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List of abbreviations

Abbreviation	Definition
BM	Business model

BMWG	Business model working group
CTH	Chalmers University of Technology
D	Deliverable
DSO	Distribution system operator
EE	Entra Energy
EBRD	European Bank for Reconstruction and Development
EUSEW	European Sustainable Energy Week
FlexiGrid	Enabling flexibility for future distribution grids with high penetration of variable renewable penetration– FlexiGrid
FG	FlexiGrid
Fin.	Financial
GA	General Assembly
SAT	Situation Analysis Team
UC	Use case
WG	Working group

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Executive Summary

Deliverable 9.6 details the objectives and activities of task 9.6. This task seeks to advance bankable business models, financial tools, and consumer interaction with external organisations. Activities for this are carried out via online meetings, webinars, knowledge sharing or knowledge gathering and presentations to external parties.

The FlexiGrid project emphasizes capacity building by partnering with European Commission-funded bodies and umbrella organisations, such as BRIDGE, SCALE, and the FlexCommunity. Such activities aim to enhancing skills, knowledge, and technical competence, and the sharing of research findings and technical know-how. These activities foster a collaborative environment that encourages knowledge sharing and innovation, improving project outcomes.

The project is keen on promoting and exploiting results to maximize EU funding impact. BRIDGE and SCALE initiatives target non-technical challenges and set standards for smart city solutions. FlexiGrid contributes to BRIDGE's Business Model Working Group (BMWG), by sharing the work process we used in FlexiGrid when producing business models such as working with value chains, KER-lists and IP. FlexiGrid also benefits from the participation in utilizing the knowledge gained for the project's KER-list, value chain design, business models, etc.

In European Sustainable Energy Week 2021, FlexiGrid addressed banks and investors in a webinar by the Smart Cities Marketplace. Collaborations with the European Investment Bank are being deepened through various discussions, targeting mutual benefits like scaling and capacity-building.

Through the Celsius Initiative, FlexiGrid participated in financing-focused webinars, a privilege earned from its ties with investment banks. Interviews with financiers like EBRD (EU), EIB (EU), Polhem Infra (S), and Intesa Sanpaolo (IT) showed that investors are wary of funding in unknown territories or prematurely staged projects.

It was also found that Distribution System Operators (DSOs) typically finance smaller investments, as flexibility services projects would be categorised under, without external support. FlexiGrid enhances its outreach by networking and sharing content on various platforms. They played a pivotal role in the FlexCommunity initiative, leading its meetings and extensively contributing to BRIDGE's Citizen and Consumer Engagement working group. This involvement earned FlexiGrid a BRIDGE General Assembly 2023 invitation.

FlexiGrid addressed consumer engagement during the European Sustainable Energy Week, supported partner DSOs with consumer engagement strategies, and promoted their webinars during BRIDGE sessions. In FlexCommunity, partners such as IMCG, OEDAS, Chalmers, Inavitas, Entra Energy, and RISE contribute to seminars and discussions, notably in the FG3 subgroup discussing European energy system flexibility. FlexiGrid uses the FlexCommunity platform for ongoing dialogues and knowledge exchange.

1. Introduction

The energy sector is witnessing a profound metamorphosis. To meet these emergent challenges and shift towards more sustainable and less polluting resources, in conjunction with the escalating demand for electricity, and equip for future demands, Europe must expand the capacity of its electrical grid and implement sophisticated management tools. As electricity usage surges due to a rapid rise in electrification, and with a larger share of power supply becoming weather-dependent, steps must be taken to assure grid stability. It is vital for grid operators to guarantee reliable energy provision to customers and citizens, whenever required.

Addressing the complexities induced by these changes requires more than a singular solution or the initiative of a single party. The successful metamorphosis of Europe's energy grids into intelligent, sustainable networks hinges on cooperation and the exchange of knowledge.

The European Commission strongly advocates for collaboration and knowledge sharing among projects funded within both the Horizon 2020 and Horizon Europe programs. They view these initiatives as crucial instruments to promote research and innovation across the European Union and beyond.

They encourage project participants to engage in active dialogue, exchange best practices, share research results, and create synergies between different projects. Such cross-project collaborations are seen as crucial to tackle the major societal challenges faced by Europe and the world, and to enhance Europe's competitiveness and innovative capacity.

These capacity-building initiatives typically involve activities aimed at enhancing the technical and operational competencies of different stakeholders, including researchers, project managers, operators, and even end-users, in smart grid technologies and processes.

Such activities can be highly collaborative, often encompassing joint training sessions, workshops, or seminars involving multiple project teams. These collaborations foster knowledge exchange, promote the sharing of best practices, and enable mutual learning from project experiences. They also provide an excellent platform for synergies and partnerships to emerge, which can further enhance the capacity and effectiveness of smart grid initiatives. This deliverable gives a detailed report of how FlexiGrid is contributing to the capacity-building within business models and the working process for delivering them, financial instruments, and consumer engagement.

2. Background

2.1. Grant agreement

According to the grant agreement D9.6 Mission Based activities: BM, Fin. Instruments & engagements, starting month 7 with a due date in month 42, extended to month 46, is a report describing the results from workshops, joint seminars and white-paper collaborations and knowledge sharing with organisations and bodies that have the “assignment” to warden and progress within the fields such as; business models and finance and groups at EIP-SCC and BRIDGE Business Model and Customer Engagement Working Groups. The report D9.6 corresponds to activities within task 9.6.

The objectives of task 9.6 Mission-based activities are according to the grant agreement to secure the continuous advancement regarding bankable business model and financial instruments. Activities should be about engagement and knowledge sharing with organisations and bodies that have the “assignment” to warden and progress within the field as; business models and finance and groups at EIP-SCC and BRIDGE Business Model and Customer Engagement Working Groups. The activities could be workshops, joint seminars and white-paper collaboration etc. and be held at least twice a year.

2.2. The Capacity Building concept

Capacity building, in the context of smart grid projects funded by programs like Horizon 2020 and Horizon Europe, aligns closely with the European Commission's emphasis on collaboration and knowledge sharing. It is also an important part of the project's partner organisations to extend their networks, gain knowledge, and to contribute to a sustainable Europe, to mention a few reasons.

Engaging in the large umbrella organisations that the European Commission has funded, such as BRIDGE, Smart Cities Marketplace and Celsius provide the opportunity for the partners to enhance skills, knowledge, and technical competence, making them better equipped to successfully implement the project and achieve their objectives. It may also lead to the development of partnerships and expanded networks that can be valuable in future research and innovation endeavours for the partners of FlexiGrid.

FlexiGrid's capacity building activities include components aimed at enhancing the capacity to effectively disseminate and exploit results, thereby maximizing the impact of EU funding.

3. Networks and Umbrella organisations

FlexiGrid has been collaborating with other projects and organisations through several networks and umbrella organisations. The main ones are the following:

BRIDGE is an umbrella organization for many projects it is a European Commission initiative. BRIDGE group is involving 155 projects in total (97 running and 58 ended as of 1st of July 2023) involving 1510 organisations in 39 different countries for a total accumulated EC funding to all projects of 1303 M€ in the areas of Smart Grid, Energy Storage, Islands, and Digitalisation funded under the Horizon 2020 and Horizon Europe program over the last 8 years (2015-2023). This collaboration group reveals the approximate growth of 45% during the 2 years period. The number of projects has growth 546% from the beginning of the period (2016-2017) until 2022-2023.¹

By strengthening the capacities of diverse projects focused on smart grids, energy storage, and digitalisation, these activities contribute to advancing the energy transition, a key objective of the BRIDGE initiative and the European Commission more broadly.

¹ [BRIDGE, Cooperation between Horizon 2020 and Horizon Europe projects in the fields of smart grid, energy storage, islands, and digitalisation - Publications Office of the EU \(europa.eu\)](#)

The BRIDGE process fosters continuous knowledge sharing amongst projects thus allowing them to deliver conclusions and recommendations about the future exploitation of the project results, with a single voice, through four different Working Groups representing the four main areas of interest²:

- Data management
- Business models
- Regulations
- Consumer and Citizen engagement



The Smart Cities Marketplace³ is an initiative supported by the European Commission bringing together cities, industry, SMEs, investors, banks, research, and other climate-neutral and Smart City actors.

It compiles insights from various projects to inform policy recommendations, thereby contributing to the development of more supportive regulatory and policy frameworks for smart cities.

The Smart Cities Marketplace initiative also supports the replication and scaling-up of successful smart city solutions, contributing to the broader transformation of urban environments across Europe.

Capacity building with the Smart Cities Marketplace can help to promote the development and adoption of standards, which are crucial for ensuring interoperability and the scalability of smart city solutions.

It includes more than 80 project whereof 18 Lighthouse project.

FLEXIGRID has worked together with the SCM- task groups focusing on the development of financial instruments, and jointly been supporting the Smart Cities Marketplaces Financing Masterclasses.



Celsius⁴ is demand driven collaboration hub for efficient, integrated energy systems supporting cities in their energy transition to carbon-neutral systems. Focusing on cities' needs, through the forerunner groups, it connects its members to exchange on climate and environmental policies, foster innovation, leading to solutions that accelerate sustainable development in Europe and across the world.

² <https://BRIDGE-smart-grid-storage-systems-digital-projects.ec.europa.eu/>

³ <https://smart-cities-marketplace.ec.europa.eu/>

⁴ [Celsius Initiative - Celsius Initiative \(celsiuscity.eu\)](https://celsiuscity.eu/)

Celsius is based on the premise that cities and districts are in a position to take the lead in the energy transition and gathers a network of +70 cities and DSOs committed to energy transition.

Together with the Celsius collaboration hub, FlexiGrid has been running several development and knowledge sharing events regarding Financial Instruments for Energy Transition. The work has been acknowledged by European Commission, Euro Heat & Power, European Investment Bank (EIB) and European Bank for Reconstruction and Development (EBRD)

FlexCommunity⁵ origins from projects funded by the H2020 program dedicated to the topic of FlexOffer and how it can technically develop and further improve the maturity of the FlexOffer to enable its rollout by industry. Any type of organization with an interest in enabling and promoting flexibility can participate in the community and learn from like-minded. By August 2023, there were 19 projects participating, with funding from different EU programmes and national funding.

4. Business Models

FlexiGrid contributes to activities like capturing business ideas and business models, investigating value chain design, KER-list and business models.

4.1. BRIDGE – Business models WG

FlexiGrid was represented in Business models working group (BMWG) and the BMWG has been active from the beginning of 2021. During its first year, the operations focused on studying the relationship between Use Cases (UC) and cross-domain BM, including developing a Value Analysis Methodology, establishing best practices for monitoring Use Case demonstrations, and identifying key project outcomes and benchmarks. After a change in leadership of the working group the group had new priorities by the beginning of 2023. The priorities were to design tools to evaluate the benefit of the services and solutions and to design business models to better include data value chain observability.

The BMWG has been investigating the tools that best capture the business ideas and business models, the quantification methods for business model benefits of services and solutions under various Uses-Cases scenarios, as well as the best methods and approaches to identify data that is valuable and exploitable, all developed in the project activities and seeks to better understand how to improve the business models' design.

FlexiGrid's representatives have actively contributed to the work and discussions in the BMWG.

FlexiGrid was represented in the BMWG by two partners. IMCG represented FlexiGrid and took part in BRIDGE activities with knowledge sharing and exchange for BMC, KERs and value chains.

Business Models working group aims at⁶:

- Defining common language and frameworks around business model description and valuation

⁵ <https://flex-community.eu/>

⁶ [Business models | BRIDGE \(europa.eu\)](#)

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

The Business Model WG, next step is aiming to provide standardized approached and methodologies to help projects efficient Business Models.

Some conclusions, as presented in the parallel sessions at the GA 2023, were that the Business Model Canvas, BMC, is a popular method. Also, most of those projects that are included in the BRIDGE are not using quantification methods. For replication and up-scaling are standardised approaches and methodologies to help building BMs necessary.

This official report with conclusions, from BRIDGE, is finalized at the same time as this deliverable 9.6 is completed.

4.2. Activities related to the Business Models

Below are BRIDGE activities presented in relation to FlexiGrid project task and delivery, they are all related to BRIDGE Business Models Working Group.

After the kick-off meeting, the 27th of September in 2021, BRIDGE Business models working group has been running monthly which has resulted in knowledge exchange of business models for flexibility markets/solutions, which is incorporated into our work in tasks in WP9.

IMCG, from WP9, met Ryerson University (formerly involved in NESTNet) to discuss methods to manage IP and Business Models. The meeting gave some good tips from the NESTNet project that could be implemented in the evaluation of BM's in FG. But in many cases, there are different structures for the solutions owners (IP by universities only in NESTNet), hence the methods used in NESTNet can only inspire but not be directly transferable to FG.

FlexiGrid used, as inspiration to progress swiftly and to not re-invent structures and strategies, for the DSOs Business models the BRIDGE Business model groups initiative. For inspiration several pre-determined BMCs developed by BRIDGE were shown to FG participants. They were demonstrated as examples, in the purpose of knowledge sharing aiding the development of the FG's own BMC as complement and for improvement.

Table 4.1 List of FlexiGrid conducted activities inspired by BRIDGE BM actors/ partners

Date	Activity ¹ BRIDGE Working group ² Others	FG representative	Content in relation to FlexiGrid Task/s and/ or Deliverable/s

27 th September 2021	¹ Kick-off meeting	IMCG	BRIDGE Business models working group, kick off meeting and dividing partners into working groups.
3 rd November 2021	¹ Working group meeting	IMCG	BRIDGE Business models working group, startup meeting and introduction to homework for participants. Discussions on what to do in the working group. A homework was handed out to submit BM's done until now, or how the different projects work with BMs. For FlexiGrid we submitted our IP strategy report and stated that we are early in this work, and currently focus on value chain design for a future flex market, and IP information and discussion with each partner. FlexiGrid T9.1 & D9.1 - IP strategy, T9.2 value chain design
10 th December 2021	¹ Working group meeting	IMCG	BRIDGE Business models working group meeting, presentation of how the different projects work with BM's, IP or similar topics. This working group meeting consisted of presentation of submitted homework's plus discussions around how to tackle the challenges with creating BMs for solutions and a market that is not yet existing. FlexiGrid T9.1 & D9.1 - IP strategy, T9.2 value chain design FlexiGrid T9.4 & D9.4 - Business Models
14 th January 2022	¹ Working group meeting	IMCG	BRIDGE Business models working group, focus on BM's so far and how to cluster them based on the different types of participating projects. FlexiGrid T9.4 & D9.4 - Business Models
1 st Feb 2022	^{1,2} Survey answered	IMCG	To enable to further plan the RD&I activities of Smart Networks and Energy Transitions (SNET). BRIDGE and the program ETIP SNET
March 2022	¹ General Assembly meeting	IMCG	BRIDGE GA. FlexiGrid T9.1-4 & D9.1-4
19 th Jan 2022	² Meeting	IMCG	Meeting with Bala Venkatesh and Karen He-Cespedes from Ryerson University (formerly involved in NESTNet) to discuss methods to manage IP and Business Models. The meeting gave ideas from the NESTNet project that we implemented in the evaluation of BM's in FG. FlexiGrid T9.4 & D9.4 – Business Models
2022-23		IMCG	Inspired by the NestNet ⁷ project an evaluation committee was created, to assess and help adjust the DSO's BMs. A qualitative evaluation model was discussed, created, and used. For engagement all DSOs and other project members were invited to validate the concepts and value. The innovation manager responsible for Task 9.2 was also included here. Members of the committee were representatives from WP2, T9.1-9.5, one DSO and one solution provider, representing different actors in the value chain and members in FlexiGrid with useful insights for the evaluation. T9.2, & D9.2, T9.4 & D9.4

⁷ At the time of writing the application, the structure and status of NESTNet and EIP-SCC was different that it is today; in the case of NESTNet, the project is finalized, and in the case of EIP-SCC that does not exist anymore in the former form but is now merged into Smart Cities Marketplace. Hence, activities related to these are adapted to better match the current status.

18 th May 2022	¹ Working group meeting	IMCG	BRIDGE Business models This working group discussed different Business models. FlexiGrid T9.4 & D9.4 - Business Models
23 rd May 2023	¹ Working group meeting	IMCG	BRIDGE Business models working group meeting. This working group discussed different Business models. FlexiGrid T9.4 & D9.4 - Business Models
14 th Nov 2022	¹ Working group meeting	IMCG	BRIDGE Business models working group meeting. This working group discussed different Business models. T9.4 & D9.4 - Business Models
16 th Dec 2022	¹ Working group meeting	IMCG	BRIDGE Business models working group meeting. This working group discussed different Business models.
28 -29 th March 2023	¹ General Assembly meeting	IMCG	Comments made to first draft report: BRIDGE Business models.
24 th May 2023	¹ Comments made to first draft report	IMCG	Comments made to first draft report: BRIDGE Business models.
10 th December 2021	Information given of how we worked with IP including the report from the very start of the project.	IMCG	IP Policy, assessment and operations T9.1, D 9.1
20-21 th June 2023	Consortia meeting with round table discussion and knowledge sharing between partner DSOs and KER owners.	All partners	In the final consortia meeting, one important focus was on knowledge sharing between DSOs and KER owners. Business models and guidance for DSOs for getting into flexibility markets with the project's demonstrators, and build their own markets was a main point in the activity.
Throughout the meetings		IMCG	IMCG KER-list and IMCG value chains. T9.2, D9.2
Throughout the meetings		IMCG	BMs/ BMCs T9.4 & D9.4

Entra Energy represented the FG project by participating in regular meetings, providing follow-up on regular offline communication, participating and distributing a BM survey (<https://forms.gle/3XUD1WKpmCJGejU66>), and last but not least participating in an interview and later on providing draft content for the BMWG report "Using Business models for Big Data Value Chain".

By end of June 2023, at the same time as one of the BRIDGE official report⁸ is finalised, this D9.6 is completed. The work and discussions completed in the BMWG have been resulting in a solid report consisting of 3 outcomes covering:

- Matrix business tools or characteristics aspects
- Benchmark of BMs
- Recommendations on how we include data observability

⁸ BRIDGE official reports will most likely be public available via EUs official portal

5. Financial Instruments

FlexiGrid has participated as presenters in a webinar in the European Sustainable Energy Week arranged by the Smart Cities Marketplace October 11th, 2021, with banks and funders as target audience and spread knowledge and created dialogue with investment banks and investors. In the European Sustainable Energy Week, EUSEW, event October 11th, 2021, the project participated in the Smart Cities Market Place's session on "The one billion challenge: how to pay for Climate-Neutral and Smart Cities".

Within the task we are developing and deepening the relation with European Investment Bank – "the Climate Bank of Europe" through interviews, arranged seminars and meetings to build mutually beneficial collaboration regarding scaling, replication, and capacity building activities.

FlexiGrid have also frequently participated in the Celsius Initiative's webinars where focus has been financing and funding. Getting to the position of being invited to these events comes from a built-up knowledge and position through interviews with investment banks.

An interview and knowledge sharing series with multiple investors such as EIB, EBRD, Polhem Infra and Intesa Sanpaol have taken place. In this work we concluded that investors will be very hesitant to fund projects in an unknown environment, where no projects are alike and where the need for capital is relatively low.

From the other side, our work in FlexiGrid has shown that DSOs in general will not need support from investment banks or investors. The capital expenditure, CAPEX, and shape of the flexibility services in the project are costs that the DSOs manage to finance internally.


This acquired knowledge, hence that efficient financial instruments were not needed to deploy flexibility services for the DSO led to an adjustment of the activities. To a larger extent the focus were on hybrid funding solutions such as Innovation Fund and Accelerator. Regular grant funding opportunities will be of greater relevance for the FlexiGrid project as enabler for FlexiGrid scaling and replication activities. This has been discussed further with partners in task 9.5, which will support future growth of companies.


5.0. Activities related to Financial instruments

Below are Financial instruments activities presented in relation to FlexiGrid project task and delivery, they are all related to NestNet, Smart Cities Marketplace (EIP-SCC) and/ or the Celsius initiative.

Table 5.1 List of FlexiGrid conducted jointly with BRIDGE, Smart Cities Marketplace, Celsius and other actors/ partners

Date	activity ¹ NestNet ² EIP-SCC ³ Celsius	FG representative	Content in relation to FlexiGrid Task/s and/ or Deliverable/s
May 2020	³ Seminar and workshop	IMCG	FlexiGrid in collaboration with Celsius Intro to session: The Celsius Talk May speakers together represent an amazing competence within an

			<p>issue that needs to be solved for a successful energy transition: financial investment. Moderated by Magnus Andersson, Coordinator FlexiGrid and financial expert at IMCG. The webinar gave a European multiple perspective on financial investment, from EU's Urban Agenda Energy Transition Partnership to success cases and transparent green bonds to minimize the risks.</p> 
7 th October 2021	¹ Workshop	All	<p>Knowledge sharing workshop with NESTNet team in an online meeting. All FG partners were present and involved in discussions and questions. The output was discussion about potential further knowledge sharing and exchange. This led up to subsequent meetings with representatives from NESTNet on the topics IP & BM and platforms, as well as a meeting with NESTNet partners now involved in the VARIG project.</p>
May 2021	² Meeting part of the EU Sustainability Week, hosted by DG Energy	IMCG (PMO/WP9)	<p>There are more green financial instruments than ever before from major funders and investors supporting sustainable solutions. Still, it is very challenging to find adequate capital allowing them to finance projects deploying technologies that will enable a leap in the energy transition.</p> <p>In the hopes to help cities overcome the financing barriers they face, <u>The Smart Cities Marketplace's Sustainable Districts and Build Environment Action Cluster</u>, and the Celsius Initiative, are pleased to present this workshop, focusing on financing integrated energy systems, it puts a spotlight on identified challenges and gives recommendations for how they can be resolved.</p> <p>In collaboration with the <u>Urban Agenda Energy Transition Partnership (UAETP)</u>, <u>The Smart Cities Marketplace Action Cluster</u> and the Horizon 2020 project <u>FlexiGrid</u>, the <u>Celsius Initiative</u> will produce advisory report for the EIB and DG Energy on bridging the gap between funders and energy transition</p>

			<p>projects. During this webinar, participants had the opportunity to both learn about and give valuable feedback on the paper.</p> <p>The webinar includes presentations from:</p> <ul style="list-style-type: none"> • Georg Houben, Policy Officer at DG Energy • Paul Cartuyvels, Action Cluster Chair • Sofia Lettenbichler, Action Cluster Initiative Leader and Policy and Projects manager at Euroheat & Power • Kristina Lygnerud, Energy Department Manager at the Swedish Environmental Research Institute IVL • Greg Gebrail, Principal Specialist at the European Bank for Reconstruction and Development (EBRD) • Steven Fawkes, Managing Partner at EnergyPro Ltd • It is moderated by Magnus Andersson, Financing Expert and Partner at IMCG.  <p>Presentation of a selection of Financial workshops that has been done together with Smart Cities Marketplace.</p>
16 th February 2022	1 st Demonstration	IMCG, CTH, SIMAVI, EMAX	<p>Bala Venkatesh and Karen He-Cespedes from Ryerson University (formerly involved in NESTNet) requested a demonstration of the tools/platforms developed in FG, hence</p> <p>a meeting was set up on the 16th of February 2022 where partners presented the IoT platform (Simavi), the Eflex trading platform (EMAX) and the congestion forecast tool (CTH)</p>

6. Customer Engagement

FlexiGrid has been building a good network together with other projects and organisations. Collaborations and activities such as webinars and engagement in social media, such as sharing each other's content and results support knowledge sharing and dissemination of results to a wider audience than only the direct followers of the project.

This has led to the result of FlexiGrid disseminated in knowledge sharing and capacity building in Europe and internationally. We drive collaboration through, for example, the newly started FlexCommunity, where we are participating and planning upcoming meetings and act as moderators.

We collaborate in several webinars and knowledge sharing meetings supporting the continuous advancement regarding stakeholder engagement and acceptance. We take part in the BRIDGE's citizen engagement and consumers working group. In the middle of the project, BRIDGE had a break while changing managing organisation. In the relaunch we had an active role in shaping the new work group of Consumer and Citizen Engagement and its subgroups and what they would look like.

FlexiGrid also reach out to organisations and projects working within smart grid and flexibility for collaborations in the form of webinars and knowledge transfer.

Most of the work done by FlexiGrid within capacity building for consumer, customer and citizen engagement has already been reported in the deliverable 10.4, with a due date in month 36, October 2022. But we didn't quit the job there. Since then, we have been as active as before in several capacity building activities.

6.1. BRIDGE - Consumer and Citizen Engagement WG

FlexiGrid was represented in all subgroups of this workgroup, active in the period 2022 - 2023, namely:

- **Indicators of engagement** subgroup (led by Michael Brenner-Fliesser, project COMPILE, organization Johanneum). The primary objective of this subgroup was to gather a diverse range of indicators and subject them to evaluation using various parameters. In essence, the goal was to establish a categorization system for engagement indicators while concurrently identifying challenges associated with assessing them. Creating practical strategies and recommendations to effectively tackle these assessment-related issues was also under the scope of this subgroup.
- **Strategies of engagement** subgroup (led by Heidi Tuiskula project E-LAND, organisation Smart Innovation Norway, Mina Kuivalainen, project E-LAND, organisation Smart Innovation Norway, and Takis Ktenidis, projects TILOS/BD4NRG, organization SEALAB - University of West Attica, UNIWA). This subgroup aims to collect and structure strategies that promote effective engagement. To achieve this, it needs to understand stakeholders and end users better, including their categorization and considering cultural, social, and geographic aspects. Furthermore, the scope of this subgroup acknowledges the significance of addressing gender-related challenges and managing engagement activities to maximize their impact and success.

- **Smart Tools for engagement** subgroup (led by Louise Birch Riley project i-FLEX, organization In-JeT ApS and Evangelos Rikos, project GIFT, organisation CRES). The subgroup aims at collecting information on Smart Tools, focusing on their target consumers, development, and use approaches. It focuses on Design Thinking approach and providing specific project examples.

Throughout FlexiGrid's participation of these subgroups, numerous meetings took place (both on work group and subgroup level), extensive offline communication was in progress and variety of documents and insights were achieved.

FlexiGrid participated not only in the common discussions, but also provided information for the specific deliverables (outcomes) of each subgroup.

In respect to the subgroup Indicators of engagement, FlexiGrid took part in defining and understanding the final list of indicators gathered. It was one of three projects that contributed towards assessing the usefulness of each indicator for a specific user/stakeholder group. The stakeholder groups definition was also decided internally within the subgroup and was one of FlexiGrid's activities. FlexiGrid later took part in discussing the work of the other project participants that were responsible for assessing the indicators based on usefulness in different phases of the project and methodological features (qualitative/quantitative, primary/secondary, input/output).

FlexiGrid's representative Verzhinia Ivanova, EE, is co-author to the [conference paper](#)⁹ "A framework for measuring stakeholder engagement in energy transitions projects" that was presented in the Sustainable places conference, as a way to disseminating the results of Indicators of engagement subgroup.

For the Strategies of engagement subgroup, FlexiGrid participated in the on-going meeting and offline communication. As a subgroup participant, FlexiGrid mainly contributed towards the Topic Group (subgroup of the subgroup) that worked on stakeholder characterization by providing feedback on a stakeholder characterization draft list and in finalizing a questionnaire for stakeholder characterization. FlexiGrid was also the first to fill in the questionnaire/survey before it went online (while it was still a draft word document) and later on FlexiGrid representatives filled in the final online version. FlexiGrid through its contacts and social media platforms, distributed information about the survey gathering more responses to be included in the final works of the subgroup. The survey is still being active (until August 2023) while writing this report and the results from it will probably be examined and analysed in the upcoming months.

As for the Smart Tools subgroup, FlexiGrid, as in the previous two subgroups, took part in the regular subgroup meetings and offline discussions, but it also contributed with examples of specific design thinking approaches that were implemented during the project. At first, FlexiGrid provided a variety of examples and options that could potentially be used in the scope of activities of Smart Tools, which were then reduced in the process. The final few examples were then described in more details for the final version of the whitepaper being written as a report of the subgroup's tasks. FlexiGrid also provided a review and feedback for the whole document.

⁹ <https://shorturl.at/jEIKX>

As a sign of FlexiGrid’s contribution towards BRIDGE, FlexiGrid represented by Entra Energy was invited to physically attend the BRIDGE General Assembly 2023 as a representative of one of the subgroups. Unfortunately, the person invited wasn’t available to travel, nonetheless the invitation acknowledged FlexiGrid’s contribution in BRIDGE’s work.

However, this is not the full extent to which FlexiGrid has collaborated with BRIDGE. Other aspects in which FlexiGrid participated in capacity building as part of BRIDGE include:

- Participating in European Sustainable Energy Week, EUSEW, both as arranger and moderator of the only BRIDGE-participation in the event, speaking about citizen and consumer engagement. The event gathered speakers from the European Commission, BRIDGE’s Consumer and Citizen Engagement WG, and more.
- As direct relation to BRIDGE’s work, FlexiGrid has also supported the partner DSOs at their demo sites, with information, communication work and ideas of how to reach their consumers with information about the project and get them engaged. The DSOs have made publications on their websites with texts and videos about their participation in FlexiGrid, which has reached a variety of end-users (consumers, prosumers and producers). Articles in media in the partners’ countries about the project have also been quite constant during the project.
- During BRIDGE meetings, FlexiGrid has always used the occasion to promote webinars, events or information about current activities as to disseminated and communicate project activities as much as possible.

A list of the meetings and tasks undertaken by FlexiGrid can be seen in the following table below.

Table 6.1 Meetings and tasks undertaken by FlexiGrid representatives.

Date	Activity	FG representative	Notes of the activities
August 2022	Stakeholder Characterization Questionnaire	EE	As part of T10.4 familiarization with BRIDGE activities and completion of characterization of stakeholder’s questionnaire.
1 st of September 2022	CCE WG: Smart Tools Meeting III	EE	Current survey results on smart tools was presented and a discussion on approach for design thinking document was carried out.
September 2022	Smart Tools Survey	EE	Filled in info about FlexiGrid project developed technologies that fall under the category of smart tools.
6 th September 2022	CCE WG: Stakeholder Characterization Meeting 3	EE	BRIDGE Consumer and Citizenship Engagement WG, third meeting on Stakeholder Characterization. Discussion on questionnaire and feedback on its usability, so it can be further developed.
7 th September 2022	CCE WG: Indicators of Engagement SG Meeting	EE	BRIDGE Indicators of Engagement third meeting, familiarization with the subgroup and its tasks. Introduction to list of indicators and providing feedback on their usability. A decision to divide in sub-subgroups was made, so FlexiGrid was put in the group that would be focusing on indicators based on the type of stakeholder they apply to.
12 th September 2022	CCE WG: Indicators of	EE	Based on the BRIDGE Indicators of Engagement third meeting, a subgroup within the subgroup took place.

	engagement SG Task Users		During the meeting, a plan of work and initial list of stakeholders was defined
16 th September 2022	CCE WG: Indicators of engagement SG Task Users	EE	Based on the BRIDGE Indicators of Engagement third meeting, a subgroup within the subgroup took place. The defined stakeholders were further designed to fall into a few categories/types of stakeholders
27 th September 2022	CCE WG: Indicators of engagement SG Task Users	EE	Based on the BRIDGE Indicators of Engagement third meeting, a subgroup within the subgroup took place. The BRIDGE indicators were made in three different versions as to which indicator belongs to which stakeholder and were further discussed among the partners
28 th September 2022	CCE WG: Indicators of Engagement SG meeting	EE	Each sub-subgroup presented the results of their work and provided feedback for the others.
October	"Gender and inclusive engagement in energy transition" Survey	EE	Filling in the survey with input from project partners.
19 th October 2022	CCE WG: Strategies of Engagement meeting	EE	Different strategies from projects represented in the subgroup were presented and discussed.
24 th October 2023	CCE WG: Indicators of Engagement Meeting	EE	Administrative tasks for finalizing and making more robust the list of BRIDGE indicators.
26 th October 2022	CCE WG: Smart Tools Meeting IV	EE	Presentation of the chosen approach for handling the Design Innovation research.
November	In-detail review of „The Design Innovation document“	EE	A general review and familiarization with the document. Preparation and sending ideas and additional content that could be used for the report.
9 th November 2022	CCE WG: Stakeholder Characterization Meeting 4	EE	Topic group meeting for the finalization of the questionnaire.
28 th November 2023	CCE WG: Indicators of Engagement SG meeting	EE	Subgroup meeting focusing on Discussion about definitions and metrics for our BRIDGE indicators, timeline and work distribution for the BRIDGE report, how to shape our second output, possible synergies with other SGs .
30 th November 2023	CCE WG: Smart Tools sub-group meeting V	EE	Updated progress regarding the Design Innovation document.
December	Indicators of engagement report	EE	Providing review and inputs for the report.
1 st December 2022	CCE WG: Strategies of Engagement	EE	Presentations of different strategies for engagement
10 th January 2023	CCE WG: Indicators and Report	EE	Subgroup meeting focusing on the progress of the report, needed input and timeline for finalization.

16 th of January 2023	CCE WG: Indicators SG Meeting	EE	Discussing the finalized report and the way forward for the subgroup.
18 th of January 2023	CCE WG: Smart Tools sub-group meeting VI,	EE	Subgroup meeting focusing on: Wrap up this year’s work for the Smart Tools subgroup (Design Innovation Document, survey, BRIDGE report, etc.), -Discuss ideas and topics of interest for the subgroup in 2023, and, -Discuss leadership of the subgroup.
February	Design Thinking report	EE	Final review and feedback for the report, sending additional input for content.
7 th of March	CCE WG: Indicators of Engagement SG	EE	Final meeting of the subgroup for the current period.
24 th of March	CCE WG Topic Group 2: Stakeholder Characterization Meeting #5	EE	Subgroup meeting focusing on: 1. The current status of the survey 2. Some of the results we have observed 3. Further steps with the analysis and the survey 4. A possible cooperation with another WG in BRIDGE as a contribution to a stakeholder study 5. The future tasks in our Topic Group
May	Stakeholder Characterization Questionnaire	EE, IMCG	Sending emails and posting information on LinkedIn asking people to fill in the survey
2 nd of May	CCE WG Topic Group 2: Stakeholder Characterization Meeting #6	EE	Subgroup meeting focusing on: 1. The development of the survey and attracting more respondents, 2. The future of the topic group and its leadership

6.2. FlexCommunity

Partners in FlexiGrid that are involved are IMCG, OEDAS, Chalmers, Inavitas, Entra Energy and RISE. These partners participated at the kick-off on 2nd of February 2022, where FlexiGrid contributed to the shape of the new working groups of the community. The Community has since the start had 13 events. During these events, different workshops were carried out where FlexiGrid participants actively participated and contributed to what was discussed. FlexiGrid has also moderated a seminar for FlexCommunity on “solutions for utilities and energy communities”.

FlexiGrid partners have been especially active in the subgroup FG3: Solutions for Utilities and Energy Communities, as moderator and experts. Activities such as collaborations around white papers to the European Commission is an example of work done within the community. The topic of the white paper is planned to be to map the stages of flexibility in the energy systems of different European countries. FlexiGrid has been active in deciding on the topic for the report. The work is ongoing while this report is written.

FlexiGrid is also mentioned with a logo picture and link towards the project website in the FlexProject menu part of the FlexCommunity website. https://flex-community.eu/FlexProjects/project_list

FlexiGrid has also utilized the community’s channels to reach out with our webinars, such as our webinar “How to forecast energy surplus and congestions and how to manage it” in collaboration with the project BD4OPEM, that are also part of the FlexCommunity.

FlexiGrid keeps a dialogue with the projects involved about future collaborative communication activities and knowledge transfer meetings.

Several meetings and tasks were undertaken by FlexiGrid representatives as listed in below table.

Table 6.2 List of meetings and tasks undertaken by FlexiGrid representatives in 2023 in FlexCommunity

Date	Activity
22 nd -23 rd of February 2023	FlexCommunity Conference
2 nd of May 2023	Topic Group meeting
5 th of May 2023	Meeting of FlexGroups moderators
22 nd of May 2023	Meeting of FlexGroups moderators
26 th of May 2023	Meeting of FlexGroups moderators

7. Other capacity building activities

Much of our work in capacity building is already covered in the D10.4 report, but here is a list of activities to give a sense of our activities that are capacity building, but do not fully fit in under business models, financial instruments or customer engagement.

- Article about FlexiGrid in the Celsius Newsletter, 2020.
- In the Celsius Initiative hosted event at EUSEW, 2021.
- WP 9 and WP10 in several meetings for knowledge sharing and discussions on joint actions with Fever and Edgflex
- IMCG and EMAX presented the Eflex platform to high level officers in the main DSOs of Sweden. They got to learn about our blockchain based flexibility market.
- 27th April 2021 FlexiGrid representative for MS10 “Support regulators and supportive bodies with policy changes to enhance the deployment of local energy and flexibility markets” hosted a webinar by IEA DHC Annex TS3 “hybrid energy networks”. The aim of the IEA DHC Annex TS3 “hybrid energy networks” is to promote opportunities and to overcome challenges for district heating and cooling (DHC) networks in an integrated energy system context, focusing on the coupling to the electricity and the gas grid.
- 22nd September 2021, we reached over 10 000 stakeholders in the Turkish energy market with an invitation to our webinar for a Turkish audience. 185 participated at the webinar with the title Supply Reliability of Microgrids and the Role of the Future in Distribution Networks. It was done in collaboration with the Turkish Energy Digitalization Association.
- 28th September 2021, in a digital event and discussion about flexibility issues in general and initiatives to explore new flexibility resources, that InnoEnergy are engaged in, or know about, in Sweden and in Europe at large. Part of T2.4.

- 24th September 2021, Participating in the Göteborg Energi DSO workshop on local flexibility markets workshop organized by Chalmers University, RISE and Göteborg Energi DSO on flexibility in local electricity networks and fundamentals to local flexibility market design.
- 7th October 2021, Online via Teams NESTNet joint workshop of FlexiGrid and NestNet on “P2P Flexibility Trading for Future DSO Operation with Blockchain and IoT – Development form FlexiGrid and NestNet” with 40 participants.
- 12th October 2021, meeting for potential collaborations between Steven Wong, Dave Turcotte, Tuan Le and Linnea Qvirist, to present our respectively projects (FlexiGrid and VARIG Varennes Interactive Grid) and initiate discussion about future collaborations and knowledge exchange.
- October 2021 FlexiGrid has had a knowledge sharing webinar with NESTNet to exchange experiences and results.
- 30th Nov – 2nd December 2021, FlexiGrid (IMCG, RISE, EMAX, Entra Energy, OEDAS, Inavitas) participated at the Enlit conference in Milan to build network and attain new knowledge. Thong Vu Van, EMAX, held a presentation in the EU-Zone of the conference and mentioned FlexiGrid. In addition, new knowledge and information was attained by attending the presentation in the various hub theaters of the conference, where the ones focusing on markets, regulation and consumer engagement were most frequently visited.
- 14th December FlexiGrid arranged a webinar about flexible markets. RISE, CTH and EMAX presented their work to approximately 40 participants. Both cases have resulted in DSOs and other stakeholders in the energy system have been reached by the technical results of FlexiGrid and also by the possibilities of smart and flexible power grids in general.
- December 2021 FlexiGrid had a meeting with EIP-SCC and discussed possible joint activities.
- Since the EIP-SCC has become Smart Cities Marketplace, we are in contact with them and discuss possible joint activities.
- 12th January 2022 is a 1st meeting to present our work, share knowledge and discuss potential collaborations going forward together with Grid Singularity Fatuma Ali. IMCG (PMO/WP9) met online with a representative of the company Grid Singularity to talk about flexibility solutions they are providing, ant to present the FG project and anticipated results thereof. Some potential areas for platform evaluation were discussed, and contact details were shared further to relevant FG partners (Simavi, EMAX, CTH).
- April 2022 starting collaborations with other projects, starting with one webinar with the H2020-project BD4OPEM and are planning to have on together with Coordinet in May 2022. We are also active in the FlexCommunity. We participated in discussions in their kick-off meeting in February 2022 and we keep a dialogue with the projects involved about future collaborative communication activities and knowledge transfer meetings. We have presented our blockchain-based trading platform to the main Swedish DSOs and TSO at an online meeting in October 2021. In December FlexiGrid had a webinar on the topic flexible markets with DSOs as target audience. In Turkey we had a webinar about the Turkish pilot site targeting DSOs and local and national stakeholders.
- 6th April 2022, webinar together about forecasting tools. Speakers were Göteborg Energi, CTH and IMCG and FG partners involved IMCG, OEDAS, Göteborg Energi, CTH, Inavitas.
- FlexiGrid hosted a panel at the IEEE PES ISGT Europe 2022 conference during 10-12 October 2022.

- April 27th 2023, FlexiGrid through Bulgarian DSO Energo-Pro took part in an Energy Sales conference, where FlexiGrid, its solutions and advantages were explained in detail, thus reaching industry experts from all over Europe.
- May 19th FlexiGrid through Bulgarian partner Entra Energy took part in RE-Source Southeast Conference where the project was represented within the panel discussion "No transition without transmission..., distribution and storage". During the discussion the project solutions and their use was discussed, highlighting their advantages for DSOs and the further transformation of the energy system.
- June 6th Energo-Pro took part in the event in one of the panels "The energy future and transformation of Northeast Bulgaria depends on business" where the representative spoke about FlexiGrid and how it can enhance and support the energy transition.
- InnoEnergy and SAT contact?
- Sophia Giovanett from E.DSO and the Platone project reached out about gender balance memorandum, where FG PMO (IMCG) was involved in the preparation of the text for the memorandum. Joint activities between Platone and FG was discussed, but the activity was halted by change of project manager on Platone side.
- FlexiGrid's coordinator and the technical coordinator have been invited to present FlexiGrid at the IEEE conference in Vietnam in the Autumn of 2023.

8. Conclusion and Recommendations

Task 9.6 on Mission-based activities include: i) Meetings and knowledge sharing with BRIDGE WG on Business Models, KER-list, value chain design, business models, etc., BRIDGE WG on Consumer and Citizen Engagement, NESTNet team on IP and BM, Smart Cities Marketplace (EIP-SCC) and Celsius about potential synergies and knowledge sharing; ii) Joint webinar with NESTNet for knowledge sharing (also WP1 engagement); iii) Several meetings through WP1, WP9 and WP10 with for example FlexCommunity, VARIG project, EdgeFlex, Platone, Fever, BD4OPEM, Coordinet to discuss and arrange joint webinars and knowledge exchange.

FlexiGrid has participated and engaged in the parts of capacity building it was set out to do, but in a landscape of energy transition, new technological accomplishments and geopolitical factors, the conditions change quickly.

The many activities have led to i) spreading knowledge about FlexiGrid to other projects companies and organizations, ii) collecting knowledge relevant for FlexiGrid's ongoing and upcoming activities during the project, iii) new contacts and planning for joint outreach activities and webinars.

Some conclusions, as presented in the parallel sessions at the BRIDGE GA 2023, were that the Business Model Canvas, BMC, is a popular method. Also, most of those projects that are included in the BRIDGE are not using quantification methods. For replication and up-scaling are standardised approaches and methodologies to help building BMs necessary.

FlexiGrid used for the DSOs Business models the BRIDGE Business model groups initiative. For inspiration pre-determined BMCs developed by BRIDGE were shown to FG participants. Inspired by the

NestNet project an evaluation committee was created, to assess and help adjust the DSO's BMs. A qualitative evaluation model was discussed, created, and used.

The conclusion has been that cost efficient and available capital through financial instruments through debt and equity funding is not as relevant as anticipated. This is mainly due to that the capital expenditure of creating flexibility services are costs that the DSOs manage to finance internally. This is a vital learning since it was anticipated as a major obstacle for the deployment flexibility services. The learning was made together through extensive activities with other organisations and initiatives as EIB, Smart Cities Marketplace, etc.

One of the main learnings from on the mission-based activities are that there is a lot of similar activities ongoing around Europe and Canada, both as ongoing projects and as activities being commercialized by commercial companies. The market for flexibility solutions is moving fast in some areas, and quite slow in others, and from the activities and meetings held within task 9.6, it has become apparent that many others are struggling with the same things as the partners in FlexiGrid are creating BMs for a future flexibility market where several factors are still unknown, e.g. regulatory landscape, emerging actors on the market, presence or absence of local flexibility communities and aggregators, etc. This is something we have acknowledged when proceeding with the activities in the FG-project.

Another future impact are the many PhD students involved in the FlexiGrid project, who get educated and informed about flexibility market – not only from their own research perspective – but also on a general level regarding other aspect of flexibility markets. The sharing of knowledge and capacity building is also addressed in task 9.6 through various workshops and outreach activities. Through sharing information about FlexiGrid and our findings we also share important findings with external actors, including SMEs, which can support their future growth and competitiveness.

As a conclusion and recommendations to further activities is to shape the capacity building activities after the maturity stage of the stakeholders in the project and the environment, such as regulatory, financial, market, consumer need and political landscape they are operating in.

8.1. Further reading

More details behind the work presented in this report could be found in:

- Deliverable 9.1 - IP Policy, assessment and operations (public)
- Deliverable 9.2 - Planned and agreed pre-market developments of solutions (confidential)
- Deliverable 9.4 - Assessed and adjusted pre-kit business models for project's DSOs (public)
- Deliverable 9.5 - Financial Toolbox (public)
- Deliverable 10.4 - Summary of mission-based activities capacity building (public)