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Abstract:

This document describes in detail how X-FLEX partners participated and contributed to the BRIDGE initiative of the European Commission during the first period of the project, cooperating with other H2020 projects and exchanging experiences and knowledge.

Keywords:

BRIDGE, European Commission, H2020, Experiences, Knowledge, Synergies, Data Management, Regulation, Replicability, Scalability, Self-consumption, Energy Communities.



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Executive Summary

BRIDGE is a European Commission initiative which unites Horizon 2020 Smart Grid, Energy Storage, Islands, and Digitalisation Projects to create a structured view of cross-cutting issues which are encountered in the demonstration projects and may constitute an obstacle to innovation.

X-FLEX project partners have actively participated in the BRIDGE initiative in two of the four Working Group (WGs) and in two of the four Task Force (TFs) during the first period of the project:

- WG: DATA MANAGEMENT
- WG: REGULATION
- TF: ENERGY COMMUNITIES & SELF-CONSUMPTION
- TF: REPLICABILITY & SCALABILITY

Specifically, X-FLEX Project Coordinator (Lola Alacreu from ETRA I+D), has been involved as coleader of the Task Force of the Replicability & Scalability, organizing the work done in the different subtasks, and participating in writing the report. Moreover, Lola Alacreu is the leader of Action # 1 of the Data Management Working Group “Use case repository” and Chloe Fournely, from the University of Ljubljana, is the leader the subroutine 3 of the Replicability and Scalability Task Force.

In addition to this, other partners of the consortium, such as Kostas Tsatsakis (Suite5), Andrej Gubina (University of Ljubljana), Andreas Tuerk (JR), Camilla Neumann (JR), Svilen Piralkov (Albena), Elena Boskov-Kovacs (Blueprint Energy Solutions) and Alberto Zambrano (ETRA) have been also contributing to different activities and tasks of the BRIDGE initiative.

Furthermore, project partners have participated actively in several meetings, webinars, workshops and events organized by BRIDGE. The COVID-19 international crisis has led to cancellation of presential BRIDGE meetings. However, those have taken place on an online format to perform the WGs and TFs actions. To overcome the constraints imposed by the COVID-19 crisis, online exchange activities have been central in the first period of the project.

The knowledge generated and exchanged thanks to the BRIDGE initiative has been very valuable for X-FLEX project activities. Therefore, the partners will keep collaborating actively in BRIDGE activities during the rest of the project. Information about this collaboration and synergies will be shared in the deliverable D1.5 “BRIDGE cooperation activities” to be submitted at the end of the project, in Month 48.



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1 INTRODUCTION

1.1 Purpose of the Document

BRIDGE is a European Commission initiative which unites Horizon 2020 Smart Grid, Energy Storage, Islands, and Digitalisation Projects to create a structured view of cross-cutting issues which are encountered in the demonstration projects and may constitute an obstacle to innovation. The BRIDGE [1] process fosters continuous knowledge sharing amongst projects thus allowing them to deliver conclusions and recommendations about the future exploitation of the project results.

X-FLEX partners have participated actively in several activities in different Working Groups (WG) and Task Force (TF) of this initiative during this period:

- WG: DATA MANAGEMENT
- WG: REGULATION
- TF: ENERGY COMMUNITIES & SELF-CONSUMPTION
- TF: REPLICABILITY & SCALABILITY

This document describes how X-FLEX partners have participated and contributed during the first period of the project to these BRIDGE Working Groups and Task Forces, cooperating with other H2020 projects, and exchanging experiences and knowledge.

Deliverable D1.5 “BRIDGE cooperation activities”, to be submitted at the end of the project, will be the updated version of this deliverable, showing the activities and knowledge generated in the next periods of the project.

1.2 Scope of the Document

The partners of X-FLEX that have been actively contributing to the Working Groups and Task Forces of BRIDGE initiative, have included in this deliverable the details of their contributions and also the valuable knowledge generated thanks to the cooperation with other projects that are part of BRIDGE.

1.3 Structure of the Document

Section 2 of the deliverable presents a short CV and a picture of the partners of X-FLEX that have been involved in BRIDGE initiative activities. Section 3 briefly describes the activities and results of the different Working Groups and Task Forces of BRIDGE where the X-FLEX partners have participated during this period. Section 4 shows the details on how the partners have contributed to generate new knowledge by means of BRIDGE activities. Section 5 includes the details of the BRIDGE meetings and events where project partners have participated and represented X-FLEX. Finally, section 6 shows the conclusions and lessons learnt of being part of this initiative and the next steps of these activities during the next periods of the project.



2 MEMBERS OF X-FLEX INVOLVED IN BRIDGE INITIATIVE

This section shows the partners that are actively participating in BRIDGE initiative representing X-FLEX project:



Lola Alacreu (ETRA I+D). X-FLEX project coordinator. Industrial Engineer from the Polytechnic University of Valencia (Spain) and the University of Manchester (United Kingdom). She works as senior project manager since 2008 in ETRA I+D, coordinating and participating in several FP7 and H2020 multinational collaborative research projects in the area of energy efficiency and smart grids such as NOBEL, NOBELGRID and X-FLEX. Lola works currently as external expert for the European Commission, reviewing and evaluating H2020 projects.

Currently Lola is cochair of the Replicability & Scalability Task Force of the BRIDGE and leader of the Action 1 “Use case repository” of the Data Management Working Group.



Kostas Tsatsakis (Suite5) is an Electrical and Computer Engineer, holding an MSc in the field of Energy and Environmental Management, both from the National Technical University of Athens. He has considerable experience in energy saving related topics through the use of IT applications, data and systems interoperability, standardization of automated operation of energy systems and active network management. Through his participation in the FP7 and H2020 projects he has specialized in developing techniques for user modelling and profiling for understanding energy behaviours of consumers and shaping optimal control strategies and energy management to ensure the smooth

operation of power networks and its undisturbed and uninterrupted power supply. Currently, Kostas is participating in BRIDGE activities with focus on Data Management WG actions.



Andrej Gubina (University of Ljubljana) is Assoc. Prof. at the University of Ljubljana, Faculty of Electrical Engineering, where he also obtained his Ph.D. and from 2002 he is a Head of the Laboratory for Energy Policy (LEST). He is a long-time industry-driven researcher and between 2002 and 2005 he also headed the Risk Management Department at Holding Slovenske elektrarne, Ljubljana. He has coordinated one FP6 project (VBPC-RES) and is currently coordinating THE H2020 project COMPILE. He has participated as a senior energy expert in 13 further EU funded projects in FP6, FP7, H2020 and IEE (RISE, CEUBIOM, REALISEGRID, APRAISE, ANEMOSPlus, REserviceS, INCREASE, STORY, CONSEED, BioEnergyTrain, CROSSBOW, X-FLEX and RESCoopVPP). He has prior experience with EU projects and management roles.

He is a member of the Task Force ‘Energy communities & Self-consumption’ for BRIDGE.



Chloé Fournely (University of Ljubljana) completed her master’s degree in Physics Engineering at the Polytech Clermont-Ferrand engineering school in September 2019. In the same year, she did a 6-month internship inside the Laboratory of Energy Policy helping with the activities related to the H2020 CONSEED project and the organisation of the 16th International Conference on the European Energy Markets (EEM19). She joined the University of Ljubljana in February 2020 as a researcher. Her work in the laboratory is mostly focused on EU projects COMPILE and X-FLEX, where she is developing various forecasting models and the MARKETFLEX product.



She is part of the Task Force ‘Replicability & Scalability’ in BRIDGE and is leading the subgroup 3 ‘Identifying quantifiable KPIs related to KERs’.



Andreas Tuerk (Joanneum Research), MBA is an expert in international energy climate policy. His research specialties include international and national energy and climate policy and in particular the EU-ETS, smart grids, smart cities as well as design of electricity markets energy efficiency policies related to economic evaluation and policy design as well as investigating innovation mechanisms and regulatory frameworks for deploying low carbon technologies. Andreas Tuerk works at JR for ten years and was involved in many EU projects as well as projects funded by the Austrian government or by international organizations. He is part of the Regulation Working group and Task Force Energy communities and self-consumption.



Camilla Neumann (Joanneum Research) is a graduate from the University of Graz and Utrecht University (Joint International Master Studium in Energy and Materials). She is specialized on assessing renewables from an economic, societal and regulatory viewpoint. Camilla joined JR in 2018 as junior scientist. Currently she works on business models for emerging storage solutions as well as designing new market mechanisms. She is part of the Task Force ‘Replicability & Scalability’ in BRIDGE.



Svilen Piralkov (Albena) is a Software and Computer Engineer. He holds a Bachelor of Science in Computer Engineering from Rochester Institute of Technology (United States of America) and a Master of Science in Software Engineering from University of Oxford (United Kingdom). For the past 11 years he has worked on various software research and development projects as a software developer at Ocado (provider of grocery online-retail and delivery services in the UK) and as a senior member of technical staff at Athenahealth (provider of healthcare IT services in the USA). He has specialized in interoperability along with software architecture and systems design.

He has been with Albena for the past 2 years working on H2020 projects and improving Albena’s boiler rooms control software and energy efficiency. He is part of the ‘Replicability & Scalability’ Task Force in BRIDGE.



Elena Boskov-Kovacs (Blueprint Energy Solutions) Power Systems Engineer and MBA. She is managing director of her company and provided expertise in ETIP SNET Working Group 4: Digital Energy, as Task Force leader of Disruptive Business Models and Use Cases. She is a project manager in H2020 multinational collaborative research project X-FLEX. Elena also works currently as external expert for the European Commission, reviewing and evaluating H2020 projects for DG-ENER, INEA and EASME.

Currently Elena is engaged in Replicability & Scalability Task Force of the BRIDGE as well as Action 1 “Use case repository” of the Data Management Working Group.



Alberto Zambrano (ETRA) is Telecommunications Engineer from the Polytechnic University of Valencia (Spain). He works as software engineer since 2007 in ETRA I+D, developing R&D projects on different domains including mobility, intelligent infrastructures, energy and cybersecurity. He has broad experience in implementation of data management and analytics platforms, including integration with industrial and IoT systems and devices. Over the last years, he has been involved in energy sector related EU R&D projects (NOBEL, BESOS, NOBELGRID, WISEGRID and X-FLEX). Currently Alberto is participating in the Data Management Working Group.



3 BRIDGE WORKING GROUPS AND TASK FORCES DESCRIPTION

This section includes a general description of the WGs and TFs where project partners are involved.

3.1 WG: DATA MANAGEMENT

The current workplan of this working group includes three actions:

- **Action 1 “Use-case repository”, led by X-FLEX (Lola Alacreu)**

The objective of this action is to develop an industry-wide repository for BRIDGE project use cases that can be used for alignment of new BRIDGE projects with ongoing projects (or completed projects and serve as a foundation for future research activities process definition and requirements development. The objective is that this tool could be used by any type of stakeholder, with any type of background.

- **Action 2 “EU data exchange architecture” (incl. CIM extensions),**

This action is focused on the data management aspects of TSO-DSO coordination. This action combines the topics related to the EU wide conceptual data exchange architecture, Common Information Model (CIM) and Harmonized Electricity Market Role Model (HEMRM).

- **Action 3 “Interoperability of flexibility assets”,**

The objective of this action is to enable interoperability of flexibility assets by maintaining a set of recommendations, best practices and possibly tools, focusing on interoperability at function layer (system use-cases, services) and information layer (semantic interoperability, data models ...).

3.2 WG: REGULATION

The current workplan of this working group includes four actions:

- **Action 1: “Synergies between demos”:**

- Develop a generic overview - “ID cards” - per project to be able to quickly grasp the project scope.
- Report on set-ups, cases and results.
- Extract barriers and enablers (emerging from implemented scalability/replicability analyses in projects)
- Provide inputs to developing a methodology for comparison.

- **Action 2: “Common taxonomy for services, products and markets”:**

- Share and collect the different outputs from projects related to service, product and market definitions.
- Propose a mapping of projects according to their approach to design products and markets.
- Provide input to the debate on harmonisation and standardisation of products and services.

- **Action 3: “Links between existing and flexibility markets”:**

- Investigate projects working on concepts for flexibility markets integrated in existing market timeframes vs separate flexibility platforms.
- Identify major recommendations on both options.

- **Action 4: “Harmonized, Electricity Market Role Model (HEMRM)”:**

- An overview of the most significant and effective Electricity Market Role Models implemented in the running (or recently completed) H2020 projects involved in flexibility market implementation.



- A comprehensive comparison of different models identified in the previous overview, highlighting similarities, strengths and eventual criticalities.
- A list of recommendations coming from the previous analysis accompanied with some different options of “Harmonized Market Roles” depending upon regional market specificities.

3.3 TF: ENERGY COMMUNITIES & SELF-CONSUMPTION

Among the BRIDGE Task Forces (TFs), created to address horizontal topics spanning the activities of various BRIDGE Working Groups, BRIDGE TF on Local Energy Communities was launched in 2019 to investigate the various aspects and issues faced by the emerging local energy communities in the European Union (EU).

The main objectives of this TF are (i) to provide an overview of the existing legal developments regarding energy communities in the EU and (ii) to build recommendations for the European Commission (EC) based on the inputs received from the BRIDGE survey and interviews conducted with actors of the EU countries covered in the report (Germany, the Netherlands, Estonia, Austria, Spain, France, Belgium (Wallonia), Greece, Portugal, Luxembourg, Slovenia and Ireland). While in 2019 policymakers and community actors were targeted in 2020 with the help of CEER regulators were interviewed.

The key issues in 2020 investigated were related to grid tariffs that are supportive to Energy communities. Issues investigated were:

- How do regulators see the goal, the role, the uptake and potential benefits of energy communities to the energy system? What are potential targets followed by the government (e.g., local self-supply, flexibility...)?
- Tariff setting in different MSs: What are the principles behind potential incentives and tariffs for ECs?
- How is the relationship between the implementation of energy communities and Art 32 of the Electricity Market Directive (Directive (EU) 2019/944) [2] providing flexibility markets in the national transpositions? Is a flexibility market for DSOs previewed?

As a result of these findings, members of the BRIDGE TF are working on the elaboration of concrete recommendations to the policy makers, such as highlighting the importance to draw on existing experiences of Energy Communities between countries, with a particular focus on setting appropriate incentives and cost reflective tariffs.

3.4 TF: REPLICABILITY & SCALABILITY

The objective of this Task Force led by Lola Alacreu (X-FLEX) is to build a common repository/toolbox for helping projects in implementing the Scalability & Replicability Analysis (SRA) methodology guidelines. The repository will be a living document and make the information useful and usable by any R&I project. To do so, synergies have been identified with ETIP SNET [3] WG5 and the BRIDGE Data Management WG.

During the work of this Task Force, 4 subroutines have been identified, defining the work to be accomplished by the member:

Subroutine 1: Mapping of project objectives into the SGAM architectures

- Map the objectives in the component layer (operational zones, market and appropriate roles)
- Generate the communication and information layers.
- Develop the physical link of the various layers with all connectivity details (use case)
- Identify the roles and responsibilities.

Subroutine 2: KERs Identification

- Define in detail the innovation areas of the project.



- Build and rank an exhaustive list of use cases that the innovations areas of the project can serve.
- Merge the identified use cases to avoid duplication and complexity.
- Name the use cases rank list as the KERs of the project.
- Pick the most valued use case and qualify it as the most important KER of the project.

Subroutine 3: Identifying quantifiable KPIs related to KERs (led by X-FLEX (University of Ljubljana))

- Identify a list of possible KPI that can validate the achievable results of the KER.
- Identify in detail the source of data that will be used to evaluate the identified KPIs.
- Identify the missing source of required data for tracking progress achieved and evaluating the required KPIs.
- Evaluate the alternative sources of data or alternative quantifiable KPIs that can be used for tracking progress and validate the achieved results of the primary KER.
- For the chosen KPIs, build the missing data resource and develop the automated process for collecting the identified data that will feed the KPI evaluation process.
- For each chosen KPI, identify the base case scenario that will be compared to for validating the performance of the primary KER.
- For each base case scenario, establish the sourcing of the required data to be automated in the evaluation process.

Subroutine 4: Results analysis, identification of limitation factors and alternative solutions

- Monitor continuous flow of results and perform continuous analysis.
- Through the analysis, identify critical parameters (limiting factors) affecting scalability / replicability.
- Generate a project quality loop for developing the solutions that will minimize the identified limiting factors for achieving seamless scalable and replicable solutions.
- Quantify the identified limitation factors for achieving seamless replicability and scalability aiming to limit this limitation factor to the minimum.

Subroutine 5: Libraries / Common repository

In support of the guiding methodology for building the scalability / replicability process of projects, there is an identified need for developing the following supporting libraries:

- Use case technology solutions for developing the smart system of 2030 / 2050 mapped in the SGAM architecture (continuous growth)
- The family of solutions provided through the adapted use cases will be exhaustively linked to approved standards and codes provided by the appropriate EU bodies: CEN, CENELEC, ETSI, ENTSO-E etc

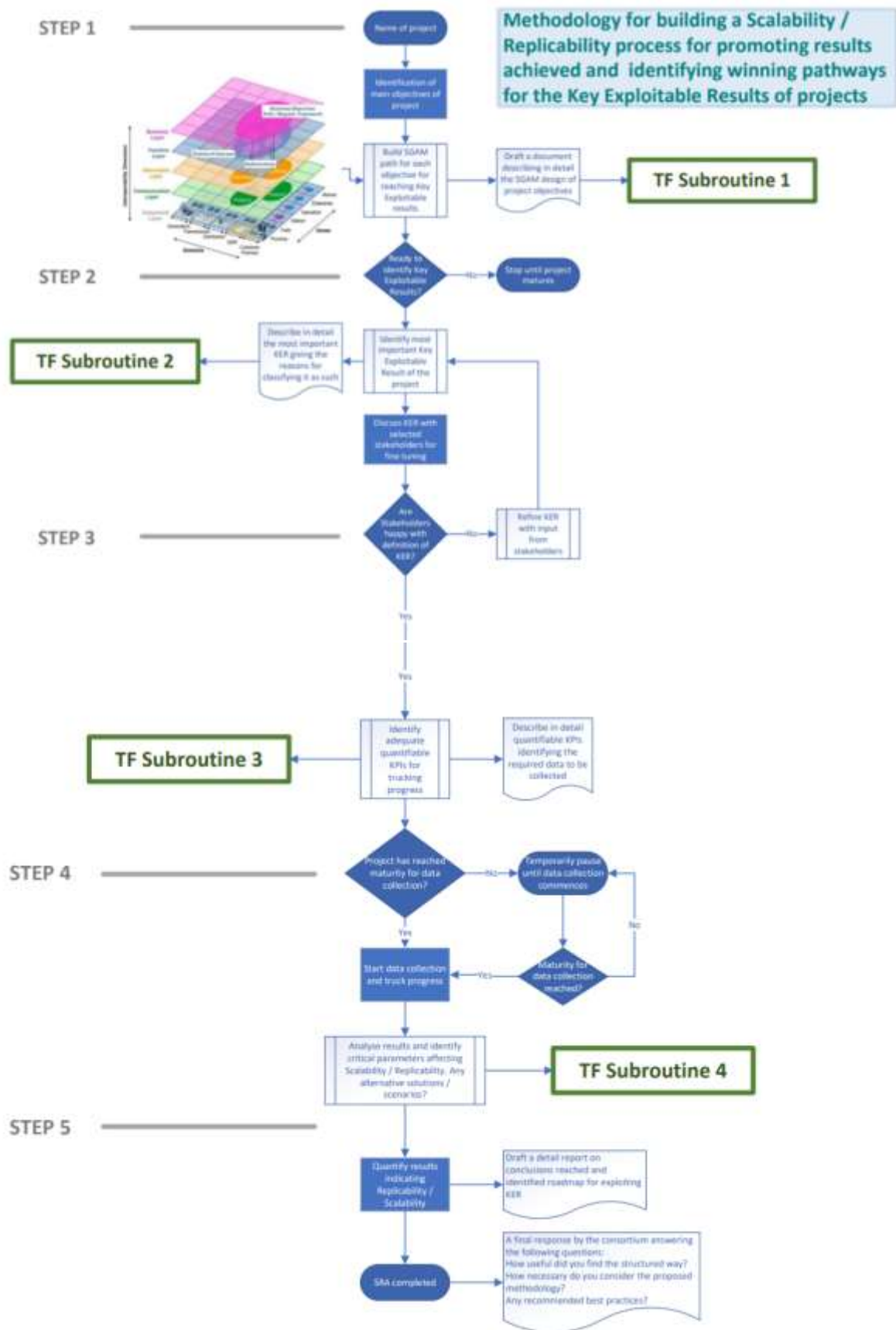


Figure 1: Working plan of Task Force on replicability & scalability



4 X-FLEX CONTRIBUTIONS TO BRIDGE WORKING GROUPS AND TASK FORCES

4.1 WG: DATA MANAGEMENT

4.1.1 ETRA I+D

ETRA team has led “Action #1 – Set up a use case repository of the BRIDGE Data Management Working Group, which objective is to create an easily accessible use case repository, hosted under the umbrella of BRIDGE. During this period, first of all, a Use Case (UC) template based on IEC 62559-2 standard has been prepared and validated. Secondly, a use repository has been developed, using the fields included in the aforementioned standard and based on Platone project approach. So far, three formats to describe use cases are supported: Markdown documents, XML files complying with IEC 62559-3 as well as Excel sheets following the format defined by the BRIDGE WG Data Management. Support for new use case formats can be added without changing the existing setup.

At the end of the period, ETRA has given access to the repository to all the members of the WG, in order to test and validate it. The process has been iterative, and all projects have been invited to test it, in order to evaluate the tool and send feedback for improving it. Based on the feedback received so far, some errors have been fixed, and some additional functionalities have been identified to be added in the next iterations, such as:

- Versioning & Revisions,
- Authoring,
- Web-based edition of UCs,
- Advanced search, combining with roles’ repository and with CIM repository.

After the testing process, the tool will be made available for all the projects of BRIDGE. The type of licences for the use of the tool that have been suggested are:

- Creative Commons license for the use case files,
- Apache2 for the processing tools.

This will allow the redistribution and modification of written code, so that anyone not only can use it, but also adapt/improve it.

4.1.2 Suite5

Sutie5 actively participated in the discussions and the work of Action #3 of the data management group “Interoperability of flexibility assets”. The scope of this subgroup is to define a common framework for the interoperability of flexibility assets by using the term of business processes as defined in SGAM. The generic business processes are:

- Flexibility for DSO normal operation,
- Flexibility for DSO emergency operation,
- Flexibility for BRP portfolio optimization.

Based on this, the detailed functions were specified. The working group started working on May 2020 (following the definition of the work in Data Management WG) and several meetings took place between June and September 2020 (with X-FLEX members participating) aiming to define the details of the methodology. Following the definition of the methodology in September 2020 and the 1st version of the report ‘Interoperability of flexibility assets’, X-FLEX provided initial feedback considering the business processes and functions of relevance in the project. A General Assembly meeting took place in February 2021 and based on

the discussions and the final agreements on the methodology, a more concrete feedback from the X-FLEX project will be made available during the following months.

4.1.3 BPE

As part of the Data Management working group, Elena Boskov-Kovacs from Blueprint Energy Solutions has been involved in this WG since the General Assembly which took place in February 2020. Following the WG meeting in March 2020, where originally 5 action plans were supposed to be developed for this WG, she prepared a draft of the Action item #1 - Set up a use case repository, bringing in her experience from X-FLEX project on the alignment of use cases and scenarios to be deployed, with particular focus on data exchange and management.

She has reviewed and ensured alignment with published documents such as ENER-funded [4] study on the Digitalisation of energy, and The Rolling Plan on ICT Standardisation [5] in which a special chapter is dedicated to smart grids. This document developed in collaboration with the European Multi-Stakeholder Platform on ICT Standardisation [6] lists all the topics identified as EU policy priorities where standardisation, standards, or ICT technical specifications ought to play a key role in the implementation of the policy so that this action item would be aligned with it.

Action item #1 following revision and expansion of initial Action item #1 paper concept by other WG members she provided additional comments and feedback to it. She also contributed experience and recommendation about use cases collection from similar initiatives from ETIP-SNET, when repository of use cases for energy digitalization – extensive technical paper combining use cases from H2020 [7] as well as research and innovation projects that were self-funded by utilities, was developed in 2018. She participated working group meetings throughout 2020, reviewing initial version of prepared Excel sheets template.

4.2 WG: REGULATION

4.2.1 Joanneum Research and University of Ljubljana

An important activity of this Working Group in which X-FLEX participated was the creation of Demo ID cards and mapping of demos, in order to enable synergies between the different projects and demos. The information was retrieved via a survey. The demo ID cards present the location of the demos, products and services offered or possible links with other projects.



Figure 2: Map of BRIDGE projects demo

In addition, the PLATONE project [8] was mandated to create a report on the future Harmonized Electricity Market Role Model (HEMRM) in close cooperation with the Data Management WG. A few other more mature projects were selected to co-write the report. The results of the report are valuable for X-FLEX as the possible role of new actors providing and/or managing flexibilities is discussed in detail.

X-FLEX was participating in the WG general meeting in November 2020 where new topics were proposed that have high relevance for X-FLEX.

This includes in particular the action on “Links between existing and flexibility markets” and another action on “actively incentivizing DSOs to use



flexibility". These new actions currently are being operationalized.

4.3 TF: ENERGY COMMUNITIES & SELF-CONSUMPTION

4.3.1 Joanneum Research (JR) and University of Ljubljana (UL)

JR and UL have an active role in the TF on Energy Communities and are significantly contributing to the upcoming report. JR and UL were involved in the conceptual work scoping relevant questions in spring 2020 (JR until September 2020 still under the STORY project [9]). In early summer 2020, a set of interviews with national regulators of the Member States was conducted by THINK and JR and facilitated by CEER to understand why specific regulatory choices were made and to understand the upcoming development plans of Local Energy Community (LEC) policy and regulatory framework. The results were presented in the CEER workshop in September 2020. Since then, the results have been discussed within the TF and also with national policymakers/regulators and the drafting of the report has started.

The interviews with the national regulators illustrated that most countries do not see grid issues in the short term and for some of them, the benefits of LECs are not clear at least in the short term. LECs however are seen as an important option to increase investments in renewable energy. When setting LEC-promoting incentives so far there is a high focus on promoting self-consumption as the strong increase in distributed renewables by 2030 is seen as possible issue increasingly impacting the distribution grid capacity in the next years, while self-consumption could help mitigate the problem. The approach of the national regulators to stimulating the flexibility services however seems unclear. Several regulators did not see the need for such services at least in the short term. They also expressed opinion that possible future grid issues cannot be sufficiently predicted as they depend on the development dynamics of the electricity system.

The TF concluded that the transposition of energy communities is often seen and developed independently from Article 32 of EMD2 on flexibility in distribution grids [2]. The results are an important mandate for X-FLEX and show the direction in which the activities should be focused while aiming for development of flexibility services to better show the benefits of such services for the future grids.

4.4 TF: REPLICABILITY & SCALABILITY

4.4.1 ETRA I+D

ETRA, representing X-FLEX, is the coleader of the Replicability and Scalability Task Force. In this context, ETRA has been participating in all the stages of this Task Force.

Firstly, a first version of a questionnaire to be completed by all the members of the TF was prepared. The questionnaire was structured in three parts:

- Key Exploitable Results (KERs) with relevant KPIs details,
- Tools from existing projects,
- Best practices and lessons learned from SRAs.

Following detailed discussions on the feedback from members of the TF on the first questionnaire that was circulated, a second version of the questionnaire was submitted, in order to address all problematic issues in order to streamline the procedure and the understanding of the various options.

Both questionnaires mentioned in the previous section were circulated to the members of the TF and responses were collected.



However, due to encountered difficulties in the implementation of the guidelines that raised negative reaction from the members of the task force, a decision has been taken to address all raised issues and look for possible improvements to achieve the initial targeted objectives.

The next phase was to generate a revised methodology for implementing the required SRA and the task force has moved through careful consideration of proposed actions, agreed on content of revised guidelines and is currently in the phase of developing the guidelines in detail. The main objective of this exercise was to develop a methodology based on the SGAM architecture capable of being universal in approach covering all the spectrum of projects based on the findings of the first phase of guidelines development.

For this reason, 4 subroutines and 5 steps have been identified. The experts have been separated into groups to support the development of each subroutine separately. More details about it can be found in Section 3.4.

4.4.2 Albena

As part of the replicability and scalability TF Svilen Piralkov from Albena was mainly involved in the development and verification of the Replicability and Scalability Questionnaire. The TFs goals are to share and collect all current knowledge and experience from various Horizon 2020 projects and develop a unified guide for future replicability and scalability evaluations and documentations in various Horizon 2020 projects. Svilen Piralkov mainly contributed with acting as an initial tester and proof-reader of the questionnaire by providing information for the Bulgarian pilot site of Albena as part of X-FLEX.

In addition, Svilen Piralkov also provided comments and valuable feedback from his past and current experiences with H2020 Projects in order to improve the quality and robustness of the questionnaire. Svilen Piralkov also attended replicability and scalability presentations of past Horizon 2020 projects, which were invaluable to his contribution to the questionnaire, as well as to Albena's future contribution to X-FLEX as leaders of the Replicability and Scalability task.

4.4.3 Joanneum Research (JR)

JR contributed to the subgroup on replicability and scalability representing X-FLEX. The first sessions focused on the identification of a methodology for the replicability/scalability framework. In this phase, JR, in agreement with ETRA, proposed a framework that was less focused on technical solutions as well as a framework that addressed several layers of the SGAM. After the final decision on the framework, JR worked on the implementation of this framework for X-FLEX.

The identification of KER's as part of the X-FLEX exploitation plan has been used as a starting point for this task. In the next step, it has been decided within the TF Replicability and scalability group to align the KERs with the SGAM structure. Therefore JR, in consultation with the X-FLEX technical partners, assigned the main innovation of each KER to the specific SGAM layer. The method for replicability and scalability analysis that has been designed in the taskforce considers three factors: data standards, technology / communication standards and interoperability systems. In the second X-FLEX exploitation workshop, JR introduced the partners to this framework and explained the information needed to complete it. This process was followed and supported by JR until the input was sufficient to submit it to the task force leader.

4.4.4 University of Ljubljana

Chloé Fournely, from the University of Ljubljana, led the subroutine 3 of the Replicability and Scalability Task Force. In this subroutine, KPIs from H2020 projects were gathered and linked to projects' KERs. The main goal of this subroutine was to define a generic list of KPIs for projects addressing smart grids, energy storage, islands and digitalisation. A preliminary list of economic, social, environmental, legal, and technical KPIs was proposed, based on the 7 projects that had been studied in the subroutine 2, among them X-FLEX project. That way, the methodology proposed by the Scalability and Replicability TF could be fully applied to the X-FLEX project.



The benefits from the participation of X-FLEX members to this subroutine were to exchange with other H2020 projects partners on the definition of quantifiable and meaningful KPIs for current and future European projects in relation to enhancement of electrical networks.

4.4.5 Blueprint Energy Solutions

As part of the replicability and scalability TF, Elena Boskov-Kovacs from Blueprint Energy Solutions contributed to the TF meeting discussions associated with the development of an approach for building use cases and KPI related best practices and lessons learned from previous SRAs, given that X-FLEX use cases and their scalability were still in development.

During the TF meeting which took place in September 2020, Elena Boskov-Kovacs also provided comments on the maturity of data, its mapping, and the management of its completeness and quality. She was also initially involved in the discussions related on sharing and collecting all current knowledge and experience from various Horizon 2020 projects to develop a unified guide for future replicability and scalability evaluations and documentations in various Horizon projects.



5 BRIDGE EVENTS WITH X-FLEX PARTICIPATION

During the first period (M1-M18) X-FLEX project partners have participated in BRIDGE meetings and events as is detailed below.

More details about these meetings can be found in 9.3 Dissemination and Communication activities Report v1.

Action	Date	Venue	Contribution	Link
2021 BRIDGE General Assembly	2-4/03/2021	Online	Presentation	https://www.h2020-bridge.eu/2021-bridge-general-assembly-takes-place-on-march-2nd-3rd-and-4th/
MEETING: WG Data Management	05/02/2021	Online	Presentation	-
MEETING: R&S TF – Subroutine 3 (KPIs) – Meeting 5	21/01/2021	Online	Leading the meeting, writing down minutes	-
MEETING: R&S TF Subroutine 3 (KPIs) Meeting 4	15/12/2020	Online	Leading the meeting, writing down minutes	-
MEETING: R&S TF Subroutine 3 (KPIs) Meeting 3	07/12/2020	Online	Leading the meeting, writing down minutes	-
MEETING: Regulation WG	17/11/2020	Online	Work Programme update	-
MEETING: R&S TF Subroutine 3 (KPIs) Meeting 2	4/11/2020	Online	Leading the meeting, writing down minutes	-
MEETING: R&S TF Subroutine 3 (KPIs) Meeting 1	8/10/2020	Online	Leading the meeting, writing down minutes	-
MEETING: WG Data Management	30/09/2020	Online	Presentation of the use case repository (Action 1)	-
MEETING: WG Data Management	17/09/2020	Online	Presentation of the idea for the use case repository	-
MEETING: WG Data Management	28/08/2020	Online	Preliminary telco to present the status of the progress	-
MEETING: WG Data Management	30/06/2020	Online	Presentation of the approach taken in X-FLEX to identify Use cases	-
MEETING: Webinar Use Case Repository	30/06/2020	Online	Presentation of the approach taken in X-FLEX to identify Use cases	-
MEETING: Replicability/Scalability Tf Members	22/04/2020	Online	Presentation	-
MEETING: Regulation WG	21/04/2020	Online	Presentation	-



EVENT: India Smart Utility Week 2020			04/03/2020	New Delhi	Booth presentation	and	http://xflexproject.eu/x-flex-at-the-india-smart-utility-week-2020/
MEETING: BRIDGE general Assembly			11/02/2020	Brussels (Belgium)	Presentation		https://www.h2020-bridge.eu/wp-content/uploads/2020/03/BRIDGE-GA2020_Conclusions-and-next-steps.pdf
EVENT: EU UTILITY WEEK 2019-BRIDGE session "SGAM for the analysis of the scalability and replicability"			12/11/2019	Paris (France)	Presentation		https://www.h2020-bridge.eu/wp-content/uploads/2020/01/D3.12.g_BRIDGE_Scalability-Replicability-Analysis.pdf

Table 1 - Dissemination actions and meetings under BRIDGE coordination, where X-FLEX has participated by period 1.



6 CONCLUSIONS AND NEXT STEPS

X-FLEX project partners have actively participated in the BRIDGE initiative in two of the four WGs and in two of the four TFs during the first period. X-FLEX Project Coordinator (Lola Alacreu from ETRA I+D), has been involved as coleader of the Task Force of the Replicability & Scalability and as leader of Action # 1 of the Data Management Working Group. Moreover, there are other partners that are leading other subtasks or actions, such as Chloe Fournely, from the University of Ljubljana, who led the subroutine 3 of the Replicability and Scalability Task Force.

Furthermore, project partners have participated actively in several meetings, webinars, workshops and events organized by BRIDGE. The COVID-19 international crisis has led to the cancellation of presential BRIDGE meetings. However, those have taken place in an online format to perform the WGs and TFs actions. To overcome the constraints imposed by the COVID-19 crisis, online exchange activities have been central in the first period of the project.

The knowledge generated and exchanged thanks to BRIDGE initiative has been very valuable for X-FLEX project activities and helped to identify obstacles to innovation in collaboration with other related projects. Therefore, the partners will keep collaborating actively in BRIDGE activities during the rest of the project. Information about this collaboration and synergies will be shared in the deliverable D1.5 “BRIDGE cooperation activities” to be submitted at the end of the project, in Month 48.



7 ACRONYMS

Acronym List

BRP	Balance Responsible Party
CEER	Council of European Energy Regulators
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CIM	Common Information Model
DSO	Distribution System Operators
EC	European Commission
EEM19	European Energy Market Conference 2019
EMD	Electricity Market Directive
ENTSO-E	European Network of Transmission System Operators for Electricity
ESO	European Standardization Organizations
ETIP SNET	European Technology and Innovation Platform Smart Networks for Energy Transition
ETS	Emissions Trading System
ETSI	European Telecommunications Standards Institute
EU	European Union
FP	Framework Programme
H2020	Horizon 2020
HEMRM	Harmonized Electricity Market Role Model
ICT	Information and Communications Technology
IoT	Internet Of Things
KER	Key Exploitable Results
KPI	Key Performance Indicator
LEC	Local Energy Communities
MBA	Master of Business Administration
MSc	Master of Sciences
R&D	Research & Development
R&I	Research & Innovation
SGAM	Smart Grids Architecture Model
SRA	Scalability and Replicability Analysis
TF	Task Force
TSO	Transmission System Operator
UC	Use Case
WG	Working Group



8 REFERENCES

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