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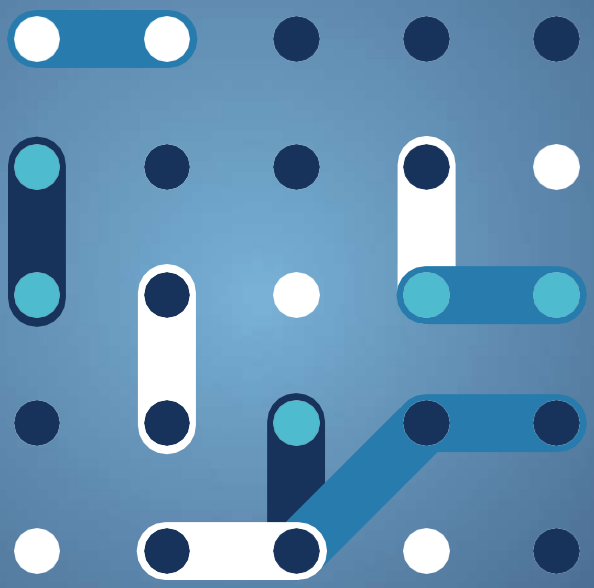
Annual Report 2023

Business Model Working Group



September - 2024

BRIDGE

Working Group Business Model
Annual Report 2023-2024

2023 - 2024

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List of Acronyms and Abbreviations

BM	Business Models
BMC	Business Model Canvas
CBA	Cost Benefit Analysis
CRL	Commercial Readiness Level
DM	Data Management
EC	European Commission
KER	Key Exploitable Result
PM	Person-months
TRL	Technology readiness level
ROI	Return of Investment
UC	Use case
WG	Working Group

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Executive Summary

This report presents the initial mapping results of the BRIDGE projects' collaboration within Working Group (WG) on Business Model (BM) in 2023 – 2024 period.

The following conclusions have been derived:

The results of 2022 - 2023 collaboration showed that most projects use the same tools, in particular the Business Model Canvas (BMC), which is the most popular tool for business model creation in BRIDGE projects. However, the limitations of the BMC have been identified and need to be addressed by combining different tools (e.g. Value Proposition Canvas). Currently, there is a lack of standardised processes for both business modelling and quantification methods such as cost-benefit analysis (CBA). In addition, data sets are not being treated as Key Exploitable Results (KERs) and there is a need to valorise data through business modelling.

The work performed in 2023 – 2024 has shown that projects need support from BRIDGE in their business model approach at different stages of their activities, a gap that is currently addressed by all tasks.

Task 1 is currently addressing business model creation by providing a step-by-step guide for the projects on how they can use different tools according to their needs. There is also a need for a standardised approach to quantifying business plans, which is currently lacking.

Task 2 has provided an initial standardised approach when it comes to quantification of the business plans, but selection criteria are still needed and Task 2 will address this next year.

Furthermore, the interaction between business model design and common energy data spaces is completely missing. Task 3 is in the process of providing visuals to help BRIDGE projects understand how to use these data spaces effectively.

The following needs were identified for each task:

Task 1 - Tools to capture business models: It was observed that most projects rely on the same tools, such as the Business Model Canvas (BMC) and the Value Proposition Canvas. However, it is crucial that the choice of tools is tailored to the specific objectives and needs of each project. There is also a strong need for projects to share their experiences and lessons learnt, for example by sharing knowledge and best practice on which tools are most effective in different contexts. To this end, for the coming year, the main objective for Task 1 is to make the meetings more interactive and focused on knowledge sharing and exchange, through workshops on selected projects. The results of these meetings will be documented in detailed minutes, which will form the basis of a comprehensive final deliverable. The final deliverable planned for the coming work year is the completion of a "Business Model's Cookbook", which will include all the best practices gained and documented by the projects. It will provide guidelines for different stages such as value creation and definition, customer identification and effective business model development, aiming to give comprehensive guidance for energy project coordinators and participants, helping them to master strategic planning and lead their projects to success by drawing on the expertise of more mature projects. The needs identified for Task 1 used as a baseline the work done in 2023 as a baseline to add new experiences (e.g. workshop) and identify a way to enhance the work (e.g. with a new methodological approach).

Task 2 - Quantification methods: For Task 2, several key needs have been identified. Projects need comprehensive descriptions of the different business models they use, including case studies and practical examples to illustrate their application. There is also a need for robust methodologies to accurately measure and assess the economic, environmental and social benefits of projects. These methodologies should be as standardised as possible and

readily available for new projects, possibly in the form of simple guidelines. These should be practical, and designed to engage new projects, serving as an easy-to-use leaflet. There is also a recognised need for standardised processes for business model quantification. Task 2 should develop recommendations for these processes, including specific metrics and assessment criteria in the future. A common effort should be made to explore whether a more integrated approach could enhance these methodologies. Engaging projects early in their development stages is crucial for steering and guiding them effectively. This will help overcome the initial challenge of attracting projects to participate.

Task 3 - Data valorisation: Several critical needs have been identified for Task 3. Data valorisation refers to the process of maximising the value derived from data collected or generated in projects, a key objective in projects which still faces several issues and barriers. A major challenge is the perception that data is not traditionally considered a Key Exploitable Result (KER). In addition, ownership issues arise as data is often controlled by individual project partners or pilot sites rather than the project as a whole, limiting the ability of coordinators to manage it effectively. Regulations, such as GDPR, and specific organisational policies further complicate the use of data. In addition, FAIR (Findable, Accessible, Interoperable, and Reusable) compliance is often lacking, making it difficult to identify and validate the potential value of data with stakeholders.

To address these challenges, it is crucial to improve data management plans by incorporating guidelines that facilitate data exploitation. It is essential to build stronger links with older parallel initiatives within BRIDGE, sharing lessons learnt and formalising collaborations to leverage their expertise, which could be highly beneficial. It is also important to explore the potential outcomes of visualisations using available resources. The development of dynamic, networked tools will facilitate research and improve understanding of the data spaces treated under business models. In addition, collaboration with other BRIDGE working groups (such as the Data Management and Regulation working groups) can leverage use cases for effective data value analysis to help assess the potential business value of different types of data at different stages of a project. This approach includes organising data, maintaining data quality, ensuring interoperability, and strategically storing and using data to support decision making and future use beyond the project.

This year, Task 3 focused on producing two key visuals: one outlining the building blocks of data spaces that enable the design of quantitative business models for smart energy, and another providing a preliminary mapping of supporting tools and services from the perspective of the BRIDGE projects. While this year's focus has been on mapping, next year's efforts should aim to use this mapping as a guide for projects, including improving visualisations. Once the content is finalised and the necessary resources are in place, the creation of a 'tool' to facilitate dialogue with end users could be a valuable next step to focus on in the Task 3 pipeline.

In addition to that, the need to focus on the new theme of market uptake was identified, including through the creation of a new sub-task related to this topic, which will be within the focus of Task 3. This will involve the identification of exploitable results that have been, or will soon be, used in the marketplace during the project running timeline. The aim is to facilitate cooperation between BRIDGE and the European Technology and Innovation Platform for Smart Networks for Energy Transition (ETIP SNET) in the second half of 2024. As part of this collaboration, two workshops will be organised to gather feedback from the projects. Based on this feedback, the different projects will be clustered according to their objectives to determine which types of services can be leveraged.

In addition, the creation of a repository to showcase the positive results of BRIDGE projects can serve as inspiration for new initiatives and increase visibility, thus encouraging wider uptake.

1. Introduction and Process

The Working Group on Business Models aims at defining common language and frameworks around business model description and valuation. It identifies and evaluates existing and new or innovative business models from the project demonstrations or use cases.

The efforts of the Working Group are directed towards two specific areas of interest, namely:

- **Designing tools to evaluate the benefit and values of the services and solutions** developed in the activities of the projects, including business ideas identification tools and related quantification methods.**Designing a business model that better incorporates the integration of the data value chain and the monetisation of data**, where better observability creates additional social value.

These overarching objectives are currently addressed by 3 Task forces:

- **Task 1 Investigate the tools for capturing business ideas and building BM**, with the overall objective of defining a standardised process for tools on BM, through a selection based on their features. The main activities of this TF are to review and map the BM tools to identify barriers, gaps and best practices.
- **Task 2 Quantification Methods for BM benefits of services and solutions under different UC Scenarios**, with the overall objective to define a standardised process for using quantification methods together with the previous tools. The main activities of this TF are to review and map quantification methods and link them to innovative products and services in order to provide recommendations and best practices.
- **Task 3 Investigate the types and characteristics of data value chains in BRIDGE project BMs**, with the overall objective of defining a standardised process for data valorisation through BMs: the main activities of this TF are to identify exploitable value from data generated within projects, and to use BM tools to identify exploitable value from data within projects.

As already mentioned, the WG will run these tasks for the coming year.

After mapping the needs of each task force in 2022 – 2023, and analysing any omissions that would hinder projects' efficient development, the projects have collectively worked to address these needs in 2023 – 2024, by offering universal processes and methodologies based on good practices and lessons learnt.

The figure below shows the general aim per task:

Figure 1 The aim of the tasks

To perform these tasks efficiently, the WG has been structured as shown below (Figure 2):

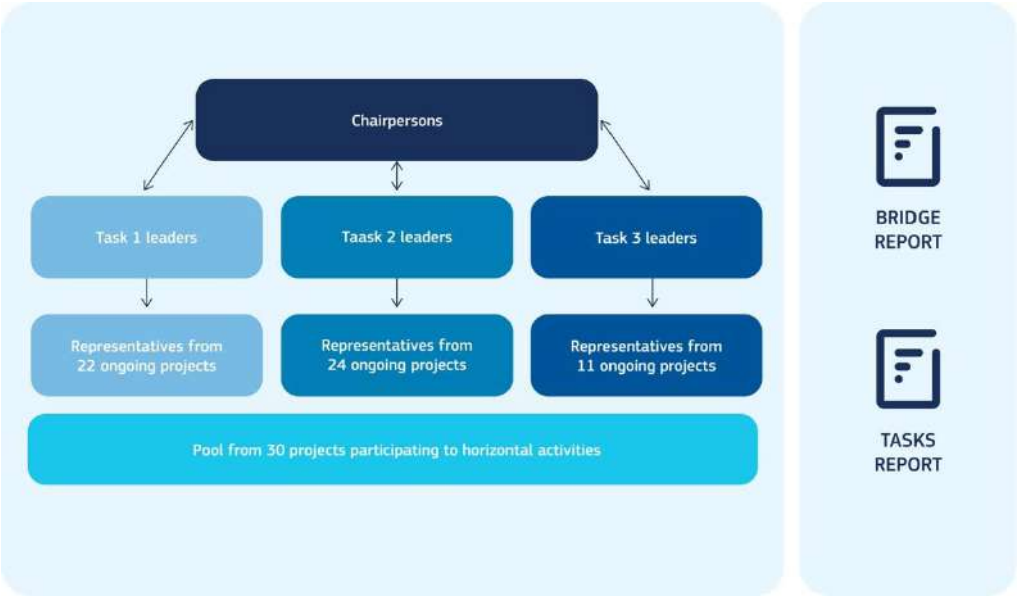
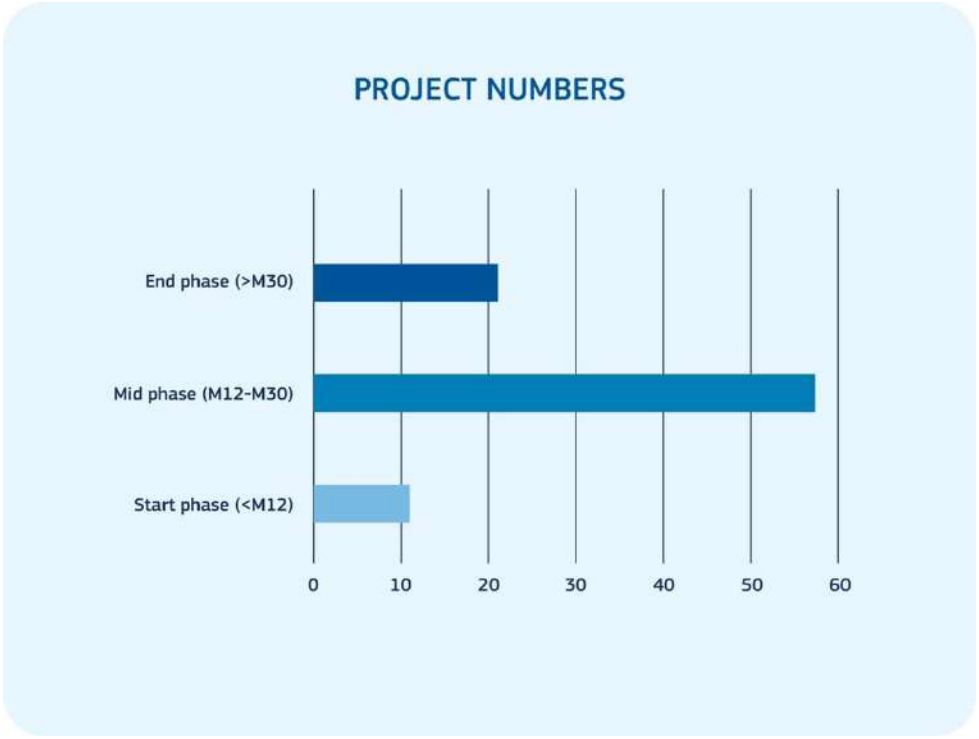


Figure 2 The governance of the WG on BM

88 projects have been participating in the horizontal activities to make sure that they provide their insights and feedback. The list of projects involved is presented below:

Figure 3 List of projects involved in the Business Model WG

The projects' development and orientation are shown in Figure below.



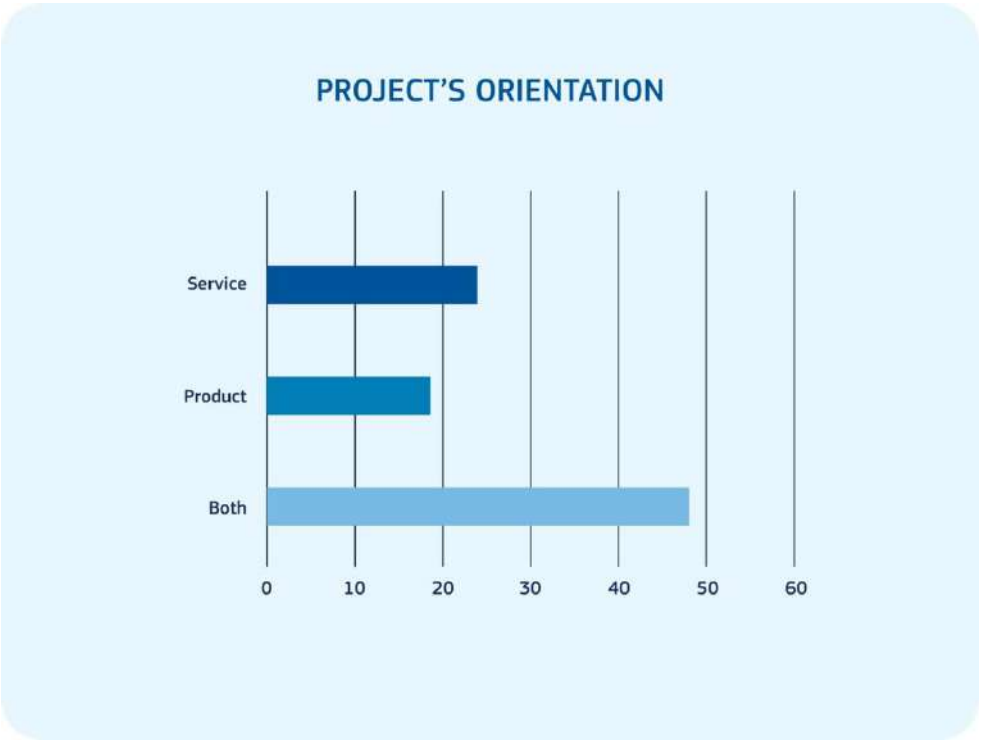


Figure 4 The projects' participating in horizontal activities.

As shown, most of the projects are in the middle of their development period and offer both products and services. This makes their feedback valuable to this WG. These horizontal activities consisted of brainstorming meetings, interviews and questionnaires (Annex1) that touched upon both general BM topics of interest and task-related questions. In the next chapters, tasks have been running in parallel analysing the first results and identifying the needs for further investigation.

Tasks have been further organizing separate meetings, knowledge sharing and interviews to identify good practices and lessons learnt. The results of each task for the period 2023-2024 are reported below. It is expected that these sections will be further extended next year as the BM WG continues to address these tasks with the aim of providing standardised approaches and methodologies. This would help the projects to build BMs that highlight the revenue and other value streams, and so foster their replication and scaling-up on the market.

2. Task 1: Investigation of the tools to capture business ideas and build BM

2.1 Scope of the work

This chapter presents the methodology of the BRIDGE Business Model Working Group Task 1. It also includes an introduction to the methodology of the work, followed by the task of producing an introductory guide *Business Model Tools for Beginners*, which is part of a separate deliverable available at this link: https://op.europa.eu/en/publication-detail/-/publication/29baab28-85ec-11ef-a67d-01aa75ed71a1/language-en

Methodology

The results of Task 1 are based on both the questionnaire answers by the BRIDGE projects, with 29 respondents from 27 projects, offline communications among WG members, and the results from a workshop held during the year, which view the participation of 6 projects presented in Figure 5 below.

Figure 5: Workshop and interview participation

This deliverable aims to highlight the importance of developing a strong business model in the context of innovation and project development. A carefully constructed business model acts as a blueprint for project success, ensuring that your innovation can achieve sustainable growth and deliver significant value. For projects within the BRIDGE community, this means strategically addressing the unique challenges and opportunities of the energy sector.

The focus of the guide developed by Task 1 is to provide knowledge that is not only accessible but also practical, enabling projects to develop an effective business model. In addition, the deliverable aims to encourage active participation in the wider BRIDGE community by demonstrating that sharing knowledge, discussing potential challenges and good practice together is a strengthening resource for the initiative.

2.2 Conclusions and next steps of Task 1

In the course of the work on Task 1, it was observed that most projects rely on similar tools, such as the Business Model Canvas (BMC) and the Value Proposition Canvas, which provide a strong foundation for projects, but should be tailored to the specific objectives and needs of each project to optimise the use of these tools.

To develop effective strategies and improve outcomes, it is essential that projects share their experiences and findings, particularly regarding the effectiveness of these tools in different contexts. The main objective for Task 1 in the coming year will be to enhance collaboration through knowledge sharing sessions (workshops, interactive meetings, brainstorming sessions) to collect, document and extend lessons learnt and best practices from different projects. In addition, there is a recognised need for a basic guide to business model principles to support those with limited experience. A possible future output could be a comprehensive handbook to guide projects in the development of a successful business model throughout all the different stages. Finally, building links with members of other BRIDGE projects is crucial to share experiences, gain insights and generate new ideas.

Detailed information on how these conclusions have been drawn, are presented in the BRIDGE ***Business Model Tools for Beginner's guide*** (https://op.europa.eu/en/publication-detail/-/publication/29baab28-85ec-11ef-a67d-01aa75ed71a1/language-en).

3. Task 2: Methods for quantifying the costs/benefits of the services and solutions of the business model, (under various use-case scenarios)

3.1 Methodology

The methodology employed for this task during the year 2023-2024, involved a systematic and comprehensive approach to gather and analyse relevant data. This included:

- **Task 2 Meetings:** Engaging representatives from various European projects to understand their perspectives and gather insights. These meetings formed the foundation for subsequent activities.
- **Online Survey**: Conducted among projects to collect quantitative and qualitative data. The survey results were analysed using rigorous integrity checks and mapping techniques for visualisation.
- **Literature Review**: Encompassing public deliverables to enhance understanding of the topic. This review identified best practices and emerging concepts related to Task 2.
- **Cost-Benefit Analysis (CBA) Parameters**: A comprehensive overview and mapping of quantification methods used in the projects were carried out. This involved identifying different approaches and techniques for quantifying outcomes, with a focus on projects' KERs.
- **Analysis of Innovative Products and Services**: Examining their value proposition in terms of potential economic, social, and environmental benefits.
- **Review of Quantification Practices**: Assessing the effectiveness of current practices in capturing and measuring associated costs and benefits.
- **Identification of Gaps and Barriers**: Providing insights into potential challenges and areas requiring further attention.

3.1.1 Scope of work and key findings

Task 2 aims to establish a standardised methodology for the quantitative analysis of business models by developing a consistent process for using quantification methods alongside existing tools. The main activities were to map these methodologies and link them to innovative products and services to provide recommendations and best practices. This has been achieved through insights and experiences from BRIDGE-related projects, which serve as resources for new BRIDGE members and business model developers. Key findings from projects such as OneNet, EV4EU, iFlex and RE-EMPOWERED are detailed in the following chapters. In these projects, cost-benefit analysis (CBA) played a critical role within a broader framework for evaluating and planning renewable energy business opportunities. This process includes:

- Identification of business opportunities: Conducted through market research, stakeholder consultations and regulatory assessments.
- Developing the business model canvas: Defining key partners, activities, resources, value propositions, customer relationships, channels, customer segments, cost structures and revenue streams.
- Comprehensive cash flow projections: Estimating costs and revenues, focusing on key CBA parameters, capital expenditure (CAPEX) and operational expenditure (OPEX).

CBA is essential to quantify expected benefits, such as revenue from energy sales and savings from reduced energy costs, against costs such as installation and maintenance. These figures present values describing the net economic benefit. The main results of this analysis are presented in Table 1.

Table 1: Key findings from analysis of projects

Market Participants	**Operators are the main focus, with significant representation from energy communities and aggregators.**
Sustainable development	The economic aspect remains the main driver in value propositions, alongside social and environmental considerations.
Need for structured scenarios	To help projects compare challenges, particularly in local flexibility markets.
Helpful baseline for other projects	FARCROSS Proposition for CBA Framework was suggested as a helpful baseline for other BRIDGE projects.
Quantitative analysis	Establishing quantitative ranges for each savings category identified and providing future projections based on available data is critical to effectively assessing market potential

In addition to these results relevant to the quantification of cost/benefits of the business model services, significant progress was observed in the Technology Readiness Level (TRL) of the projects. In particular, the projects have shown a clear progression from TRL 4 and 5 at the start to around TRL 7 at the end. This progress underlines the maturing and increasing viability of the technology as it approaches commercial readiness.

3.1.2 Quantification Methods

Quantifying the benefits of services and solutions within the energy domain, especially under various use case scenarios, involves several methodologies, each tailored to the specific aspects of the business model and to the unique challenges of the energy sector. These methods typically focus on economic, environmental, and social benefits, aiming to provide a holistic understanding of the value generated by a given service or solution. In Table 2 a breakdown of common quantification methodologies is presented:

Table 2: Quantification metodologies

Quantification methodologies	Short description
Cost-benefit analysis (CBA)	Used to measure the economic, social, and environmental impacts of business models
Life cycle assessment (LCA)	Used to systematically assess the potential environmental impacts of products or services throughout their life cycle

Return on investment (ROI)	Used to achieve business objectives when it relates to specific, measurable outcomes, allowing to identify the financial returns and benefits from the investment.
Multi-criteria decision analysis (MCDA)	Used to perform structured and transparent assessment and prioritisation among conflicting factors with the aim to facilitate informed, impartial resolutions and evaluate the optimal choice among several options.
Social return on investment (SROI)	Used to consider the social, economic and environmental value that is created by a company.
Scenario analysis	Used to examine and evaluate possible future events or scenarios and to try to predict the possible outcomes in order to understand the value of a portfolio under a variety of circumstances.
Energy Performance Contracting (EPC)	Used to finance energy efficiency measures and renewable energy installations through cost savings, thereby overcoming financial barriers and enabling the rapid implementation of a wide range of energy-efficiency measures.

The following chapters provide detailed examples of quantitative analysis methodologies, drawing on two approaches that are essential for understanding how business models work in the real world and for communicating the results of the analysis in an effective way, specifically:

- **Use Cases (UCs):** Specific scenarios developed to test and evaluate the interaction of stakeholders and the practical implementation of business models.
- **Mapping Techniques:** Visual representations to facilitate clear presentation and dissemination of survey results.

Table 3 highlights the key aspects of the main quantitative analyses discussed in the following chapters.

Table 3: Overview on quantification methodologies developed by projects

Project	Quantitative analysis overview
OneNet	The objective of this methodology is to quantify the value created by the implementation of the OneNet business models in the context of the European Union. This value is mainly related to the provision of DER-based flexibility in the delivery of the services targeted within the business use cases associated with these business models. The steps followed by the OneNet methodology are 1) Definition of key flexibility services 2) Identification of high value services 3) Analysis of sources 4) Mapping of results

	5) Quantify benefits
EV4EU	The objective of this methodology is to promote the mass deployment of electric vehicles (EVs) by creating novel business models based on a bottom-up, user-centric approach to vehicle-to-everything (V2X) management. The methodology used in the EV4EU project includes several critical components, including: 1) Value Proposition Design (VPD): 2) Iterative development
iFLEX	The objective of this methodology is to set out, analyse and evaluate BMs for demand response and flexibility services in the energy market. The methodology is divided into three main steps: 1) Define business roles and describe baseline business models 2) Analyse and explore business use cases 3) Assess business use cases and models.
RE-EMPOWERED	The aim of this methodology is to assess the financial sustainability and viability of the renewable energy business model within the project, through 7 key steps: 1) Identify business opportunities 2) Develop the business model canvas 3) Analyse cash flows 4) Conduct cost-benefit analysis 5) Conduct sensitivity analysis 6) Calculate financial metrics 7) Validate with stakeholders

3.1.3 Recommendations

The task concluded with recommendations for future work, emphasising the need for standardised processes, effective business model quantification, and improved data valorisation within BRIDGE projects. This structured approach aims to foster replication and scaling-up in the market by highlighting revenue and value streams.

3.2 Lessons learnt from participating projects

3.2.1 Lessons learnt from OneNet

The OneNet methodology for the quantitative analysis of BMs is a structured approach designed to evaluate the potential economic benefits of implementing flexibility solutions within the power system. This methodology involves several steps, each aimed at systematically gathering and analysing quantitative data.

a. Methodology Overview

The overall objective of the quantitative analysis is to gather evidence supporting the advisability of pursuing the implementation of flexibility solutions through dedicated markets, focusing on costs and benefits derived from previous studies. This involves defining, identifying, analysing, mapping, and quantifying key elements related to the business models.

b. Steps in the Quantitative Analysis

1. Defining Main Flexibility Services

Objective: To identify and outline the key flexibility services within the power system that could be influenced by Distributed Energy Resources (DER) flexibility.

Process:

- **Scope Identification:** Determine the geographical and operational scope, focusing on the European Union due to technological and regulatory similarities.
- **Service Identification:** Highlight relevant services such as congestion management, power system balancing, and electricity wholesale services.
- **Problem Definition:** Clarify the issues related to each service, such as congestion issues in power system operation, balancing challenges, and the impact on wholesale market dynamics.

Outcome: A clear definition of the main flexibility services potentially affected by DER flexibility, setting the foundation for further analysis.

2. Identifying and Mapping High-Quality Sources

Objective: To collect high-quality and relevant publications that provide quantitative data necessary for the analysis.

Process:

- **Literature Review:** Conduct an extensive review of publications from both private actors and governmental bodies.
- **Source Selection Criteria:** Focus on publications that provide relevant quantitative data related to DER flexibility and its impacts on the defined services.
- **Compilation:** Create a comprehensive list of high-quality sources, ensuring they are recent and pertinent to the European context.

Example Sources:

- **SmartEn:** Quantification of benefits of demand-side flexibility in the EU.

- **Eurelectric:** Connecting the dots, providing insights into future flexibility needs.
- **ENTSO-E:** Mid-term adequacy forecasts and other relevant reports.

Outcome: A curated list of high-quality sources mapped according to their relevance and the type of quantitative data they offer.

3. Analysing the Sources Collected

Objective: To extract and analyse quantitative data from the identified sources to understand the impact of DER flexibility on the power system.

Process:

- **Data Extraction:** Systematically extract quantitative information related to the cost, capacity, and operational aspects of flexibility services.
- **Categorisation:** Organise the extracted data into categories such as redispatch savings, balancing market savings, and electricity market benefits.
- **Benchmarking:** Compare and benchmark the data across different studies to ensure consistency and reliability.

Outcome: A detailed and categorised collection of quantitative data from high-quality sources, providing a foundation for further analysis and quantification.

4. Mapping the Results of Previous Steps

Objective: To create a structured representation of the quantitative results and map them to the specific flexibility services and business models.

Process:

- **Categorisation:** Further refine the categorisation of quantitative data based on specific services and business models.
- **Benchmarking Results:** Establish benchmarks for each category to facilitate comparison and evaluation.
- **Visualisation:** Develop visual representations (e.g., charts, tables) to illustrate the potential savings and benefits associated with each category.

Outcome: A well organised and visually represented map of the quantitative results, categorised by flexibility services and business models.

5. Quantification

Objective: To provide quantitative estimates of the value created by the implementation of OneNet business models in the European Union.

Process:

- **Quantitative Ranges:** Determine quantitative ranges for each savings category identified in the previous steps.
- **Future Outlook:** Provide projections and estimates for future scenarios, if data is available.
- **Relation to OneNet BMs:** Set the findings in relation to the OneNet business models to estimate market potential and the size of the problems addressed.

Example Quantifications:

- **Redispatch Savings:** Estimate the reduction in redispatch costs due to DER flexibility.

- **Balancing Market Savings:** Quantify the savings in balancing market operations.
- **Electricity Market Benefits:** Assess the impact on wholesale market costs and consumer expenditure.

Outcome: Quantitative estimates and projections illustrating the economic benefits and market potential of implementing OneNet business models, providing a strong case for the deployment of flexibility solutions.

Conclusion

The detailed methodology ensures a comprehensive and systematic approach to quantitatively analyse business models focused on flexibility services within the power system. By following these steps, the OneNet project aims to provide clear, data-driven evidence of the economic benefits and potential for implementing these innovative solutions in the European Union.

3.2.2 Lessons learnt from EV4EU

Introduction and Objectives

The EV4EU project focuses on developing and implementing a bottom-up, user-centric Vehicle-to-Everything (V2X) management strategies. This project aims to promote the mass deployment of EVs by creating novel BMs that offer benefits to end users and integrate new demand response programmes, market participation, and flexibility services. Below is a summary of the methodology used for the quantitative analysis of business models within the EV4EU project.

Theoretical Background and Methodology

Methodology

The methodology used in the EV4EU project includes several critical components:

- **Value Proposition Design (VPD)**: This framework uses tools such as the BMC and Value Proposition Canvas (VPC) to represent business models centred on services. The VPD helps to identify the value created for EV users, system operators, energy markets, and communities.
- **Iterative Development**: Starting with five initial business models outlined in the project proposal, the process iteratively developed and refined these models, resulting in twelve distinct business models by the project's end.

Initial Business Models

The initial business models are designed to address different aspects of V2X management:

1. **Green Charging**: Enhances the use of renewable energy sources (RES) by coordinating EV charging with RES production, particularly during periods of high generation.

2. **Sharing Charging**: Utilises the V2X infrastructure of companies to share EV charging facilities with employees, visitors, and other EV users.

3. **Surge Pricing**: Manages the demand for V2X stations by varying prices based on usage patterns and operational needs, reducing grid stress.

4. **Flexible Capacity Contracts**: Allows end users to offer their capacity as a flexible commodity that DSOs

can purchase to manage network issues.

5. **Participation of V2X in Services and Markets**: Aggregates V2X resources to participate in energy and ancillary services markets, providing flexibility and stability to the grid.

Business Models for Pilots

The EV4EU project includes pilot projects in Portugal, Slovenia, Greece, and Denmark, each focusing on specific aspects of V2X management.

Portuguese Demonstrator

TSO Services for RES Curtailment Management

- **Objective**: Coordinate V2X with RES to reduce renewable curtailment and increase RES utilisation.
- **Key Players**: TSO, Flexibility Operator (FO), Cloud Platform Manager (CPM), V2X managers (companies, buildings, and homes).
- **Activities**: Interface with TSO for renewable forecasts, coordinate EV charging based on RES availability, manage service through a digital platform.
- **Outcome**: Reduced curtailment, increased use of renewable energy, lower charging costs for EV owners.

Sharing Charging

- **Objective**: Maximise the use of EV charging infrastructure by sharing it among different users.
- **Key Players**: V2X station manufacturers, companies (V2X managers).
- **Activities**: Develop, install, and maintain V2X stations with features like user authentication and autonomous control.
- **Outcome**: Optimised use of charging infrastructure, reduced investment costs, and greater convenience for users.

EV Fleet Management Services

- **Objective**: Provide outsourced management for companies with mid to large EV fleets.
- **Key Players**: Fleet management service providers, companies with EV fleets.
- **Activities**: Sizing of fleets and charging capacity, operational scheduling, power contract management, maintenance.
- **Outcome**: Optimised asset management, reduced risks and costs, improved operational efficiency.

DSO Flexibility Services – Voltage Regulation via Price Signals

- **Objective**: Manage voltage levels in local grids using dynamic price signals for EV charging.
- **Key Players**: DSO, FO, Cloud Platform Manager, V2X managers.

- **Activities**: Interface with DSO for price signals, coordinate EV charging based on grid conditions, manage service through a digital platform.
- **Outcome**: Enhanced grid stability, reduced need for grid reinforcements, incentivised use of renewable energy.

Slovenian Demonstrator

Virtual Power Plant Business Model

- **Objective**: Aggregate V2X resources to participate in electricity and ancillary services markets.
- **Key Players**: Aggregator (GEN-I), DSO (Elektro Celje), V2X station manufacturers, market operators.
- **Activities**: Negotiate energy and flexibility in markets, provide grid services, manage distributed energy resources (DERs).
- **Outcome**: Increased hosting capacity, optimal energy resource management, improved grid stability.

Flexibility Services Operated by Distribution System Operators Business Model

- **Objective**: Provide grid services like voltage control and congestion management using V2X resources.
- **Key Players**: DSO, aggregator, V2X station manufacturers.
- **Activities**: Coordinate V2X participation in grid services, manage service activation, ensure communication between VPP and ADMS.
- **Outcome**: Enhanced grid operation, reduced grid congestion, improved service reliability.

Vehicle-to-Everything Stations Business Model

- **Objective**: Develop and manage V2X stations for various applications, including homes, buildings, and companies.
- **Key Players**: V2X station manufacturers, V2X managers (homes, buildings, companies).
- **Activities**: Design, install, and maintain V2X stations, integrate with local energy management systems.
- **Outcome**: Increased V2X adoption, optimised energy usage, enhanced user convenience.

Greek Demonstrator

Distribution System Operators Bound by Flexible Capacity Contract

- **Objective**: Use flexible capacity contracts to manage grid issues and ensure stability.
- **Key Players**: DSO, aggregators, EV users.
- **Activities**: Negotiate and manage flexible capacity contracts, activate services based on grid needs.
- **Outcome**: Improved grid stability, efficient use of DERs, reduced operational costs.

Business Model for Charging Point Operators

- **Objective**: Manage and optimise the operation of charging points.
- **Key Players**: Charging Point Operators (CPOs), EV users.
- **Activities**: Operate and maintain charging infrastructure, implement dynamic pricing and user management.
- **Outcome**: Balanced use of charging infrastructure, enhanced user experience, reduced grid stress.

Business Model for Cloud Platform Manager Operating the Open V2X Management Platform

- **Objective**: Provide a digital platform for coordinating V2X services and managing communication between stakeholders.
- **Key Players**: Cloud Platform Managers, V2X managers, service providers.
- **Activities**: Develop and maintain the platform, ensure secure and reliable communication, integrate with other systems.
- **Outcome**: Improved service coordination, enhanced data management, streamlined operations.

Danish Demonstrator

Business Model for Public Parking Lot Managers

- **Objective**: Manage V2X services in public parking lots, offering charging and V2G capabilities.
- **Key Players**: Public car park managers, EV users.
- **Activities**: Install and maintain V2X infrastructure, manage user access and payments, provide grid services.
- **Outcome**: Increased use of public charging, enhanced grid services, improved user convenience.

Business Model for Private Car Park Managers

- **Objective**: Manage V2X services in private parking lots, focusing on corporate and residential users.
- **Key Players**: Private parking lot managers, corporate/residential users.
- **Activities**: Install and maintain V2X infrastructure, manage access and payments, optimise energy usage.
- **Outcome**: Improved energy management, enhanced user experience, increased adoption of V2X services.

Stakeholders and Value Chains

The EV4EU project identifies and maps key stakeholders within the V2X value chain, including system operators, virtual power plants, V2X managers, and service providers. The methodology involves identifying the gains and pains for each stakeholder, which are then used to develop comprehensive business models.

Business Model Development Process

The development process for business models in the EV4EU project involves several key steps:

Identification of Value Creation

- **Objective**: Identify the value created for various stakeholders, starting with EV users and extending to system operators, energy markets, and communities.
- **Activities**: Engage with stakeholders to understand their needs and expectations, use VPD tools to map value creation elements.

Use of Business Model Canvas (BMC) and Value Proposition Canvas (VPC)

- **Objective**: Develop and refine business models using structured canvases.
- **Activities**: Iteratively fill out BMC and VPC for each business model, collect feedback from stakeholders, and adjust models accordingly.
- **Tools**: BMC to represent the business model structure, VPC to detail the value proposition for each stakeholder.

Service-Oriented UCs

- **Objective**: Develop detailed service-oriented use cases (UCs) for each business model.
- **Activities**: Define specific scenarios for service exchange and value co-creation, use Service Business Model Canvas (SBMC) for service-specific elements.
- **Outcome**: Clear understanding of service interactions and value creation in practical scenarios.

Business Model Evaluation

- **Objective**: Evaluate and refine business models based on pilot project outcomes.
- **Activities**: Conduct field tests, gather data and feedback, refine business models to better fit current conditions.
- **Outcome**: Improved business models that are practical and effective in real-world applications.

Conclusion

The EV4EU project's deliverables on business models provide a cornerstone for further tasks, informing the development of services and information platforms that will facilitate the mass deployment of electric vehicles. The outcomes offer valuable insights into creating sustainable, user-centric V2X management strategies that can be widely adopted.

3.2.3 Lessons learnt from iFLEX

The iFLEX project employs a detailed methodology to define, analyse, and assess business models (BMs) for demand response and flexibility services in the energy market. The methodology is structured into three main steps: Define and Describe, Analyse and Explore, and Assess and Select.

Step 1: Define Business Roles and Describe Baseline Business Models

1. Generic Value Network (GVN):

   Utilises a "generic value network" for smart grids based on the value chain concept to identify and define main business roles such as power production, power transmission, power distribution, wholesale market, power retailing, balancing services, power consumption, energy storage, aggregator services, and energy efficiency and management services.

2. Business Model Canvas (BMC):

   Applies the BMC methodology to describe baseline business models. This approach includes key components like key partners, key activities, value propositions, customer relationships, customer segments, key resources, channels, cost structure, and revenue streams.

Step 2: Analyse and Explore iFLEX Business Use Cases

1. Business Use Cases (BUCs):

   Describes each iFLEX business use case using the GVN, focusing on relevant business roles and relationships. Some BUCs are elaborated using the e3value modelling method to explore new value networks through iteration and simulation.

2. e3value Modelling Method:

   Analyses economic value creation, distribution, and consumption in a multi-actor network. This method provides a lightweight, economic value-aware, multi-viewpoint, and graphical conceptual approach to quickly and effectively analyse value propositions and profitability scenarios.

3. Initial Analysis:

   Provides initial analysis of selected business use cases using the GVN and e3value modelling method to identify feasible and profitable value propositions.

Step 3: Assess Business Use Cases and Models

1. 360 Business Model Evaluator (BME):

   Uses the 360 BME tool for a state-of-the-art “what-if” scenario and cost-benefit analysis. This tool assists in the planning and deployment of new products, infrastructures, and services by providing a techno-economic analysis before and during implementation.

2. Viability Assessment:

   Compares the selection of business use cases and models with standard “business as usual” models using several techno-economic KPIs (e.g. Return on investment for prosumers in the base scenarios, monetary

benefits to the consumer in the base scenarios, increase self-consumption ratio) and assumptions on costs and revenues. The analysis aims to identify market bottlenecks, assess the effectiveness of compensations, and evaluate the societal cost-benefit of technologies.

3. Monte Carlo Simulations:

   Performs sensitivity analysis by running Monte Carlo simulations to evaluate different scenarios and their impact on the business models.

4. Instantiation with Business Model Canvas:

   In the final phase, chosen iFLEX business models are instantiated using the BMC with real-world data, realistic revenue, and cost models. This process involves adapting the models to specific market segments and using them for user validation and exploitation planning.

By following these structured steps, iFLEX ensures a thorough and systematic approach to developing and evaluating business models, facilitating the effective implementation of demand response and flexibility services in the energy market

3.2.4 Lessons learnt from RE-EMPOWERED

The RE-EMPOWERED project involves a detailed methodology for the quantitative analysis of business models. It focuses on the development and implementation of business models for renewable energy systems in European and Indian contexts. Its methodology involves several critical steps:

The key steps include:

Figure 6: Steps of RE-EMPOWERED methodology for quantitative analysis of business models

a. Detailed Description of Each Step

1. Identification of Business Opportunities

- **Objective:** To identify potential business opportunities that align with the goals of the RE-EMPOWERED project.
- **Activities:** This involves market research, stakeholder consultations, and an assessment of the regulatory environment. The focus is on finding gaps in the current market and determining how renewable energy solutions can address these gaps.

2. Business Model Canvas Development

- **Objective:** To outline the components of the proposed business models using the BMC framework.
- **Activities:** This includes defining key partners, activities, resources, value propositions, customer relationships, channels, customer segments, cost structures, and revenue streams.

3. Cash Flow Analysis

- **Objective:** To project the financial inflows and outflows over a specific period.

- **Activities:** Detailed cash flow projections are created for each business model. This involves estimating revenues, operational expenses (OPEX), capital expenditures (CAPEX), and other financial metrics over the project lifespan (e.g., 20 years).

4. Cost-Benefit Analysis (CBA)

- **Objective:** To evaluate the economic feasibility of the business models by comparing the costs and benefits.
- **Activities:** The CBA involves quantifying the expected benefits (e.g., revenue from energy sales, savings from reduced energy costs) and costs (e.g., installation, maintenance). The benefits and costs are then used for assessing the net economic benefit.

5. Sensitivity Analysis

- **Objective:** To understand how changes in key assumptions affect the financial outcomes.
- **Activities:** Various scenarios are analysed by altering assumptions such as energy prices, interest rates, and demand forecasts. This helps in identifying the robustness of the business models under different conditions.

6. Financial Metrics Calculation

- **Objective:** To derive key financial metrics that indicate the viability of the business models.
- **Activities:** Metrics such as Net Present Value (NPV), Internal Rate of Return (IRR), payback period, and Benefit-Cost Ratio (BCR) are calculated. These metrics provide a comprehensive view of the financial attractiveness of the business models.

7. Validation with Stakeholders

- **Objective:** To ensure the practicality and acceptability of the business models among stakeholders.
- **Activities:** Engagement with key stakeholders, including investors, regulatory bodies, and potential customers, is conducted to validate the assumptions and outcomes of the analysis. Feedback is incorporated to refine the business models.

b. Conclusion

The RE-EMPOWERED methodology provides a structured approach to quantitatively analyse business models in the renewable energy sector. By combining tools like the BMC, cash flow analysis, cost-benefit analysis, and sensitivity analysis, the methodology ensures a thorough evaluation of economic feasibility and financial sustainability. This approach not only helps in identifying viable business opportunities but also in engaging stakeholders effectively to implement successful renewable energy projects.

This kind of approach, can be further implemented as a next step for the WG in the realm of market uptake.

4. Task 3: Valorising data generated by Bridge projects solutions

4.1 Context and scope of the work

4.1.1 Reminder of the context and past findings for setting-up new goals for Task 3

Task 3 of Bridge WG on Business Models was initiated prior to the 2023-2024 activity in the Business Model Working Group. The 2022-2023 activity and report provided useful insights into the characterisation of data value chains in the projects of the Bridge initiative. The WG leadership was restructured in autumn 2023 to further characterise how current projects deal with data in the design of business models. The new co-leaders team included Natalie SAMOVITCH, Enercoutim, Habib NASSER, CEO & Co-founder RDIUP, and Athanase VAFEAS, DOWEL Innovation.

These new co-leaders first set out a new ambition for the task for the period October 2023 to Spring 2024, an ambition which drew on previous work. The next subsections show the previous findings on which the current work is based.

4.1.2 Building upon last year results

The characterisation work carried out last year with the support of a selection of Bridge projects provided a set of conclusions on business model thinking & design and data.

The first point deals with understanding data. Authors considered that the term should be understood in its broadest sense. To that end, it should encompass all the steps: data acquisition, data analysis, data curation, data storage, data usage. The approach proposed by Curry[1] appears interesting since it introduces a systematic process to grasp the various stages for the use of data. This therefore constitutes a powerful analytical tool for assisting R&I project coordinators and exploitation leaders to design a duly documented and quantified business model. However, the data generation stage is missing since these five identified steps end with the data usage.

The second observation refers to the fact that Bridge projects do not usually deal with data for business model elaboration. Even though a large majority recognise that data matter, they consider that their precise role in the main outcomes of the projects need to be clearly defined. In our understanding, such difficulty results from the complexity of data-handling process. This complexity requires skills and tools of different types: just focusing on ‘data acquisition’ or ‘data storage’, these two functions out of the Curry five-step analysis would need to articulate different competences. While ‘data storage’ is rather a technical issue, ‘data acquisition’ requires heuristics for identifying relevant sources.

[1] Curry, E., Metzger, A., Zillner, S., Pazzaglia, J. and Robles A. (2021). The elements of big data value. Foundations of the research innovation ecosystem. Springer.

The third finding refers to the 'Business model canvas' as a method widely used by Bridge projects for creating and developing business models, though most often in a qualitative manner by R&I projects. The core value of such tool is in its high degree of synthesis: in a nine-block diagram all components of the value creation are simultaneously addressed:

- The synthetic formulation of the value proposition as the 'promise to the market' at the centre
- The right side dealing with the demand side: to whom the 'promise' is made
- The left side dealing with the supply side and depicting the way to execute the 'promise'
- On the bottom side the quantitative aspects in respectively the demand (revenue model, in the bottom right corner) and the supply (the cost model in the bottom left corner).

Multiple tutorials exist (see for example the one proposed by BPI France in French: link).

A 4th finding complements the observation on the adoption of the Business Model Canvas by the projects. The BMC offers a structured way to package all the necessary building blocks for designing a business model. In parallel R&D projects (and more specifically demonstration projects at higher TRL) have good practice of another tool fed with data to characterise specific configuration of the demand side: the 'use case' is a solid approach to better grasp a high diversity of clients and more generally of users around a value proposition. If we retain the definition of a use case as a description of how a user interacts with a system or a product[2], it is legitimate to think that connecting these two well-known approaches could be beneficial for the Bridge R&I projects.

A 5th point is more of an observation than a finding. It refers to the multiplicity of documents, efforts by institutions and projects dealing with common European data spaces. This continuous and recent contributions need to be further investigated. For instance, the **int:net** project already offers in its CEEDS blueprint a guide on enhancing the existing data infrastructures and the energy domain, the aim of which is to fully embrace data space solutions (see Table 1).

4.2 Proposed goals for 2023/2024

The framework of The EU Strategy for Data in 2020 and the EU Action Plan on digitalising the energy system in 2022 sets the framework for the new paradigm of energy data spaces. However, its practical adoption by R&I projects requires further developments explored by multiple actions detailed in Table 1.

The objectives proposed for Task 3 follow on from what was learnt in 2022-2023, e.g. *"To gain an initial understanding of to what extent projects are, or not, working with business model tools to identify exploitable value from the data that the BRIDGE projects are generating and using within the development of their solutions." source: WG BM report 2023.* Additionally, the data produced by the BRIDGE projects' solutions have to be valorised as much as feasible once they are deployed in the market. More practically this will take the form of three intertwined actions:

- To visualise all relevant building blocks which will guide projects for addressing 'Business Models & Data'
- To ensure a smooth interaction with other initiatives in order to map existing or under development tools / assets according to their implementation level
- To explore how an expanded canvas inspired from Business Model Canvas could support exploitation of Bridge projects.

[2] We will provide a more precise definition in next section.

4.3 Proposed methodology

The three co-leaders of Task 3 represent different Bridge projects. They shared their own expertise and respective networks to build an overview of building blocks at the interface of business modelling, data by and for R&I projects. The resulting knowledge has been proposed to be further challenged by R&I projects.

The actions deployed in the task included:

- Setting of objectives and elaboration of the methodology.
- State of play of the various initiatives, projects or entities supporting the implementation of CEEDS: analysis of the recent publications.
- State of the art on knowledge, tools and services that could support the Bridge projects in the domain. External experts were interviewed to that purpose in addition to inputs collected by the co-leads.
- First visual mapping of the collected knowledge according to their degree of maturity / adoption by the projects and relevant classification criteria (iterative construction).
- Second visual showcase of specific tools according to their domain (iterative construction).
- Validation through a preselection of projects.
- Formalisation of activity in the present report.

4.4 Relevant sources of information for CEEDS

Multiple actions have been launched by the European Commission, and more specifically by DG Connect and DG Ener, to support the work on the Common European Energy Data Spaces:

- **The EU action plan on digitalising the energy system**: a Smart Energy Expert Group is being set up to further support CEEDS; a digital twin of the electricity grids including ENTSO-E and EU DSO Entity organised in a task force and in close connection to the Twin EU project[3].
- The support to **ACER and NRAs** in the definition of common smart grid indicators to enable NRA to monitor smart and digital investment in the electricity grid.
- **The EU Action Plan for Grids** with the support of ENTS-E and EU DS Entity for improving long-term grid planning for higher share of renewables and increased electrification of uses.
- **The revision of EMD directive** with the implementing regulation of (EU) 2023/1167 of 8 August 2023 on interoperability requirements for access to metering and consumption data. The current update consists in the preparation of an implementing regulation on customer switching and on demand response.
- The public consultations and preparation of a draft for ACER on **network code on demand response.**
- **The formalisation of high-level use cases for the EU energy data spaces.** A consensus has been reached with the first cases including 'flexibility in energy systems' to roll out flexibility products for the energy markets, 'smart and bidirectional EV charging' for integrating smart EV charging into power grids and promoting bidirectional V2G services, 'smart and energy-efficient buildings' to develop mechanisms for capitalising data from smart buildings for energy efficient renovations.

[3] TwinEU project: supporting the development of a digital twin to improve management, operations and resilience of the EU Electricity Systems. Link

Table 4: overview of actions and initiatives related to Common European Energy Data Space

Source	Initiative / Action	Document	IBenefit for CEEDS
EU	EU Strategy for Data, 2020	COM(2020) 66 final	Aims at creating a single market for data that will ensure Europe's global competitiveness and data sovereignty. CEDS shall 'ensure that more data becomes available for use in the economy, society and research, while keeping the companies and individuals who generate the data in control'
EU	EU Action Plan on digitalising the energy system, oct 2022	COM(2022) 552 final	Establishes the 'Smart Energy Expert Group' and sets the 'Data for Energy' (D4E) working group which will develop a portfolio of European high-level use cases for data exchanges in energy that are key to deliver on the objectives of the Green Deal and the Digital Decade. It will also propose priority areas and building blocks for the future CEEDS.
EU	Common European Data Spaces	Latest state of play, Jan 2024	
DG Ener	ENTEC Energy Transition Expertise Centre, October 2023	Terms of Reference Energy Data Spaces	Prepares a common European data space for energy, as announced in the Data Strategy and in the Action Plan on the digitalisation of the energy sector
ETIP SNET	ETIP SNET WG4, « digitalisation of the electricity system and customer participation" Published, policy paper published in December 2023	Energy Data Space Policy Paper	Assesses the current status and changes in the energy data spaces Provides suggestions (policy and regulations) to ease the large deployment in Europe Closely related to the int:net goals.
Bridge initiative	WG Data Management	Link	Parallel WG to the Business Model WG

EC	Call Digital Europe, call 29 May 2024	Specifications of the deployment call of CEEDS, March 2024	Objective of the selected project is to deploy a reliable and secure common EU data space for energy aligned with the EU Strategy for Data and the EU Action Plan on digitalising the energy system with at least 10 MS and five use cases.
Int:net, CSA	The Energy Data Spaces Cluster in two layers (inner + outer layers)		Priority use cases, target data sets, common building blocks, interoperability requirements, key data hubs, governance arrangements. In particular the 5 HLUC for CEEDS: Energy communities, residential home energy + integration DER, TSO-DSO coordination, EM services roaming, renewable O&M optimisation and grid integration. The S/h mapping for interoperability in governance The discussion about the 6th SGAM layer on frameworks capping the business layer and the novel concept of broad 'use-case tubes' The concept of MVP on the minimum number of data spaces components to test interoperability.
Int:net	CEEDS blueprint	v1.0 March 2024, v2.0 in May 2024. Available on Int:net website	Provides guidance on enhancing the existing data infrastructures, the energy domain, in order to fully embrace data space solutions.
IDSA International Data Space Association	The interoperability task force led by int:net and IDSA published its 1st position paper in Nov 2023	The Energy Interoperability Framework in Energy Data Spaces, published in Nov 2023. Link	
Data Spaces Support Centre (DSSC)	DSCC Overview – state of play March 2024	Blueprint including glossary, high level description of components of a data space, building blocks, expert and thematic works.	3+3 types of building blocks

4.5 Visuals for moving forward from “data value chains” to “enabling data spaces”

Face to the multiplicity of perspectives and development, it was proposed to design some visuals to identify blocks of knowledge, either methods, tools or practice, either existing or needed for supporting R&I projects, and at least the ones contributing to the Bridge initiative: the surrounding context being the design of Business Model for smart energy systems within building, mobility and grids.

Visuals have been proposed to help identify the methods, tools and practices – existing or needed for R&I projects which deal with business models for smart energy systems for buildings, mobility and grids.

Two visuals have thus been developed in the general context of moving forward from “data value chains” to “enabling data spaces”. They target more specifically two complementary types of end users:

(1) academia and researchers working on these projects (related CSA, continuation of the Task 3 activity).
(2) R&I Bridge projects wishing to be guided in these domains at the interaction of the business model design and common energy data spaces.

The proposed compilation is considered to be a living document to collect comments and new components.

4.5.1 The perspective of academia, first visual

Objective of the first visual: to map building blocks useful for the EU-funded projects for the elaboration of quantitative business models in the domain of smart energy systems within building, mobility and grids. It includes a collection of tools, templates and guidance in relation with data all along the data value chain within the focused context:

- of business model thinking and design,
- for collaborative R&I projects in the domains covered by ETIP SNET,
- aiming a continuous development and use by R&I projects.

The building blocks are mapped according two main dimensions: 1) we assume through the first horizontal dimension that data goes first from data owned under partners ’control (left side of the visual) to data openly available to the whole ecosystem (right side); 2) in the second vertical dimension, the information is initially raw data sets (top of the visual), and then the blocks provided will help organise them in order to provide structured data for specific purposes (bottom). Thus, four main areas are expected to host the blocks.

Useful definitions	
Building block	Refers here to a knowledge package including either information, guidance, recommendations on a tool, application or methodology.
Use Case	follows the definition detailed in OPENDEI *« Data Spaces for Energy, Home and Mobility »*, 2022: “a use case is a specification of a set of actions performed by a system, which yields an observable result. Each use case identifies the participating actors that play a role within it, together with the associated scenarios and the information to be exchanged to realise them. In particular, the IEC 62559 series of standards defines a methodology and a template to harmonise the use-case description.”

Colour code legend corresponds to the degree of use of each block	
	Red: blocks that are rarely or not used by Bridge projects, meaning that there is room for improvement for further use
	Teal: known blocks by Bridge project contributors but not systematically used by Bridge projects
	Blue: widely adopted blocks by Bridge projects and used (either compulsory or offering significant value in the business model thinking and design).

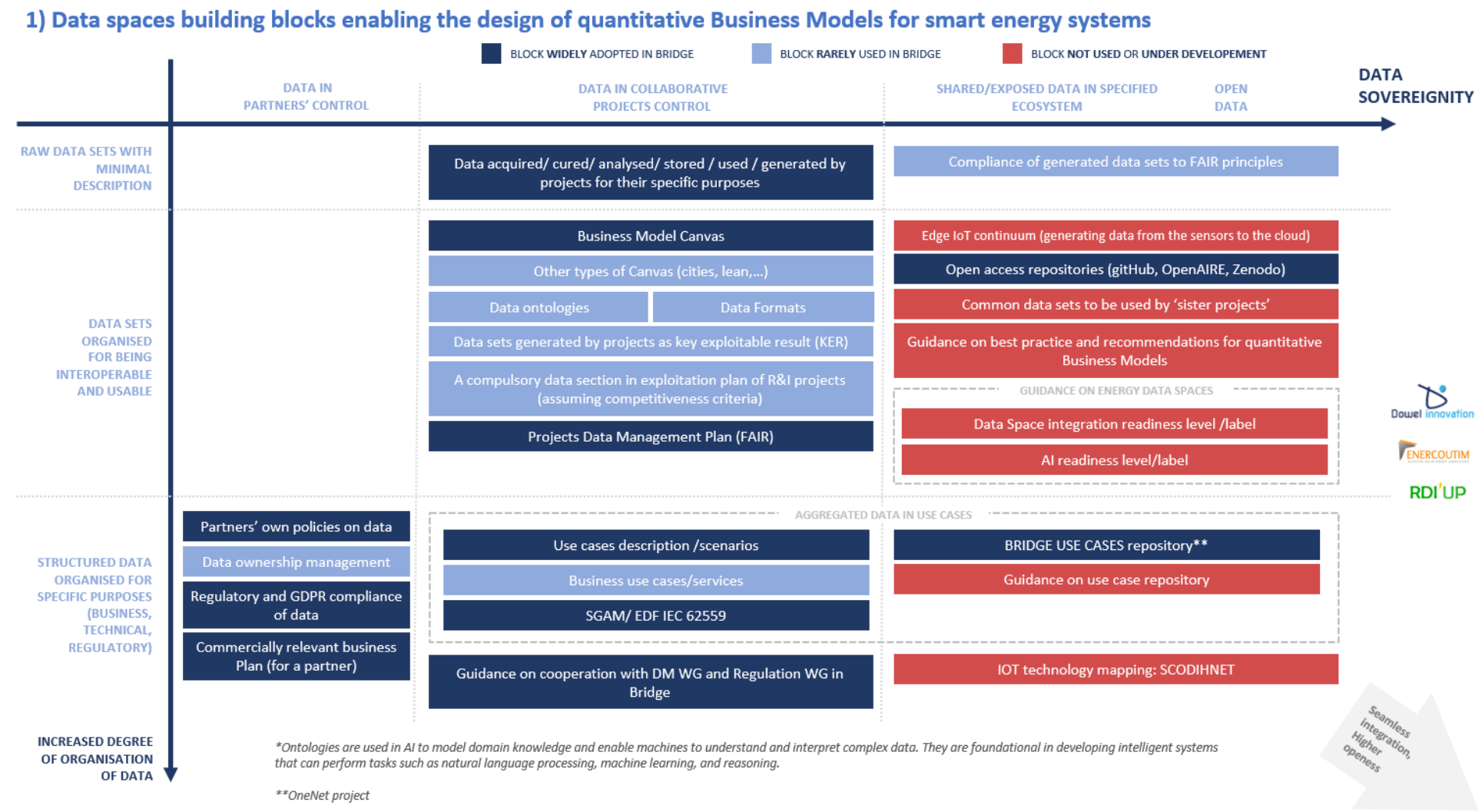


Figure 7: Overview of blocks for enabling the elaboration of quantitative Business Models in the domain of smart energy systems within building, mobility, and grids

4.5.2 The perspective of a R&I project, second visual

Objective of the second visual: to map building blocks from the perspective of a R&I project as user and potentially generator of data. To that end, a three-layer architecture is proposed as a generic framework for specific tooling.

At the first layer, the different blocks are organised according to their nature. Label A refers to the widest category including ecosystems providing value to their members / users / clients. Label B focuses on enabling tooling for business modelling, while label C encompasses specific blocks of knowledge that could be methods or prescription directly related to the data cycle.

A) Generic frameworks for data relevant for R&I projects in the ETIP SNET domain

B) Generic enablers (tools and methods) for designing quantitative business models in ETIP SNET domain

C) Dedicated support to Bridge projects all along the data cycle (acquisition, curation, use, store, generation).

The mapping proposed in the next figure is an interactive scheme that can be regularly updated with new components provided by R&I projects or other initiatives.

Visual 2) Tentative mapping of supporting tools and services from the Bridge project perspective

A) Generic frameworks for Data relevant for R&I projects in the ETIP SNET domain	A1. Energy Data Spaces		A4. Cybersecurity frameworks		A7. Data challenges and their governance in the energy transition			
	A2. Design Principles for Data Spaces		A5. Bridge and ETIP SNET WG		A8. Communities: AIOTI for IOT support, Int:net community			
	A3. Open access repositories		A6. Open Science collaborative frameworks including academia and the citizen		A9. Industry associations: T&D, Eurelectric, WindEurope, ENTSO-E, EU DSO-entity			
B) Generic enablers (tools & methods) for designing quantitative Business Models in ETIP SNET domain	B1. Data ontologies (Data sets, structure and format)	B2. Various canvas and variants dealing with BM design	B3. Use cases repositories	B4. Scaling-up and replication prescriptions	B5. Market intelligence and go-to-market strategies	B6. IPR and open-data strategies	B7. Exploitation strategies	B8. Prescriptions from WG Data Management and WG Regulation
	B9. SHS and living labs for generating and storing data on the demand side	B10. Derisking frameworks by demo cases or numerical simulations (Digital Twins)	B11. Data challenges related to 'prosumption'	B12. Data challenges related to multi-energy systems and 'sector coupling'	B13. Communication and Dissemination obligations	B14. SHS and living labs for generating and storing data on the demand side	B15. Intermediation and platform Business Models	B16. Data Spaces Support Centre www.dssc.eu
C) Dedicated support to a Bridge project all along the data cycle (acquisition, curation, use, store, generation)	C1. The Business Model Canvas	C2. Ex ante data specifications	C3. The Value proposition	C4. The cost model, the revenue model	C5. Multi-sided BM (intermediation)	C6. The 6th SGAM Layer (int:net)	C7. National iniatives related to DSSC (e.g., CoE-DSC)	C8. DSSC Building Block Taxonomy
	C9. Bridge UC repository	C10. SGAM/ EDF IEC 62559	C11. AIOTI test beds and catalogue	C12. SCODIHNET technology mapping	C13. Technopedia (ENTSOE), the E.DSO Technology Radar	C14. GDPR	C15. smartdatamodels.org	C16. Data exchange interoperability testing

Figure 8: The second visual of supporting tools for Bridge R&I projects

4.6 Feedback

The two draft visuals were challenged during ad hoc interviews by R&I EU projects and other stakeholders as well during the presentation at the Bridge General Assembly 2024.

4.6.1 Feedback from interviews and the questionnaire

A set of EU projects was asked to provide feedback to the proposed approach. These were **FLEXCHESS, VPP4Islands, MASTERPIECE** in March / April 2024 [4]. During a second round the **int:net** project[5] was approached. Key elements were gathered from interviews that are synthesised below.

Before they received an explanation about the building blocks, interviewees said they struggled to grasp the concept in a stand-alone mode. It made more sense to them once clarification was given during the interviews.

The visual representation appeared quite complete to all interviewees; however, the plethora of names and concepts made initial access difficult.

As per the data management considerations, among the various blocks, all interviewees emphasised the critical importance of GDPR compliance and the trustworthiness of data collection and usage practices. Two interviewees particularly stressed the importance from a customer perspective, especially in pilot testing scenarios.

Interviewees highlighted the value of open access to project data for transparency and potential future use. However, they also emphasised the need to balance this with maintaining full data privacy for data providers (often different from data managers) involved in multiple projects. This distinction between data managers and providers underscores the need for strong privacy measures. The importance of data accessibility was also emphasised, with one interviewee expressing a desire for a clear data guidance and an open access repository for broader knowledge sharing.

One interesting suggestion was formulated for exploring and enhancing data exploitation and accessibility opportunities within EU-funded projects to maximise their overall outcomes.

Two interviewees identified a lack of expertise and resources within their organisations for in-depth understanding and development of business models related to data management.

One interviewee noted the absence of the Intellectual Property (IP) components while acknowledging the usefulness of the building blocks in guiding business model design. Another interviewee highlighted the absence of elements in the top left corner of the building block and suggested incorporating more everyday uses, thus, the inclusion of the more immature elements of the organisation.

For improvement, clarity, and specificity, all interviewees insisted on the need for written descriptions of each block to improve usability. It was stressed that the visual is considered as a good map but still lacks a clear explanation of each component's purpose[6] for improved clarity. Another interviewee further suggested adding

[4] interviews with Flexchess Partners: MIW & LaSolar, March 18th, 2024 – 10:00 CET; interview with VPP4Islands Partner: Regenera, March 20th, 2024 – 15:00 CET; interview with Masterpiece Partner: UM (Juan Sanchez Valverde), March 18th, 2024 – 10:00 CET; interview with Masterpiece Partner: CERTH (Iakovos Michailidis), April 02, 2024 – 15:00 CET
[5] https://www.intnet.eu/
[6] One interviewee further suggested including acronym definitions (FAIR, RWTh, SCODIHNET, SGAM).

explanations directly within the visuals for the specific boxes. This could include short titles, footnotes, or renaming the boxes based on the feedback received.

One interviewee noted the value of including references to existing data space initiatives (International Data Spaces, Gaia-X initiative).

One interviewee questioned the "rarely used" classification for the "data ontologies" block, considering its importance for data sharing in data spaces.

One interviewee observed the absence of elements in the top left corner of the first visual and suggested incorporating more everyday uses in the top left corner. This interviewee also confirmed that the green boxes are effectively used by the Bridge projects, e.g. affirming affirmed the projects' compliance with 'the data management plan FAIR', the collaboration and exchange of information through BRIDGE and the resulting leverage – another example being the 'Data Management Plan' with specific terms and obligations related to GDPR, data fairness, data monetisation. Some guidance on and structuration of the 'open access repositories' would also be appreciated for Bridge and EU projects.

A recommendation for improvement was also formulated for avoiding overlaps and being more instrumental, for example it would be quite helpful to have a subtitle, a secondary sentence, one or two sentences per box [7]

Other recommendations for improvement were also discussed: for example, on the role of the BM canvas as a supporting tool. Adding explanations for each box would be beneficial. This point was a recurrent observation on the self-explanatory character of the proposed visual.

In general, the interviews highlighted the value of the figures for understanding data flow and the building blocks for designing business models with energy data spaces. We noticed that to tackle the apparent complexity, incorporating written descriptions, subtitles, references, and clarifications for each block will improve usability. Additionally, considering everyday use cases and connectors to existing data space initiatives (Gaia-X, International Data Spaces) could enhance the accessibility to the visuals.

Table 5: Overview of the collected feedback

Topic	Observations
Completeness of the visuals	Blocks identified by missing by projects (No repositioned suggested for the existing ones): – VPP4Islands: Intellectual Property (IP) components. – Masterpiece: Everyday use cases (top left corner of the visual). – Masterpiece: International Data Spaces connectors, Gaia-X initiative connectors.
Usability of the visuals from the perspective of R&I projects	All interviewees: Visuals are helpful for understanding data flow and the journey of project data. FLEXCHESS emphasised the importance of open data access and clear data direction. Masterpiece found the visuals directly applicable to their project. They use many of the blocks during platform development in many projects. Most of interviewees suggested written descriptions and clarifications for each block.
Other formulated	FLEXCHESS suggested exploring data exploitation and accessibility opportunities in

[7] For example, for partners' own policies on data 'Here we refer to […]'; For data ownership management box, 'here we refer to […]'; The idea is to be able to differentiate between the boxes effectively, and to understand our position while using these building blocks

suggestions	EU-funded projects, while Masterpiece recommended greater clarity by adding subtitles or explanations to each block, and recommended providing references/clarifications for the less understood blocks and acronyms.

During the 2nd round of interaction, the int:net project suggested interesting additions that were implemented directly in the visual. The interviewee also confirmed most of the points already addressed above such as the need for a terminology or a lexicon to introduce the blocks.

4.6.2 Feedback collected during the Bridge General Assembly

The Bridge General Assembly collected some direct audience feedback on the mapping presentation.

It was recognised that the interaction of the business model design (for R&I projects in the ETIP SNET domain) and common energy data spaces is missing at this stage and is usually addressed by ad hoc solutions by each R&I project. To tackle this gap, Task 3 has provided visuals to help BRIDGE projects identify how they approach or utilise data spaces. The proposed analysis enabled initiatives to be identified that are contributing to the domain and what facilitation they could propose to support Bridge projects in the design of quantitative business models for their innovation.

A new term emerged during the discussion at the General Assembly: the work presented could be considered as a kind of **cookbook**. Indeed, multiple building blocks have been listed and mapped, each of them redirecting a user (typically a R&I project aiming at designing a business model with quantitative data) towards methods or activable resources to support users in their mission.

The main suggestion was to increase interactivity and explainability. In this respect, the audience made various observations for further analysis of implementability by future Task 3 activity:

- For example, by defining a process based on sectors (filtered). This would enable a more synthetic guide that would be sector specific.
- The specification through maturity levels that was requested is in fact addressed by the 3-level colour code of the first visual.

- A dynamic tool that can facilitate the onboarding (how to join and what are value drivers) into data spaces was suggested as a next goal. This approach would indeed facilitate discovery, integration into and services creation as building blocks of business models. This point was well noted but raises some questions about the resources needed to carry out this work with a minimum standard of quality.
- Another suggestion was to specify at the higher level of each block what kind of data could be provided in each block and possibly to reorder them according to their nature.

4.7 Conclusions and next steps of Task 3

The work carried out in Task 3 consisted in pushing further the analysis initiated in 2022/2023, while keeping in mind the mission to support R&I projects in preparing their business models. The exploration confirmed the existence of multiple enabling tools and methods, justifying thus a clarification for non-expert R&I project users (non-expert meaning non-expert in business modelling).

The two visuals can help Bridge and EU projects to discover and better understand business modelling and the building blocks. This will in turn help projects to ensure seamless adoption and integration of CEEDS.

To that end, the two synthetic visuals aim to set a standard for such R&I projects. This standard is still not definitive with respect to the feedback collected:

- **Content-based –** while quite accepted in principle, some missing components or adjustment were proposed,

- **User-friendly –** multiple recommendations were formulated to improve accessibility to the guidelines and give it more impact.

During the state-of-the-art analysis, it appeared that multiple initiatives (beyond Bridge and ETIP SNET) are producing knowledge, guidelines, and standards on CEEDS. A direct recommendation shall thus be added in the Task 3 outcomes:

- **Interaction-based –** it is of prime importance to connect to some of the identified parallel initiatives or dedicated CSA projects to be further challenged and possibly contribute to their own thoughts.

In the very same category, we need to include another takeaway of the Task. More involvement and coordination with Data management and Regulation WGs would be needed. This could even take the form of a horizontal cross WG task force.

All in all, and as agreed during the Bridge EU GA meeting, the next activities shall at least include the following:

- The definition of an updated version of the two visuals synthesising building blocks and tools useful for Bridge R&I projects based on collected feedback,
- The connection to related ongoing works on common European energy data spaces.

5. Bridge Joint Webinar: Enhancing Collaboration and Knowledge Sharing

In February 2024, the Business Models Working Group (WG) of the BRIDGE initiative organised a joint webinar with the ETIP SNET Working Group 5 (WG5) on innovation implementation and the BRIDGE WG on regulations. This event enabled experts and stakeholders to share insights, discuss regulatory impacts, and explore innovative business models within the energy sector.

5.1 Agenda and Key Sessions

The webinar covered a range of points from both working groups, as shown by the agenda below:

ITEM	TIMING	SESSION
#1	12:00 - 12:05	**Welcome and Introduction:**
#2	12:05 - 12:12	**Business Models WG Presentation:** An overview of the ongoing tasks and achievements of the Business Models WG, highlighting key initiatives and future plans
#3	12:12 - 12:27	**ETIP SNET WG5: Regulatory Sandboxes** A presentation on regulatory sandboxes, their implementation, and impact on innovation within the energy sector.
#4	12:27 - 12:40	**Regulation WG Presentation:** Insights into regulatory challenges and solutions for advancing energy storage and smart grid technologies
#5	12:40 - 13:10	**Live Poll and Panel Discussion**: An interactive session featuring a live poll to gauge audience opinions, followed by a panel discussion with experts from both working groups.
#6	13:10	**Wrap Up and End of Meeting**:

5.2 Key Discussions and Outcomes

The interactive webinar focused on:

- Innovation and Business Models: Participants discussed the development of tools to assess service and solution benefits, the design of business models, and the importance of data value chains.
- Regulatory Frameworks: The discussion emphasised the need for flexible regulatory frameworks to support innovation and market integration, specifically through the use of regulatory sandboxes.

- Collaboration and Knowledge Sharing: The event highlighted the importance of collaboration between BRIDGE and ETIP SNET initiatives to leverage project results and address common challenges in the energy sector.
- The insights gained from the joint webinar are expected to enhance the ongoing work within both the Business Models WG and ETIP SNET WG5, fostering a more integrated and innovative approach to energy transition projects.

The joint workshop highlighted key insights from various working groups (WGs) with a particular focus on innovation in business models and the regulatory impact on the energy sector. The Business Models WG is working on standardising processes, comparing qualitative and quantitative methods, and investigating data value chains across different sectors. ETIP SNET WG5 emphasised the role of regulatory sandboxes in supporting innovation and integrating technology evolution into the market. The BRIDGE Regulation WG is focusing on sector coupling and leveraging synergies to overcome barriers. The main takeaways during the panel discussion were:

- the critical need for innovation in business models and regulatory impacts.
- emphasis on improving value delivery to customers and society to facilitate the energy transition, addressing low voltage flexibility regulation, system interoperability, data privacy, and large-scale data management.
- the importance of aligning current regulatory requirements with future compliance needs, highlighting European directives crucial for the energy transition.
- the need for consumer engagement and the implementation of effective business models through regulatory sandboxes to test practical applications.
- the role of new actors and intermediaries in creating consumer value and the necessity for regulatory evolution to support these innovations.
- identifying pilot sites and real-world investment projects to develop new business models based on load and product aggregation, aiming to create virtual energy communities across Europe for enhanced system security.

During the panel discussion, a Mentimeter session allowed participants to pose questions and share perspectives on business models and regulatory impacts in the energy sector. Key challenges identified included low voltage flexibility regulation, system interoperability, data privacy, and large-scale data management and aggregation.

Mentimeter key points	
1.	There was a clear call for aligning current regulatory requirements with future compliance needs, with participants highlighting the importance of adopting key European directives such as Directive 918 (2018-2001) and Directive 944 (2019). These directives, part of the Clean Energy Package, are crucial for advancing the energy transition across EU member states. Italy's proactive implementation of laws and funds for renewable energy communities was cited as a practical example of linking regulatory frameworks with real-world applications.
2.	Participants also stressed the importance of consumer engagement and the implementation of effective business models through regulatory sandboxes to test practical applications. New actors and intermediaries are seen as vital in creating value, necessitating an evolution in the regulatory landscape to determine roles and responsibilities clearly. The session concluded that fostering innovation requires identifying pilot sites and real-world investment projects that utilise field data, aiming to develop new business models based on load and product aggregation

	to create virtual energy communities across Europe for enhanced system security.
Conclusion	The joint webinar with ETIP SNET WG5 and WG on Regulations was useful step towards greater collaboration and knowledge sharing. The discussions will inform the future activities of the Business Models Working Group particularly in addressing regulatory challenges and leveraging innovative business models for the energy sector. Moving forward, the WG aims to continue building on these insights, fostering a collaborative environment that supports the successful implementation and scaling of innovative energy solutions across Europe. Specifically, the WG aims to connect with action 7 of the ETIPSNET WG5 in the next year focusing on market uptake.

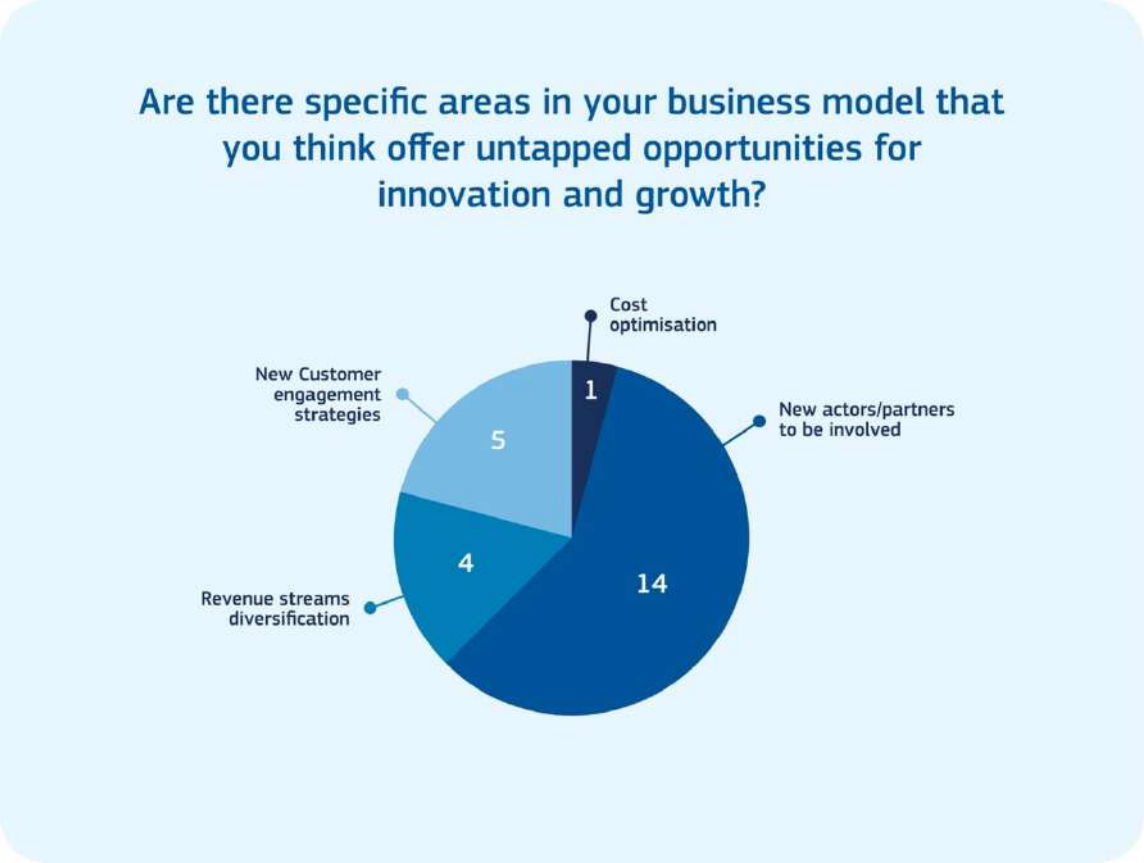


Figure 9: Mentimeter question 1

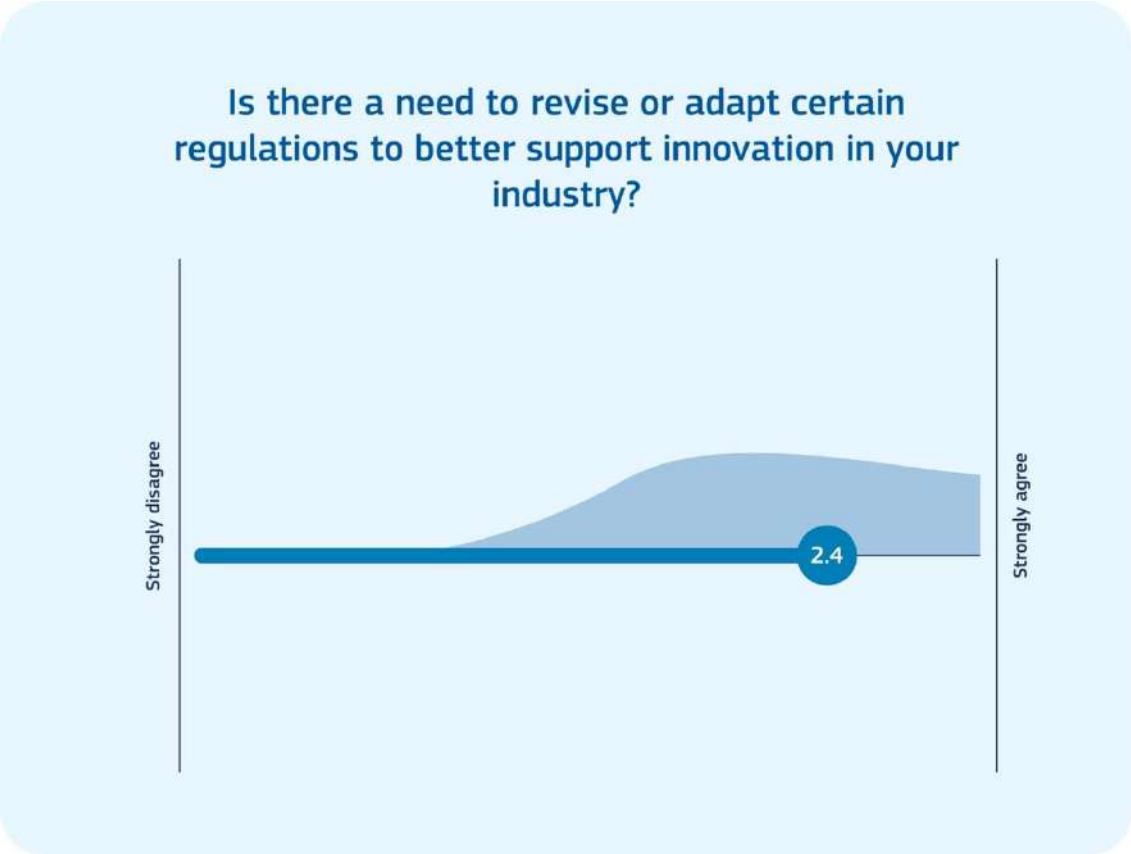


Figure 10: Mentimeter question 2

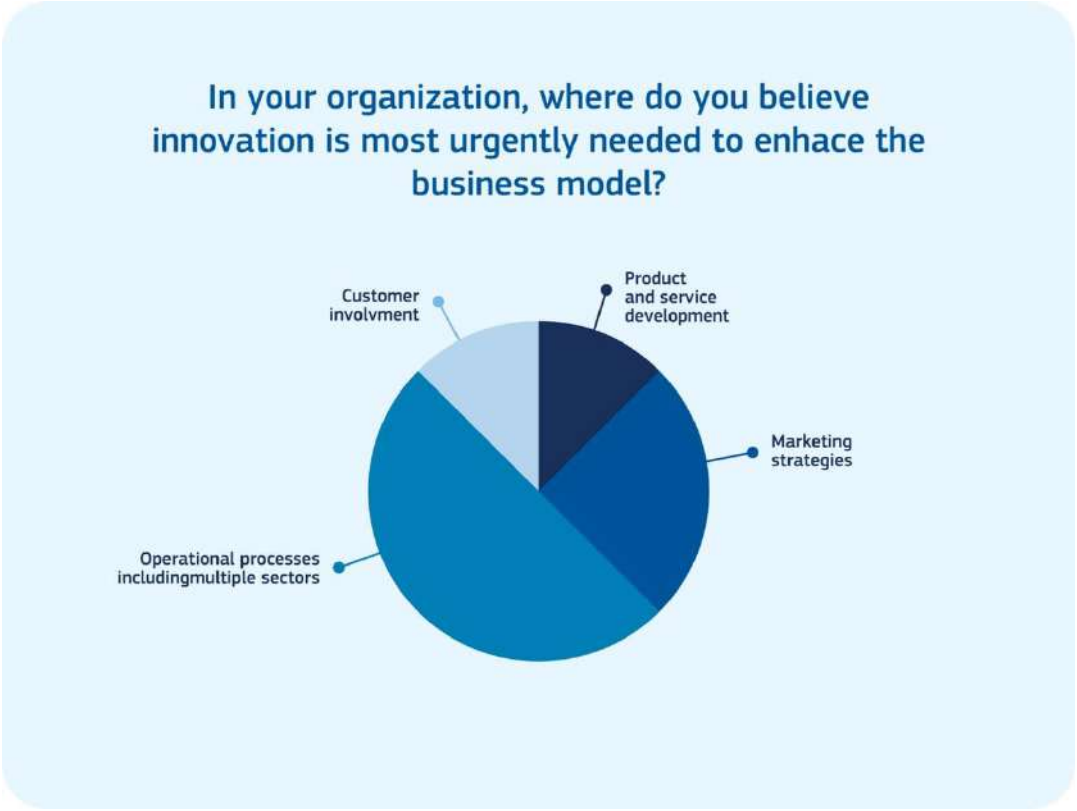


Figure 11: Mentimeter question 3

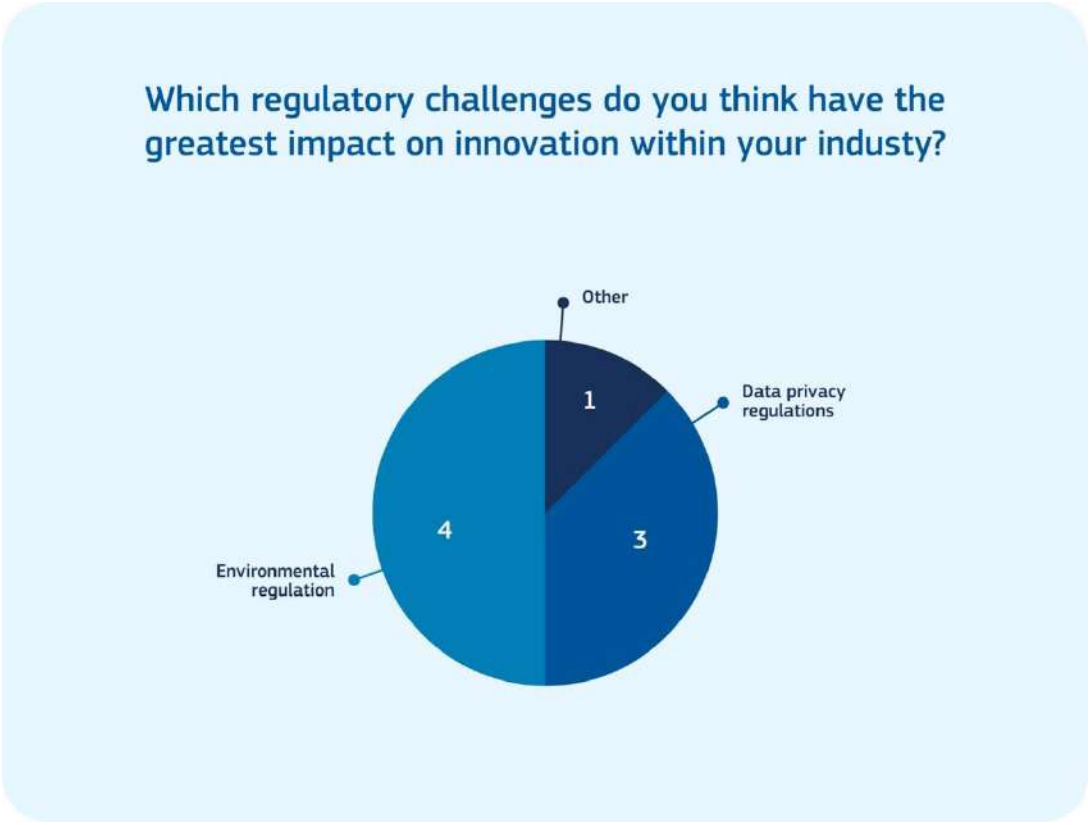


Figure 12: Mentimeter question 4

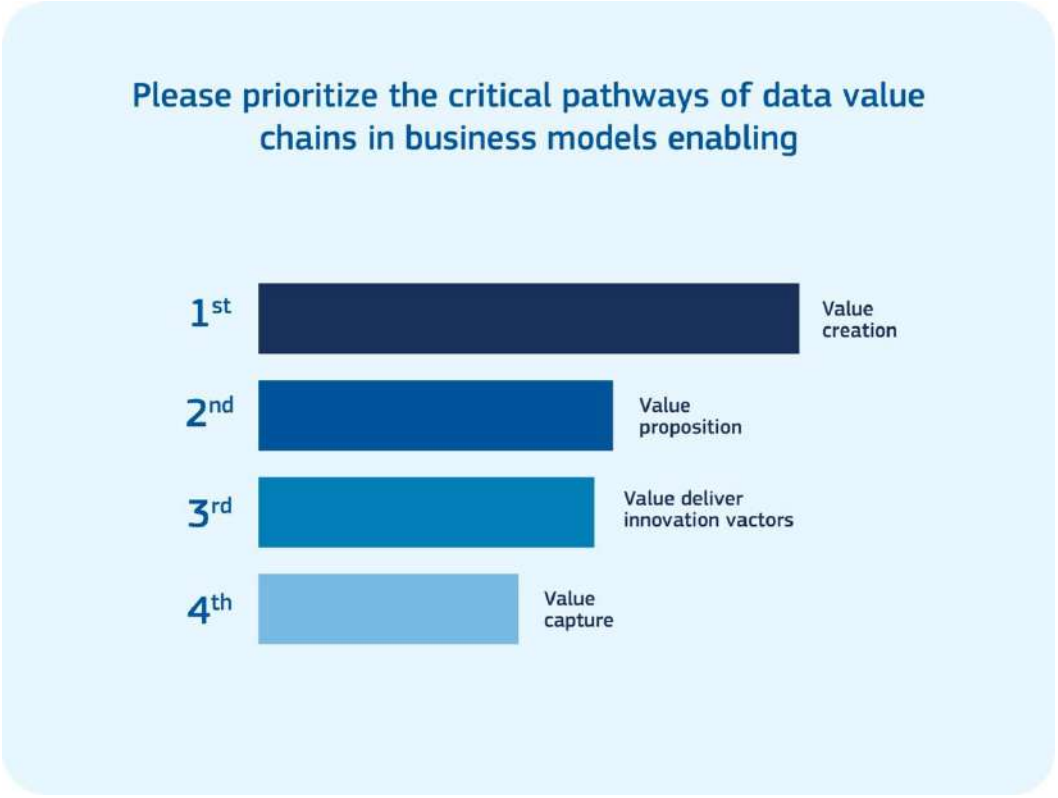


Figure 13: Mentimeter question 5

6. Synthesis of results and conclusions

The outcomes of Task 1, Task 2, and Task 3 have provided a robust foundation for the Business Model Working Group to delve deeper into future explorations and collaborative efforts. Recognising the need for future-proofing tools and methodologies, project delegates have underscored the importance of integrating the Business Model Canvas and Cost Benefit Analysis into an open-source platform. This initiative will enable projects to effectively capture and assess business models in an ever-evolving environment.

Collaboration among BRIDGE projects is essential for understanding how projects value and utilise data to meet their goals. By leveraging the use cases defined by the Data Management Working Group, establishing a use case repository and data set will offer critical guidance. This initiative aims to address the challenge of sharing sensitive data while supporting the creation of realistic business models, utilising open-access tools developed by EU projects and a repository of representative networks.

Task 1 highlights the necessity of developing a cost benefit analysis template to quantify value streams and standardising various business model analysis factors, including regulatory and market aspects.

Task 2 emphasises the importance of using structured use cases from the DM WG as references, particularly for gathering value and revenue data in local flexibility markets. To address the confidentiality of specific business cases, delegates propose using structured equations with predefined coefficients and parameters within ranges to quantify value streams. Additionally, incorporating the social aspect into the cost-benefit analysis is necessary for a holistic assessment of business models.

Task 3 underscores the importance of data valorisation in enhancing the cost effectiveness of new solutions and accelerating their market entry, aligning with EU priorities. Although data valorisation is currently addressed, there is potential to expand its coverage within project data management plans. By refining these plans and integrating guidelines, capturing data value can be more effective. The synergy between the BM WG and DM WG, leveraging use cases for data value analysis, presents promising opportunities.

Moving forward, the BM WG will maintain its focus on these tasks in the coming year, aiming to develop standardised approaches and methodologies that enable projects to create business models emphasising revenue and value streams. To realise this goal, the needs identified per task will be further investigated, supported by active project collaboration.

Future endeavours will include workshops to engage BM WG members, external stakeholders, and experts in discussions addressing identified issues. The 2023-2024 report for the EU will comprehensively document the progress and insights gained. Regular meetings with BRIDGE members will facilitate feedback collection and discussion of the BRIDGE survey findings. Additionally, the exchange of knowledge and best practices between the BM WG, DM WG and ETP SNET will foster cross-pollination of ideas. Through these collective efforts, the BM WG aims to unlock the full potential of business models within BRIDGE projects, supporting their replication and scaling in the market while advocating for sustainable and innovative solutions.

Annex 1 The BRIDGE BM WG Questionnaire

GENERAL QUESTIONS

1. Name of your project and call (open)
2. At which stage of your project, you are? (beginning (<12M, mid (12<-30M), end (M30-M36/M48))(to be set as multiple choice in the online)
3. Is your project product oriented or service oriented or both?(multiple in the online)
4. Which industry/field are you active in? (multiple choice Research/Academia, Technology Provider-Innovator, Operators- Suppliers, Aggregators/ ESCOs, Civil Society Representatives e.g. Municipalities, Energy Communities, etc., Energy Market actors, Other (please define)). Which current trends in your field do you see?(open)
5. Is there a public deliverable/report available related to the Business Models topic? If yes, please share the link or upload the PDF in the teams link or send mail (bridge_WG_BM_mail)

Task 1 related questions

A. Project name:
B. Project Description:
C. Start date of project:
D. End date of project:
E. Do you have a business model developed already?
F. Which tool did you use?
G. At which stage(s) would you like to have more guidelines?
H. Any particular highlight concerning your project you would like to do in the process of developing business ideas and business models?

Task 2 related questions

Instructions: Where a topic description refers to a TRL, the following definitions apply, unless otherwise specified:

- TRL 1 – basic principles observed
- TRL 2 – technology concept formulated
- TRL 3 – experimental proof of concept
- TRL 4 – technology validated in lab
- TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 7 – system prototype demonstration in operational environment
- TRL 8 – system complete and qualified

- TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)

ROI = (Cumulative profit – Investment) / Investment where cumulative profit is the EBITDA from Y1 after the end of the project and the Investment is the total funds used (including investment to reach the current stage of development before the EU grant, the EU grant itself and the own contribution of the applicants, if applicable).

1. Are you using a quantitative or a qualitative Business Model for your project?
    a. Quantitative
    b. Qualitative
2. In case you use a qualitive Business Model method, do you have a quantification method planned for the future?
    a. Yes (if yes, which one?)_____
    b. No
3. Which of the following parameters are taken into consideration for the Cost benefit Analysis of your Business Model?
    a. Socio-economic welfare
    b. CO2 variation
    c. RES integration
    d. Non-CO2 emissions
    e. Reduced electricity losses
    f. CAPEX
    g. OPEX
    h. Reduced Ancillary Service Cost
    i. Reduced Congestion Cost
    j. Reduced Equipment Failures
    k. Maintenance Cost
    l. Pay-Back Period
    m. Unadjusted Return on Investment
    n. Net Present Value
    o. Internal Rate of Return
    p. Benefit-Cost Ratio
    q. Other (please describe) _____
4. Does your Business Model consider any of the following energy company models:
    a. Energy Value Provider
    b. Energy + Home Services Provider
    c. ESCO (Energy Savings Company) model
    d. Aggregator
    e. Market Operator
    f. Energy Community
    g. Other? – Please specify _____
5. What is your main innovative products/services? (open and the interviewee needs to reply as many times as the project's products/services

5a. Who is the main market participant you are aiming at with this product/service? (this should be answered for each product/service separately)

5b. What would be the value proposition for this target user

5c. What was the TRL of the innovation developed in your project (for each Key Exploitable Result) at the beginning of the project?

a. TRL 1
b. TRL 2
c. TRL 3
d. TRL 4
e. TRL 5
f. TRL 6
g. TRL 7
h. TRL 8
i. TRL 9

5d What is the expected TRL of the innovations developed in your project (for each Key Exploitable Result) at the end of the project?

a. TRL 1
b. TRL 2
c. TRL 3
d. TRL 4
e. TRL 5
f. TRL 6
g. TRL 7
h. TRL 8
i. TRL 9

5e What is the expected price range of your Key Exploitable Results (products and services included)?

a. Less than 1.000€
b. Between 1.000€ and 10.000€
c. More than 10.000€

6. What is the expected Return of Investment (ROI) of your Key Exploitable Results at year 5 after commercialization?

a. Less than 4
b. Between 4 and 10
c. More than 10
d. ROI has not been calculated

Task 3 related questions

1. **Have you used business models as tools, or other approaches/methods, to evaluate the potential exploitable value when bringing data into a project? (Q1)**

For e.g. using a business model canvas or value proposition canvas to assess the future potential business value for_____different data typesets:
For example bringing in structure data, unstructured data, event processing, sensor networks, protocols, real-time, data streams, multimodality

2. **Have you used business models as tools to evaluate the potential exploitable value when analysing data during the project? (Q2)**

For e.g. using stakeholder circle or value proposition canvas to adjust or include types of analysis methods/data gathering for the benefit of future exploitation beyond the project.
For example: when performing stream mining, semantic analysis, machine learning, information extraction, linked data discovery, semantic ecosystems, community data analysis, cross-sectorial data analysis.

3. **Have you used any business models, or other approaches/methods, to evaluate the potential exploitable value when creating, organizing, and maintaining your data sets? (Q3)**

For e.g. using value proposition canvas or innovation radar when organizing and validating data sets. For example when, ensuring data quality, trust/provenance, annotation, data validation, human-data interaction, top-down/bottom-up, community/crowd, human computation, curation at scale, incentivization, automation, interoperability,

4. **Have you used any business models, or other approaches/methods, to evaluate the potential exploitable value when storing your data? (Q4)**

For e.g. using value proposition canvas or innovation radar when choosing which type of cloud storage. For example, when deciding to use in-memory DBs, NoSQL DBs, NewSQL DBs, cloud storage, query interfaces, Scalability and performance, data models, consistency, availability, position-tolerance, security and privacy, and Standardizations.

5. **Have you used any business models, or other methods/tools, to evaluate the potential exploitable value when using your data? (Q5)**

For e.g. using value proposition canvas or innovation radar to decide which types of simulations to prioritize. For example, when its used to support decision-making, prediction, in-use analytics, simulation, exploration, visualization, modelling, control, domain-specific usage.

Interview questions of Task 3

Q1: How would your project describe the value of data for your project and future exploitation?

For example: did the project use any business model tools as a part of the preparation for the proposal, used during technical development related to the data (itself)?

Have there been or are there plans for hosting dedicated sessions related to how the generated data can be exploited beyond the project?

*Have there been any **indirect** insights that has led to decisions been made regarding gathering, storing, or describing data that was brought into or have been generated during the project?*

If nothing of the above is applicable, please describe why.

Q2: How would your project describe the data that is used or generated in your project to describe the value of your business models?

For example, are there any instructions in the data management plan on how data should be stored for future exploitation within the project exploitation plan?

*Is the data generated during the project being used as a part of the business model for the project as a part of the **value offering** to future potential customers?*

*Is the data stored, described, and packaged in a way that it **potentially** (even if no decisions have been made or there are no intentions to transfer it to a 3rd party) can be shared with a 3rd party?*

Have there been any indirect insight been generated as a consequence of the project regarding the exploitation of data (within or outside of the project) as a part of your or other organizations business models/value proposition?

If nothing of the above is applicable, please describe why.

Q3: How are you planning to monetize or generate additional value from the data used or generated in the project?

For example, have there been decisions made within the project or for you as a partner on how data generated during the project can be used (future Horizon calls?)

Has the project used any business model tools to explore how the data can be used, sold, or transferred in any other ways?

Are there any explicit plans to, to the best of your knowledge, among project partners or within your organization to package, describe and store data generated in the project, or data that will be generated in the future in a way that it can be monetized beyond the scope of the project?

Is your organization or, to the best of your knowledge, other project partners planning to use business model tools as a way to identify monetization opportunities of the data that have been generated during the project, or data generated in the future?

If nothing of the above is applicable, please describe why.

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