

BRIDGE

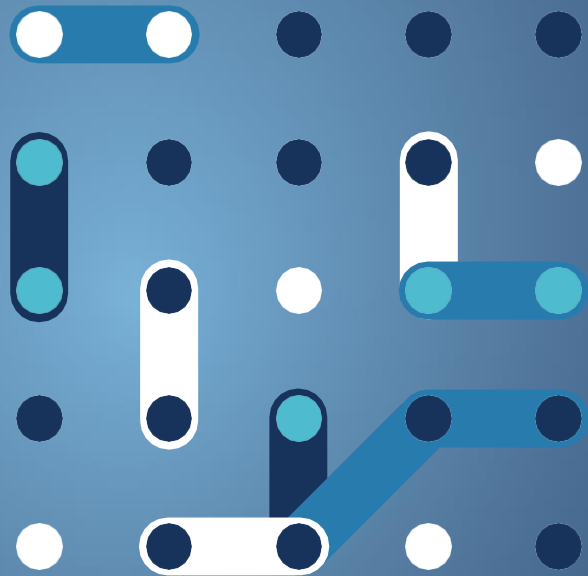
DATA MANAGEMENT WORKING GROUP

July 2022

2022-2023 WORKPLAN

Bridge

Data Management WG





WORK GROUP INFORMATION

Bridge WG Chairmanship

- *Olivier Genest, Trialog – WG Chair and Leader of “Interoperability of flexibility assets” action*
- *Kalle Kukk, Elering – Leader of “EU data exchange reference architecture” action*
- *Lola Alacreu-Garcia, ETRA I+D – Leader of “BRIDGE repository” action*
- *Eric Lambert, EDF – Leader of “Contribution from BRIDGE projects to standardisation” action*

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European Commission

- *Directorate-General for Energy, Unit B5 “Innovation, research, digitalisation, competitiveness” – European Commission*
- *Directorate-General for Communication Networks, Content and Technology, Unit E4 “Internet of things” – European Commission*
- *CINEA, European Climate, Infrastructure and Environment Executive Agency – European Commission*



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1.1 Introduction

The Data Management Working Group (WG) aims to cover a wide range of aspects ranging from the technical means for exchanging and processing data between interested stakeholders to the definition of rules for exchange, including security issues and responsibility distribution in data handling. Accordingly, the WG has identified 3 areas of collaboration around which mutual exchange of views and discussions have been set:

- **Communication Infrastructure**, embracing the technical and non-technical aspects of the communication infrastructure needed to exchange data and the related requirements;
- **Cybersecurity and Data Privacy**, entailing data integrity, customer privacy and protection;
- **Data Handling**, including the framework for data exchange and related roles and responsibilities, together with the technical issues supporting the exchange of data in a secure and interoperable manner, and the data analytics techniques for data processing.

1.2 Key objectives and actions

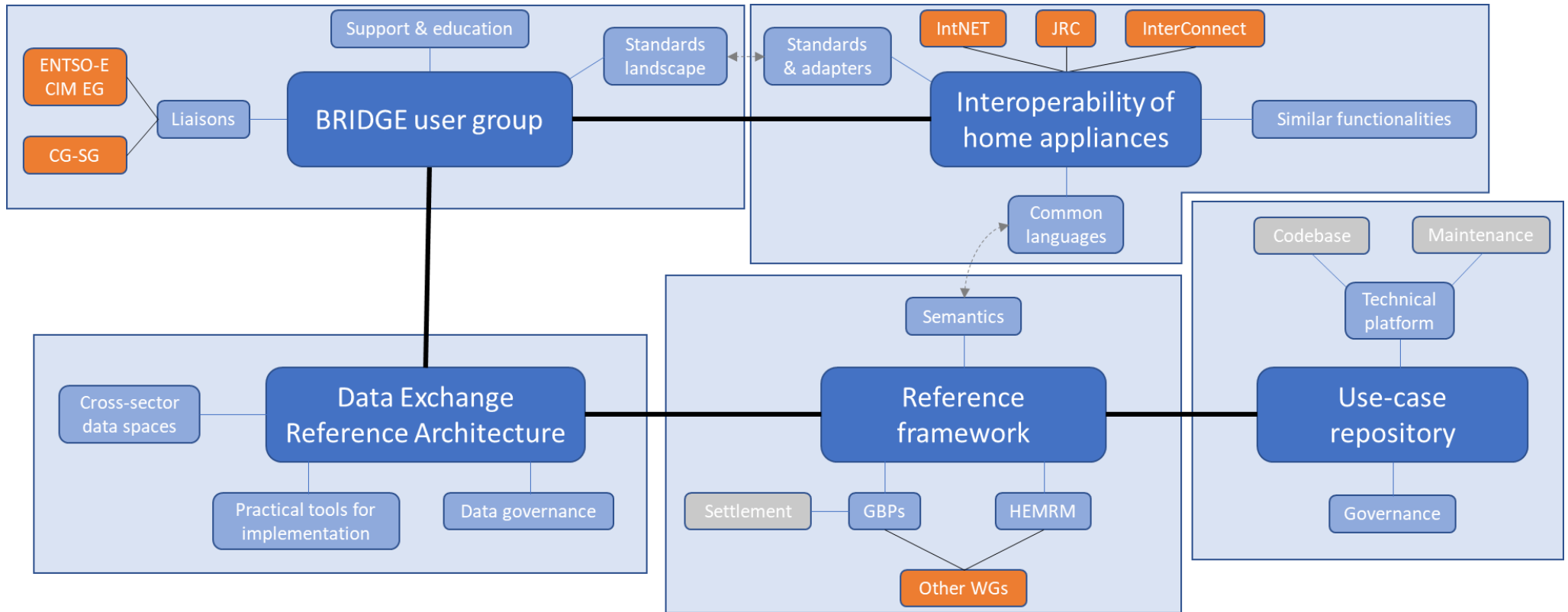
Based on the conclusions of 2022 BRIDGE General Assembly, in particular parallel sessions 4.1 and 4.2 related to data management, the WG is willing to address 5 topics in 2022:

- BRIDGE use-case repository (*continuation*)
- Data Exchange Reference Architecture (*continuation*)
- Reference framework (*continuation and extension*)
- BRIDGE user group (*continuation*)
- Interoperability of home appliances (*new*)





The diagram below shows the overall interaction between these 5 topics, which are detailed in this document.





1.3 Action #1: BRIDGE use-case repository

1.3.1 Description and objectives

The objectives of the BRIDGE use-case repository are:

- To simplify and homogenise the definition of use cases for users with different background;
- To provide an overall view of all the projects Use cases in a simple format;
- To provide data set with detailed information for cross-project analysis;
- To identify similarities between projects;
- To ease the reuse of existing use-cases and solutions from past/on-going projects.

The BRIDGE use-case repository should host use-cases description, based on IEC 62559 (based on libraries, roles model and/or frameworks to harmonize the description of the use-cases). It could also host role models (in cooperation with Regulation WG, including other energy vectors such as heat, gas, ...) and/or description of used solutions/standards (e.g. standards usage (where, what for, how it went), gaps (i.e., missing solutions/standards or missing features), extensions (incl. CIM profiles, ...)).

A first use case repository has been developed in an iterative process that allowed the projects to evaluate the tool and send feedback for improving the repository in the new versions. The next step is now to integrate it with the EC platforms, make it fully operational and increase its use and visibility:

- Several options are under consideration for the integration: integration of the current tool within BRIDGE website (but with technical limitations); re-use and adaptation of EIRIE use-case platform; ...
- The UC repository governance and the associated tools and processes should be defined (incl. codebase management, support to users, content moderation, features prioritization, ...).
- More use-cases from BRIDGE projects should be added to the UC repository.

1.3.2 Workplan

1. Pursue the work with EC, SPRING and PANTERA (EIRIE) to select the most suitable option for the UC repository and set it up according to BRIDGE needs.
2. Define the future governance of the UC repository:
 - About the tool: how the codebase will be managed? how the new requests will be processed? who will support the users? etc.
 - About the content: who will moderate the content of the use-cases? how the use-cases lifecycle will be considered? etc.
3. Collect use-cases from more and more BRIDGE projects.
4. Explore and prioritize additional identified items: group the use-cases; integrate the UC repository into the HEU work programme; use a standard vocabulary (roles, functions) for UC description; open access beyond BRIDGE; align with Smart Grid Task Force (SGTF) use cases.

1.3.3 Link with other actions

- The BRIDGE repository might use the Reference Framework from Action #3 as one of the “libraries” to harmonize use-cases descriptions.
- The use-cases from the BRIDGE repository might be used by Action #4 in relation to CEN-CLC-ETSI and IEC activities related to Smart Energy use-cases and requirements. Also, interoperability between the BRIDGE use-case repository and the IEC use-case management repository (UCMR) should be explored.



1.4 Action #2: Data Exchange Reference Architecture

1.4.1 Description and objectives

The EU data exchange reference architecture has been defined in 2020 and elaborated in 2021/2022 – called DERA 2.0. The work on DERA aims at contributing to the discussion and practical steps towards truly interoperable and business process agnostic data exchange arrangements on European scale both inside energy domain and across different domains.

DERA 2.0 is the improved version according to further input from several projects and external parties. This includes updating the reference architecture, reviewing the recommendations associated to it as well as preparatory steps for cross-project data exchange implementation. DERA is based on SGAM (Smart Grid Architecture Model).

In 2022 General Assembly it was concluded:

- The main target of the session was to discuss on next steps. However, it could be concluded that while the reference architecture is quite mature (though probably can never be “ready”) its practical usability should be considered. Also, it was recognised that DERA is a useful building block of the Data Space and should be therefore considered in DoEAP.

1.4.2 Workplan

Possible BRIDGE activities related to data exchange reference architecture planned for 2022/2023:

1. Continue pilot implementation of the reference architecture, including the steps like
 - a. Mapping to SGAM (e.g. using SGAM Toolbox);
 - b. Data modelling, profiling;
 - c. Implementation/development.
2. For improved visualisation model the reference architecture, e.g. by applying Unified Modelling Language (UML).
3. Follow the implementation of individual recommendations related to reference architecture.
4. Add data governance layer to the reference architecture.
5. Engage closely new projects funded through Horizon Europe call on Energy Data Spaces.
6. Contribute to Digitalisation of Energy Action Plan (DoEAP)
 - a. On strategic level – ensure the inclusion of cross-sector perspective, interoperability of sectorial data spaces and governance aspects;
 - b. On operational level – benefit from BRIDGE data exchange reference architecture.

1.4.3 Link with other actions

- Link with other BRIDGE activities related to use case repository, smart energy standards user group and asset interoperability framework is required. The methodology for describing Generic Business Processes and the repository for storing use cases can be leveraged by using the same approach for other electricity sector (i.e. not only flexibility market processes related) data exchanges as well as for cross-sector data exchanges.





1.5 Action #3: Reference Framework

1.5.1 Description and objectives

A methodology and reference framework have been defined in 2020 to enable the interoperability of flexibility¹ assets based on the analysis of the solutions implemented in the projects. This reference framework, in particular through the definition of Generic Business Processes (GBPs) used as the common denominator between similar use-cases from different projects, has been enhanced in 2021 to cover more flexibility-related use-cases and apply it to a larger number of projects.

During the BRIDGE General Assembly of March 2022, the added value of this reference framework has been recognized to support the interoperability and the harmonization of the roles and processes. It has then been decided to (1) extend it to cover use-cases beyond flexibility and also cross-sector use-cases and (2) further investigate the flexibility settlement subprocess.

1.5.2 Workplan

1. Identify and develop within the group of active contributors a number of new Generic Business Processes beyond flexibility and covering cross-sector use-cases, including the necessary adaptation of the reference framework approach (e.g. roles, ...).
2. Further investigate the Flexibility settlement subprocess with a small groups of projects implementing it in their project.
3. (Option) Implement the Reference Framework into the use-cases repository (e.g. library of roles and processes)

1.5.3 Link with other actions

- The “reference framework” can be used by the “use-case repository” as the common denominator between the projects for their use-cases descriptions (e.g. through roles and processes library).
- The “reference framework” is one of the components of the “DERA” to enable interoperable data exchange.
- The “reference framework” will enable the “BRIDGE user group” to identify the solutions used by the projects as an input to its standards landscape.
- The “reference framework” will support the “interoperability of home appliances” by identifying the data to be exchanged, the concerned actors and the final purpose.

1.6 Action #4: BRIDGE user group

1.6.1 Description and objectives

BRIDGE builds a collective knowledge, at system level, including outcomes such as a catalogue of standards (existing solutions, identified gaps, ...), practices related to standards (feedback, recommendations, proposed extensions, ...), and possibly the feedback from the scale-up and roll-out following finished projects. This collective knowledge should contribute to European and international standardisation. Also, BRIDGE projects often explore complex models, that might not be addressed by existing standards and there could be relevant to raise to standardization committees.

BRIDGE will contribute to standardisation:

¹ In this study, “flexibility” means the ability to change energy consumption or generation in reaction to an external trigger (signal, measure, market, ...), whatever the flexibility source, i.e. it covers both demand-side and generation-side flexibility, including vehicle-to-grid, storage, ...



- Based on BRIDGE collective knowledge and experience (see above);
- Contributions will be pushed:
 - (1) through projects' partners involved in standardization;
 - (2) through a user group with official liaison with the standardization committees;

Also, SDOs can directly provide benefits to BRIDGE projects:

- Coordination groups (or system committees) such as CG-SG have built a methodology and a landscape to help identifying and using the right standard for the right purpose.
- Some SDOs may also provide draft standards to R&I projects for free – the purpose for SDOs is to collect implementation feedback during the early phases of the standards development process.

To achieve this bidirectional cooperation, a BRIDGE user-group will be created:

- Its scope will be to cover “Smart Energy Standards”, including but not limited to IEC CIM, SGAM, IEC 62559, ...
- Its purpose is to educate users, share knowledge and provide support on the use of specific standards (e.g., IEC CIM), and collect feedback and proposed modifications
- It will establish official liaisons with CEN/CLC/ETSO CG-SG and ENTSO-E CIM Expert Group

1.6.2 Workplan

1. Establish an official liaison with CEN/CLC/ETSI CG-SG and ENTSO-E CIM EG
2. Launch the first activities of the BRIDGE User Group:
 - a. Education of BRIDGE projects on CG-SG methodology and standards
 - b. Support of BRIDGE projects on standards' use
 - c. Discussion on standards maintenance requests

1.6.3 Link with other actions and other BRIDGE working groups

The results from all the Data Management WG topics will be used to feed the contribution to standardisation. A liaison with other BRIDGE working groups could be established like the Regulations working group which has proposed extensions to the Role Model in 2021.

1.7 Action #5: Interoperability of home appliances

1.7.1 Description and objectives

During the BRIDGE General Assembly of March 2022, the European Commission requested to organise a specific session on the interoperability of home appliances, starting from the past, on-going and upcoming activities of InterConnect H2020 project (interoperable and smart homes and grids), EC DG Energy and Joint Research Center (JRC) (energy smart appliances) and IntNet HE project (interoperability community support action).

During this session it was identified in particular that many work has been performed since 2012 (Ecodesign WP, JRC SGIL, SMART studies (leading to SAREF), InterConnect) and further work is planned (IntNET, OneNet forum, LCA Data, SmartBuilt4EU, ...). Also, it was raised that several projects have faced the issue of interoperability of home appliances and that most projects rely on a common language and adapters.

It was finally concluded that synergies between the projects should be explored: (1) at technical level, i.e. what are the “common languages” and adapters used by the projects and how are they similar or different, and (2) at functional level, i.e. what are the functionalities/scenarios provided by the appliances in the projects and how are they similar/different. This could possibly lead, if significant synergies are identified, to an open source repository of adapters.





1.7.2 Workplan

1. Characterize and compare the solutions used by BRIDGE projects to achieve home appliances interoperability, in particular the used “common languages” and the developed adapters
2. Investigate the functional commonalities of home appliances among BRIDGE projects

1.7.3 Link with other actions

- The “interoperability of home appliances” will reuse the previous work of the “reference framework” in particular as an input to identify the data to be exchanged for flexibility, the concerned actors and the associated functions.
- The “interoperability of home appliances” will identify “common languages” and adapters in cooperation with the “BRIDGE user group” and its standards landscape.

1.8 Outcomes

The expected outcomes are:

BRIDGE use-case repository

- Governance and processes for the BRIDGE use-cases repository (*report*)
- BRIDGE use-case repository scaled-up and integrated into the BRIDGE website (*demo*)

Data exchange reference architecture

- Updated DERA report, including the addition of governance layer, review of the status of recommendations, modifications to DERA (if needed), practical usability, improved visualisation, modelling of the architecture, contribution from new projects (on data spaces, using last year’s survey template).

Reference framework

- Update of the Reference framework, incl. settlement subprocess (*report*)

BRIDGE user group

- Report of BRIDGE user group activities (*report*)

Interoperability of home appliances

- Identification and analysis of the solutions used by BRIDGE projects to achieve home appliances interoperability (common languages, adapters) and of the appliances’ function/scenarios (*report*)

1.9 Organisation

- Action #1 “BRIDGE use-case” will be led by Lola Alacreu Garcia
- Action #2 “Data exchange reference architecture” will be led by Kalle Kukk
- Action #3 “Reference framework” will be led by Olivier Genest
- Action #4 “BRIDGE user group” will be led by Eric Lambert
- Action #5 “Interoperability of home appliances” will be led by xxx yyy

Each of the action leaders will manage several groups with different expected contributions:

Action #1: UC repository

Leader (Lola / ETRA)	Main contributor (Markus / RWTH)	All the DMWG members
To select the most suitable option for the UC repository and to set it up. To coordinate the report writing.	To support in the set up of the selected option for the UC repository. To contribute and revise the report writing.	To test the UC repository new functionalities. To upload use-cases to the UC repository.





To implement new functionalities and improvements in the UC repository.

Note: the governance definition is expected to be discussed/decided at BRIDGE level (involving Action leader (Lola), WG Chair (Olivier), SPRING (Marcos), EC (DG ENER/CINEA))

Action #2: DERA

Leader (Kalle)	Active contributors	All the DMWG members
Coordinating the work.	Each active contributor to be in charge of at least one of the sub-topics (as listed in §1.4.2). There may be more than one active contributor per sub-topic.	New projects to be requested to answer the last year's survey. All to review the updated report.

Action #3: Reference framework

Leader (Olivier)	Active contributors	All the DMWG members
Coordinate the action and the report	(subgroup 1) Identify and develop new Generic Business Processes (subgroup 2) Further investigate the Flexibility settlement subprocess (all) Write the report	Review the Generic Business Processes and the Flexibility settlement subprocess Review the report

Action #4: BRIDGE user group

Leader (Eric)	BRIDGE User Group members	All the DMWG members
Establish the liaisons with CG-SG and ENTSO-E CIM EG Define the user group processes and coordinate the user group activities Coordinate the action and write the report	Share experience on standards and provide contributions	Join training sessions, if relevant

Action #5: Interoperability of home appliances

Leader (TBD)	Active contributors	All the DMWG members
Initiate the methodology Coordinate the action, the survey and the report	Define the methodology and prepare a survey to collect data from projects. Analyse the data from the projects and write the report.	Reply to the survey to provide data about how home appliances interoperability is achieved

Regular (monthly?) follow-up meetings will be organised with the Chair, Leaders and Support team to track progress and agree on next steps.





1.10 Planning

A questionnaire will be launched in early September 2022 to identify leaders and contributors to each of the WG Actions.

The workplan will be supported by 3 WG meetings:

MTG ID	TOPIC	APPROX. DATE	DURATION
1	<i>Kick-off meeting for 2022 workplan</i> During this meeting, the 2022 workplan will be presented to the WG members. Questions will be answered and comments taken into account.	2 nd half of September 22	1 hour
2	<i>Mid-term meeting</i> Each action will share its progress, in particular to describe the defined requirements, processes, frameworks, etc. Comments from projects and EC will be collected and taken into account.	End of November 22	3 or 4 hours
3	<i>Conclusion meeting</i> Each action will share its results and preliminary conclusions and recommendations. Based on the discussion with the projects and EC, the final conclusions and recommendations will be agreed	End of February 23	3 or 4 hours

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