D2.2

Engagement Strategy

D2.2		Work Package No.	2	Task/s No.	2.2
Work Package Title	Value Propositions for Market Actors, customer engagement strategies and legal & ethics framework				
Linked Task/s Title	Engagement Strategy				
Status	Final		(Draft/Draft Final/Final)		
Dissemination level	PU				
Due date deliverable	2023-10-31		Submission date		2023-11-15
Deliverable version	Final				

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Document History

Version	Date	Comment
0.1	2023-06-12	Table of Contents for review
0.2	2023-10-24	Draft ready for review
0.3	2023-11-08	Amendments from Executive Board review
0.4	2023-11-11	Review by Project Coordinator
1.0	2023-11-15	Final copy for submission

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ANT Actor Network Theory

NRA National Regulatory Authority

PGUI Power Grid User Interface

Executive Summary

This report provides a comprehensive overview of the engagement strategy developed for the BeFlexible project, focusing on effectively involving customers in the utilization of flexibility resources. The report covers various aspects, including the scope and objectives of the task, the structure of the deliverable, and the interdependencies with other tasks and deliverables.

A thorough review of past projects regarding customer engagement strategies has been conducted, offering valuable insights for the development of the engagement strategy for BeFlexible. The pilot demonstration framework is presented, highlighting the specific objectives of each pilot in different regions. Socio-cultural insights are explored, emphasizing the need for tailoring engagements to different user types and considering socio-cultural arrangements.

The report delves into the methodologies utilized in the engagement strategy, including Actor-Network Theory (ANT) and a hybrid collaboration approach. These methodologies provide a solid foundation for the development of effective engagement strategies. The engagement process is outlined, focusing on key elements such as incentives, education, continuous feedback, and evaluation. A detailed timeline and various engagement activities are provided as guidance for the implementation of the strategy.

Furthermore, the report addresses the application of the engagement strategy, providing instructions for tailoring engagements based on user archetypes and running activities. Contingency planning and continued implementation support are also discussed to ensure the long-term success of the engagement strategy.

Overall, the engagement strategy developed for the BeFlexible project serves as a crucial framework for effectively involving customers in the utilization of flexibility resources. By leveraging the methodologies, insights, and activities outlined in this report, the project can achieve its objectives of engaging customers and driving the adoption of flexible energy practices. The report provides a comprehensive roadmap for implementing a sustainable and efficient energy system through successful customer engagement.

1. Introduction

This deliverable will define engagement strategies to a) recruit, b) onboard, and c) maintain customers using the services defined in WP3 that will be implemented in demo work packages WP4, WP5 and WP6. The work will mainly focus on the consumers, as they are the market actors with a higher risk of disengagement and, therefore, break the flexibility value chain.

The strategy will help to inform the creation of customer engagement plans, which should be led by the pilot work packages individually with the support of the customer engagement specialists SIN and SoulSight.

1.1. Scope and objectives of the task

The primary objective of this report is to delineate comprehensive engagement strategies tailored for the recruitment, onboarding, and retention of customers availing services developed within Work Package 3 (WP3) of the BeFlexible project. These strategies, critical for the success of the project, are directed towards consumers, recognised as a focal point due to their propensity to disengage and thereby disrupt the intricate flexibility value chain integral to BeFlexible.

In our pursuit of effective engagement strategies, we draw upon a multifaceted approach, integrating insights from previous successful projects, wisdom gleaned from the BRIDGE customer engagement working groups, and the findings from qualitative research conducted under Task 2.1. We seek to discern the sociocultural determinants influencing consumer engagement at various stages, including residential, public, business, and industrial settings.

Our overarching aim is to establish a universal engagement blueprint encompassing all BeFlexible demonstrations. This blueprint will serve as a guiding framework, allowing for the assessment of goals and engagement requirements from a project standpoint, harmonising them with the diverse stakeholders involved at each pilot site. We intend to achieve this alignment utilising a hybrid methodology, successfully employed in previous EU projects such as ACCEPT (Grant Agreement No 957781.) and SYNERGY (Grant Agreement No 872734.), which will feature a detailed engagement roadmap taking into account critical factors like stakeholder mapping.

Recognising the need for adaptability, we propose the creation of specific, locally tailored adaptations. These adaptations will be meticulously crafted in collaboration with demo leaders within each demo work package, ensuring they resonate with local conditions. Subsequently, these strategies will be subjected to rigorous testing through participatory workshops and individual validation sessions, involving consumers and other stakeholders.

To ensure the efficacy of our engagement strategies, we have allocated dedicated tasks within each demo work package for iterative testing during the demonstration phase. This agile approach will facilitate real-time adjustments and enhancements based on observed outcomes.

Finally, the strategies will undergo a meticulous evaluation and potential redefinition in alignment with the learnings derived from Task 7.3, with an explicit focus on their utility for exploitation purposes. Through this comprehensive approach, we aim to fortify customer engagement strategies within the BeFlexible project, thereby contributing to the realisation of its broader objectives.

1.2. Structure of the deliverable

This document first details relevant background information regarding each of the planned pilots in the BeFlexible project. It then summarises research conducted into the social-cultural considerations for these customer groups and describes the methodologies employed in constructing the engagement strategy.

The second half of the document sets out the proposed strategy including the stages of engagement, the types of engagement activities that should be considered at each of these stages, and descriptions for each of these activities.

The document concludes with information about how the engagement strategy can be applied, including the ways in which it connects with acceptance criteria and social measurement.

1.3. Interdependencies with other tasks and deliverables

The engagement strategy applies across a number of work packages and has interdependencies with other tasks and deliverables including the following:

Interdependencies with task 2.1 (Value propositions) Developing unique value propositions for each service/resource and type of user is the basis for an engagement strategy development since understanding the motivations, emotions, barriers, economic and non-economic incentives and jobs that users need to do will help us customise each value proposition and its concretisation to the user archetypes. Some of the components of the value propositions, such as customer jobs and pain relievers, can be used as levers or serve to orient messages and activities in any of the phases of the engagement strategy, which are recruitment, participation and continuance. The value propositions facilitate the outline of an engagement strategy because they explain what the user wants in return for flex provision.
The motivations and barriers to engagement can be emotional, functional, experiential or social. The proposed tool of value propositions unveils all these singularities for each profile and Demo pilot. They are

vital to understanding how users want to relate with energy, how they want to interact with other actors and what type of value they expect from this relationship.

Interdependencies with WP7 (Measurement of engagement across stages): Those strategies will be monitored and iterated during the demos to keep customers engaged. A final evaluation of the effectiveness and a proposition based on evidence and learnings for exploitation purposes will be ensured in T7.3.

Interdependencies with T2.3 (legal and ethics implications):
It will chart the data protection activities within the project such as the one that will be deployed by the Demo pilots in order to recruit and apply the engagement strategy design for each case. This will be delivered through a data protection impact assessment where it will be provided the core requirements and recommendations on (personal) data processing activities within BeFlexible.

Interdependences with WP1 (KPIs) The proposed evaluation framework reflects the work done in the corresponding task, where KPIs were proposed to assess the outcomes of participation.

1.4. Past projects review regarding customer engagement strategies

This section aims to review and analyse previous related projects, namely ACCEPT, SYNERGY, PROBONO (Grant Agreement No 101037075.), and IELECTRIX (Grant Agreement No 824392.), in order to understand the methodologies used to develop customer engagement strategies.

The ACCEPT project focused on promoting energy-efficient behaviours among consumers. It employed a comprehensive customer engagement approach that combined top-down strategies, such as targeted marketing campaigns and policy incentives, with bottom-up strategies, including community workshops and peer-to-peer communication. This hybrid collaboration methodology fostered a sense of ownership among customers and facilitated the adoption of energy-saving practices.

SYNERGY aimed to establish sustainable energy communities by engaging customers in energy-related decision-making processes. The project used a participatory approach, involving customers in the co-creation of solutions and the development of local energy plans. By empowering customers to actively contribute, SYNERGY achieved high levels of engagement and successfully implemented community-driven energy initiatives.

PROBONO focused on increasing the adoption of renewable energy technologies among residential customers. The project employed a multi-stakeholder approach, engaging customers, technology providers, and policymakers in collaborative discussions and decision-making processes. By involving various actors in the energy transition, PROBONO created a network that facilitated knowledge sharing, innovation, and the effective implementation of customer engagement strategies.

IELECTRIX aimed to enhance customer engagement and promote the use of smart grid technologies. The project employed a combination of top-down strategies, such as personalised energy reports and online platforms, along with bottom-up approaches, including customer feedback mechanisms and interactive

workshops. By utilising this hybrid methodology, IELECTRIX successfully empowered customers to actively manage their energy consumption and contribute to the development of smart grid solutions.

Recommendations for BEFLEXIBLE: based on the review of these past projects, it was decided that BEFLEXIBLE should adopt a hybrid collaboration methodology, combining top-down and bottom-up approaches, to develop effective customer engagement strategies. This approach will ensure that customers are actively involved in decision-making processes, fostering a sense of ownership and commitment towards sustainable energy practices.

Furthermore, the adoption of Actor Network Theory (ANT) can enhance the understanding of the complex network of actors involved in the energy transition. ANT emphasises the importance of considering both human and non-human actors, such as technologies and policies, in the development of customer engagement strategies. By mapping out the interactions and dependencies between these actors, BEFLEXIBLE can identify key leverage points and design targeted interventions to maximise customer engagement and adoption of sustainable energy solutions.

2. Pilot demonstration framework

In order to develop effective customer engagement strategies for the energy flexibility project, it is crucial to understand the unique characteristics and requirements of the three demo regions that will be participating. By highlighting the differences in each demo region, we can tailor our engagement strategies to effectively address the specific needs and preferences of the target audience and ensure that the implementation of the project is seamless and successful.

This section will delve into the key factors that differentiate these demo regions, and how they will influence the starting point of our engagement strategy based on the type of target, desired service testing, and technological readiness.

2.1. WP4 Italian (Southern EU) Demo

The main objective of WP4 is to develop and implement a demo in which the coordinated resources qualification, data repository and services activation of local and global flexibility (and other cross-sector) services is tested. This demo will be carried out in different locations in Italy, exploiting various weather conditions, without technology selection of type of resources providing services (consumers and producers and energy domains - electricity, mobility, heating, water) in compliance with the national regulatory framework.

2.1.1. Pilot 1.1: Areti Pilot in Rome

Overview: The Areti pilot, located in Rome, aims to test the provision of local flexibility services to solve local congestion.

Objectives: The Areti pilot tests the provision of flexibility coming from the users connect in medium and in low voltage (MV/LV). It will have a strict connection with the RomeFlex project ("Progetto ROmeFlex," Areti, 2023), the initiative promoted by the Italian Italian National Regulatory Authority (NRA) to test a local flexibility market in Rome, open to all kind of residential and industrial customers, starting from 3 kW of contractual power, both as single and aggregate. Moreover, Areti will involve in the project its Smart Park to investigate the network interaction of its fleet composed by 10 stations with 2 AC EVSEs (3 and 22 kW) to feed 20 EVs, 40 kW PV power plant and 125 kWh energy storage.

Collaboration: The provision of services in the Rome Demo will be carried out with a series of key partners in the energy sector like RWTH Aachen University, Enel Grids, Terna and Engineering.
Primary customer type: The primary customer type is composed of residential customers that will be able to directly participate, through an aggregator, in the local flexibility market established by Areti. Other kinds of customers that will be gradually involved with the progress of the project will be energy communities, collective self-consumptions, commercial and industrial customers.

Key dates for customer engagement: During October 2023 several customers, previously engaged by Areti on the Platone project, "Platform For Operation of DIstribution Networks," (Grant Agreement No. 864300), were successfully onboarded in the BeFlexible project.

2.1.2. Pilot 1.2 and 1.3: E-DISTRIBUZIONE Pilots respectively in Foggia & Benevento and Cuneo

Overview: The e-distribuzione pilots, involving portions of the distribution networks of Foggia & Benevento (pilot 1.2) and Cuneo (pilot 1.3), test both the provision of local flexibility services to solve local congestion and the local and global market coordination for distributed resources service provision.

Objectives: The pilots, leveraging the National Regulatory pilot EDGE (E-Distribuzione, "Il Progetto EDGE," E-Distribuzione), will test the direct activation of flexibility services – using a Power Grid User Interface (PGUI) - of selected flexibility service providers (following the short-term forecast of critical conditions on the network and contracted services activation), data sharing through flexibility register and the coordination of local and global services involving common (DSO connected) resources. All the Flexibility Service Providers (FSPs) contracted could be able to participate to the Beflexible demo.

Collaboration: The deployment of the e-distribuzione pilots mainly foreseens the involvement of Gridspertise Srl, Affiliated Entities of Enel in the project, is in charge of the technological deployments in the e-distribuzione pilots as technological provider and the cooperation with Terna for the DSO/TSO market coordination tests.

Primary customer type: Generator; All generators connected to the grid (no relevant what technology behind the meter), Industrial, Commercial and tertiary sector MV/LV connected resources in the pilots area, contractualised to provide local flexibility services. They may apply during the qualification phase of 2024 tenders to be onboarded to the Beflexible demo, for testing direct activation using the Power Grid User Interface (PGUI). For DSO/TSO market coordination tests, the resources should be 'virtual' in order to have proper use cases.

2.2. WP5 Swedish (Northern) Demo

Following the experiences from WP4 (fast-track Demo 1) WP5 as Demo 2 (long-track) aims at
1) implementing and demonstrating and capabilities for flexibility in the DSO sphere such as: internal DSP capabilities, external FSP and aggregator business models and recruitment strategies and flex market platform effectiveness;
2) develop, implement and demonstrate local balancing capabilities in building environment through the integration of assets in build environment as flex components e.g. battery, charging infrastructure, heat pumps; integration of software solutions and business and price models that enables prosumers to take part in flexmarket;
3) demonstrate and implement a platform that enables aggregated services from built environment to local flexmarket and TSO market.

2.2.1. Pilot 5.1: E.ON Pilot in Southern Sweden - Flex Markets for Congestion Management

Within the framework of the BeFlexible project, Sweden is host to two pivotal pilot demonstrations, each contributing distinctively to the exploration of flexibility solutions within the energy landscape. Situated in the Southern Sweden area (Hässleholm or Skåne), this pilot delves into the realm of flexibility markets to address issues of congestion arising from either overconsumption or insufficient production. Notably, the versatile Switch platform will play a central role, accommodating demonstrations for both market-based and non-market-based entries.

The primary objective of this pilot is to facilitate tangible real-life demonstrations of flexibility markets. In this context, Flexibility Service Providers (FSPs) and aggregators will engage in bidding flexibility solutions, thus alleviating congestion concerns within the Medium Voltage (MV) and High Voltage (HV) grids managed by the Distribution System Operator (DSO).

The Switch platform, serving as the backbone, integrates modules for grid data monitoring. These modules will undergo improvements to enhance their functionality and will be presented in a more user-friendly and informative visual format. Furthermore, the pilot will employ a congestion forecasting service to continually enhance predictions, optimising the utilisation of flexibility resources.

The main customer types involved in this pilot are Aggregators, Industries and customers with capacity for Generation, Energy storage or access to Heat pumps.

Key milestones for customer engagement include Market presentation, Market opening and Delivered flexibility during the market season (season runs Nov 1 – March 31).

2.2.2. Pilot 5.2: EONEIS Pilot in Southern Sweden - Unlocking Flex from Buildings

This pilot, spearheaded by EONEIS, focuses on unlocking the latent potential of loads within buildings for flexibility purposes. It investigates the role of EONEIS as an aggregator for flex suppliers, employing a diverse array of balancing and optimisation solutions. The pilot ambitiously tests both market-based and non-market-based mechanisms, alongside financial schemes and incentives for Distribution System Operators (DSOs) and Flexibility Service Providers (FSPs), with support from Transmission System Operators (TSOs), DSOs, and other relevant stakeholders, depending on the scope of market participation.

A notable feature of this pilot is its close linkage to other services ecosystems, fostering synergy and leveraging existing infrastructure and knowledge capital to achieve its objectives efficiently.

This pilot will primarily work with building managers, who have been profiled in more detail in BeFlexible Deliverable 2.1 "Value Propositions".

The key objectives for customer engagement in the project are as follows:

- To recruit customers with flexibility resources and provide them with a clear concept regarding the business model and technical capabilities required for the utilisation of these resources in a flexibility context.
- Enable flexibility services for customers with flexibility resources and facilitate their participation in external offset programs.
- Provide a capability that effectively combines and optimizes both internal and external flexibility offset options.

To ensure the smooth progress of the project, the following milestones and onboarding deadlines have been established:

Proof points for a positive business case showcased - Targeted for Q2 2023: By this time, the project aims to demonstrate tangible evidence of a positive business case resulting from the utilisation of flexibility resources. This will serve as a significant milestone in showcasing the viability and benefits of the project.

Clear prerequisites defined and presented in a concept for a positive business case - Targeted for Q2 2024: By this deadline, the project aims to establish and communicate specific prerequisites that are essential for creating a positive business case for flexibility service providers. This concept will emphasize the value stacking approach, ensuring the optimisation of both internal and external flexibility utilisation.

Continuous recruitment (exponential) over the project and market periods: Throughout the project's duration and in alignment with market dynamics, an ongoing recruitment process will be implemented. The recruitment efforts will be reviewed periodically, and the involvement of flexibility service providers on a yearly basis will be determined.

2.3. WP6 South Western EU (France and Spain)

General objectives: The main objective of this WP is to develop and implement Demo 3 (long-track) following the experiences from Demo 1 (fast-track) in which, through the implementation of some new services and the use of others already demonstrated in previous projects, it will increase the liquidity of the flexibility markets, integrate these new services with other services provided to the citizen and promote new business models based on that. To this end, a specific customer engagement strategy will be developed and the platform architecture necessary to enable all these services will be defined and developed. Prosumers, aggregators, system operators, IT developers and researchers take part of this WP and will testdifferent solutions in different locations with different climate and social conditions, located in Spain and France:

- Pilot 3.1: Madrid
- Pilot 3.2: Benidorm
- Pilot 3.3: Bilbao
- Pilot 3.4: Seville

France:

- Pilot 3.5: Mougins
- Pilot 3.6: Caen

The three different groups of services will be covered:

- **Customer-centric services**, precisely collective services such as intelligent pairing between consumers and producers, rapid instantiation of energy communities, flexibility estimation, and management, are designed to offer the advantages of flexibility aggregation.
- **Cross-sector synergies** (mainly with mobility sector) to unlock flexibility from other sectors and by creating additional value from energy data.
- **Grid operator-centric services**, where short-term and long-term congestion management is the main focus of the involved Distribution System Operators (DSOs).

2.3.1. Madrid Pilot

Iberdrola Campus and residential customers are expected to participate in Madrid site for testing the services.

The campus houses various facilities, including administrative buildings, research and development centers, laboratories, and spaces for employee training and collaboration.

At least 10 residential customers are expected to participate in the pilot. We will focus on the consumer types who are most interested in adopting new technologies, likely belonging to the archetype identified in BeFlexible Deliverable 2.1 "Value Propositions" as 'Adopter'.

2.3.2. Benidorm Pilot

Residential customers and some municipalities resources are expected to participate in Benidorm site for testing the services.

This pilot focuses on a town comprising numerous flats and houses primarily used as second homes or holiday homes for vacationers. Within this context, the project places particular emphasis on engaging with this specific customer segment. Through a comprehensive analysis, so far, we have identified a subset of 12 flats exclusively used for vacation purposes. These flats constitute our targeted group of residential customers for the pilot project.

Additionally, the pilot is looking for customers with water heaters. To facilitate this process, we engaged in discussions with a building administrator to gain necessary permissions and cooperation. In collaboration with the administrator, we developed informative materials, including a poster, flyer, and description letter, to clearly articulate the objectives and intentions of the pilot project. These materials were used to communicate with potential participants, urging them to express their interest in joining the pilot. Regrettably, so far only one individual responded positively .

2.3.3. Bilbao Pilot

Municipality buildings and batteries are expected to participate in Bilbao for testing the services.

Currently, one of the two expected batteries to participate in the project, has confirmed its participation. However, we are still awaiting confirmation for the availability of the second battery. The timeline for the readiness of the second battery remains uncertain at this point. It is anticipated that sufficient time will be available to ensure preparedness with the second battery. The implementation of communication and control systems for the pilot will require a significant amount of time.

Furthermore, the public service building has shown full commitment and engagement towards the pilot. Monthly meetings have been scheduled to discuss the project, and the buildings will participate by utilising the resources available to them.

2.3.4. Sevilla Pilot

Residential customers with electric water heater are expected to participate in Sevilla site for testing the services.

This pilot has been relocated from Zaragoza because of lack of participation. The relocation presents an opportunity to explore a different customer segment and assess the applicability of the pilot project within the context of social housing. It consists of 30 residential customers – at time of writing, the team is searching for a specific location. We have 1 building with 38 houses, or alternatively we will talk with another housing company.

At this moment, EDRD is arranging several meetings with Seville Council in order to close and agree the final buildings that will participate in the project.

2.3.5. Caen & Mougins

The pilot project will primarily focus charging point and energy assets in SAP building and on households and residential properties owned by SAP employees, aiming to evaluate the potential for energy flexibility within these settings. By involving SAP employees in the project, it becomes an opportunity to assess the feasibility and benefits of implementing energy flexibility measures within the SAP employee community.

To facilitate the implementation of the pilot project, it is proposed to support the installation of charging points and energy assets within the SAP employees. This infrastructure will enable the monitoring and control of energy consumption and production, allowing participants to actively engage in adjusting their energy usage patterns and potentially supplying excess energy to the grid.

In the initial phase of the pilot project, a total of 18 declarations of interest were received from SAP employees residing in the south of France close to the Mougins location, while 3 declarations of interest were received from employees in Normandy nearCaen. These declarations signify the willingness of SAP employees to participate in the energy flexibility pilot project

In order to expand the scope and impact of the pilot project, it is recommended to initiate a second wave of recruitment. This recruitment strategy will involve using the initial signups as ambassadors to encourage their colleagues to participate in the pilot project. Leveraging the influence and enthusiasm of the first signups, it is reasonably expected to recruit an additional 10 participants through this method.

3. Socio-cultural insights

Socio-cultural barriers and drivers of engagement of each demo's different types of consumers (residential, public, business, industrial) as well as the grid side actors (DSO, TSO and Aggregators) have been identified through the development of value propositions identified in BeFlexible Deliverable 2.1 "Value Propositions". By identifying the obstacles and frustrations as well as levers users face, whether in the context of residential energy management or industrial processes, more efficient flexibility solutions and engagement strategies to tackle project objectives can be developed. Understanding and mitigating user-related issues in energy flexibility utilisation is a key driver for flexibility adoption.

Barriers were expressed in BeFlexible Deliverable 2.1 "Value Propositions" as anticipated pains on flexibility adoption and experience with the resources. (Table 1)

Table 1. Anticipated pains on flexibility adoption

Emotional pains	Contextual and cultural pains	Technical pains	Economic pains
Users report emotions such as frustration, unfairness, worry or fear when anticipating flex provision; these emotions are even more acute when the gains are deemed insufficient for their effort.	Contextual influences negatively affect flexibility adoption, precisely lifestyle conditions such as the type of family or people sharing the house or working conditions.	Flexibility provision includes a technological component as users need to interact digitally with energy through their resources. The installation and use of their resources require a high level of technology readiness; for this, users need to have a lot of information and knowledge to know what and how to install their resources and how to make the best use of them.	The economic benefits of flexibility provision are essential for users to perceive value in exchange for their participation. After the research, we can assume that in the whole four Demo Locations, existing economic incentives for the energy fed into the grid are not relevant for users. This leads to a situation where users prefer to maximise their self-consumption, store energy or share it before "giving it to the grid" or "wasting it" as the economic benefit is irrelevant; worse, it is considered unfair.[i]

3.1. Insights per type of user

Highlighting differences among types of users when utilizing flexibility energy resources is of paramount importance in crafting effective and equitable energy strategies. Various user categories, such as residential consumers, businesses, and industries, have distinct energy needs, priorities, and constraints. Recognizing these differences allows for tailored solutions that can optimise energy consumption patterns and enhance grid stability.

For instance, **residential** users understand that energy is something they need to deal with, but existing technological solutions are perceived as insufficient for meeting their needs. There is a high dependency on community organisation forms, type of houses, subsidies and type of compensation they get for their flex provision. For instance, energy is perceived not only as lighting, but it is also related to insulation and other non-energy topics such as mobility, food and leisure. In the case of **commercial** profiles, monetary savings drive their relationship with energy. The risk possibility is less salient than among industrial consumers, but they still require high degrees of control and simplicity. As renewable resources are part of their business activities and require an investment in time, anything related to energy management must be economically relevant to compensate for their dedicated time. Like commercial, **industrial** profiles perceive flex provision as risky for their operations. Different from commercial, industrial profiles cannot put their production lines at risk. This is the most important topic for these profiles as they find themselves with little room to manoeuvre. For industrial profiles, energy saving, and batteries are essential to ensure the mentioned risk reduction. Regarding flexibility services, they are sometimes hard to settle in Industrial profiles due to the low revenue obtained in exchange. In the case of **public buildings** aim to be perceived as role models or exemplars. Regulation is also a clear motive for which they are interested in the energy transition. More specifically, the University buildings interviewees expressed the responsibility of being considered as an example and demonstrating coherence with the core values and mission of the University. Exemplarity can also be projected internally so that being an energy moral exemplar is used to mitigate the internal frictions emerging after the calls for behavioural change.

3.2. Socio-cultural arrangements

This section presents a summary and an overview of collective perceptions gathered and expressed by Demo Pilot informants (actors interviewed) as well as institutional arrangements (business and institutional needs and regulations) that complement fundamental parts for obtaining a holistic, particularly for engagement strategy development, as contextual and general perceptions are key to developing tailor-made engagement strategies. Please note that these singularities express the perspective of those interviewed and can coincide with a more generalised country perspective or not.

Figure 1. Socio-cultural arrangements of BeFlexible Deliverable 2.1 "Value Propositions"

	France	Italy	Spain	Sweden
Environmental value expressed	Strong	Strong	Medium	Strong
Economic value of flex provision participating in flexibility)	Limited	Limited	Limited	Strong
Perceptions of subsidies	Unstable subsidies	Not so many subsidies	Subsidies but hard to access	Not so many subsidies
Trust in conventional market actors	Limited	Limited	Limited	Medium
Community sense	Medium	Strong	Low	Medium
Social responsibility	Strong (be an example)	Strong (through the community)	Medium	Strong (for commercial actors)

4. Methodologies

4.1. Actor-Network Theory (ANT)

According to Law and Hassard (1999), Actor-Network Theory (ANT) is a theoretical framework developed in the social sciences that seeks to understand how social entities, including human and non-human actors, interact and shape each other's behaviours and meanings. ANT posits that social networks are made up of both human and non-human actors, which are all equally important in shaping social processes and outcomes. ANT is commonly used in the field of Science and Technology Studies (STS) to study the development and adoption of new technologies.

One way ANT can be used in commercial research work is to analyse the social networks that shape the development and adoption of new products or technologies. For example, a company could use ANT to analyse the various actors involved in the development of a new software product, including developers, marketers, consumers, and other stakeholders. By mapping out the social networks that shape the development and adoption of the product, the company can better understand the various factors that influence its success or failure.

In the BeFlexible project, ANT has been used as a basis for developing the customer engagement strategy, employing the following process: First, identification of relevant actors, second mapping those actor relationships and dependencies, and finally developing an actor-specific engagement strategy.

4.1.1. Identification of relevant actors

Key human and non-human actors involved in the BeFlexible demonstrations were identified. This includes customers, energy providers, regulators, technologies, and other stakeholders. Their roles, interests, and influence within the network were considered, as follows:

Table 2: List of human and non-human actors in the BeFlexible project

Human Actors	Role, interest and influence
Energy consumers, including: • Residential • Commercial • Industrial • Public	Their interests primarily revolve around reliable and affordable energy supply for their homes or businesses. Consumers have the power to influence the market through their choices, such as opting for renewable energy sources or energy-efficient appliances. Their collective demand and feedback shape the energy market and can drive changes in energy policies and practices.
Energy producers, including: • Power plants • Renewable energy companies • Oil and gas companies	Their interests lie in generating and supplying energy to the market while ensuring profitability. These actors have the ability to influence energy prices, production methods, and the overall

Human Actors	Role, interest and influence
• Flexibility Service Providers	energy mix through their investment decisions, technological advancements, and market strategies.
Energy suppliers, including: • Utility companies • Energy retailers • Aggregators	Their role is to distribute and supply energy to end-users. Their interests involve maintaining a stable supply of energy, managing distribution networks efficiently, and providing competitive pricing and customer service. Energy suppliers have influence in shaping energy tariffs, customer engagement initiatives, and the development of new energy services.
Regulators and policymakers	Regulators and policymakers in the energy sector are responsible for setting policies, regulations, and standards to ensure the safe, reliable, and sustainable functioning of the energy market. Their interests encompass ensuring energy security, promoting competition, reducing environmental impact, and protecting consumer rights. These actors have significant influence through their authority to define market rules, grant licenses, and enforce compliance with regulations.
Energy grid operators	Energy grid operators are responsible for the operation and maintenance of energy transmission and distribution infrastructure. Their interests revolve around ensuring grid reliability, managing grid congestion, integrating renewable energy sources, and promoting grid resilience. These actors have influence in grid management, connection processes, and investment decisions related to infrastructure development.
Energy industry associations	Energy industry associations represent various stakeholders in the energy sector, advocating for their members' interests. Their role involves fostering collaboration, knowledge sharing and policy advocacy. They have influence through their collective voice, lobbying efforts, and involvement in industry consultations and decision-making processes.
Energy consultants and experts	Energy consultants and experts provide specialised knowledge and advice on energy-related matters. Their interests revolve around offering expertise in areas such as energy efficiency, renewable energy integration and regulatory compliance. These actors influence decision-making processes by providing insights, conducting studies and supporting project implementation.
Researchers and academics	Researchers and academics contribute to the energy sector through their scientific inquiry, analysis and innovation. Their interests lie in advancing knowledge, exploring new technologies and addressing energy challenges. They influence the sector through their research findings, recommendations and collaboration with industry and policymakers.

Human Actors	Role, interest and influence
Energy workforce, including: • Engineers • Technicians • Project managers • Administrative staff	Their interests involve career development, job security and workplace safety. They influence the sector through their expertise, operational efficiency and implementation of projects.

Non-Human Actors	Role, interest and influence
Energy infrastructure, including: • Electricity grids • Gas pipelines	These companies' interests are centred around providing reliable energy supply, facilitating energy transmission and distribution, and minimising transmission losses. Energy infrastructure has a significant influence on the overall energy system, as it determines the capacity, efficiency, and accessibility of energy supply.
Energy technologies, including: • Power plants • Wind farms • Photovoltaic panels • Smart meters • Energy storage (batteries) • Heating and cooling • Electric vehicles	These companies have interests in advancing energy production, efficiency, and sustainability. Their influence lies in enabling the integration of renewable energy sources, optimising energy consumption, and enhancing the overall performance of the energy system. These technologies shape the energy landscape by providing new possibilities for energy generation, management and control.
Energy data and analytics, including: • Tools for data collection • Tools for data analysis • Utilisation of energy-related data	Systems and tools for collecting, analysing, and utilising energy-related data have interests in improving decision-making, optimising energy usage, and enabling predictive capabilities. They have influence through data-driven insights, enabling energy providers and consumers to make informed choices, manage energy demand and improve operational efficiency. Energy data and analytics play a crucial role in facilitating the transition to a more data-driven and intelligent energy system.
Energy policies and regulations	Energy policies and regulations are designed to guide and govern the energy sector. Their interests revolve around ensuring energy security, promoting renewable energy deployment, reducing carbon emissions and protecting consumer rights. Their influence lies in shaping the legal and regulatory framework, defining market rules and establishing incentives and penalties to drive desired outcomes within the energy sector.
Energy standards and certifications	Energy standards and certifications are aimed at ensuring quality, efficiency, and safety in energy-related products, services and processes. Their interests lie in promoting energy efficiency, environmental sustainability and interoperability. They influence the energy sector by setting benchmarks,

Non-Human Actors	Role, interest and influence
	establishing guidelines and encouraging the adoption of best practices.
Energy financial mechanisms, including: • Subsidies • Grants • Carbon tax / price	These have interests in incentivising sustainable energy practices, attracting investments and driving the transition to a low-carbon economy. They influence the energy sector by providing financial support, shaping investment decisions and influencing market behaviour through pricing mechanisms.
Energy market platforms, including: • Spot markets • Futures markets • Energy trading platforms	Facilitating energy trading, price discovery, and market efficiency. Their influence lies in providing a platform for energy market participants to transact, enabling market transparency, and fostering competition and innovation in the energy sector.
Environmental factors, such as: • Sunlight • Wind	These can affect energy generation, availability and environmental impact. They influence the energy sector by determining the availability of renewable resources, driving the deployment of specific energy technologies.

4.1.2. Actor relationships and dependencies

A visual map (Figure 2) was created to illustrate the relationships and dependencies between the identified actors. This map demonstrates how each actor interacts with one another and how their actions influence the network. For simplicity, the map divided the actors up as follows:

- Customer (all types) - human;
- Interface (technologies and resources) – non-human;
- Grid side (flexibility service companies, DSO and TSO) – both human and non-human.
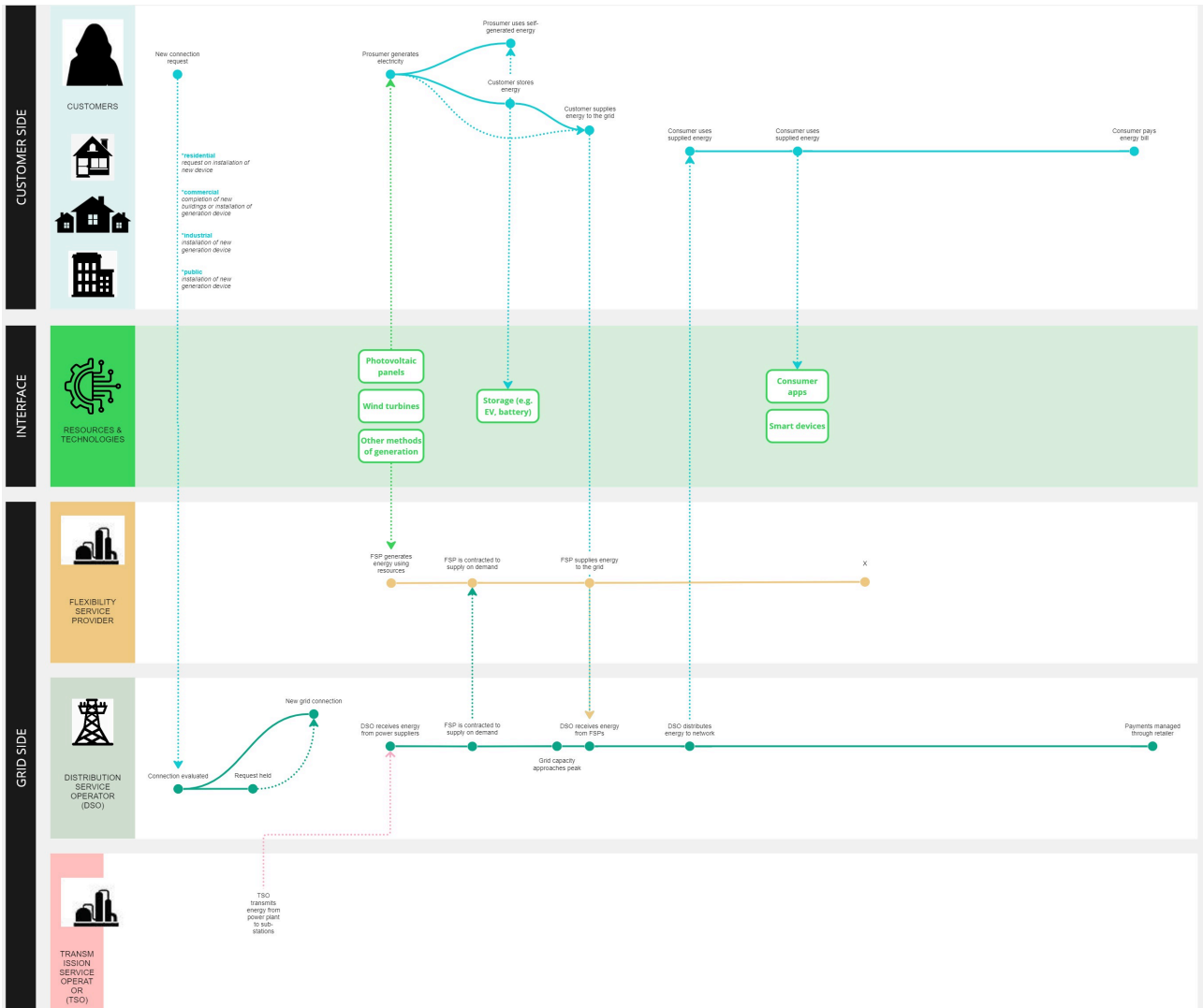
Figure 2 – Map of the network actor relationships

The figure 2 shows how the different actors identified in 4.1.1. relate in flexibility scenarios. This can be used to identify points of interaction between actors and should continue to be iterated as a reference point throughout the duration of the BeFlexible pilot demonstrations.

4.1.3. Development of actor-specific engagement plan

Using this analysis as a foundation, we focused on the 'customer' profile within the actor network and, based on our understanding of their role and interests, we developed a plan for engagement as detailed in Section 6 of this report. Channels, approaches and specific activities for customers have been defined.

This engagement strategy benefits from using ANT by providing a holistic understanding of the energy sector, addressing power dynamics, leveraging non-human actors, and enabling adaptability. ANT challenges the traditional understanding of agency and power in social interactions. By considering both human and non-

human actors as equal participants, the engagement strategy can address power dynamics and promote a more balanced distribution of influences.

ANT recognises that networks are dynamic and constantly evolving. By adopting this perspective, the engagement strategy can be flexible and adaptable to changing circumstances within the energy sector. It allows for continuous monitoring, evaluation and adjustment based on emerging actors, technologies and market conditions. This iterative approach ensures that the strategy remains relevant and effective in achieving its objectives.
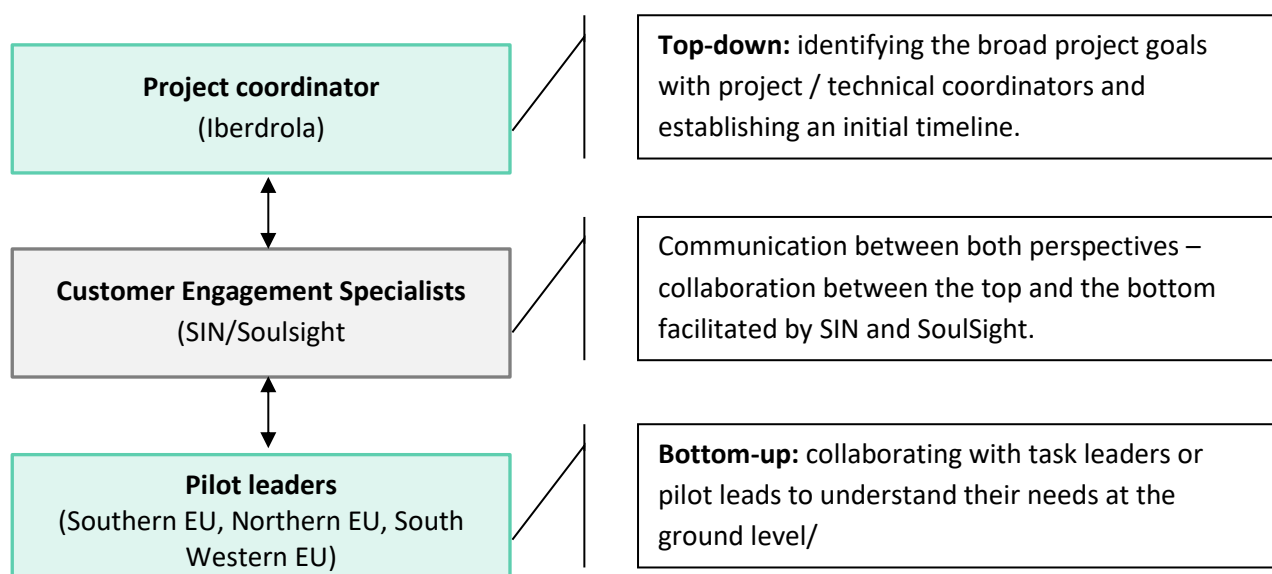
4.2. Hybrid collaboration approach

Part of this task include implementing a framework for the initial assessment of goals and the related engagements required from the project perspective (top-down approach) and aligning these with the goals, context and stakeholders at each pilot site (bottom-up approach). To achieve this, a hybrid methodology (utilised in previous EU projects such as ACCEPT and SYNERGY) will be utilised to propose an engagement roadmap and consider factors such as stakeholder mapping.

The hybrid collaboration approach (Figure 3) is utilised to provide a road map of the engagements expected to occur throughout the BeFlexible project. This approach consists of two major components: (1) examining the top-down perspective from the project and technical coordinators and (2), gathering information from the bottom-up perspective from work package (WP), task and pilot site leaders. Combining these perspectives allows for the broad project goals to be aligned with ground-level needs, which is essential for planning the stakeholder engagement activities. In addition to its function for planning the engagements activities, the hybrid approach fosters collaboration between the various work packages and diminishes the risk of partners working in isolation, without the benefit of cross-project coordination.

Figure 3. Key partners applied to the hybrid collaboration approach

4.2.1. Top-down

The primary aim of the top-down element of the Hybrid collaboration approach is to determine the key stages at which stakeholder feedback will be required. This involves working through the Grant Agreement and distilling overall project goals and objectives, interpreting how customer engagement models and evaluation will support these goals and translating these into a set of requirements.

4.2.2. Bottom-up

The aim of the bottom-up aspect of the hybrid approach is to ensure the perspectives and needs of task and work package leaders, as well as demo site representatives, are considered. This involves running workshops and other facilitated activities with the pilot leads in each region, setting out their needs and requirements and seeking to relate them to the overall project goals described in 4.2.1. above.

5. Engagement process

This section sets out a core engagement strategy that applies across the BeFlexible project, as a starting point for conducting engagement activities. The strategies will be adjusted to socio-cultural conditions, local customer, technical or regulatory requirements and tested with consumers and other relevant stakeholders like market operators in participatory workshops and individual validation sessions to refine and iterate the proposals.

Therefore, although the strategy laid out in this deliverable is based on customer research and informed by knowledge of the demonstration requirements, it should be considered an initial plan with room to iterate and develop as the project progresses and more is known about which approaches and activities will be most successful in each demonstrator. Ongoing support will be provided through task 2.2 following on from this document.

5.1. Components

When creating a detailed customer engagement plan, which each pilot will lead based on this document, the following components should be incorporated: Incentives and Benefits, Education and Awareness, Continuous Feedback and Support, and Evaluation and Refinement.

5.1.1. Incentives and Benefits

Offer attractive incentives and benefits to customers who participate in the pilots. This could include financial incentives, access to new technologies or services, preferential energy tariffs, or other rewards that align with the customers' interests and motivations.

BeFlexible Deliverable 2.1 "Value Propositions" tables these incentives as part of the Value Propositions, which should be referred to when defining these.

5.1.2. Education and Awareness

Conduct awareness
 campaigns and educational initiatives to inform potential customers about the project's objectives, benefits and the importance of their participation. Emphasise the potential positive impact on the energy transition and the environment to create a sense of purpose and motivation. Workshops and other communication methods can be employed at every stage of the customer engagement timeline.

5.1.3. Continuous Feedback and Support

Establish a feedback loop with recruited customers to address any issues or concerns they may have during the pilot phase. Provide ongoing support, regular updates, and open channels of communication to ensure a positive experience and maintain their engagement throughout the project.

5.1.4. Evaluation and Refinement

Continuously evaluate the effectiveness of the recruitment strategies and methodologies and refine them based on the feedback received. Adapt the approaches as needed to optimise customer recruitment and maximise participation rates.

5.2. Timeline

Since each demo has its own schedule, with different timescales for each milestone, this engagement strategy is set out according to stages of engagement, which can be flexibly implemented in line with the individual demonstration's needs.

The stages of engagement are:

5.2.1. Recruiting

Identifying customers who fit with the demonstration's test profile and who are willing to take part. Targeted Outreach: develop a comprehensive communication and outreach plan to reach potential customers who fit the desired test profile. This may involve utilising various channels such as social media, traditional media, community events, and industry-specific platforms.

The South WesternEU demo began recruiting during the summer of 2023, using in-person and online hybrid workshops for SAP employees (one of the target groups) to learn about the pilot, ask questions and sign up or give feedback. A summary of these workshops can be found in Appendix 1.

5.2.2. Onboarding

Obtaining informed consent and creating appropriate contracts; setting up technology solutions as appropriate.

This stage varies based on the nature of the pilot. For example, a project installing smart heaters for residential customers may necessitate involving the end users in customising their own solution, if they belong to an archetype that prefers control over the technology and should include considerations for how to arrange access to the property.

5.2.3. Usage

Continuing to engage with the demonstration service / product, providing ongoing data on their usage and personal viewpoints. This also incorporates continuance beyond the initial pilot, therefore it is necessary to consider how the customer's satisfaction with their pilot usage may influence their choice to continue or not.

5.3. Activities

The following table indicates activities that can be conducted during each of the customer-oriented stages. These should be tailored to the specific customer profiles in each demonstration region. Each of these is described in more detail below.

Table 3: Summary of activities by pilot stage

STAGE	Recruitment	Onboarding	Usage
ACTIVITIES SUMMARY	**Awareness Campaigns:** Implement targeted marketing campaigns to raise awareness about the benefits of participating in the BeFlexible project. Utilize various channels, including traditional media, social media platforms, and local community engagement, to reach a diverse range of potential customers. **Incentives & Benefits:** Offer attractive incentives to encourage customer participation, such as financial rewards, access to exclusive energy plans, or priority access to energy storage devices. These incentives should be aligned with the unique needs and preferences of each pilot region's customers. **Targeted invitations:** Identify the motivations and barriers for the target group and invite them to join.	**Customer Education:** Develop comprehensive educational materials and resources to inform customers about the project's objectives, benefits, and their role in supporting grid management. These materials should be accessible in multiple formats, including written guides, video tutorials, and interactive webinars, to accommodate different learning preferences. **Device Installation Support:** Offer technical support and assistance during the installation and setup of devices that enable flexible energy use or storage. Provide step-by-step instructions, troubleshooting guides, and a dedicated helpline to address any customer queries or concerns.	**Regular Communication:** Establish ongoing communication channels to keep customers informed about project updates and relevant energy-saving tips / revenue opportunities. Utilise newsletters, mobile applications, or online platforms to share valuable information and foster a sense of community. **Feedback Mechanisms:** Methods to gather customer insights and suggestions for improving the project's effectiveness. Conduct surveys, focus groups, or feedback sessions to understand customer experiences, identify areas for improvement, and address any concerns promptly. **Recognition and Rewards:** Highlight success stories, acknowledge achievements, and consider additional incentives to incentivise continued participation and positive behaviour.
ARCHETYPE TTARGETING	Adopter: • Variable pricing according to production / use • Interested in new technology and energy resources.	Adopter: Active involvement in installation	Adopter: Provide ongoing feedback mechanism

Gadger: • Mixed pricing: fixed basic plus variable • Excited by opportunities to self-install new gadgets	Gadger: • Inform on user controls and overrides • Work to unite data and device connections	Gadger: Provide ongoing 'tips and tricks' with possibilities to feed back
Eco: • Look for discounts, not incentives • Inspired by self-sufficiency • Reassure rationale for data gathering • Incentives are not money-focused	Eco: Discuss setup plan, then implement on user's behalf	Eco: Make considerate requests for non-personal feedback
Comfy: • Fixed: less thought required • Innate motivation is low - requires incentive • Reassure security and minimal effort	Comfy: Make recommended plan and install with minimal involvement	Comfy: Limit requests but inform on ongoing benefits

5.3.1. Awareness campaigns

Relevant stages: Recruitment

The primary purpose of awareness campaigns for pilot recruitment is to inform and educate potential customers about the benefits and opportunities associated with participating in the energy flexibility pilots. These campaigns should aim to:

• Generate Interest: The campaigns should pique the interest of the target customers by highlighting the advantages of participating in the pilots, such as cost savings, increased energy efficiency, and environmental sustainability;

• Raise Awareness: The campaigns should create awareness about the objectives and purpose of the pilots, emphasizing their significance in shaping the future of the energy sector and the potential positive impact on participants' energy consumption patterns.

• Educate: The campaigns should provide potential customers with a clear understanding of how the pilot programs work, the benefits they can expect, and the specific requirements or commitments involved in participating.

• Components of Awareness Campaigns. To effectively create awareness and attract target customers to the energy flexibility pilots, the campaigns should include the following components:

- Clear Messaging: Develop concise and compelling messaging that communicates the key benefits of participation, such as reduced energy costs, increased energy independence, and contribution to a greener future.

- Multi-Channel Approach: Use a variety of communication channels to reach different target customer groups effectively. This may include online platforms (websites, social media), traditional media (newspapers, radio), direct mail, industry-specific publications, and collaboration with local partners or organisations.

- Engaging Content: Create informative and engaging content that clearly explains the pilot program, the role of participants, and the potential impact of their involvement. This can include case studies, testimonials from previous participants, infographics, videos, and interactive tools.

- Personalisation: Tailor the campaign messages and content to the specific needs, interests, and motivations of each target customer group (residential, industrial, municipality). Highlight how participation in the pilot aligns with their goals, whether it be cost savings, energy efficiency, or sustainability initiatives.

- Creating Effective Awareness Campaigns. To ensure the success of the awareness campaigns, the following recommendations should be considered:

  - Conduct Market Research: Gain insights into the target customer groups to understand their preferences, motivations, and communication channels. This will help tailor the campaign messages and content accordingly.

  - Collaborate with Local Partners: Leverage partnerships with local energy associations, community organisations, and industry stakeholders to reach out to the target customers effectively. These partners can provide access to their networks and lend credibility to the pilot programs.

  - Use Testimonials and Success Stories: Highlight success stories and testimonials from previous participants to demonstrate the tangible benefits of participating in the pilot programs. This can help build trust and credibility among potential customers.

  - Provide Clear Call-to-Action: Clearly communicate the steps potential customers need to take to participate in the pilot programs, such as signing up on a dedicated website, contacting a specific representative, or attending an information session. Make it easy for them to take the next steps.

5.3.2. Pilot Demonstration Events

Relevant stages: Recruitment

Organise pilot demonstration events where potential customers can experience the technologies and services firsthand. Create interactive stations where they can explore different functionalities and ask questions. Provide guided tours, live demonstrations, and opportunities for customers to engage with pilot team members and other participants.

Examples can include setting up a stall at local markets, if targeting residential customers in a specific area.

5.3.3. Recruitment workshops

Relevant stages: Recruitment

Following a similar format to the other workshops described here, the primary aim of these workshops is to ask consumers to sign up to the pilot. This should be achieved by providing information in a compelling format that appeals to those present.

5.3.4. Onboarding Workshops

Relevant stages: Onboarding

Organise onboarding workshops to provide comprehensive training and support to the recruited customers. These workshops can cover topics such as system functionalities, data monitoring, energy optimisation techniques, and platform navigation. Offer hands-on activities and demonstrations to ensure customers are comfortable with the technologies and processes.

5.3.5. Co-Design Workshops

Relevant stages: Onboarding

Facilitate co-design workshops where customers can actively contribute to the development of new features, services, or solutions. Engage them in brainstorming sessions, prototype testing, and collaborative problem-solving exercises. This participatory approach empowers customers to shape the pilot activities and fosters a sense of ownership and investment.

Co-Design Workshops serve as a crucial engagement activity during the 'onboarding' stage of any pilot within the energy flexibility project. These workshops aim to actively involve customers in the design and development process, ensuring that their preferences, needs, and expectations are considered. The purpose of these workshops is to foster collaboration, gather valuable insights, and co-create solutions that align with the customers' requirements. By involving customers from the early stages, we can enhance the success of the pilot and increase customer satisfaction and engagement.

Example Agenda:

Introduction and Icebreaker (15 minutes): Welcome participants and provide an overview of the workshop's objectives. Conduct an icebreaker activity to create a comfortable and engaging environment.

Overview of the BeFlexible Project (20 minutes): Present an overview of the energy flexibility project, including its goals and objectives. Explain the importance of customer engagement and the role of the workshop in the pilot phase.

Understanding Customers and their Needs (30 minutes): Conduct a group discussion to gather insights on the customers' preferences, expectations, and requirements. Use interactive techniques such as brainstorming or group exercises to encourage active participation.

Co-Creation and Idea Generation (45 minutes): Facilitate a creative session where participants can generate ideas and potential solutions. Encourage open discussion and collaboration among participants to foster innovative thinking.

Prioritisation and Decision-Making (30 minutes): Help participants evaluate and prioritise the generated ideas based on feasibility, impact, and alignment with project goals. Facilitate group discussions and interactive voting techniques to reach consensus on the most promising ideas.

Tailoring Engagement Strategies (20 minutes): Discuss the importance of tailoring engagement strategies to different customer segments. Provide examples and guidelines on how to adapt the content and format of future workshops based on customer types.

Next Steps and Closing Remarks (10 minutes): Summarise the workshop's outcomes and key decisions made. Discuss the next steps in the pilot process and express gratitude to participants for their valuable contributions.

Planning and Facilitation Guidelines:

- Determine the appropriate format for the workshop (in-person or online) based on the circumstances and participants' availability.
- Prior to the event, the facilitator should conduct research on the target customers, understand their preferences, and gather relevant materials and resources.
- Develop a detailed agenda and allocate sufficient time for each agenda point to ensure a productive and engaging workshop.
- Prepare interactive materials such as flipcharts, sticky notes, and visual aids to facilitate discussions and idea generation.
- Create a collaborative and inclusive environment that encourages participation from all attendees.
- Ensure effective time management throughout the workshop to cover all agenda points.
- After the workshop, document the outcomes, decisions, and identified action steps , and share them with the participants for their reference.

Timeline for Workshop Facilitator:
- 1-2 months before the workshop:
  - Conduct customer research and gather relevant data.
  - Identify potential participants and send out invitations.
  - Secure a suitable venue or set up the necessary online platform.
  - Prepare materials and resources required for the workshop.
- 1-2 weeks before the workshop:
  - Send reminders to participants and provide them with any pre-workshop materials or instructions.
  - Confirm logistics and technical requirements for the workshop.
- On the day of the workshop:
  - Arrive early to set up the venue or online platform.
  - Ensure all required materials are in place.
  - Welcome and engage with participants to create a positive and collaborative atmosphere.

5.3.6. Webinars and Online Tutorials

Relevant stages: Onboarding, Usage

Conduct webinars and create online tutorials to supplement the onboarding process. Offer virtual training sessions and video tutorials that customers can access at their convenience. Cover topics such as platform navigation, energy management tips, and troubleshooting. Provide opportunities for customers to ask questions and seek clarifications.

5.3.7. User Testing and Feedback Sessions

Relevant stages: Usage

Conduct regular user testing and feedback sessions to gather insights on the onboarding process. Invite customers to test the platforms, technologies, and services, and collect their feedback on usability, clarity, and overall experience. Use this feedback to improve and refine the onboarding process iteratively.

5.3.8. Gamification Challenges

Relevant stages: Usage

Implement gamification elements into the pilot activities to increase customer engagement and motivation. Create challenges or competitions that encourage customers to actively participate and achieve specific goals. Offer rewards or incentives for reaching milestones or demonstrating exceptional energy optimisation practices.

Gamification challenges can be a powerful tool to engage customers in the energy flexibility project. By incorporating elements of game design and mechanics into the engagement activities, customers are motivated to actively participate, learn, and contribute to the project. These challenges can be designed to

cater to different customer types, such as residential customers, industrial customers, or municipalities, by tailoring the content and objectives to align with their specific needs and interests.

Here are some examples of gamification challenges and how they can engage customers:

- Energy Efficiency Challenge:

Objective: Encourage customers to reduce their energy consumption and adopt energy-efficient practices.
Challenge: Customers compete to see who can achieve the highest energy savings within a specific timeframe.
Engagement: Participants are motivated to make conscious choices to save energy, track their progress, and share tips and success stories with others.

- Demand Response Quiz:

Objective: Educate customers about demand response and its benefits for grid stability and cost savings.
Challenge: Customers participate in a quiz that tests their knowledge about demand response concepts and solutions.
Engagement: Participants engage in a fun and interactive learning experience, competing for high scores and receiving rewards for correct answers. They gain a deeper understanding of demand response and its relevance to their energy consumption habits.

- Virtual Power Plant Simulation:

Objective: Showcase the benefits of virtual power plants and their role in optimizing renewable energy integration.
Challenge: Customers simulate managing their own virtual power plants, making decisions on energy generation, storage, and demand response.
Engagement: Participants experience the complexities of managing energy resources, learn about the value of flexibility, and compete to achieve the highest overall system performance.

- Planning a Gamification Challenge:

When planning a gamification challenge, even someone with no prior knowledge can create an engaging activity by following these steps:

- 1-2 months before the challenge:
  - Define the objectives and desired outcomes of the challenge.
  - Identify the target customer type(s) and understand their motivations, preferences, and goals.
  - Determine the specific challenge mechanics, rules, and rewards that align with the objectives.

- - Design the content, questions, or tasks that will engage participants and achieve the desired learning outcomes.
- 2-4 weeks before the challenge:
  - Develop the gamification platform or choose an existing platform that supports the desired challenge mechanics.
  - Test the platform and ensure it is user-friendly and accessible to participants.
  - Create engaging visuals, graphics, or interactive elements to enhance the challenge experience.
  - Prepare communication materials such as emails, social media posts, and flyers to promote the challenge to customers.
- 1 week before the challenge:
  - Launch a marketing campaign to generate excitement and awareness about the challenge.
  - Send out invitations or notifications to customers, providing clear instructions on how to participate.
  - Conduct training sessions or webinars to familiarise participants with the gamification platform and rules.
- During the challenge:
  - Monitor participants' progress and provide regular updates and feedback to maintain engagement.
  - Address any technical issues or questions from participants promptly.
  - Foster a sense of community and competition by encouraging participants to share their experiences and interact with each other.
- After the challenge:
  - Analyse the results and evaluate the impact of the gamification challenge on customer engagement.
  - Recognise and reward participants for their achievements and contributions.
  - Use the insights gained from the challenge to refine future engagement strategies and activities.

5.3.9. Customer Support Channels

Relevant stages: Usage

Establish dedicated customer support channels to address any questions, concerns, or technical issues that customers may encounter during the onboarding process. Provide multiple communication channels such as email, phone, and chat support. Ensure prompt and helpful responses to customer inquiries to enhance their overall experience.

5.3.10. Customer Feedback Surveys

Relevant stages: Usage

Regularly administer customer feedback surveys to gather insights on their onboarding experience and satisfaction. Ask targeted questions about the clarity of information, ease of platform use, training

effectiveness, and overall satisfaction. Analyse the feedback received and make necessary adjustments to improve the onboarding process.

5.4. Evaluation

Evaluating the engagement strategies is fundamental for four purposes: to identify most promising engagement strategies, to track project engagement progress, report project performance and learn how to improve the performance (Pauwels et al., 2009). Only by measuring we will gather a sound stock of evidence of the effectiveness of engagement strategies and a granular understanding of in which domains and in which stages they seem to work better (Turban et al., 2016). This understanding will in turn allow for a better development of business models and more effective resource allocation.

We recommend adopting experimental research for this evaluation (Dean and Voss, 1999; Dean et al., 2015; Jackson and Jackob, 1988). Experiments allows for rigorous causality testing and for this they are most suitable to achieve the objectives described above. The differential characteristic of experiments is the identification of a treatment or experimental cause that will be manipulated and their effects observed. In our context, the treatment may be either the content of a message, a channel, a reward or even the target of the engagement strategy (Table 4).

This treatment will be the independent variable. The metric measuring outcomes will be the dependent variable. We accept that if changes in the independent variable correspond to changes in the dependent variable, a causal relationship occurs, so that the independent variable produces the dependent variable.

To make causal inferences, certain conditions must hold. First, the cause must precede the effect. Second, there should be a plausible explanation for which the cause produces the effect. Third, we should control for confounding factors, that is, we need to ensure that it is not a third variable unmeasured or overlooked that produces the effect. Fourth, we need to ensure that in absence of the cause the effects are not observed. This requires including a control group that is not exposed to the treatment.

The third condition is the more challenging one to meet. Control for confounding factors is possible in lab experiments, but more difficult to respect in field experiments, as the ones we will be conducting in this project, for two main reasons. First, it is difficult to randomly assign users to treatments. Randomisation is one of the key procedures to control for confounding factors. If users are randomly distributed, we can be certain that any individual variable that could produce the effect is randomly distributed as well so that the groups will be similar in these variables. This randomisation is not possible in field experiments, where we expect that users self-select to the engagement strategies. So, imagine that we test which recruitment strategy produces more leads: online session vs. interactive on-site demonstrations. Because we cannot control which strategy users subscribe to, we may end up having all males in the online session and all females in the interactive demonstration. If we find that the online session produces more leads, we cannot disambiguate whether it is the strategy or the gender of user that created the effects. Whenever possible, it is key to have a description of users to a posteriori test whether groups were similar.

Second, it is very difficult to ensure that users are only exposed to the treatment or that the treatment was identical in all cases. Imagine that we are testing the effectiveness of online sessions in raising energy

knowledge in two demo locations. One of the instructors includes some links and extra materials. Users then browsed the links provided by the instructor to find out more about the energy transition, the functioning of smart grids, etc. When the dependent variable Energy knowledge is measured, we discovered that participants in this online session had greater energy knowledge. We may attribute the findings to location, when in fact a confounding factor (let's call it "homework"), produced the effects.

Table 4. Examples of treatments that can be experimentally tested

Message strategy	Which message attracts more declarations of interest/leads: one emphasizing environmental value or one emphasizing episteme value?	Which message leads to greater lead conversion: one foregrounding self-centred benefits or one foregrounding other-centred benefits?	What message led to greater leads among commercial users (compared to residential or industrial users)?
Channel or activity	Which activity generated more leads: demonstration stations or online sessions?	Which activity offered the shortest path from lead to conversion?	Did online sessions generate a similar number of leads among commercial and residential users?
Rewards	Were there differences in satisfaction depending on the reward used, rebate vs. direct payment?	Did consumers offered a rebate display a greater conversation rate compared to those not offered a rebate?	Were differences in the reliability of the flexibility among residential and commercial users offered a rebate?
Target	Did online sessions elicit different leads across demo locations?	Did participants in online sessions have a better understanding of flexibility than participants in gamified approaches?	Did participants in co-creation sessions experience more empowerment than those that did not?

Depending on how the treatment is administered, experiments can be of two types: between subjects or within subjects. Between-subjects experimental designs allow for a cross-sectional examination of causality. In this case, the treatment is manipulated across participants, so that some users will be assigned to treatment A and some to treatment B (or to no treatment, also called as control groups) and then we measure differences in a selected metric. This analysis allows establishing a causal relationship between treatment and metric by examining differences between subjects. To have a control group, we can use wait lists or users that were not accepted into the demo.

Within-subject experimental designs allow for a longitudinal examination of causality. In this case, individuals are measured at time 1, then the treatment is administered, and individuals are measured again at time 2. We calculate differences in time 1 and time 2 to the same metric, thus examining whether the individual experienced an increase(decrease) in the metric as a result of the treatment.

The specific between subject design can be of different types, depending on the number of treatments. If we compare a treatment (e.g., financial reward) with no treatment, our design is called AB testing. If we compare financial reward with symbolic reward in two locations, our design is 2x2: there are four experimental groups to compare.

Experimental design can combine both. For instance, we could examine whether participation in serious games produce differences in energy knowledge within subjects and whether this change is more(less) pronounced across demos. For this, we would measure the intended metrics in time 1, prior to being exposed to the treatment, and after being exposed to the treatment. In the analysis, we would combine a within subject analysis and a between subject analysis thus revealing differences in time and across locations.

It is important to note that when doing within-subjects experimental design we need to be cognizant of the relationship between treatment and outcome. We may assume a linear relationship when, in fact, there could be a threshold beyond which the effect remains constant. For instance, consider the case of Energy Knowledge. If participants in the experiment had great Energy knowledge at time 1 it may be the case that this outcome variable does not increase in time 2, as we have reached a threshold.

Having explained the suggested method for engagement evaluation, we now propose the metrics that can be used in this assessment. These metrics are classified along the stages of the engagement journey, namely recruitment, onboarding, participation, and continuance. Recruitment comprises the stage where users are informed about flexibility services more broadly and about the objectives of the project more specifically and asked to join a demonstration. Onboarding is the process whereby users provide the necessary information about their equipment and building. Some users may be rejected at this stage if they do not comply with the necessary requirements. If they are eligible, then they sign the terms and conditions (TACS). Some users may need to have some get devices installed (when applicable) to ensure communication with grid actors. When users have signed the TACS and have their equipment/building ready, the next stage starts. Participation is the stage of the process where users will interact with demo actors and with technological devices to provide flexibility services. Continuance is the stage that opens once the demonstration is finished. Understanding the continuance intention of users is important because the sustainability of the business models depend on the continuance of users providing flexibility services.

Next, we propose a set of metrics for each of the stages (Table 5).

Recruitment. The objectives of the recruitment stage are to attract a pool of interested users (leads or prospects) that are willing to go through the onboarding stage. Here, metrics should calculate the number of potential users reached, leads and conversions. In addition to absolute numbers, metrics should calculate ratios such as the lead rate or conversation rate. Finally, metrics should also calculate the time length needed to generate a lead and to convert a lead into an onboarded user. Analytically, this information can be depicted by means of funnels and the funnels obtained when using different recruitment stages can be compared to identify the most effective engagement strategy at this stage. To specifically measure the effectiveness of strategies at this stage, users can also be questioned about their usefulness, informativeness and interestingness.

Onboarding. The objectives of the onboarding stage are to retain eligible users so that they accept participating in the demonstrations. Metrics should calculate the number of users in each of the steps of the onboarding stage. This will allow identifying the pain points, or steps were the greatest number of users exit and abandon the process. Also, metrics should calculate the time length needed to accomplish each of the steps. Funnels are also recommended to compare the results of onboarding stages across demo locations. To measure the effectiveness of strategies at this stage, users can also be questioned about the difficulties in the onboarding stage, the perceived support, or their overall satisfaction.

Participation. The objectives of this stage will be remarkably different across demos, as the participation depends on the flexibility services tested. Key activities to be performed by users should be identified and converted into metrics. For instance, users may be expected to use an app to understand their own consumption and the needs of the grid. This may be a key activity to later respond to grid signals. Then, consultation of the app (or of specific modules of the app) could be a fundamental metric to track this activity. In addition to the specific activities, metrics should measure user satisfaction during the demonstration, perceived value realisation, perceived comfort, perceived data insecurity or perceived control. These measures would help avert problems so that a remediation plan is implemented that can reduce the abandonment rate or user passivity/indifference.

Continuance. Continuance will depend on user satisfaction. In turn, satisfaction will be a function of the value obtained for the participation in flexibility provision. These are then fundamental metrics to assess continuance. Since satisfaction will also depend on the perceived usability, performance, enjoyment, and ease of use of devices or equipment, these metrics should also be included. Also, continuance intention should be assessed to probe whether consumers would maintain their flex provision once the demonstrations are finished. If consumers are provided with free devices or equipment during the project, metrics could also measure their intention to keep them and/or their willingness to pay for keeping them. Finally, overall consumer engagement could be measured as the cognitive, affective, and behavioural engagement with energy is key to sustain continued participation. To further examine this, users can be questioned about their willingness to adopt cross-services and/or other energy technologies.

It should be noted that these metrics can be measured with self-reported or behavioural data. Self-reported data are appropriate for metrics that capture the internal states of the users, such as their awareness, knowledge, or affective engagement. Self-reported data or manually reported data is also necessary when behavioural measurement is impossible to implement. Behavioural data is appropriate and possible to measure the realisation of activities in digital environments. This measurement is easily done by tagging digital devices so that they can record the realisation of these activities.

It should be emphasised the difficulties to in obtaining self-reported data from participants (Table 6). To overcome user reluctance to respond to questionnaires, several actions can be implemented. First, users should be sent several reminders. Second, the invitation should be motivating emphasizing the benefits that data analysis will bring for users (e.g., improving the devices) and for communities. Moreover, users may be averted that participation in demonstrations will also extend to providing these responses. Third, users may be enticed to respond by providing incentives: usually, a small payment (1-2 euros) can be offered, or they may participate in a raffle for a prise. For industrial users, sharing the insights obtained in the analysis may be a sufficient incentive to participate. Incentives are particularly important to increase the response rate

among users in control groups. Finally, at the onboarding or participation stage, questions can be embedded in the platform or interface making it more convenient for users to respond.

Table 5. Evaluation metrics across stages

	Engagement Activities	Metrics	Method to measure them
Recruitment	Awareness campaigns Pilot demonstration events Recruitment workshops	No. of users reached: attendants/emails sent/impressions No. of interested users/leads: users sending expression of interest, clicks on ads, responses to emails No. of converted users: users that start the onboarding stage Lead rate: leads/users reached Conversion rate: users reached/leads Time length in the process; number of contacts to convert a user; cost per conversion	Digital channels: behavioural data Non-digital channels: manually recorded data by demo leaders
Onboarding	Onboarding workshops Co-design workshops Webinars and online tutorials	No. of users submitting eligibility questionnaire No. of users signing TACS No. of users uploading TACS No. of users with successful installations Satisfaction with the onboarding Perceived user support Time length to complete the process	Digital channels: behavioural data Non-digital channels: manually recorded data by demo leaders
Participation	Gamification challenges Customer support channels Customer feedback surveys	Perceived usefulness Perceived comfort Perceived data privacy Perceived control	Self-reported data by users (collected by questionnaires)
Continuance	Customer feedback surveys	User experience: usefulness, ease of use, performance, and enjoyment User satisfaction Perceived realised value Energy engagement Intention to maintain provision of flex services Willingness to pay for equipment for devices after the project ends Willingness to adopt other services or other energy technologies	Self-reported data by users (collected by questionnaires)

Table 6. Risks and Actions for the end-user metric calculation

STAGE	RISKS	ACTIONS
Recruitment	**Data Authenticity:** Not all leads or prospects will necessarily provide accurate or genuine information. This can affect the reliability of metrics.	**Action:** Implement data validation checks during the sign-up process. For example, require email verification or mobile number OTP verification.
	Sampling Bias: The methods or channels used to recruit may not represent the broader target population, leading to skewed metrics.	**Action:** Diversify recruitment channels and methods to capture a wider audience. Periodically review and adjust targeting criteria.
	Survey Fatigue: Questioning users too often about usefulness, informativeness, and interestingness might reduce response rates or the accuracy of responses.	**Action:** Limit the frequency of surveys and ensure they're concise. Alternatively, introduce interactive methods like quizzes or games to gather feedback.
Onboarding	**Incomplete Data:** Users may abandon the onboarding process without giving any feedback, making it hard to pinpoint specific issues.	**Action:** Introduce interim save points during onboarding, allowing users to return and complete the process later.
	Subjectivity: Perceived support and overall satisfaction are subjective metrics, and there may be variance based on personal preferences.	**Action:** Combine qualitative feedback with quantitative metrics (e.g., time taken to complete a step) to balance subjective data.
	Inconsistent Feedback: Different users might have varying definitions of "difficulties" during onboarding.	**Action:** Provide clear guidelines or examples with feedback forms to ensure users understand the questions being asked.
Participation	**Tracking Limitations:** If users are not consistently using digital devices or platforms, capturing behavioural data will be limited.	**Action:** Encourage users to use digital platforms through incentives or gamification.
	Data Privacy: Collecting data on user activities can lead to privacy concerns, affecting participation rates.	**Action:** Adopt a transparent data policy, informing users how their data will be used. Obtain explicit consent where needed.
	Ambiguity of Metrics: Perceived value, comfort, data insecurity, and control can vary widely between users, leading to potential interpretation challenges.	**Action:** Regularly educate and onboard users to standardise understanding and expectations.
	Extrinsic Motivators: If users are incentivised in some manner, it might skew the genuine participation metrics.	**Action:** Diversify metrics to include both incentivised and non-incentivised activities, allowing for a clearer picture of genuine participation.
Continuance	**External Factors:** Factors like market trends, technological advancements, or societal shifts can affect continuance but may not be captured in metrics.	**Action:** Regularly conduct market and trend analysis to adjust and align metrics.
	Device Bias: If consumers are provided with free devices, their feedback might be influenced by the perceived value of the device rather than the actual service.	**Action:** Use blind studies or control groups to measure feedback without the influence of free devices.
	Interpreting Cross-services Willingness: Willingness to adopt cross-services or other energy technologies might be influenced by external factors like marketing, which could affect the metrics.	**Action:** Introduce regular feedback loops to understand the factors influencing adoption, beyond just marketing efforts.
General Risks & Challenges	**Self-reported Data Validity:** Users might not always be truthful or might misinterpret questions, leading to unreliable data.	**Action:** Use data triangulation methods – combine self-reported data with behavioural data and third-party reports to validate findings.
	Behavioural Data Intrusiveness: While behavioural data can provide genuine insights, it might be seen as intrusive, leading to pushback or reduced participation.	**Action:** Allow users to opt-out of behavioural tracking or offer different participation tiers with varying levels of data sharing.

Incentive-based Bias: Providing incentives for feedback can lead to bias as participants might provide feedback just for the incentive, not genuine engagement.	Action: Periodically gather feedback without incentives to measure genuine feedback and balance findings.
Data Storage & Privacy: With the increasing emphasis on data privacy (like GDPR), storing and processing user data has associated risks.	Action: Employ strong encryption methods, maintain transparency with users about data storage practices, and regularly audit data handling processes for compliance with privacy laws.

In addition to outcome metrics, for the experimental approach we also need to collect sociodemographic, psychographic, and motivational information about users. This information will allow to offer more granular analysis of outcome variables and to ensure the equivalence among groups in experimental designs. These descriptive metrics can be found in Table 7.

Table 7. Descriptive metrics

Sociodemographic	Psychographic	Motivational
Gender, age, education of the person signing TACS	Self-assignment to archetype	Value sought: self-centred and other-centred motives
Type of ser: industrial, residential or commercial	Technological readiness	Number of willing activations
Number of inhabitants (household or organisation)	Energy transition awareness	Time period (day and hours) willing to activate
Flexible equipment	Perceived empowerment	Self-reliability assessment (reliability to activate)
Location (sise, urban vs. rural)	Member of a energy community	
Type of building (social housing, detached house, condominium)	Previous participation in other energy projects	

6. Application of the Engagement Strategy

Each pilot's detailed planning should be conducted according to their unique needs, using this document as a strategic basis. Support continues to be provided through ongoing tasks in the BeFlexible project and it is expected that SIN will offer partners more detailed instructions for planning and facilitating their engagement activities.

When creating a pilot-specific engagement plan, the following considerations should be made:

6.1. Tailoring engagements by archetype

BeFlexible Deliverable 2.1 "Value Propositions" detailed research-based archetypes for customers, applicable to all customer types and across geographic regions. These archetypes are grouped into Adopters, Gadgers, Eco-Conscious and Comfy, each with their own unique incentives and barriers. Each stage of engagement and activity should be planned with consideration for these groups, firstly by identifying the archetypal mix in the target customer group, and then by matching the known incentives and barriers to the proposed activity.

6.2. Instructions for running activities

A 'recipe book' approach will be taken to the engagement activities listed in this document, allowing pilot leads to follow directions for planning and facilitating their own activities. Since each activity will need to be tailored to the context of the pilot, including tailoring to the customer types (e.g. residential), customer profiles (e.g. archetypes) and demonstration timescales, the directions will provide the necessary instructions for formulating a bespoke activity.

6.3. Accessing continued implementation support

SIN continues to provide dedicated support for Customer Engagement planning until the end of February 2024. Beyond this date, SIN and SoulSight have sub-tasks embedded in each pilot work package to continue providing support as the engagement plans are implemented.

7. Conclusion

The BeFlexible project has undertaken a comprehensive analysis and development of an engagement strategy to effectively involve customers in the utilisation of flexibility resources. This report has provided an overview of the scope and objectives of the task, namely to provide a strategy rooted in social science for the recruitment, onboarding and retention of customers to the BeFlexible project demonstrators.. It has also explored the interdependencies with other tasks and deliverables, highlighting the importance of collaboration and coordination within the project.

Through a review of past projects regarding customer engagement strategies, valuable insights have been gained to inform the development of the engagement strategy for BeFlexible. The pilot demonstration framework has been outlined, showcasing the various pilots across different regions and their specific objectives. Socio-cultural insights have been explored, emphasizing the importance of tailoring engagements to different types of users and considering socio-cultural arrangements.

Two key methodologies, namely Actor-Network Theory (ANT) and a hybrid collaboration approach, have been discussed as effective tools for developing the engagement strategy. Human and non-human actors have been defined and their relationships explored as a basis for understanding the social dynamics that underpin any engagement with customers within that network.

The engagement process has been outlined, highlighting the importance of incentives, education, continuous feedback, and evaluation for successful customer engagement. A timeline and various engagement activities have been presented, offering guidance on the implementation of the strategy as each pilot demonstrator moves to develop its customer engagement plans

The application of the engagement strategy has been addressed, providing instructions for tailoring engagements by each of the archetypes 'Eco', 'Comfy', 'Adopter' and 'Gadger' and running activities for each of the project stages 'Recruitment', 'Onboarding' and 'Usage'. Contingency planning and accessing continued implementation support have also been addressed to ensure the sustained success of the engagement strategy.

In conclusion, the engagement strategy developed for the BeFlexible project provides a comprehensive framework for effectively involving customers in the utilisation of flexibility resources. By leveraging the methodologies, insights, and activities outlined in this report, the project pilot leads can select the specific approach that can successfully engage customers and drive the adoption of flexible energy practices, creating their own engagement plans with the support of the customer engagement specialists.

8. References

Please refer to the earlier BeFlexible deliverable 2.1 "Value Propositions", available here: https://beflexible.eu/wp-content/uploads/2023/10/BEFLEXIBLE-D2.1-Value-Propositions-for-market-actors.pdf

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8.2. EU Projects

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IELECTRIX (Grant Agreement No 824392.) https://ielectrix-h2020.eu/
Platone, "Platform For Operation of DIstribution Networks," (Grant Agreement No. 864300) https://www.platone-h2020.eu/

Appendix

Appendix 1: Recruitment event in Sofia-Antipolis, France as part of the South Western EU demonstration.

Date: 6th July 2023 Location: SAP laboratories, Sofia-Antipolis, France

Introduction: The recruitment event held on 6th July 2023 aimed to gather participants for the South Western EU demonstration. The event was conducted both in person at SAP laboratories in Sofia-Antipolis and online for remote participants. The event consisted of a morning session and an afternoon session, each lasting for 1 hour, including time for Q&A.

Attendees: The invitees for the recruitment event were SAP employees, specifically targeted as potential residential end users for the pilot program. The two residential pilot options, hot water heater replacement and full tailored smart home installation, were presented to the attendees.

Questions and Discussions: During the event, participants raised several questions and engaged in discussions regarding the pilot program. The following are the key inquiries and responses:

Should the pilot program be limited to SAP employees only?

The need for evaluating the expansion of the participant pool within the geography was acknowledged. It was noted that further assessment is required to determine the necessity of including individuals beyond SAP employees.

What is the minimum required bandwidth for device management and connection to WiFi?

For water heaters, there is no specific minimum bandwidth requirement, but a continuous 24/7 connection is necessary. The same applies to the device pilot, as the bandwidth usage is minimal.

Can wired internet be used instead of WiFi?

Wired internet connection is not compatible with the solution. However, participants were informed that they could add a WiFi booster or extender if the distance from the router is too great.

How will the solution practically work?

The onboarding process will be guided. Participants will receive an invitation to create a login and fill in a profile. Based on the information provided, a tailored solution will be designed, including the installation of specific devices. If participants agree to the proposed solution, they will be required to sign the terms and conditions. A technician will then visit their homes to install the solution. It was mentioned that management of the solution can be transferred to SAP if desired.

Is the solution compatible with EDF Tempo tariff?

Yes, the solution is compatible with various tariff options, including those that change daily in line with the market, such as the EDF Tempo tariff.

Feedback and Interest: At the conclusion of each session, a feedback activity was conducted to gauge the participants' interest in the pilot program. Participants were given the option to either add their names to an 'interested' list or provide rationale for their decision to not take part. The feedback received included the following:

Rationale for not participating: Concerns about sharing personal information, such as shower time and energy consumption.

Rationale for interest: Participants expressed their need for heat boiler replacement or their interest in utilizing devices to smartly manage energy production and consumption, especially with the upcoming installation of solar panels.

Conclusion: The recruitment event in Sofia-Antipolis successfully presented the residential pilot options and addressed participants' queries. The feedback received will aid in the planning and implementation of the South Western EU demonstration.

Annex