rural micro-girds • Scenario 4: Electrical vehicles For each of the four scenarios, it has been presented an example of which questions the LocalRES planning tool could give answers to. As not all questions might be relevant for everybody, we stressed that the specific scope of the co-creation process is for us to learn what information they could find useful and relevant for themselves and for their community.

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	After the illustration of the specific community scenarios planned to be included in the tool, we expanded and emphasized the reasons behind the need for a REC to make use of such of planning tool. Mainly, we mentioned three key purposes: • To provide the community with a complete vision of the energy community • To design and assess the need of diverse energy scenarios • To spread information among the community Some examples of question that the planning tool could assess have been presented before showing the first version of the mock-up of the Planning tool, developed in local language. We moreover clearly mentioned the purpose of the workshop is only to illustrate what kind of information the Planning Tool could give, and for us to understand your expectations and that no real simulation has been made yet, as the Planning Tool does not exist yet. While two example scenarios were being prepared for the citizens (the evolution on energy costs and heating related CO_2 emission scenarios connected to the installation of new-generation heat pumps) we estimated the information was too technical for the audience present at the workshop and would have not provided any benefits. On the contrary, the citizens appeared overwhelmed by the level of detail of the example, thus, we shifted spontaneously to the plenary session.
Plenary session	For the plenary session, we prepared a set of questions divided into 4 sections. Firstly, we asked 2 questions related to the citizens interested towards the upcoming energy community. To the question *How likely do you think it is in your community that people would engage in common energy related activities?* the majority (62%) of the participants felt this is likely to happen, while the rest replied that this engagement could only possibly happen. Most of the participants (69%) are either very interested or interested in participating in the decision made related to the common energy issues. 3 participants stated they are not interested while only one person remained neutral. When asked about their perception about the planning tool, the majority (62%) of the citizen felt this is instrument would be useful for the community activities, while the rest believed this could only possibly be beneficial. The big majority stated they would be even personally interested in using or very interested in such a tool (77%). However, when asked about who they would have preferred being the primary user of the tool, the majority (62%) referred to a collective usage during collaborative community events, while only about 30% mentioned an individual citizen usage. The expert consultant was mentioned only by one citizen. Regarding their preferred platform for the tool to run on, most of the citizens (around 70%) mentioned the phone app, followed by the webpage. Privacy emerged, as expected, being a very sensitive topic for the citizens.

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<table>
<tr><td></td><td>The most relevant community goal is perceived being to save on the cost of energy and maximize the return on investment. This is followed by achieving energy self-sufficiency for the community and thirdly to allow freedom of choice for the installation of equipment.
Additionally, some other goals were mentioned spontaneously by the citizens, including
Energy Savings
Installing Wind Turbines
Involving those people who have doubts about the importance of the energy community
To make a technical assessment of production - consumption in the community and to identify the surface area required to achieve the necessary mass
Exploiting abandoned land to produce a commodity such as energy that is useful to the community
To achieve self-consumption for the whole community for the smart grid to be perfect, so that the amount of energy taken from the grid must be zero.</td></tr>
<tr><td rowspan="5">Breakout group 1</td><td colspan="7">Scenario #1: Explore how distributed photovoltaic generation, private or municipal, can save energy costs and provide a return on investment</td></tr>
<tr><td colspan="2">Number of households Who find it relevant</td><td colspan="5">11</td></tr>
<tr><td colspan="2">Number of participants</td><td colspan="2">Male 9</td><td colspan="3">Female 2</td></tr>
<tr><td>Age</td><td>18-24</td><td>25-34
2</td><td>35-44
2</td><td>45-54
3</td><td>55-64</td><td>65+
4</td></tr>
<tr><td colspan="7">Comments
Scenario 1 was among the ones perceived as the most relevant from the participants</td></tr>
<tr><td rowspan="3">Breakout group 2</td><td colspan="7">Scenario #2: Explore how installing private heat pumps and thermal storage can improve self-sufficiency, save energy costs and provide a return on investment</td></tr>
<tr><td colspan="2">Number of households who find it relevant</td><td colspan="5">11</td></tr>
<tr><td colspan="7">Comments
Scenario 2 was among the ones perceived as the most relevant from the participants</td></tr>
<tr><td rowspan="3">Breakout group 3</td><td colspan="7">Scenario #3: Explore how autonomous micro grids in rural areas combined with energy purchase agreements can improve self-sufficiency, save on energy costs and provide a return on investment</td></tr>
<tr><td colspan="2">Number of households who find it relevant</td><td colspan="5">11</td></tr>
<tr><td colspan="7">Comments
Scenario 3 was among the ones perceived as the most relevant from the participants</td></tr>
</table>

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<table>
<tr><td rowspan="5">Breakout group 4</td><td colspan="7">Scenario #4: Explore the extent to which private or public electric vehicle (EV) charging infrastructure can be installed without impacting citizens' freedom of choice to install other connected equipment</td></tr>
<tr><td colspan="2">Number of households who find it relevant</td><td colspan="5">9</td></tr>
<tr><td colspan="2">Number of participants</td><td colspan="3">Male 7</td><td colspan="2">Female 2</td></tr>
<tr><td>Age</td><td>18-24</td><td>25-34
1</td><td>35-44
2</td><td>45-54
2</td><td>55-64</td><td>65+
4</td></tr>
<tr><td colspan="7">Comments
Scenario 4 was the one perceived as the least relevant from the participants.</td></tr>
<tr><td>Additional comments</td><td colspan="7">Some additional comments were left from the participants, regarding any other scenarios they might think relevant for their community, including:
Exploiting all rural infrastructures, apart from wind turbines
Exploiting the combination of other types of RES, such as wind turbines and/or mini turbines in combination with PV systems with storage
Investigating and seeking European - national incentives
Producing energy in order to no longer be connected to a charging distributor
Increasing the sharing energy quota with the community
With regard to future scenarios, it emerged relevant to have a continuous expansion of the community.</td></tr>
<tr><td>Closing</td><td colspan="7">At conclusion of the session, the plan for the installation of the 20 domestic heat pumps has been presented. The citizen participation form published on the Municipality website has been circulated again in order to recruit new possible households for the installation. The selection criteria have been explained again and personal contacts of the participants have been collected in order to recontact them in the upcoming weeks.</td></tr>
</table>

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OVERALL IMPRESSION AND ATMOSPHERE	
Did the workshop run according to plan? If not, what went differently?	Not all the citizens who replied to the call for interest for the free installation of the heat pumps, who have been personally invited by email, attended the workshop. As a matter of fact, we expected at least 20 participants attending the event.
What was the general atmosphere during the workshop? (e.g. enthusiastic, reserved, etc.)	The general atmosphere of the event was relaxed, casual and cooperative. This is due to the fact most of the citizens already know each other at personal (if not familiar) level.
What went well with regards to the engagement of participants?	Citizens appeared generally concerned about surging energy costs, debating about the foreseen increase in their domestic energy bills. This aspect concurred as a **positive driver** for the citizens, who perceived the opportunity, via the formation of the energy community, to become independent from the local energy provider and decrease the risk generated by energy dependency from the national grid. A representation of the Municipality Townhall, the local DSO together with the mayor attended the event and sat at the discussion tables together with the citizens. This increased the mixite' of the dialogues, the perspectives discussed, enabling internal problem-solving debates that concluded with several clarifications and doubts clearance for the citizens.
What was difficult with regards to the engagement of participants?	A diffuse concern related to the actual benefits of the energy community was expressed by some participants, especially from the ones who already have some PV generation installed and already take advantage from their individual self-consumption. The main pain point is associated to the additional installation costs connected to the new installations and the worry the overall return of investment would not be convenient for the individuals. In this context, the exploitation of local, national, or even EU-level incentives for the coverage of new installation was proposed from the citizens as possible solution to overcome the economic exposure and make the energy community sustainable and profitable.
Additional comments on the overall atmosphere and engagement with citizens	-

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PICTURES

Figure 73: Workshop impressions 1, Berchidda demo site

Figure 74: Workshop impressions 2, Berchidda demo site

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Figure 75: Workshop impressions 3, Berchidda demo site

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7.4.8. Documentation Ollersdorf

Empowering local renewable energy communities for the decarbonisation of the energy systems

WP2 - Community-driven local energy system planning

Task 2.1 - Co-design and participatory processes

Citizen workshop documentation

Ollersdorf

Date: **31 March 2022**

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

ORGANISATION	
Start time	06.10 p.m.
End time	08.30 p-m.
Venue	Community hall
Hospitality (e.g. coffee, food, etc.)	Mineral water, soda, coffee
Context (e.g. if held as part of another event)	-
Presenters and project representatives present	Julia Blanke, Natalia Weber, Michael Niederkofler, Bernd Strobl
Additional comments on the organisation of the workshop	-

PARTICIPANTS AND RECRUITMENT						
Modes of recruitment	(See next row)					
Number of invitations sent to households (by mode of recruitment if applicable)	The invitation was sent out by the official municipal newsletter (by postal service) and every household of Ollersdorf was informed and invited. In addition, the invitation was shared on local social media channels					
Number of households present	22					
Number of participants in total	*Female* 9		*Male* 13		*Total* 22	
Number of participants in total by age category	*18-24* 0	*25-34* 1	*35-44* 2	*45-54* 5	*55-64* 12	*65+* 3
Additional comments on the recruitment process	Together with the mayor Bernd Strobl a date was set. Interviews were conducted in advance to determine the level of knowledge and interest of the members of the LocalRES project. During this interview the date of the event was communicated. In addition, an invitation was published in the municipal news and on the Facebook page.					

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MINUTES OF THE WORKSHOP	
Agenda	**Comments**
Introduction	Michael Niederkofler started the event: The people were very interested, respectively captivated. There was no interaction among themselves, it was very quiet. Two people write down the most important information and take pictures of slides of the presentation that are important for them.
Presentation of the scenarios and planning tool	Natalia Weber: Start of presentation 06.26 p.m. Some people seem distracted and look around the room. Two people write down information --> Scenario 1 06:39 p.m. more people seem more agitated (increased drinking, more movement, looking into space). 25-45 age seem very tense 45-65 here women of this age seem bored 65+ listen attentively Scenario 2: Blackout interests the persons Scenario 3: here the audience is calmer again End of the presentation 06.52 p.m. Bernd Strobl's request to speak lightened the mood and relieved some of the tension. "We don't have to achieve 100% self-sufficiency; we have to find out as a community how much we want and can also implement..." Julia Blanke: Start of the presentation: 06.58 p.m. Here the people from Ollersdorf seem more interested, more people look at the Power Point and Julia. 07.08 p.m. - sitting becomes uncomfortable for some, some people move more often. A woman 45-65 rolls her eyes more often and seems annoyed. Michael Niederkofler: 07.10 p.m. - the mock-ups are presented and discussed together Unfortunately, the presentation was hard to read.... Comparing the scenarios, all listened with interest The topic of social media was smiled at by some (due to age) End of the presentation: 07.25 p.m.
Discussion	07.25 p.m. → questionnaires are handed out, some questions are answered Expansion of PV plants Energy production of PV is as expensive as wind turbines

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	Calculation model of electric cars Local heating network in the questionnaire, but local transport was mentioned in the presentation - was a bit confusing for the people Do you change the community or your own household with this project? What about the individual level? Energy flows, where is there surplus? E-charging infrastructure planning App: what does the EEG generate/consume? Where does one save the most energy in the household? Biomass, local heating networks would make sense Where will we get our biomass in the future? What would make sense? What is the potential? How much capacity do we have? Green waste, waste Wind turbine for Ollersdorf, if not allowed here, maybe at Masenberg (a municipality a bit further away)? Cost factor? What does it cost and who pays for it? Financially reasonable solutions are essential, solutions that are financially affordable. Batteries? What resources are there? Lithium-ion storage is not resource efficient. In the field of batteries, one should think, for example battery as heat storage. Hydrogen storage, gas storage, ... Water supply, buying food 08:16 p.m. end of the discussion
Closing	08.17 p.m. presenting the Website LocalRES 08.21 p.m. Bernd Strobl closing words
Additional comments	-

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OVERALL IMPRESSION AND ATMOSPHERE	
Did the workshop run according to plan? If not, what went differently?	The workshop has created clarity. Those present were informed about the intermediate steps already achieved. The following steps and intermediate goals, future perspectives and general information were brought closer to the interested parties.
What was the general atmosphere during the workshop? (e.g. enthusiastic, reserved, etc.)	Interested, motivated.
What went well with regards to the engagement of participants?	At the beginning of the discussion, the participants were a bit reserved, but that quickly changed and important content was discussed together.
What was difficult with regards to the engagement of participants?	There were no apparent difficulties
Additional comments on the overall atmosphere and engagement with citizens	Citizens were very engaged, and the atmosphere was very positive. One of the participants (a high school teacher) asked for the presentation to be used in his classroom teachings, which speaks for the topic to be of broader interest.

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PICTURES

Figure 76: Workshop impressions 1, Ollersdorf demo site

Figure 77: Workshop impressions 2, Ollersdorf demo site

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Figure 78: Workshop impressions 3, Ollersdorf demo site

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

7.4.9. Documentation Ispaster

Empowering local renewable energy communities for the decarbonisation of the energy systems

WP2 - Community-driven local energy system planning

Task 2.1 - Co-design and participatory processes

Citizen workshop documentation

Ispaster

Date: **31 March 2022**

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

ORGANISATION	
Start time	19 h (CET – planned)
End time	21h CET
Venue	Casa de la cultura. Ispaster, Spain
Hospitality (e.g. coffee, food, etc.)	After the event, all participants were invited to have dinner together
Context (e.g. if held as part of another event)	The event was organized specifically for this workshop
Presenters and project representatives present	Garbiñe (ISPASTER, Mayoress of Ispaster) Alberto Belda (CARTIF, coordinator of LocalRES project) Iñaki Gaztelu (BARRIZAR) Irantzu Urkola (TECNALIA) Diana Vaz [online] (AIGUASOL) Julia Blanke (MTU)
Additional comments on the organisation of the workshop	The questionnaires were printed in advance both in Spanish and in Euskera (regional language in the Basque Country) to allow all citizens to answer the survey using the language they feel more comfortable with. Also, all citizens were provided with pens to fill in the survey at the moment of completing it, after the introduction. The chairs were organized following a U shape oriented towards the screen where the presentation was projected.

PARTICIPANTS AND RECRUITMENT			
Modes of recruitment	The mayoress personally recruited citizens from Ispaster who were known for being interested in energy-related topics, including energy communities		
Number of invitations sent to households (by mode of recruitment if applicable)	All attendees were recruited individually. Some more citizens were contacted and declined the invitation (unknown number)		
Number of households present	13		
Number of participants in total	Female 2	Male 12	Total 14

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Number of participants in total by age category	*18-24* 1	*25-34* 1	*35-44* 3	*45-54* 4	*55-64* 4	*65+* 1
Additional comments on the recruitment process	From the organization team: • Alberto Cartif • Iñaki Barrizar • Garbiñe y Jesus Ispasterko udala • Diana Aiguasol (online) • Irantzu Tecnalia					

MINUTES OF THE WORKSHOP	
Agenda	**Comments**
Introduction	• Thanks everybody for coming! • Presentation of the Agenda of the session • 7 people pout of 12 have already heard about the project • A change is occurring in the energy sector empowering the citizen >> from "consumer" to "prosumer" • 4Ds (digitalization, decentralization, democratization, and decarbonization) • New concept: "energy communities" • Phases: 1) learn & design (planning tool) and 2) operation (MEVPP) • Short presentation of the consortium and the 4 demos • General goal of the workshop • Enumeration of the actions that will be carried out in Ispaster in the scope of the project and the technological concept of the REC • Description of what the planning tool is expected to be: tool to gather the information of the REC and let citizens interact with this tool clarifying doubts
Presentation of the scenarios and planning tool	• Presentation of the scenarios • Explanation of the questions that arise from each scenario and of the information the planning tool can provide for each of them: • Esc 1: Renovation of the school • Esc 2: energy efficiency improvement in public buildings • Esc 3: PV in Elexalde and in Ispaster • The first proposal of the planning tool is shown (illustrative): the different type of results that can be generated are show, opinions of REC member can be gathered, scenarios can be analysed and compared, create an own scenario (1 – select the area, 2- answer questions about the consumption, 3- select priorities or objectives, 4 – see results of how we can reach with the selection)

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Discussion	Comments from citizens: • It is more important to define the objectives of the town, more than working on this tool. (Alberto: clarification of the timing and content of activities that engage citizens) • Will the tool be available for anyone? Yes, interested people may use it and obtain detailed information. And people with less interest may access to just "play" • Does the tool calculate only economical and technical results, or does it also provide environmental results? (Alberto: explanation about the several types of results generated by the tool. • Does it give us the costs [associated with the actions]? Yes, not only costs but also savings, incomes and economical return in general. • Can we talk about the objectives or only about the tool?? Alberto says we can talk of any topic of interest or concern for participants. • We still have to decide where do we want to go. • Citizens that live on the periphery can't take advantage of the proposed scenarios. Alberto: the objectives are still open and the input from citizens is valuable. What other scenarios and goals do you propose? • Worries about private data protection ("complain" regarding having to provide personal data). • Let´s go to the objectives: • Final goal to be self-sufficient, how everybody can be part of the own network… • Community including Mix public + private for investments • REC must also have a derived socioeconomic activity: employees, businesses in the industrial area, etc. • If people know that the activities being carried out in the municipality can be extended to private households, they may want to be involved. Alberto: and how can we reach the people to let them know what we are doing and what they can do? Showing the economic benefits may be one way to get to people. • Communication among citizens, among neighbours, to coordinate every action • Will the network be based on IoT? Yes, but we will go further (MEVPP)… • A citizen says that information should be shared about interventions: assembly of the parents at school, mailing??, meetings???, meetings in each area / neighbourhood with specific ideas of what to install previously worked with "local heroes", etc. Alberto asks how! • To engage citizen, it is suggested to tackle each district one by one, with the cooperation of the local heroes. In particular, local heroes would present their neighbours concrete technical scenarios, acting as promotors of those initiatives.

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	• To work by neighbourhoods, analysing specific technical proposals with the local heroes, and then present these in their neighbourhoods; they will be involved to be promoters of those proposals • Cooperative? "Elkarte"? How will we be organized as entity??? Key aspect of the REC
Closing	• Expectations management >> very important!! • A previous session to this one ought to be necessary, to provide an overall overview of the project, plans, objectives and so on • Clarification: Europe subsidizes a pilot; it is not a "bag" of money to spend... it is an "experiment" to be the first step to start the community in Ispaster...
Additional comments	

OVERALL IMPRESSION AND ATMOSPHERE	
Did the workshop run according to plan? If not, what went differently?	The discussion was originally planned to have a special focus on the planning tool, but eventually only during some time of the session this topic was addressed. In any case, the overall impression was positive.
What was the general atmosphere during the workshop? (e.g. enthusiastic, reserved, etc.)	The participants didn't have any questions regarding the introduction. The participants didn't make any intervention during or after the presentation of the scenarios. On the discussion phase, a few participants have shown to be interested about self-consumption and energy communities. Some participants displayed some worries, mainly associated to the widespread configuration of the village. Some participants wanted to define goals for the municipality community. The participants were rather reserved at first, and as the discussion followed through, the level of enthusiasm grew.
What went well with regards to the engagement of participants?	Mostly throughout the discussion stage, the participants have shown a lot of interest on the project and the related topics. Participants offered suggestions on how to engage more citizens.
What was difficult with regards to the engagement of participants?	The oral discussion took time to start, and some of the attendees did not participate in the verbal discussion, while some others occupied most of the interventions.
Additional comments on the overall atmosphere and engagement with citizens	The participants lacked context and information about the timing of the activities of the project.

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PICTURES

Figure 79: Workshop impressions 1, Ispaster demo site

Figure 80: Workshop impressions 2, Ispaster demo site

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Figure 81: Workshop impressions 3, Ispaster demo site

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7.4.10. Documentation Kökar

Empowering local renewable energy communities for the decarbonisation of the energy systems

WP2 - Community-driven local energy system planning

Task 2.1 - Co-design and participatory processes

Citizen workshop documentation

Kökar

Date: **31 March 2022**

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

ORGANISATION	
Start time	18:00
End time	20:00
Venue	Karlby school, Kökar
Hospitality (e.g. coffee, food, etc.)	Coffee, tea, cookies, cinnamon buns and candy
Context (e.g. if held as part of another event)	N/A
Presenters and project representatives present	Edvard Nordlund (Flexens Oy Ab) Anna Häger (Flexens Oy Ab)
Additional comments on the organisation of the workshop	Simplify and heighten the UX between filling in the questionnaire whilst comparing the scenarios presented. Shorten the presentation and simplify the diagrams, as these are very engineer POV focused atm.

PARTICIPANTS AND RECRUITMENT						
Modes of recruitment	Paper invite via post to all households on Kökar + social media post on Kökar's facebook forum					
Number of invitations sent to households (by mode of recruitment if applicable)	Approximately 100 physical invites					
Number of households present	15					
Number of participants in total	*Female* 6		*Male* 11		*Total* 17	
Number of participants in total by age category	*18-24*: 0	*25-34*: 3	*35-44*: 0	*45-54*: 2	*55-64*: 6	*65+*: 4
Additional comments on the recruitment process	Of the 17 participants, 15 filled the questionnaire (which is where age information was collected)					

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MINUTES OF THE WORKSHOP	
Agenda	**Comments**
Introduction	Everyone was welcomed and offered food and drink, the presenters from Flexens introduced themselves and presented the agenda. Focus here was put on the importance of feedback from local citizens and their central role in a project like this. The workshop was presented as a group discussion where a lot of questions, comments and concerns from the participants were encouraged and welcomed throughout the evening.
Presentation of the scenarios and planning tool	Mostly the focus was directed towards the Kökar demo but the participants also showed thorough interest in the other demo sites and their solutions, the consortium and the project as a whole. It seemed that participants appreciated the role of their community in such a big project with many involved partners. From a presenter perspective, the scenarios seemed a bit hard to understand in detail due to a lot of technical solutions, but the general concept of the planning tool was well received. There was a lot of discussion and questions throughout the workshop so time was a bit short for a detailed walkthrough of the "DraftMockups"
Discussion	There was no separate discussion section, but we allowed for an interactive presentation throughout the workshop, meaning that we took questions, comments and concerns throughout the workshop. There was several very active participants with good discussion regarding the technical solutions, practical concerns, such as increasing energy prices, and general question towards the project. One example is that it was brought up that Sommarängen (nursing home) is only part of the buildings for the planned implementations, the building complex consists of both Sommarängen (nursing home) and Barnängen (kindergarten) sharing electric connection, kitchen and so on. It should therefore in all documentation be expressed that both buildings are included in the demo.
Closing	Finished with filling the questionaries. A few questions arose regarding uncertainties in the questions. The PPTX on the scenarios was brought up again because the amount of detail in them was hard for the participants to remember by heart from hearing it previously in the presentation. In general, very positive response towards the whole workshop.
Additional comments	

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OVERALL IMPRESSION AND ATMOSPHERE	
Did the workshop run according to plan? If not, what went differently?	All in all, it went most according as planned. The part where scenarios where presented and participants were asked to fill in questionnaire was the not very smooth, but they managed to get through it with help of project managers at hand.
What was the general atmosphere during the workshop? (e.g. enthusiastic, reserved, etc.)	Interested, engaged, keen on adding in more thoughts and ideas on how the project scope could be deepened. Start of ideas on how the money saved on energy could be used for other improvements to raise the habitability of their community. But a very clear frustration and outrage by the setbacks and hardships caused by their peer opposing the project. An urgent need and plea for getting advice in how to deal with this "bully" who risk ruining their project.
What went well with regards to the engagement of participants?	They seem to have become much tighter as a group in the recent months, we suspect that this is due to the hardship the project faces on behalf of a local citizen's appeal to court and his general distrust for the project and consortium. The turn-up was good, and it was a nice for them to get together and get new perspectives and wording on energy as a shared commodity and enabler for the society. All stayed for the entire 2-hour event.
What was difficult with regards to the engagement of participants?	Keeping their focus and gaining access to their own shaped opinions about the scenarios presented. It where too many abbreviations and context specific terminology. Scenarios and comparison with other sites deem a certain level of knowledge in energy infrastructure. This caused an exclusion for some of the less energy knowledgeable participants.
Additional comments on the overall atmosphere and engagement with citizens	It was very needed. There's a clear need for them to talk to experts in how to deal with setbacks and questions that are too hard to for them to e.g., Google. That they have questions and ponder about energy but sometimes lack the words or phrases in how to address and describe these issues. It is a clear source to why some are not fighting back against peers who oppose energy projects and development. Those who want changes and innovation don't know how to phrase themselves, organize themselves, what tools and go-to-strategies they can use so that they can become so called local energy champions. As islanders, they want to do it themselves but want to know how.

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7.5. Statistical analysis

In the following the raw outputs of SPSS showing the correlations between variables grouped by pilot site as well as the t-tests between the pilot sites are provided. All statistically significant results are circled, with red circles used for the common questions and green circles used for the pilot site specific goals and scenarios.

7.5.1. Correlations between variables for all participants

Table 36: Correlations between all participants in all pilot side

Correlations

		Age	Gender	Community_engagement	Individual_participation	Tool_helpful	Personal_interest	Privacy	Expert_use	Group_use	Individual_use	App	Webpage	Other_UI
Age	Pearson Correlation	1.000	-.300[a]	-.121	-.132	.060	-.168	-.161	-.057	.029	-.195	-.411[a]	-.049	.271[a]
	Sig. (2-tailed)		.018	.339	.298	.635	.196	.216	.655	.821	.123	.001	.699	.030
	N	64	62	64	64	64	61	61	64	64	64	64	64	64
Gender	Pearson Correlation	-.300[a]	1.000	.312[a]	.192	.019	.082	-.005	.074	-.018	.108	-.097	.210	-.178
	Sig. (2-tailed)	.018		.013	.131	.882	.539	.972	.564	.891	.398	.450	.099	.162
	N	62	63	63	63	63	59	60	63	63	63	63	63	63
Community_engagement	Pearson Correlation	-.121	.312[a]	1.000	.167	-.038	.048	-.170	-.242	.184	-.040	-.109	-.038	.095
	Sig. (2-tailed)	.339	.013		.183	.762	.716	.187	.052	.142	.752	.388	.762	.451
	N	64	63	65	65	65	61	62	65	65	65	65	65	65
Individual_participation	Pearson Correlation	-.132	.192	.167	1.000	.374[a]	.369[a]	.028	-.070	.098	.091	-.067	.278[a]	-.146
	Sig. (2-tailed)	.298	.131	.183		.002	.003	.829	.578	.437	.469	.594	.025	.245
	N	64	63	65	65	65	61	62	65	65	65	65	65	65
Tool_helpful	Pearson Correlation	.060	.019	-.038	.374[a]	1.000	.339[a]	-.043	.158	-.091	.034	.058	.133	.021
	Sig. (2-tailed)	.635	.882	.762	.002		.008	.741	.208	.470	.788	.648	.290	.868
	N	64	63	65	65	65	61	62	65	65	65	65	65	65
Personal_interest	Pearson Correlation	-.168	.082	.048	.369[a]	.339[a]	1.000	-.114	.061	.026	.143	-.068	.115	.022
	Sig. (2-tailed)	.196	.539	.716	.003	.008		.394	.643	.842	.272	.605	.376	.863
	N	61	59	61	61	61	61	58	61	61	61	61	61	61
Privacy	Pearson Correlation	-.161	-.005	-.170	.028	-.043	-.114	1.000	-.151	.142	-.057	.067	.191	.053
	Sig. (2-tailed)	.216	.972	.187	.829	.741	.394		.240	.272	.659	.604	.136	.685
	N	61	60	62	62	62	58	62	62	62	62	62	62	62
Expert_use	Pearson Correlation	-.057	.074	-.242	-.070	.158	.061	-.151	1.000	-.225	-.135	.009	.021	-.083
	Sig. (2-tailed)	.655	.564	.052	.578	.208	.643	.240		.071	.285	.942	.868	.509
	N	64	63	65	65	65	61	62	65	65	65	65	65	65
Group_use	Pearson Correlation	.029	-.018	.184	.098	-.091	.026	.142	-.225	1.000	-.591[a]	-.104	.131	.126
	Sig. (2-tailed)	.821	.891	.142	.437	.470	.842	.272	.071		.000	.411	.298	.317
	N	64	63	65	65	65	61	62	65	65	65	65	65	65
Individual_use	Pearson Correlation	-.195	.108	-.040	.091	.034	.143	-.057	-.135	-.591[a]	1.000	-.113	.108	-.018
	Sig. (2-tailed)	.123	.398	.752	.469	.788	.272	.659	.285	.000		.370	.393	.887
	N	64	63	65	65	65	61	62	65	65	65	65	65	65
App	Pearson Correlation	-.411[a]	-.097	-.109	-.067	.058	-.068	.067	.009	-.104	-.113	1.000	-.543[a]	-.228
	Sig. (2-tailed)	.001	.450	.388	.594	.648	.605	.604	.942	.411	.370		.000	.067
	N	64	63	65	65	65	61	62	65	65	65	65	65	65
Webpage	Pearson Correlation	-.049	.210	-.038	.278[a]	.133	.115	.191	.021	.131	.108	-.543[a]	1.000	-.116
	Sig. (2-tailed)	.699	.099	.762	.025	.290	.376	.136	.868	.298	.393	.000		.358
	N	64	63	65	65	65	61	62	65	65	65	65	65	65
Other_UI	Pearson Correlation	.271[a]	-.178	.095	-.146	.021	.022	.053	-.083	.126	-.018	-.228	-.116	1.000
	Sig. (2-tailed)	.030	.162	.451	.245	.868	.863	.685	.509	.317	.887	.067	.358	
	N	64	63	65	65	65	61	62	65	65	65	65	65	65

a. Significant at .05 level

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7.5.2. Correlations between variables for participants in Berchidda

Table 37: Correlations between variables for participants in Berchidda

Correlations

		Age	Gender	Community_engagement	Individual_participation	Tool_helpful	Personal_interest	Privacy	Expert_use	Group_use	Individual_use	App	Webpage	Other_UI	Berchidda_goal_1	Berchidda_goal_2	Berchidda_goal_3	Berchidda_scenario_1	Berchidda_scenario_2	Berchidda_scenario_3	Berchidda_scenario_4
Age	Pearson Correlation	1.000	-.163	-.537	-.282	-.325	-.476	.086	.312	-.220	.051	-.720$_a$	-.238	.461	NaN	NaN	.282	NaN	NaN	NaN	.395
	Sig. (2-tailed)		.595	.059	.351	.278	.139	.779	.300	.471	.867	.006	.433	.113	NaN	NaN	.351	NaN	NaN	NaN	.182
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Gender	Pearson Correlation	-.163	1.000	.158	.234	.501	.491	-.078	.192	-.184	.083	-.083	.283	-.178	NaN	NaN	-.267	NaN	NaN	NaN	-.284
	Sig. (2-tailed)	.595		.606	.442	.081	.125	.799	.529	.546	.787	.787	.349	.561	NaN	NaN	.377	NaN	NaN	NaN	.347
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Community_engagement	Pearson Correlation	-.537	.158	1.000	.343	.350	-.606$_a$	.011	-.365	-.675$_a$	-.501	.158	.098	.337	NaN	NaN	-.317	NaN	NaN	NaN	.337
	Sig. (2-tailed)	.059	.606		.252	.241	.048	.973	.220	.011	.081	.606	.751	.260	NaN	NaN	.291	NaN	NaN	NaN	.260
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Individual_participation	Pearson Correlation	-.282	.234	.343	1.000	.736$_a$	.109	.479	.018	-.050	.043	.096	.443	-.150	NaN	NaN	.085	NaN	NaN	NaN	-.027
	Sig. (2-tailed)	.351	.442	.252		.004	.750	.097	.952	.870	.890	.756	.130	.626	NaN	NaN	.782	NaN	NaN	NaN	.930
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Tool_helpful	Pearson Correlation	-.325	.501	.350	.736$_a$	1.000	.684$_a$	.709$_a$	.238	.025	-.158	-.184	.732$_a$	-.101	NaN	NaN	.232	NaN	NaN	NaN	.101
	Sig. (2-tailed)	.278	.081	.241	.004		.020	.008	.453	.935	.606	.546	.004	.742	NaN	NaN	.445	NaN	NaN	NaN	.742
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Personal_interest	Pearson Correlation	-.476	.491	.606	.109	.684	1.000	.320	NaN	.190	-.190	-.227	.339	.175	NaN	NaN	-.014	NaN	NaN	NaN	-.175
	Sig. (2-tailed)	.139	.125	.048	.750	.020		.338	NaN	.577	.577	.501	.308	.607	NaN	NaN	.968	NaN	NaN	NaN	.607
	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Privacy	Pearson Correlation	.086	-.078	.011	.479	.709	.320	1.000	.097	.149	-.213	-.369	.580	.143	NaN	NaN	.682	NaN	NaN	NaN	.601
	Sig. (2-tailed)	.779	.799	.973	.097	.008	.338		.753	.628	.486	.215	.038	.641	NaN	NaN	.010	NaN	NaN	NaN	.030
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Expert_use	Pearson Correlation	.312	.192	-.365	.018	.238	NaN	.097	1.000	-.365	-.192	-.433	.312	.123	NaN	NaN	.116	NaN	NaN	NaN	.123
	Sig. (2-tailed)	.300	.529	.220	.952	.453	NaN	.753		.220	.529	.139	.300	.689	NaN	NaN	.707	NaN	NaN	NaN	.689
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Group_use	Pearson Correlation	-.220	-.184	.675$_a$	-.050	.025	.190	.149	-.365	1.000	-.843$_a$	.158	.098	.337	NaN	NaN	-.042	NaN	NaN	NaN	.101
	Sig. (2-tailed)	.471	.546	.011	.870	.935	.577	.628	.220		.000	.606	.751	.260	NaN	NaN	.891	NaN	NaN	NaN	.742
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Individual_use	Pearson Correlation	.051	.083	-.501	.043	-.158	-.190	-.213	-.192	-.843$_a$	1.000	.083	-.283	-.284	NaN	NaN	-.022	NaN	NaN	NaN	-.178
	Sig. (2-tailed)	.867	.787	.081	.890	.606	.577	.486	.529	.000		.787	.349	.347	NaN	NaN	.942	NaN	NaN	NaN	.561
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
App	Pearson Correlation	-.720$_a$	.083	.158	.096	-.184	-.227	-.369	-.433	.158	.083	1.000	-.051	-.640$_a$	NaN	NaN	-.267	NaN	NaN	NaN	-.284
	Sig. (2-tailed)	.006	.787	.606	.756	.546	.501	.215	.139	.606	.787		.867	.019	NaN	NaN	.377	NaN	NaN	NaN	.347
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Webpage	Pearson Correlation	-.238	.283	.098	.443	.732$_a$	.339	.580$_a$	.312	.098	-.283	-.051	1.000	-.395	NaN	NaN	.371	NaN	NaN	NaN	.395
	Sig. (2-tailed)	.433	.349	.751	.130	.004	.308	.038	.300	.751	.349	.867		.182	NaN	NaN	.212	NaN	NaN	NaN	.182
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Other_UI	Pearson Correlation	.461	-.178	.337	-.150	-.101	.175	.143	-.123	.337	-.284	-.640$_a$	-.395	1.000	NaN	NaN	.171	NaN	NaN	NaN	.182
	Sig. (2-tailed)	.113	.561	.260	.626	.742	.607	.641	.689	.260	.347	.019	.182		NaN	NaN	.577	NaN	NaN	NaN	.552
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Berchidda_goal_1	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	-Infinity$_a$	NaN	NaN	NaN	+Infinity$_a$
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN		NaN	.000	NaN	NaN	NaN	.000
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Berchidda_goal_2	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	-Infinity$_a$	NaN	NaN	NaN	+Infinity$_a$
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN		.000	NaN	NaN	NaN	.000
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Berchidda_goal_3	Pearson Correlation	.282	-.267	-.317	.085	.232	-.014	.682$_a$	.116	-.042	-.022	-.267	.371	.171	-Infinity$_a$	-Infinity$_a$	1.000	NaN	NaN	NaN	.940$_a$
	Sig. (2-tailed)	.351	.377	.291	.782	.445	.968	.010	.707	.891	.942	.377	.212	.577	.000	.000		NaN	NaN	NaN	.000
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Berchidda_scenario_1	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	+Infinity$_a$
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN		NaN	NaN	.000
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Berchidda_scenario_2	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	+Infinity$_a$
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN		NaN	.000
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Berchidda_scenario_3	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	+Infinity$_a$
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN		.000
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Berchidda_scenario_4	Pearson Correlation	.395	-.284	-.337	-.027	.101	-.175	.601$_a$	.123	.101	-.178	-.284	.395	.182	+Infinity$_a$	+Infinity$_a$	.940$_a$	+Infinity$_a$	+Infinity$_a$	+Infinity$_a$	1.000
	Sig. (2-tailed)	.182	.347	.260	.930	.742	.607	.038	.689	.742	.561	.347	.182	.552	.000	.000	.000	.000	.000	.000	
	N	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13

a. Significant at .05 level

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

7.5.3. Correlations between variables for participants in Ollersdorf

Table 38: Correlations between variables for participants in Ollersdorf

Correlations

		Age	Gender	Community_engagement	Individual_participation	Tool_helpful	Personal_interest	Privacy	Expert_use	Group_use	Individual_use	App	Webpage	Other_UI	OllersdorF_goal_1	OllersdorF_goal_2	OllersdorF_goal_3	OllersdorF_scenario_1	OllersdorF_scenario_2	OllersdorF_scenario_3
Age	Pearson Correlation	1,000	-,425[a]	,101	-,082	-,303	-,282	,207	-,481[a]	-,027	-,568[a]	,049	-,327	,136	-,062	,038	,030	NaN	-,140	-,354
	Sig. (2-tailed)		,048	,653	,717	,171	,215	,367	,024	,905	,006	,829	,137	,545	,783	,866	,894	NaN	,534	,106
	N	22	22	23	22	23	21	21	22	22	22	22	22	22	22	22	22	21	22	22
Gender	Pearson Correlation	-,425[a]	1,000	,535[a]	,354	,069	,087	,011	,069	,087	,344	-,438[a]	,572[a]	-,069	,335	,219	-,247	NaN	,051	-,103
	Sig. (2-tailed)	,048		,009	,098	,755	,706	,961	,755	,692	,108	,037	,004	,755	,118	,316	,255	NaN	,819	,648
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
Community_engagement	Pearson Correlation	-,101	,535[a]	1,000	,353	-,132	,132	,031	-,476[a]	,359	,030	-,275	,030	,132	,331	,089	-,132	NaN	-,097	-,209
	Sig. (2-tailed)	,653	,009		,098	,547	,567	,889	,022	,092	,892	,203	,894	,547	,123	,688	,547	NaN	,659	,351
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
Individual_participation	Pearson Correlation	-,082	,354	,353	1,000	-,012	,428	-,329	-,254	,354	,033	-,220	,181	-,254	,319	-,126	-,012	NaN	-,105	-,312
	Sig. (2-tailed)	,717	,098	,098		,958	,053	,135	,241	,098	,882	,314	,410	,241	,138	,567	,958	NaN	,629	,158
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
Tool_helpful	Pearson Correlation	-,303	,069	,132	-,012	1,000	,105	-,364	,095	-,247	,271	,204	-,142	,095	,168	,339	,453[a]	NaN	,131	,537[a]
	Sig. (2-tailed)	,171	,755	,547	,958		,650	,095	,666	,255	,212	,350	,519	,666	,443	,114	,030	NaN	,551	,010
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
Personal_interest	Pearson Correlation	-,282	,087	,132	,428	,105	1,000	-,362	-,073	,087	,178	,154	-,049	-,105	,181	-,331	,105	NaN	,057	,113
	Sig. (2-tailed)	,215	,706	,567	,053	,650		,116	,755	,706	,440	,505	,832	,650	,431	,143	,650	NaN	,805	,625
	N	21	21	21	21	21	21	20	21	21	21	21	21	21	21	21	21	20	21	21
Privacy	Pearson Correlation	,207	,011	,031	-,329	-,364	-,362	1,000	,088	,173	-,254	-,008	,281	-,050	-,349	,005	-,088	NaN	,237	-,181
	Sig. (2-tailed)	,367	,961	,889	,135	,095	,116		,697	,442	,255	,971	,205	,824	,112	,981	,697	NaN	,289	,432
	N	22	22	23	22	22	20	22	22	22	22	22	22	22	22	22	22	21	22	21
Expert_use	Pearson Correlation	-,481[a]	-,069	,476[a]	-,254	,095	-,073	,088	1,000	-,069	,041	,131	,142	-,095	-,168	,120	,095	NaN	,204	,212
	Sig. (2-tailed)	,024	,755	,022	,241	,666	,755	,697		,755	,854	,551	,519	,666	,443	,587	,666	NaN	,350	,344
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
Group_use	Pearson Correlation	-,027	,087	,359	,354	-,247	,087	,173	-,069	1,000	-,375	-,244	,102	,247	,335	-,046	-,247	NaN	-,143	-,103
	Sig. (2-tailed)	,905	,692	,092	,098	,255	,706	,442	,755		,078	,262	,643	,255	,118	,835	,255	NaN	,515	,648
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
Individual_use	Pearson Correlation	-,568[a]	,344	,030	,033	,271	,178	-,254	,041	-,375	1,000	-,199	,402	,041	-,078	-,181	,271	NaN	-,182	,277
	Sig. (2-tailed)	,006	,108	,892	,882	,212	,440	,255	,854	,078		,363	,057	,854	,723	,408	,212	NaN	,405	,212
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
App	Pearson Correlation	,049	-,438[a]	,275	-,220	,204	,154	-,008	,131	-,244	-,199	1,000	-,694[a]	,204	-,037	,256	,204	NaN	,437[a]	,186
	Sig. (2-tailed)	,829	,037	,203	,314	,350	,505	,971	,551	,262	,363		,000	,350	,865	,238	,350	NaN	,037	,408
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
Webpage	Pearson Correlation	-,327	,572[a]	,030	,181	-,142	-,049	,281	,142	,102	,402	-,694[a]	1,000	,142	-,273	-,178	-,142	NaN	-,303	-,143
	Sig. (2-tailed)	,137	,004	,894	,410	,519	,832	,205	,519	,643	,057	,000		,519	,208	,417	,519	NaN	,159	,526
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
Other_UI	Pearson Correlation	,136	-,069	,132	-,254	,095	-,105	-,050	-,095	,247	,041	-,204	,142	1,000	-,168	,120	,095	NaN	-,467[a]	,307
	Sig. (2-tailed)	,545	,755	,547	,241	,666	,650	,824	,666	,255	,854	,350	,519		,443	,587	,666	NaN	,025	,165
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
OllersdorF_goal_1	Pearson Correlation	-,062	,335	,331	,319	,168	,181	-,349	-,168	,335	-,078	-,037	-,273	-,168	1,000	,358	-,183	NaN	,037	,197
	Sig. (2-tailed)	,783	,118	,123	,138	,443	,431	,112	,443	,118	,723	,865	,208	,443		,094	,402	NaN	,865	,379
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
OllersdorF_goal_2	Pearson Correlation	,038	,219	,089	-,126	,339	-,331	,005	,120	-,046	-,181	,256	-,178	,120	,358	1,000	-,120	NaN	,305	,145
	Sig. (2-tailed)	,866	,316	,688	,567	,114	,143	,981	,587	,835	,408	,238	,417	,587	,094		,587	NaN	,157	,521
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
OllersdorF_goal_3	Pearson Correlation	,030	-,247	-,132	-,012	,453[a]	,105	-,088	,095	-,247	,271	,204	-,142	,095	-,183	-,120	1,000	NaN	-,204	,306
	Sig. (2-tailed)	,894	,255	,547	,958	,030	,650	,697	,666	,255	,212	,350	,519	,666	,402	,587		NaN	,350	,139
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
OllersdorF_scenario_1	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	+Infinity[a]	+Infinity[a]
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN		,000	,000
	N	21	22	22	22	22	20	21	22	22	22	22	22	22	22	22	22	22	22	21
OllersdorF_scenario_2	Pearson Correlation	-,140	,051	,097	-,105	,131	,057	,237	,204	-,143	-,182	-,437[a]	-,303	-,467[a]	,037	,305	-,204	+Infinity[a]	1,000	-,012
	Sig. (2-tailed)	,534	,819	,659	,629	,551	,805	,299	,350	,515	,405	,037	,159	,025	,865	,157	,350	,000		,958
	N	22	23	23	23	23	21	22	23	23	23	23	23	23	23	23	23	22	23	22
OllersdorF_scenario_3	Pearson Correlation	-,354	-,103	,209	-,312	,537[a]	,113	-,181	,212	-,103	,277	,186	-,143	,307	,197	,145	,306	+Infinity[a]	-,012	1,000
	Sig. (2-tailed)	,106	,648	,351	,158	,010	,625	,432	,344	,648	,212	,408	,526	,165	,379	,521	,139	,000	,958	
	N	22	22	22	22	22	21	21	22	22	22	22	22	22	22	22	22	21	22	22

a. Significant at .05 level

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

7.5.4. Correlations between variables for participants in Ispaster

Table 39: Correlations between variables for participants in Ispaster

Correlations

		Age	Gender	Community_engagement	Individual_participation	Tool_helpful	Personal_interest	Privacy	Expert_use	Group_use	Individual_use	App	Webpage	Other_UI	Ispaster_goal_1	Ispaster_goal_2	Ispaster_goal_3	Ispaster_goal_4	Ispaster_goal_5	Ispaster_scenario_1	Ispaster_scenario_2	Ispaster_scenario_3
Age	Pearson Correlation	1,000	,112	,095	-,238	,052	,191	-,493	,030	,147	,095	-,570[a]	-,045	NaN	-,030	NaN	-,457	,076	,739[a]	NaN	,395	NaN
	Sig. (2-tailed)		,703	,747	,413	,860	,513	,073	,918	,615	,747	,033	,879	NaN	,918	NaN	,101	,795	,003	NaN	,182	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Gender	Pearson Correlation	,112	1,000	,354	-,059	-,258	-,194	-,323	,113	-,304	-,059	-,059	-,167	NaN	-,113	NaN	-,113	-,213	,417	NaN	,677[a]	NaN
	Sig. (2-tailed)	,703		,215	,841	,373	,507	,259	,700	,290	,841	,841	,569	NaN	,700	NaN	,700	,464	,138	NaN	,011	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Community_engagement	Pearson Correlation	,095	,354	1,000	-,458	-,091	-,548[a]	-,381	-,240	,043	-,167	-,167	-,659	NaN	,240	NaN	-,220	-,251	-,059	NaN	,267	NaN
	Sig. (2-tailed)	,747	,215		,099	,756	,043	,179	,408	,884	,569	,569	,841	NaN	,408	NaN	,264	,386	,841	NaN	,377	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Individual_participation	Pearson Correlation	-,238	-,059	-,458	1,000	-,091	,730[a]	,508	-,240	,043	,417	,125	-,659	NaN	,240	NaN	,240	,101	-,059	NaN	,267	NaN
	Sig. (2-tailed)	,413	,841	,099		,756	,003	,063	,408	,884	,138	,670	,841	NaN	,408	NaN	,408	,732	,841	NaN	,377	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Tool_helpful	Pearson Correlation	,052	-,258	-,091	-,091	1,000	,650	,884	,175	-,471	-,648[a]	,228	-,258	NaN	-,175	NaN	,439	,055	-,258	NaN	-,192	NaN
	Sig. (2-tailed)	,860	,373	,756	,756		,865	,776	,549	,089	,043	,433	,373	NaN	,549	NaN	,117	,852	,373	NaN	,529	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Personal_interest	Pearson Correlation	,191	-,194	-,548[a]	,730[a]	,650	1,000	,306	-,175	,141	,411	,091	-,194	NaN	,175	NaN	,175	,330	-,258	NaN	,192	NaN
	Sig. (2-tailed)	,513	,507	,043	,003	,865		,287	,549	,630	,145	,756	,507	NaN	,549	NaN	,549	,249	,373	NaN	,529	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Privacy	Pearson Correlation	-,493	-,323	-,381	,508	,884	,306	1,000	-,464	,144	,330	,508	-,072	NaN	,464	NaN	,464	,444	-,323	NaN	-,243	NaN
	Sig. (2-tailed)	,073	,259	,179	,063	,776	,287		,095	,622	,249	,063	,807	NaN	,095	NaN	,095	,111	,259	NaN	,423	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Expert_use	Pearson Correlation	,030	,113	-,240	-,240	,175	-,175	-,464	1,000	-,372	-,240	-,240	,113	NaN	-1,000[a]	NaN	,077	-,531	,113	NaN	,083	NaN
	Sig. (2-tailed)	,918	,700	,408	,408	,549	,549	,095		,190	,408	,408	,700	NaN	,000	NaN	,794	,051	,700	NaN	,787	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Group_use	Pearson Correlation	,147	-,304	,043	,043	-,471	,141	,144	-,372	1,000	-,059	,258	,122	NaN	,372	NaN	-,207	,337	,122	NaN	-,192	NaN
	Sig. (2-tailed)	,615	,290	,884	,884	,089	,630	,622	,190		,838	,373	,679	NaN	,190	NaN	,478	,238	,679	NaN	,529	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Individual_use	Pearson Correlation	,095	-,059	-,167	,417	,648[a]	,411	,330	-,240	-,059	1,000	,125	-,059	NaN	,240	NaN	,240	,101	-,059	NaN	,228	NaN
	Sig. (2-tailed)	,747	,841	,569	,138	,043	,145	,249	,408	,838		,670	,841	NaN	,408	NaN	,408	,732	,841	NaN	,453	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
App	Pearson Correlation	-,570[a]	-,059	-,167	,125	,228	,091	,508	-,240	-,258	,125	1,000	-,471	NaN	,240	NaN	,240	,101	-,471	NaN	-,365	NaN
	Sig. (2-tailed)	,033	,841	,569	,670	,433	,756	,063	,408	,373	,670		,089	NaN	,408	NaN	,408	,732	,089	NaN	,220	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Webpage	Pearson Correlation	-,045	-,167	-,659	-,659	-,258	-,194	-,072	,113	,122	-,059	-,471	1,000	NaN	-,113	NaN	-,113	-,213	-,167	NaN	-,123	NaN
	Sig. (2-tailed)	,879	,569	,841	,841	,373	,507	,807	,700	,679	,841	,089		NaN	,700	NaN	,700	,464	,569	NaN	,689	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Other_UI	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	+Infinity[a]	NaN	+Infinity[a]	-Infinity[a]	-Infinity[a]	NaN	+Infinity[a]	NaN
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	,000	NaN	,000	,000	,000	NaN	,000	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Ispaster_goal_1	Pearson Correlation	-,030	-,113	,240	,240	-,175	,175	,464	-1,000[a]	,372	,240	,240	-,113	+Infinity[a]	1,000	NaN	-,077	,531	-,113	NaN	-,083	NaN
	Sig. (2-tailed)	,918	,700	,408	,408	,549	,549	,095	,000	,190	,408	,408	,700	,000		NaN	,794	,051	,700	NaN	,787	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Ispaster_goal_2	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	-Infinity[a]	-Infinity[a]	+Infinity[a]	NaN	-Infinity[a]	NaN
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	,000	,000	,000	NaN	,000	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Ispaster_goal_3	Pearson Correlation	-,457	-,113	-,220	,240	,439	,175	,464	,077	-,207	,240	,240	-,113	+Infinity[a]	-,077	-Infinity[a]	1,000	,531	-,113	NaN	-,083	NaN
	Sig. (2-tailed)	,101	,700	,264	,408	,117	,549	,095	,794	,478	,408	,408	,700	,000	,794	,000		,051	,700	NaN	,787	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Ispaster_goal_4	Pearson Correlation	,076	-,213	-,251	,101	,055	,330	,444	-,531	,337	,101	,101	-,213	-Infinity[a]	,531	-Infinity[a]	,531	1,000	,284	NaN	-,158	NaN
	Sig. (2-tailed)	,795	,464	,386	,732	,852	,249	,111	,051	,238	,732	,732	,464	,000	,051	,000	,051		,325	NaN	,606	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Ispaster_goal_5	Pearson Correlation	,739[a]	,417	-,059	-,059	-,258	,258	-,323	,113	,122	-,059	,471	-,167	-Infinity[a]	-,113	+Infinity[a]	-,113	,284	1,000	NaN	,677[a]	NaN
	Sig. (2-tailed)	,003	,138	,841	,841	,373	,373	,259	,700	,679	,841	,089	,569	,000	,700	,000	,700	,325		NaN	,011	NaN
	N	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13
Ispaster_scenario_1	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	-Infinity[a]	NaN
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN		,000	NaN
	N	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Ispaster_scenario_2	Pearson Correlation	,395	,677[a]	,267	,267	-,192	,192	-,243	,083	-,192	,228	-,365	-,123	+Infinity[a]	-,083	-Infinity[a]	-,083	-,158	,677[a]	-Infinity[a]	1,000	NaN
	Sig. (2-tailed)	,182	,011	,377	,377	,529	,529	,423	,787	,529	,453	,220	,689	,000	,787	,000	,787	,606	,011	,000		NaN
	N	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Ispaster_scenario_3	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	
	N	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13

a. Significant at .05 level

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

7.5.5. Correlations between variables for participants in Kökar

Table 40: Correlations between variables for participants in Kökar

Correlations

		Age	Gender	Community_engagement	Individual_participation	Tool_helpful	Personal_interest	Privacy	Expert_use	Group_use	Individual_use	App	Webpage	Other_UI	kokar_goal_1	kokar_goal_2	kokar_goal_3	kokar_goal_4	kokar_scenario_1	kokar_scenario_2	kokar_scenario_3	kokar_scenario_4
Age	Pearson Correlation	1,000	-,487	-,464	-,077	,443	-,053	-,189	-,101	,215	-,405	-,426	,427	,278	,101	NaN	-,269	-,278	,085	,064	-,281	NaN
	Sig. (2-tailed)		,091	,082	,784	,099	,851	,537	,720	,441	,134	,113	,112	,315	,720	NaN	,332	,315	,773	,835	,352	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
Gender	Pearson Correlation	-,487	1,000	,250	,220	-,184	-,382	,014	,228	,098	-,098	,337	-,228	-,365	-,228	NaN	,101	-,228	-,213	-,239	NaN	NaN
	Sig. (2-tailed)	,091		,241	,471	,546	,198	,967	,453	,751	,751	,260	,453	,220	,453	NaN	,742	,453	,506	,479	NaN	NaN
	N	13	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	12	11	11	9
Community_engagement	Pearson Correlation	-,464	,250	1,000	,167	-,492	,000	-,283	,218	-,327	,327	,068	-,320	-,327	,327	NaN	,080	-,218	,272	,265	,265	NaN
	Sig. (2-tailed)	,082	,241		,553	,062	1,000	,349	,435	,234	,234	,810	,245	,234	,234	NaN	,777	,435	,190	,220	,220	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
Individual_participation	Pearson Correlation	-,077	,220	,167	1,000	,431	,456	-,350	,218	,218	-,218	,408	-,320	,218	-,218	NaN	,080	-,218	-,240	-,267	-,228	NaN
	Sig. (2-tailed)	,784	,471	,553		,109	,087	,241	,435	,435	,435	,131	,245	,435	,435	NaN	,777	,435	,408	,377	,453	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
Tool_helpful	Pearson Correlation	,443	-,184	-,492	,431	1,000	,337	-,242	,161	,262	-,584*	,302	-,237	,161	-,161	NaN	,207	-,161	-,175	-,192	-,192	NaN
	Sig. (2-tailed)	,099	,546	,062	,109		,219	,425	,566	,346	,029	,275	,396	,566	,566	NaN	,459	,566	,549	,529	,529	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
Personal_interest	Pearson Correlation	-,053	-,382	,000	,456	,337	1,000	-,436	,299	-,075	,075	,280	-,439	,299	,149	NaN	-,110	,149	,135	,147	,147	NaN
	Sig. (2-tailed)	,851	,198	1,000	,087	,219		,136	,279	,791	,791	,313	,102	,279	,595	NaN	,697	,595	,647	,633	,633	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
Privacy	Pearson Correlation	-,189	,014	-,283	-,350	-,242	-,436	1,000	-,584*	,156	,098	-,259	,162	,128	-,128	NaN	-,189	NaN	-,140	-,140	-,082	NaN
	Sig. (2-tailed)	,537	,967	,349	,241	,425	,136		,036	,610	,751	,851	,597	,677	,677	NaN	,537	NaN	,664	,664	,811	NaN
	N	13	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	11
Expert_use	Pearson Correlation	-,101	,228	,218	,218	,161	,299	-,584*	1,000	-,250	-,286	,535*	-,681*	-,071	,071	NaN	,105	,071	,077	,083	+Infinity*	NaN
	Sig. (2-tailed)	,720	,453	,435	,435	,566	,279	,036		,369	,302	,040	,005	,800	,800	NaN	,710	,800	,794	,787	,000	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
Group_use	Pearson Correlation	,215	,098	-,327	,218	,262	-,075	,156	-,250	1,000	-,732*	-,134	,367	-,250	-,286	NaN	,367	-,286	-,277	-,312	-,267	NaN
	Sig. (2-tailed)	,441	,751	,234	,435	,346	,791	,610	,369		,002	,635	,179	,369	,302	NaN	,179	,302	,337	,300	,377	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
Individual_use	Pearson Correlation	-,405	-,098	,327	-,218	-,564*	,075	,098	-,286	-,732*	1,000	-,200	,026	,250	,286	NaN	-,367	,286	,277	,312	,312	NaN
	Sig. (2-tailed)	,134	,751	,234	,435	,029	,791	,751	,302	,002		,474	,926	,369	,302	NaN	,179	,302	,337	,300	,300	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
App	Pearson Correlation	-,426	,337	,068	,408	,302	,280	-,058	,535*	-,134	-,200	1,000	-,784**	-,134	-,535*	NaN	,196	,134	-,531	-,527	-,123	NaN
	Sig. (2-tailed)	,113	,260	,810	,131	,275	,313	,851	,040	,635	,474		,001	,635	,040	NaN	,484	,635	,051	,064	,689	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
Webpage	Pearson Correlation	,427	-,228	-,320	-,320	-,237	-,439	,162	-,681*	,367	,026	-,784**	1,000	,105	-,105	NaN	-,154	-,105	-,113	-,123	-,083	NaN
	Sig. (2-tailed)	,112	,453	,245	,245	,396	,102	,597	,005	,179	,926	,001		,710	,710	NaN	,584	,710	,700	,689	,787	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
Other_UI	Pearson Correlation	,278	-,365	-,327	,218	,161	,299	,128	-,071	-,250	,250	-,134	,105	1,000	,071	NaN	-,681*	,071	+Infinity*	+Infinity*	,083	NaN
	Sig. (2-tailed)	,315	,220	,234	,435	,566	,279	,677	,800	,369	,369	,635	,710		,800	NaN	,005	,800	,000	,000	,787	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
kokar_goal_1	Pearson Correlation	,101	-,228	,327	-,218	-,161	,149	-,128	,071	-,286	,286	,535*	-,105	,071	1,000	NaN	-,105	-,071	1,000*	1,000*	-,083	NaN
	Sig. (2-tailed)	,720	,453	,234	,435	,566	,595	,677	,800	,302	,302	,040	,710	,800		NaN	,710	,800	,000	,000	,787	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
kokar_goal_2	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	-Infinity*	-Infinity*	-Infinity*	-Infinity*	-Infinity*	NaN
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN		,000	,000	,000	,000	,000	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
kokar_goal_3	Pearson Correlation	-,269	,101	,080	,080	,207	-,110	-,189	,105	,367	-,367	,196	-,154	-,681*	-,105	-Infinity*	1,000	-,105	-,077	-,083	-,123	NaN
	Sig. (2-tailed)	,332	,742	,777	,777	,459	,697	,537	,710	,179	,179	,484	,584	,005	,710	,000		,710	,794	,787	,689	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
kokar_goal_4	Pearson Correlation	-,278	-,228	-,218	-,218	-,161	,149	NaN	,071	-,286	,286	,134	-,105	,071	-,071	-Infinity*	-,105	1,000	-,077	-Infinity*	-,083	NaN
	Sig. (2-tailed)	,315	,453	,435	,435	,566	,595	NaN	,800	,302	,302	,635	,710	,800	,800	,000	,710		,794	,000	,787	NaN
	N	15	13	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	14	13	13	11
kokar_scenario_1	Pearson Correlation	,085	-,213	,272	-,240	-,175	,135	-,140	,077	-,277	,277	-,531	-,113	+Infinity*	1,000*	-Infinity*	-,077	-,077	1,000	1,000*	-,091	NaN
	Sig. (2-tailed)	,773	,506	,190	,408	,549	,647	,664	,794	,337	,337	,051	,700	,000	,000	,000	,794	,794		,000	,779	NaN
	N	14	12	14	14	14	14	12	14	14	14	14	14	14	14	14	14	14	14	13	12	10
kokar_scenario_2	Pearson Correlation	,064	-,239	,265	-,267	-,192	,147	-,140	,083	-,312	,312	-,527	-,123	+Infinity*	1,000*	-Infinity*	-,083	-Infinity*	1,000*	1,000	-,100	NaN
	Sig. (2-tailed)	,835	,479	,220	,377	,529	,633	,664	,787	,300	,300	,064	,689	,000	,000	,000	,787	,000	,000		,770	NaN
	N	13	11	13	13	13	13	12	13	13	13	13	13	13	13	13	13	13	13	13	11	10
kokar_scenario_3	Pearson Correlation	-,281	NaN	,265	-,228	-,192	,147	-,082	+Infinity*	-,267	,312	,123	-,083	,083	-,083	-Infinity*	-,123	-,083	-,091	-,100	1,000	NaN
	Sig. (2-tailed)	,352	NaN	,220	,453	,529	,633	,811	,000	,377	,300	,689	,787	,787	,787	,000	,689	,787	,779	,770		NaN
	N	13	11	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	12	11	13	10
kokar_scenario_4	Pearson Correlation	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
	Sig. (2-tailed)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	
	N	11	9	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	11

a. Significant at .05 level

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

7.5.6. Differences between the pilot sites

DIFFERENCE BETWEEN BERCHIDDA AND OLLERSDORF DEMO SITES

Table 41: Means and standard deviation

Group Statistics

	Group	N	Mean	Std. Deviation	S.E. Mean
Age	0	13	4,38	1,56	,43
	1	22	5,09	,97	,21
Gender	0	13	,69	,48	,13
	1	23	,61	,50	,10
Community_engagement	0	13	,62	,51	,14
	1	23	,78	,52	,11
Individual_participation	0	13	,92	1,26	,35
	1	23	1,48	,59	,12
Tool_helpful	0	13	,62	,51	,14
	1	23	,91	,29	,06
Personal_interest	0	11	,64	1,03	,31
	1	21	1,19	,60	,13
Privacy	0	13	,62	1,19	,33
	1	22	-,32	1,17	,25
Expert_use	0	13	,08	,28	,08
	1	23	,09	,29	,06
Group_use	0	13	,62	,51	,14
	1	23	,61	,50	,10
Individual_use	0	13	,31	,48	,13
	1	23	,43	,51	,11
App	0	13	,69	,48	,13
	1	23	,30	,47	,10
Webpage	0	13	,46	,52	,14
	1	23	,83	,39	,08
Other_UI	0	13	,15	,38	,10
	1	23	,09	,29	,06

Table 42: t-test results between Berchidda and Ollersdorf

Independent Samples Test

		Levene's Test for Equality of Variances		T-Test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Age	Equal variances assumed	7.05	.012	-1.66	33.00	.107	-.71	.43	-1.57	.16
	Equal variances not assumed			-1.48	17.63	.158	-.71	.48	-1.71	.30
Gender	Equal variances assumed	1.07	.308	.49	34.00	.628	.08	.17	-.26	.43
	Equal variances not assumed			.49	25.86	.625	.08	.17	-.26	.43
Community_engagement	Equal variances assumed	1.18	.284	-.94	34.00	.355	-.17	.18	-.53	.20
	Equal variances not assumed			-.94	25.54	.354	-.17	.18	-.53	.20
Individual_participation	Equal variances assumed	10.96	.002	-1.81	34.00	.080	-.56	.31	-1.18	.07
	Equal variances not assumed			-1.50	15.09	.154	-.56	.37	-1.34	.23
Tool_helpful	Equal variances assumed	19.82	.000	-2.26	34.00	.030	-.30	.13	-.57	-.03
	Equal variances not assumed			-1.95	16.49	.069	-.30	.15	-.62	.03
Personal_interest	Equal variances assumed	1.72	.199	-1.93	30.00	.063	-.55	.29	-1.14	.03
	Equal variances not assumed			-1.65	13.70	.122	-.55	.34	-1.28	.17
Privacy	Equal variances assumed	.00	.956	2.26	33.00	.030	.93	.41	.09	1.77
	Equal variances not assumed			2.25	24.93	.033	.93	.41	.08	1.79
Expert_use	Equal variances assumed	.04	.839	-.10	34.00	.920	-.01	.10	-.21	.19
	Equal variances not assumed			-.10	25.86	.919	-.01	.10	-.21	.19
Group_use	Equal variances assumed	.01	.939	.04	34.00	.970	.01	.17	-.35	.36
	Equal variances not assumed			.04	24.73	.970	.01	.17	-.35	.37
Individual_use	Equal variances assumed	2.39	.131	-.74	34.00	.467	-.13	.17	-.48	.22
	Equal variances not assumed			-.75	26.20	.462	-.13	.17	-.48	.22
App	Equal variances assumed	.00	.968	2.36	34.00	.024	.39	.16	.05	.72
	Equal variances not assumed			2.34	24.60	.027	.39	.17	.05	.73
Webpage	Equal variances assumed	8.72	.006	-2.40	34.00	.022	-.36	.15	-.67	-.06
	Equal variances not assumed			-2.21	19.69	.039	-.36	.17	-.71	-.02
Other_UI	Equal variances assumed	1.42	.242	.60	34.00	.553	.07	.11	-.16	.29
	Equal variances not assumed			.56	20.10	.584	.07	.12	-.18	.32

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

DIFFERENCE BETWEEN BERCHIDDA AND ISPASTER DEMO SITES

Table 43: Means and standard deviation

Group Statistics

	Group	N	Mean	Std. Deviation	S.E. Mean
Age	0	13	4.38	1.56	.43
	2	14	3.86	1.35	.36
Gender	0	13	.69	.48	.13
	2	14	.86	.36	.10
Community_engagement	0	13	.62	.51	.14
	2	14	.43	.51	.14
Individual_participation	0	13	.92	1.26	.35
	2	14	1.43	.51	.14
Tool_helpful	0	13	.62	.51	.14
	2	14	.71	.47	.13
Personal_interest	0	11	.64	1.03	.31
	2	14	1.29	.47	.13
Privacy	0	13	.62	1.19	.33
	2	14	.36	.84	.23
Expert_use	0	13	.08	.28	.08
	2	14	.07	.27	.07
Group_use	0	13	.62	.51	.14
	2	14	.64	.50	.13
Individual_use	0	13	.31	.48	.13
	2	14	.43	.51	.14
App	0	13	.69	.48	.13
	2	14	.43	.51	.14
Webpage	0	13	.46	.52	.14
	2	14	.86	.36	.10
Other_UI	0	13	.15	.38	.10
	2	14	.00	.00	.00

Table 44: t-test results between Berchidda and Ispaster

Independent Samples Test

		Levene's Test for Equality of Variances		T-Test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Age	Equal variances assumed	1.03	.320	.94	25.00	.355	.53	.56	-.63	1.68
	Equal variances not assumed			.94	23.87	.358	.53	.56	-.63	1.69
Gender	Equal variances assumed	4.31	.048	-1.01	25.00	.322	-.16	.16	-.50	.17
	Equal variances not assumed			-1.00	22.31	.328	-.16	.16	-.51	.18
Community_engagement	Equal variances assumed	.19	.663	.95	25.00	.351	.19	.20	-.22	.59
	Equal variances not assumed			.95	24.90	.351	.19	.20	-.22	.59
Individual_participation	Equal variances assumed	9.42	.005	-1.39	25.00	.177	-.51	.36	-1.26	.24
	Equal variances not assumed			-1.35	15.67	.196	-.51	.37	-1.30	.29
Tool_helpful	Equal variances assumed	1.04	.317	-.53	25.00	.603	-.10	.19	-.49	.29
	Equal variances not assumed			-.53	24.42	.604	-.10	.19	-.49	.29
Personal_interest	Equal variances assumed	2.35	.139	-2.11	23.00	.046	-.65	.31	-1.29	-.01
	Equal variances not assumed			-1.94	13.27	.073	-.65	.33	-1.37	.07
Privacy	Equal variances assumed	.92	.348	.65	25.00	.519	.26	.39	-.56	1.07
	Equal variances not assumed			.65	21.43	.526	.26	.40	-.57	1.09
Expert_use	Equal variances assumed	.01	.917	.05	25.00	.959	.01	.10	-.21	.22
	Equal variances not assumed			.05	24.68	.959	.01	.10	-.21	.22
Group_use	Equal variances assumed	.08	.780	-.14	25.00	.888	-.03	.19	-.43	.37
	Equal variances not assumed			-.14	24.78	.888	-.03	.19	-.43	.37
Individual_use	Equal variances assumed	1.43	.243	-.63	25.00	.534	-.12	.19	-.52	.27
	Equal variances not assumed			-.63	25.00	.533	-.12	.19	-.51	.27
App	Equal variances assumed	1.43	.243	1.38	25.00	.181	.26	.19	-.13	.66
	Equal variances not assumed			1.38	25.00	.180	.26	.19	-.13	.66
Webpage	Equal variances assumed	11.99	.002	-2.31	25.00	.029	-.40	.17	-.75	-.04
	Equal variances not assumed			-2.28	21.33	.033	-.40	.17	-.76	-.03
Other_UI	Equal variances assumed	14.08	.001	1.54	25.00	.137	.15	.10	-.05	.36
	Equal variances not assumed			1.48	12.00	.165	.15	.10	-.07	.38

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

DIFFERENCE BETWEEN BERCHIDDA AND KÖKAR DEMO SITES

Table 45: Means and standard deviation

Group Statistics

	Group	N	Mean	Std. Deviation	S.E. Mean
Age	0	13	4.38	1.56	.43
	3	15	4.53	1.46	.38
Gender	0	13	.69	.48	.13
	3	13	.62	.51	.14
Community_engagement	0	13	.62	.51	.14
	3	15	.60	.51	.13
Individual_participation	0	13	.92	1.26	.35
	3	15	1.60	.51	.13
Tool_helpful	0	13	.62	.51	.14
	3	15	.73	.46	.12
Personal_interest	0	11	.64	1.03	.31
	3	15	1.33	.62	.16
Privacy	0	13	.62	1.19	.33
	3	13	.46	1.27	.35
Expert_use	0	13	.08	.28	.08
	3	15	.07	.26	.07
Group_use	0	13	.62	.51	.14
	3	15	.47	.52	.13
Individual_use	0	13	.31	.48	.13
	3	15	.53	.52	.13
App	0	13	.69	.48	.13
	3	15	.20	.41	.11
Webpage	0	13	.46	.52	.14
	3	15	.87	.35	.09
Other_UI	0	13	.15	.38	.10
	3	15	.07	.26	.07

Table 46: t-test results between Berchidda and Kökar

Independent Samples Test

		Levene's Test for Equality of Variances		T-Test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Age	Equal variances assumed	.38	.540	-.26	26.00	.796	-.15	.57	-1.32	1.02
	Equal variances not assumed			-.26	24.86	.797	-.15	.57	-1.33	1.03
Gender	Equal variances assumed	.61	.443	.40	24.00	.695	.08	.19	-.32	.48
	Equal variances not assumed			.40	23.93	.695	.08	.19	-.32	.48
Community_engagement	Equal variances assumed	.03	.874	.08	26.00	.937	.02	.19	-.38	.41
	Equal variances not assumed			.08	25.45	.937	.02	.19	-.38	.41
Individual_participation	Equal variances assumed	10.35	.003	-1.92	26.00	.066	-.68	.35	-1.40	.05
	Equal variances not assumed			-1.82	15.37	.088	-.68	.37	-1.47	.11
Tool_helpful	Equal variances assumed	1.53	.228	-.65	26.00	.523	-.12	.18	-.49	.26
	Equal variances not assumed			-.64	24.49	.526	-.12	.18	-.50	.26
Personal_interest	Equal variances assumed	.79	.382	-2.16	24.00	.041	-.70	.32	-1.36	-.03
	Equal variances not assumed			-2.00	15.24	.063	-.70	.35	-1.44	.04
Privacy	Equal variances assumed	.02	.902	.32	24.00	.753	.15	.48	-.84	1.15
	Equal variances not assumed			.32	23.92	.753	.15	.48	-.84	1.15
Expert_use	Equal variances assumed	.04	.841	.10	26.00	.920	.01	.10	-.20	.22
	Equal variances not assumed			.10	24.80	.921	.01	.10	-.20	.22
Group_use	Equal variances assumed	.60	.446	.77	26.00	.450	.15	.19	-.25	.55
	Equal variances not assumed			.77	25.57	.450	.15	.19	-.25	.55
Individual_use	Equal variances assumed	2.19	.151	-1.19	26.00	.245	-.23	.19	-.62	.16
	Equal variances not assumed			-1.20	25.85	.242	-.23	.19	-.61	.16
App	Equal variances assumed	1.60	.217	2.91	26.00	.007	.49	.17	.15	.84
	Equal variances not assumed			2.88	23.93	.008	.49	.17	.14	.84
Webpage	Equal variances assumed	13.46	.001	-2.45	26.00	.021	-.41	.17	-.75	-.06
	Equal variances not assumed			-2.38	20.66	.027	-.41	.17	-.76	-.05
Other_UI	Equal variances assumed	2.21	.149	.72	26.00	.476	.09	.12	-.16	.33
	Equal variances not assumed			.70	20.85	.489	.09	.12	-.17	.34

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

DIFFERENCE BETWEEN OLLERSDORF AND ISPASTER DEMO SITES

Table 47: Means and standard deviation

Group Statistics

	Group	N	Mean	Std. Deviation	S.E. Mean
Age	1	22	5,09	,97	,21
	2	14	3,86	1,35	,36
Gender	1	23	,61	,50	,10
	2	14	,86	,36	,10
Community_engagement	1	23	,78	,52	,11
	2	14	,43	,51	,14
Individual_participation	1	23	1,48	,59	,12
	2	14	1,43	,51	,14
Tool_helpful	1	23	,91	,29	,06
	2	14	,71	,47	,13
Personal_interest	1	21	1,19	,60	,13
	2	14	1,29	,47	,13
Privacy	1	22	-,32	1,17	,25
	2	14	,36	,84	,23
Expert_use	1	23	,09	,29	,06
	2	14	,07	,27	,07
Group_use	1	23	,61	,50	,10
	2	14	,64	,50	,13
Individual_use	1	23	,43	,51	,11
	2	14	,43	,51	,14
App	1	23	,30	,47	,10
	2	14	,43	,51	,14
Webpage	1	23	,83	,39	,08
	2	14	,86	,36	,10
Other_UI	1	23	,09	,29	,06
	2	14	,00	,00	,00

Table 48: t-test results between Ollersdorf and Ispaster

Independent Samples Test

		Levene's Test for Equality of Variances		T-Test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Age	Equal variances assumed	1.58	.217	3.19	34.00	.003	1.23	.39	.45	2.02
	Equal variances not assumed			2.96	21.52	.007	1.23	.42	.37	2.10
Gender	Equal variances assumed	14.40	.001	-1.62	35.00	.115	-.25	.15	-.56	.06
	Equal variances not assumed			-1.75	33.73	.090	-.25	.14	-.54	.04
Community_engagement	Equal variances assumed	1.72	.198	2.02	35.00	.051	.35	.18	.00	.71
	Equal variances not assumed			2.03	27.81	.052	.35	.17	.00	.71
Individual_participation	Equal variances assumed	.92	.345	.26	35.00	.797	.05	.19	-.34	.44
	Equal variances not assumed			.27	30.71	.790	.05	.18	-.33	.43
Tool_helpful	Equal variances assumed	10.70	.002	1.60	35.00	.118	.20	.12	-.05	.45
	Equal variances not assumed			1.43	19.07	.169	.20	.14	-.09	.49
Personal_interest	Equal variances assumed	.25	.620	-.50	33.00	.621	-.10	.19	-.48	.29
	Equal variances not assumed			-.52	32.08	.603	-.10	.18	-.46	.27
Privacy	Equal variances assumed	.86	.359	-1.87	34.00	.070	-.68	.36	-1.41	.06
	Equal variances not assumed			-2.01	33.38	.053	-.68	.34	-1.36	.01
Expert_use	Equal variances assumed	.11	.744	.16	35.00	.871	.02	.10	-.18	.21
	Equal variances not assumed			.17	29.25	.869	.02	.09	-.18	.21
Group_use	Equal variances assumed	.17	.680	-.20	35.00	.841	-.03	.17	-.38	.31
	Equal variances not assumed			-.20	27.68	.841	-.03	.17	-.38	.31
Individual_use	Equal variances assumed	.01	.942	.04	35.00	.972	.01	.17	-.34	.36
	Equal variances not assumed			.04	27.31	.972	.01	.17	-.35	.36
App	Equal variances assumed	1.64	.208	-.75	35.00	.457	-.12	.17	-.46	.21
	Equal variances not assumed			-.74	25.71	.468	-.12	.17	-.47	.22
Webpage	Equal variances assumed	.24	.627	-.24	35.00	.810	-.03	.13	-.29	.23
	Equal variances not assumed			-.25	29.03	.807	-.03	.13	-.29	.23
Other_UI	Equal variances assumed	6.16	.018	1.12	35.00	.269	.09	.08	-.07	.24
	Equal variances not assumed			1.45	22.00	.162	.09	.06	-.04	.21

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

DIFFERENCE BETWEEN OLLERSDORF AND KÖKAR DEMO SITES

Table 49: Means and standard deviation

Group Statistics

	Group	N	Mean	Std. Deviation	S.E. Mean
Age	1	22	5,09	,97	,21
	3	15	4,53	1,46	,38
Gender	1	23	,61	,50	,10
	3	13	,62	,51	,14
Community_engagement	1	23	,78	,52	,11
	3	15	,60	,51	,13
Individual_participation	1	23	1,48	,59	,12
	3	15	1,60	,51	,13
Tool_helpful	1	23	,91	,29	,06
	3	15	,73	,46	,12
Personal_interest	1	21	1,19	,60	,13
	3	15	1,33	,62	,16
Privacy	1	22	-,32	1,17	,25
	3	13	,46	1,27	,35
Expert_use	1	23	,09	,29	,06
	3	15	,07	,26	,07
Group_use	1	23	,61	,50	,10
	3	15	,47	,52	,13
Individual_use	1	23	,43	,51	,11
	3	15	,53	,52	,13
App	1	23	,30	,47	,10
	3	15	,20	,41	,11
Webpage	1	23	,83	,39	,08
	3	15	,87	,35	,09
Other_UI	1	23	,09	,29	,06
	3	15	,07	,26	,07

Table 50: t-test results between Ollersdorf and Kökar

Independent Samples Test

		Levene's Test for Equality of Variances		T-Test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Age	Equal variances assumed	3.05	.089	1.40	35.00	.170	.56	.40	-.25	1.37
	Equal variances not assumed			1.30	22.40	.207	.56	.43	-.33	1.45
Gender	Equal variances assumed	.01	.939	-.04	34.00	.970	-.01	.17	-.36	.35
	Equal variances not assumed			-.04	24.73	.970	-.01	.17	-.37	.35
Community_engagement	Equal variances assumed	1.54	.222	1.07	36.00	.292	.18	.17	-.16	.53
	Equal variances not assumed			1.08	30.56	.291	.18	.17	-.16	.53
Individual_participation	Equal variances assumed	1.27	.267	-.65	36.00	.518	-.12	.19	-.50	.26
	Equal variances not assumed			-.68	33.27	.504	-.12	.18	-.49	.24
Tool_helpful	Equal variances assumed	9.36	.004	1.49	36.00	.145	.18	.12	-.07	.42
	Equal variances not assumed			1.36	21.27	.189	.18	.13	-.10	.46
Personal_interest	Equal variances assumed	.39	.536	-.69	34.00	.492	-.14	.21	-.56	.27
	Equal variances not assumed			-.69	29.83	.494	-.14	.21	-.56	.28
Privacy	Equal variances assumed	.04	.847	-1.85	33.00	.074	-.78	.42	-1.64	.08
	Equal variances not assumed			-1.81	23.73	.083	-.78	.43	-1.67	.11
Expert_use	Equal variances assumed	.20	.659	.22	36.00	.826	.02	.09	-.17	.21
	Equal variances not assumed			.23	32.38	.823	.02	.09	-.16	.20
Group_use	Equal variances assumed	.54	.466	.85	36.00	.403	.14	.17	-.20	.48
	Equal variances not assumed			.84	29.32	.408	.14	.17	-.20	.49
Individual_use	Equal variances assumed	.11	.737	-.58	36.00	.564	-.10	.17	-.44	.25
	Equal variances not assumed			-.58	29.67	.567	-.10	.17	-.45	.25
App	Equal variances assumed	2.17	.149	.70	36.00	.489	.10	.15	-.20	.41
	Equal variances not assumed			.72	32.73	.477	.10	.15	-.19	.40
Webpage	Equal variances assumed	.44	.510	-.33	36.00	.746	-.04	.12	-.29	.21
	Equal variances not assumed			-.33	32.12	.741	-.04	.12	-.29	.21
Other_UI	Equal variances assumed	.20	.659	.22	36.00	.826	.02	.09	-.17	.21
	Equal variances not assumed			.23	32.38	.823	.02	.09	-.16	.20

This project has received funding from the European Union's Horizon 2020 Programme under the Grant Agreement no. 957819

DIFFERENCE BETWEEN ISPASTER AND KÖKAR

Table 51: Means and standard deviation

Group Statistics

	Group	N	Mean	Std. Deviation	S.E. Mean
Age	2	14	3,86	1,35	,36
	3	15	4,53	1,46	,38
Gender	2	14	,86	,36	,10
	3	13	,62	,51	,14
Community_engagement	2	14	,43	,51	,14
	3	15	,60	,51	,13
Individual_participation	2	14	1,43	,51	,14
	3	15	1,60	,51	,13
Tool_helpful	2	14	,71	,47	,13
	3	15	,73	,46	,12
Personal_interest	2	14	1,29	,47	,13
	3	15	1,33	,62	,16
Privacy	2	14	,36	,84	,23
	3	13	,46	1,27	,35
Expert_use	2	14	,07	,27	,07
	3	15	,07	,26	,07
Group_use	2	14	,64	,50	,13
	3	15	,47	,52	,13
Individual_use	2	14	,43	,51	,14
	3	15	,53	,52	,13
App	2	14	,43	,51	,14
	3	15	,20	,41	,11
Webpage	2	14	,86	,36	,10
	3	15	,87	,35	,09
Other_UI	2	14	,00	,00	,00
	3	15	,07	,26	,07

Table 52: t-test results between Ispaster and Kökar

Independent Samples Test

		Levene's Test for Equality of Variances		T-Test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Age	Equal variances assumed	.14	.710	-1.29	27.00	.207	-.68	.52	-1.75	.40
	Equal variances not assumed			-1.30	27.00	.206	-.68	.52	-1.75	.39
Gender	Equal variances assumed	8.47	.007	1.43	25.00	.164	.24	.17	-.11	.59
	Equal variances not assumed			1.42	21.64	.171	.24	.17	-.11	.60
Community_engagement	Equal variances assumed	.09	.769	-.90	27.00	.374	-.17	.19	-.56	.22
	Equal variances not assumed			-.90	26.81	.374	-.17	.19	-.56	.22
Individual_participation	Equal variances assumed	.09	.769	-.90	27.00	.374	-.17	.19	-.56	.22
	Equal variances not assumed			-.90	26.81	.374	-.17	.19	-.56	.22
Tool_helpful	Equal variances assumed	.05	.827	-.11	27.00	.913	-.02	.17	-.37	.33
	Equal variances not assumed			-.11	26.76	.913	-.02	.17	-.37	.33
Personal_interest	Equal variances assumed	1.92	.177	-.23	27.00	.818	-.05	.20	-.47	.37
	Equal variances not assumed			-.23	25.97	.816	-.05	.20	-.46	.37
Privacy	Equal variances assumed	1.08	.308	-.25	25.00	.801	-.10	.41	-.95	.74
	Equal variances not assumed			-.25	20.66	.805	-.10	.42	-.97	.76
Expert_use	Equal variances assumed	.01	.923	.05	27.00	.961	.00	.10	-.20	.20
	Equal variances not assumed			.05	26.70	.961	.00	.10	-.20	.21
Group_use	Equal variances assumed	1.04	.316	.93	27.00	.358	.18	.19	-.21	.56
	Equal variances not assumed			.94	26.97	.358	.18	.19	-.21	.56
Individual_use	Equal variances assumed	.14	.707	-.55	27.00	.589	-.10	.19	-.50	.29
	Equal variances not assumed			-.55	26.88	.589	-.10	.19	-.50	.29
App	Equal variances assumed	6.04	.021	1.32	27.00	.197	.23	.17	-.13	.58
	Equal variances not assumed			1.31	25.01	.201	.23	.17	-.13	.59
Webpage	Equal variances assumed	.02	.887	-.07	27.00	.943	-.01	.13	-.28	.26
	Equal variances not assumed			-.07	26.72	.943	-.01	.13	-.28	.26
Other_UI	Equal variances assumed	4.32	.047	-.96	27.00	.343	-.07	.07	-.21	.08
	Equal variances not assumed			-1.00	14.00	.334	-.07	.07	-.21	.08

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7.6. Comments from the questionnaires

In the following the comments collected from the workshop participants for different questions are provided. These comments have been translated from the respective languages into English, but not otherwise edited. Of course, not all questions in all workshops elicited an answer, therefore only the sections of the questionnaire are listed here, for which at least one answer was received.

7.6.1. How likely do you think it is in your community that people would engage in common energy related activities?

OLLERSDORF

Personal benefits need to be made visible

7.6.2. Do you think a tool like the one presented earlier would be helpful for the community activities? Why, or why not?

OLLERSDORF

It can summarise different thoughts from different people

Each execution needs solid planning

To decide who should participate in the project.

To have some guidance.

Decision support

Try out different scenarios. Output: Investment costs, savings, amortisation. Input: Real data collection

Everybody could calculate the best option for themselves.

In a bigger context, yes, but for the majority of members of the community not. Only for people who are knowledgeable in technology or IT.

Too scientific

Communication with the community, improvement of research, interesting developments can be anticipated, and future aspects can be initiated

Better communication and networking.

Coordination and communication

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ISPASTER

I would help / contribute to understand the advantages of working together

Because we start seeing how the projects are advancing

Because I am starting to know the project

Because it is a useful example of how it can be shaped this community

I haven't understood well the way it works

It would be a very "light" / "soft" tool for the community.

Contrast with different points of view

For the awareness about the importance of the self-consumption and the possibility to get independent from the private network

If it allows to do simulation with multiples scenarios that are reliable

In case the application is adjusted to the existing reality and is updated correctly

I would promote more participation processes in other areas. More collaboration

KÖKAR

Know too little about it

It is always good to have a plan when something is to be done. The plan can then change in the course of the project.

7.6.3. Would you personally be interested in using such a tool?

KÖKAR

If it is good

7.6.4. A planning tool can be designed for different levels of expertise. Would you prefer the planning tool to be primarily used ...

OLLERSDORF

If to be used by citizens, it has to be much simpler and more specific.

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7.6.5. What platform would you prefer the tool to run on?

OLLERSDORF

More clarity

Also, on paper

Information leaflet

7.6.6. The more data the tool is based on, the more accurate the results. In this context, how important is privacy for you?

OLLERSDORF

More data, more results

Data needs to be accessible for research and development

Everyone shares everything on Facebook. I want that future generations will benefit.

7.6.7. Community goals

BERCHIDDA

Are there any other goals that you think are relevant for your community?

Energy Savings

Energy Savings

Energy Savings

Wind Turbines

Involving those people who have doubts about the importance of the energy community

Energy Savings

It is important to make a technical assessment of production - consumption in the community and to identify the surface area required to achieve the necessary mass

Exploiting abandoned land to produce a commodity such as energy that is useful to the community

First of all, it is essential to achieve self-consumption for the whole community in order for the smart grid to be perfect. The amount of energy taken from the grid must be zero.

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OLLERSDORF

Goal 1: Achieve 100% renewable energy for the community

A lot of current, local investments (future?)

Goal 2: Achieve energy self-sufficiency for the community

Mainly public buildings

Are there any other goals that you think are relevant for your community?

Water, sewage, cooling, food

Information about alternative-energy savings. Information about the decision-making process in the EC.

Being a role model community for others and presenting the real-life outcomes from their own community to others.

Independence from utility companies

Fire and flood protection, vehicle and technical equipment

Energy savings in the households (old appliances)

Water supply. Fit battery storage to grocery store so that it is possible to shop during a black out.

Save energy

Healthy and viable environment

CO_2-reduction, being independent

ISPASTER

To base on the supply provided by the surroundings.

As a next step, to extend total / partial self-sufficiency to the rest of the town

Exit from the Elexade centre and involve all the neighbours to reach a real autonomy

Economic development of the municipality

Raising awareness

Administrative support

A much easier and faster way to go into the energy process.

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KÖKAR

Goal 4: Facilitate increased demand for EV charging infrastructure on the island

Comments:

Probably?

Are there any other goals that you think are relevant for your community?

Long-term perspective

Attractive for prospective immigrants, families with children, - Cheaper electricity for families with children

Lower the energy cost.

That "everything" can be put to use. Also learn to save energy.

7.6.8. Scenarios

BERCHIDDA

Are there any other goals that you think are relevant for your community?

Exploiting all rural infrastructures, apart from wind turbines

Combination of mini wind turbines with photovoltaic systems with storage

Exploiting wind turbines and mini turbines

Investigating and seeking European - national incentives

Producing energy in order to no longer be connected to a charging distributor

Sharing energy with the community

Exploiting other types of RES, i.e. Wind turbines

Sharing energy with the community

With regard to future scenarios, it would be relevant to have a continuous expansion of the community.

OLLERSDORF

Scenario 1: PV installation

Comments

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Why is not all roof space in use?

Do you understand the scenario? What additional information do you think would be helpful?

Well understandable

Information about funding opportunities for PV-installation. Information about the opportunity to make my roof available. As a single-person household PVs doesn't yield return on investment.

Show energy balance and -flows of the big PV-energy producers to decide about the current energy-load in the community (app).

PV-feasibility study for all buildings

Other projects in other regions, for example H2-production and public transport

Good to understand.

Cost-benefit must be visualised very specifically for the individual.

Is understandable. Which alternative energy source are available?

Field trips to be educated on the technology in the field.

Information for the specific households.

Understandable

What information do you need to make an informed decision on the scenario?

Value for money, resources

Cost-benefit analysis

Cost, sustainability of systems, reusability, repairs, transport, logistics

Information was sufficient.

Cost-benefit must be visualised very specifically for the individual.

Costs? How much suitable area is available?

Documentation, costs and discussions with experts.

Size and cost of the PV systems for the house.

Being up-dated all the time.

Scenario 2: Battery storage

Do you understand the scenario? What additional information do you think would be helpful?

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Which kind of storage?

Guidelines how big energy storage for a residential home needs to be

Yes

Costs

Example calculation to illustrate e.g. how 10xEV impact V2G

Can storage be used together?

No. Technology and cost. How do I get the electricity? Costs of extra cabling?

Question of feasibility

In general, yes. What batteries are we talking about? Saltwater batteries are really no alternative because of space, cost and benefit. Observe market development.

How many storage units are reasonable? Big central units or better more smaller units?

Lifespan? Cost?

Yes

Understandable

What information do you need to make an informed decision on the scenario?

Costs

Costs, grants

Costs

Costs

Information about local storage (e.g. Greenrock) and V2G and V2H

How much storage is necessary to achieve a joint utilization?

What has to be supplied with electricity in case of a black out? (In the community, in the household)

Costs? Cheaper means more capacity is possible.

Scenario 3: Waste heat recovery

Comments

Small-scale district heating yes, large-scale district heating, no. In my opinion there is too much heat loss if not produced where it is consumed.

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Do you understand the scenario? What additional information do you think would be helpful?

Where are the energy sources coming from?

Yes

Example, which companies could qualify in Ollersdorf

Feasibility study

No. Technology and cost.

A lot of information. A handout would be helpful to pass on to family and friends.

Currently undervalued in Ollersdorf! Has potential.

Information what systems are in use already. Cost-benefit analysis.

Yes

Understandable

What information do you need to make an informed decision on the scenario?

Many small businesses had to close down. Will they re-open? And how much does it cost to open new businesses.

Is there the opportunity to participate in wind farms which are further away?

Is there an interest in the community and how many would take part? Cost-benefit analysis

Can't decide yet.

Feasibility studies

Information about small scale district heating. Combined Heat and Power.

Considering the presented mock-ups, do you understand what information is presented? Do you have any suggestions, how the results can be presented better?

Access to the presentation slides via internet

Well understandable

Very good

The EC needs to be based on real data, so that every new user/participant can see their individual benefits in case of joining.

Partly. Very technical. Difficult to understand for most people. What is my benefit if I collect data? How do I get others to participate?

Yes

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A lot of facts!?

Partly food for thought. Probably more realistic examples.

The individual cannot change the community but contribute. It is important to me how I can improve my household.

Yes

Understandable

Are there any other scenarios that you think are relevant for your community?

Wind turbines: where to place them?

Collective purchase of additional energy, collective use of excess energy

Collective purchase of energy and selling of energy

For example, what would be the benefit of 10 storage units (5-7kWh) + 10 EVs for others? Would it be just a role model or could the energy be shared? If yes, how? (via smart meter bill?)

Usage of waste heat, focus on heat-pumps

Information why wind turbines are not available?

ISPASTER

Scenario 1: School building upgrades

Comments

Information about the renewable energy sources

Information about energy efficiency improvements for the building.

Do you understand the scenario? What additional information do you think would be helpful?

Yes.

Communication from all the locations of the renewable energies."

Yes.

Explanation about the quality of the building in energy terms. The type of technologies to be implemented in the school.

Yes.

Ideas at project stage about consumption and production

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I'm missing information

The energy generation project from the school. Expected energy generation

It is understandable and a real opportunity to be an energy producer that brings and helps in one of its objectives (electrify public buildings). Public church?

Type of system used

Yes

Technical information as clear as possible to take the correct decisions

What information do you need to make an informed decision on the scenario?

To check how it will interact with the rest of the systems in Ispaster

Costs Savings

Energy costs

Consumption

Generation with different renewable energies

Data more or less real of the energy generated and consumed in this scenario

Also, data about the number of beneficiaries in the rest of the building (nevertheless I am in favour)

Real requirements and possibilities

Scenario 2: Public building upgrades

Comments

Idem school

Do you understand the scenario? What additional information do you think would be helpful?

Yes.

Technologies and actions for more efficiency.

I'm missing information

The energy generation project from the school. Expected energy generation

It is understandable and a real opportunity to be an energy producer that brings and helps in one of its objectives (electrify public buildings). Public church?

Yes

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Are the improvement individual in each building? o it would be an energy improvement of the public grid? i.e., Installation of an aerothermal equipment in a building X o would it be supplied with the energy generated by the solar panels

Scenario 3: Community owned PV

Do you understand the scenario? What additional information do you think would be helpful?

The opportunity to install photovoltaics in the buildings in Elexalde / Ispaster

Yes.

Check with the citizens about possible locations.

Additional information: Possible technical solutions and costs

One way to explore

Actual consumption

Information on costs, energy savings, durability

Can it be expanded to the industrial area or are those different scenarios

What information do you need to make an informed decision on the scenario?

Potential subsidies, costs

It is missing a lot of information and especially field to promote higher participation

From the participation it can be extracted something interesting, and the information must be real and feasible

Technical support over production capacity

Considering the presented mock-ups, do you understand what information is presented? Do you have any suggestions, how the results can be presented better?

Yes, I do

Yes

The information is very basic

It is important to know the details of energy generated

Not very well

Investment costs

Who and how is the investment divided?

Are there any other scenarios that you think are relevant for your community?

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To extend this example to all the buildings

Adaptation strategies

There is a long way to go, and these initiatives are very welcome. From a small village like this one, try to reach bigger ones is a challenge.

KÖKAR

Scenario 1: Sommarängen

Do you understand the scenario? What additional information do you think would be helpful?

Been involved in developing the scenario

Public information

The electricity consumption of the kitchen in Sommarängen should be addressed separately

Yes

Yes. Start working on the project. I think that those who are interested and want to make a change are positive to start.

Benefits for those who live around Sommarängen and Barnängen

Sommarängen and Barnängen should belong together.

Yes, I understand it. Except for energy questions. - Functional buildings (sealed in the right way), - other environmental questions (cleaning, washing, compost, foodlist; locally produced, water use, traffic)

What information do you need to make an informed decision on the scenario?

Go for it

Battery package

No need.

Environmental improvements, economic benefits for municipality and private, disadvantages

I think I got enough information from this info-session.

Scenario 2: Mika/Sommarängen

Do you understand the scenario? What additional information do you think would be helpful?

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I understand

Yes

Yes. Start working on the project. I think that those who are interested and want to make a change are positive to start.

Benefits for those who live around Sommarängen and Barnängen

Yes, I understand it. Except for energy questions. - Functional buildings (sealed in the right way), - other environmental questions (cleaning, washing, compost, foodlist; locally produced, water use, traffic)

What information do you need to make an informed decision on the scenario?

How much we save and what it costs the municipality

No need.

Scenario 3: Karlby

Do you understand the scenario? What additional information do you think would be helpful?

I understand

Better information to the villagers about what the plan is

Yes

Yes. Start working on the project. I think that those who are interested and want to make a change are positive to start.

Can the project be started despite resistance from some inhabitants of the municipality? What happens then?

Yes, I understand the scenario.

What information do you need to make an informed decision on the scenario?

No need.

This info-session was sufficient.

Scenario 4: Electric vehicles

Do you understand the scenario? What additional information do you think would be helpful?

Yes

Yes. Start working on the project. I think that those who are interested and want to make a change are positive to start. More charging stations.

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Information on the web that there is possibility to charge the car here.

Yes

What information do you need to make an informed decision on the scenario?

No need.

Considering the presented mock-ups, do you understand what information is presented? Do you have any suggestions, how the results can be presented better?

Yes

I understand it well and you have presented the project very well.

Information meetings early on in the project for the public.

Good that the information is given in an open discussion format, oral communication.

Are there any other scenarios that you think are relevant for your community?

More wind power

The fuel price is concerning

Private cars vs. public transport.

This info-session was enough.

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