Minutes BRIDGE Topics meeting

Cybersecurity and Resilience Meeting

Data Management WG

TSO-DSO Cooperation Meeting

Data Management & Regulations WGs

23rd October, Brussels

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Morning session: Cybersecurity and Resilience - Attendance list

FIRST NAME	LAST NAME	PROJECT / ORGANISATION
Priit	ANTON	EU Sysflex
Coralie	BADAJOZ	BRIDGE Support Team
Marco	BARON	COORDINET
Pailine	CARONI	BRIDGE Support Team
Aris	DIMEAS	CROSSBOW/TRINITY
Domenico	FERRARA	EUROPEAN COMMISSION
Olivier	GENEST	InterFlex & GIFT & InterConnect
Nikos	HATZIARGYRIOU	ETIP SNET
Isidoros	KOKOS	E-LAND
Michaela	Kollau	European Commission
Ursula	KRISPER	Interrface
Aleksandra	KRKOLEVA	CROSSBOW
Kalle	KUKK	EU-SysFlex
Eric	LECOMTE	EUROPEAN COMMISSION
Ilaria	LOSA	BRIDGE Support Team
Carlos	MADINA	CoordiNet
Nicolas	PERAUDEAU	BRIDGE Support Team
Stéphanie	PETIT	BRIDGE Support Team
Lucas	PONS	CROSSBOW
Valerie	REIF	INTERRFACE
Manuel	SERRANO	CROSSBOW
Heribert	VALLANT	STORY
Mark	VAN STIPHOUT	EUROPEAN COMMISSION
Ioannis	VLACHOS	CROSSBOW
Achim	WOYTE	INEA

Afternoon session: TSO-DSO cooperation - Attendance list

FIRST NAME	LAST NAME	PROJECT NAME
Priit	ANTON	EU-Sysflex
Patricia	ARSENE	EUROPEAN COMMISSION
Coralie	BADAJOZ	BRIDGE Support Team
Marco	BARON	COORDINET
George	BOULTADAKIS	INTERRFACE
Pailine	CARONI	BRIDGE Support Team
Norela	CONSTANTINESCU	INTERRFACE
Alessandra	CUNEO	MUSE GRIDS
Olivier	GENEST	InterFlex & GIFT & InterConnect
Helena	GERARD	EU-Sysflex
Nikos	HATZIARGYRIOU	ETIP SNET
Gregory	JARRY	InterFlex
Kris	KESSELS	CoordiNet
Ursula	KRISPER	INTERRFACE
Aleksandra	KRKOLEVA	CROSSBOW
Kalle	KUKK	EU-SysFlex
Ilaria	LOSA	OSMOSE
John	LOWRY	EU-SysFlex
Carlos	MADINA	CoordiNet
Laura	MÉTÉNIER	INTERFLEX
Nicolas	PERAUDEAU	BRIDGE Support Team
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Fabio Mauricio	SENA DE OLIVEIRA	TDX-ASSIST
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Dario	SIFACE	OSMOSE
Dimitris	TRAKAS	CoordiNet
Heribert	VALLANT	STORY
Mark	VAN STIPHOUT	EUROPEAN COMMISSION
Ioannis	VLACHOS	CROSSBOW
Elias	ZAFEIROPOULOS	FLEXITRANSTORE

Agenda – 23/10/2019

Cybersecurity and Resilience Meeting

9:00-9:15	*Arrival and registration of participants (& coffee)*
9:15-9:45	Introduction by the Commission *Eric Lecomte (DG ENER)* Policy context: *Michaela Kollau (ENER), Domenico Ferrara (DG CNECT)*
9:45-10:05	Introduction of the report: questionnaire, panel of projects, report structure, main learnings and results, …), *Olivier Genest*
10:05-10:45	Interactive session #1 "Experience from projects: issues, barriers and recommendations", *led by Isodoros Kokos*
10:45-11:00	*Coffee break*
11:00-11:40	Interactive session #2 "Cybersecurity certification framework", *led by Heribert Vallant*
11:40-12:00	Wrap-up: main recommendations and topics of interest for future work, *Olivier Genest + Commission*
12:00-12:30	Action plan for the next period of work, *Olivier Genest + Eric Lecomte Michaela Kollau (DG ENER), Domenico Ferrara (DG CNECT)*
12:30	*End of the meeting*
12:30-13:30	*Lunch (only for participants to the morning session)*

TSO DSO Cooperation Meeting

13:30-14:00	*Arrival and registration of participants (& coffee)*	
14:00-14h30	Introduction by the Commission, *Mark van Stiphout* Policy context : *Manuel Sanchez-Jimenez (DG ENER)*	
14:30-14:50	Joint introduction of the report (10 min for each WG), *Helena Gerard and Gregory Jarry*	
14:50-15:00	Guidelines for the workshop	
15:00-15:50 Parallel session 1	**Round 1: Roles and responsibilities** (Agreement on key recommendations coming out of the survey from *Regulations WG*) Room DM24 03/47 *Helena Gerard and Gregory Jarry*	**Round 1: Roles and responsibilities** (Agreement on key recommendations coming out of the survey from *Data Management WG)* Room DM24 03/58 *Kalle Kukk*
15:50-16:00	*Coffee break*	

16:00-16:50 Parallel session 2	**Round 2: Regulatory barriers for replicability of services and coordination models** (Agreement on key recommendations coming out of the survey from *Regulations WG*) Room DM24 03/47 *Helena Gerard and Gregory Jarry*	**Round 2: Data models and standards** (Agreement on key recommendations coming out of the survey from *Data Management WG)* Room DM24 03/58 *Olivier Genest*
16:50-17:40	- Wrap up of the conclusions of the parallel sessions (Rapporteurs) - Discussion of next steps and action plan for the next period of work *Regulation and Data Management Chairs + Commission*	
17:40-18:00	Conclusion from the discussions *Regulation and Data Management Chairs + Manuel Sanchez-Jimenez, Marc van Stiphout (DG ENER), Patricia Arsene (CNECT)*	
18:00	*End of the meeting*	
19:00	*Diner*	

SUMMARY

PPT presentations will be uploaded in the restricted area of the BRIDGE website.

1) Conclusions from the sessions

a) Conclusions of the session on Cybersecurity and Resilience: general and follow-up work

The content of the draft report is in line with EC expectations and the BRIDGE projects generally agree with the findings and recommendations. This report will be finalized in order to release a first version before the end of 2019. Its content will be presented during the next BRIDGE General Assembly.

Regarding the potential future work for 2020:

- **EC recommendations on cybersecurity for energy**: nothing to be done in short term, EC is waiting for the feedback from the Member States.
- **Liaison with SU-DS04-2018 projects**: it seems relevant to build a clear vision of what is being developed in these projects and how these solutions could answer to BRIDGE projects' concerns.
- **Sharing of information about threats and attacks between actors**: this idea should be further explored, e.g. what data? for which purpose? between who? …
- **Cybersecurity certification**: EC is interested to know if some energy-specific certification schemes would be required and what would be their purpose. This work should be based on ESCO's state of the art of existing national schemes, should identify the gaps and should consider harmonization between Member States. This word could be based on the practical analysis of one or several BRIDGE projects. At the request of the Data WG, this certification should explore synergies with the work on interoperability, in particular for appliances, to see if such certification can be combined with certification of interoperability.

A proposed approach for this work should be presented and discussed during the next BRIDGE General Assembly in February 2020 (most probably on 11th and 12th).

b) Conclusions of the session on TSO-DSO cooperation: general and follow-up work

WG Regulation:

Recommendations emerged from October 23rd workshop:

- Regulation evolution appears as the main challenge for demos' replicability. Among the regulatory barriers, the evolving role of the DSO is considered as a major change. Therefore, beyond allowing DSOs to use flexibility, it is advised to actively incentivize the DSOs to use flexibility via:
    - Remuneration mechanisms (OPEX/CAPEX)
    - Regulatory sandboxing
    - Promotion of good examples from projects where the use of flexibility is considered cost efficient
- Standardization of products for flexibility is under discussion. Indeed, standardization decreases complexity for flexibility providers and increases price transparency. However, a more flexible approach could be a better trade-off, e.g. by defining products ranges or by moving away from products towards a definition of flexibility as a set of technical parameters.

Further work is required on some topics:

- In the field of network planning, coordination between TSO and DSO, and the inclusion of flexibility should be improved;
- Many projects that use role models start from the Harmonized Role Model (developed by ENTSO-E and the associated organisations EFET and ebIX) and adapt these models further to the particular needs of the project in order to describe their innovations. It is advised to map the changes made by the different projects: this information could be used for future revisions of the HRM and ebIX model, and shared with the projects at their start to facilitate a definition of roles common to all demos.

The market operator role should be clarified: it is advised to follow up with the projects what are the arguments developed in favour or against commercialization of certain activities related to market operation. WG Data Management:

Summary of some key recommendations from the survey and discussed in round sessions:

- SGAM as starting point
- Basic principles of data platform operation. Single platforms/governance vs standards and rules vs open source
- Ensure interoperability of platforms. Identify existing data platforms with European ambition. Cooperation with other sectors – e.g. through appropriate Horizon2020 calls
- Cooperate in developing use cases. Establish use case repository for H2020 projects
- Projects should share the role definitions between themselves and align where possible. New roles to be identified and recommended to Harmonized Role Model (HRM)
- CIM as basis for modelling
- Identify gaps in interoperability/standards, recommend new standards if necessary

Next steps for BRIDGE DM WG towards „European data exchange model“ were suggested. For this aim practical implementation of EG1 task force recommendations would be a good starting point, so called Reference Core Model/Framework including elements such:

1) Data platforms
    a) Classification of platforms
    b) Basic principles
    c) Governance
2) Describe use cases, incl. for flexibility trading
    a) Business processes (business use cases)
    b) Functionalities (system use cases)
    c) Use case repository
3) Propose role model updates (HRM)
4) Design data/information model(s) (based on CIM)
5) Identify gaps in standards and propose new where appropriate
6) Taking the best out from the findings and show cases of Horizon2020 projects

Next steps:

- Finalize the report on TSO-DSO cooperation (Regulatory and Data Management)

    - Projects provide first feedback on draft report before 4/11
    - Update of report, including recommendations prepared by chairs:
        - Deadline Data Management report: 17/11
        - Deadline Regulation report: 22/11
    - Second round of feedback – provided by projects and European Commission:
        - Deadline Data Management report: 1/12
        - Deadline Regulation report: 6/12
    - Release final reports (action EC + chairs WG): 15/12
- Go deeper into the TSO-DSO coordination in the scope of market mechanisms:
    - Action 1: chairs regulation WG provide initial list, based on:
        - section 4 of Regulation WG survey before 31/12
        - Discussions during workshop of 24/10 organized by EC
    - Action 2: projects provide feedback on topics before 20/01 – in case relevant, a 1-hour conference call is organized by the WG Chairs to discuss the topics proposed
    - Action 3: Chairs, together with EC, discuss priorities and proposal, to be presented and discussed during GA before 03/02
- Elaboration on harmonization of role models:
    - Appoint responsible to coordinate this task (including possible support from the EC) – Chairs together with EC – deadline before 03/02
    - Representatives of both regulation WG and data management WG should be involved
    - Determine action plan to be communicated and discussed during next GA – Chairs together with EC – deadline 03/02
    - Coordinate with USEF and ebIX on possible synergies;
- Deep-dive into topic of standardization of products
    - Check which projects have assessed this topic -> Coordinet, EU-Sysflex, others… -> action by Chairs before 06/12
    - Optional: -> to be discussed between EC and Chairs which is preferred
        - Organize separate webinar where selection of projects (e.g. Coordinet, EU-Sysflex,…) could present their solutions
        - Alternatively, this could be a session organized during the GA -> in this case, a conference call with projects will be organized beforehand to organize this session
- Elaboration of a European Data Exchange Model that takes into account:
    - Harmonization of role models; standardization of products;

2) Annex 1: Morning session on Cybersecurity and Resilience

a) Introduction by the Commission

Eric Lecomte (DG ENER)

In charge of coordinating BRIDGE. During GA in 2019, it was agreed to address specific topics for legislation and assess the impact of BRIDGE projects. Decentralization ongoing in energy systems, with more control of remote devices, and much more communication of data. This raises cybersecurity topic. Making it smarter increase potential on demand response as well as a high percentage of renewables in energy mix. Want our system to be resilient and protect the privacy of consumers.

b) Policy context

Domenico Ferrara (DG CONNECT)

All member states have transposed the EU directive (NIS 2.0). Important to see how the implementation have been made by member states ('country visits' are organized). Have workstream looking at specific topics: one on energy based on reference document (to be published in the next weeks, gives an overview on how the implementation of the directive will be implemented). NIS directive: Cybersecurity task force with 2 pillars. Want to have ENISA to operate cyber support (cyberexercises will be initiated). EC expect: ENISA being able to help member states being hit by cyberattacks + key role in cybersecurity certification framework. This framework aims at defining Rules agreed at the European level with many schemes in order to have a harmonized regulation. The scope could be a product, a service or a process. Voluntary schemes could be transformed into mandatory ones at national level

EC has also a process to define priorities: based on public consultations to understand the priorities in terms of cybersecurity certification scheme. Objective to have 2 working groups: ECCG (European Cybersecurity Certification Group, made up of national authority group) and SCCG (Stakeholder Cybersecurity Certification Group, made up of customer representatives, private stakeholders etc.).

Call of expression of interest for SCCG (end 19th of September): 200 applications received for 50 available places. Application under assessment.

Discussion on 5G equipment: EC set the process how to increase the security of 5G equipment. Publication of a European coordinated risk assessment document. There is a link with the certification framework.

Main reflections of EC:

- Look at product development of vendors (scheme already developed that could be consolidated)
- Look at common criteria
- Cloud computing: look at potential scheme on cloud computing (work on going on the synthesis of what is existing in Germany and France)
- Certification of SCADA system

Looking at IOT certifications: do we want to go to consumers IoT or others? Take a look at the public consultations that will be launch soon.

Michaela Kollau (DG ENER)

The European Union has already put in place common general tools to increase cybersecurity. But, in cybersecurity, one size does not fit all. What might work for the average internet-connected system will not be necessarily adequate for more specialised sectors. It is, therefore, indispensable to look at the particularities of the energy sector that create challenges in terms of cyber security: (1) real-time requirements, (2) cascading effects; and (3) the combination of legacy systems with new technologies. Therefore, cybersecurity is addressed in the recent European Energy legislation:
The new regulation on electricity risk preparedness of 2019 mandates Member States to develop national risk preparedness plans and coordinate their preparation at regional level, including measures to cope with cyber-attacks. The recast of the Electricity Regulation proposes to develop a network code on cyber security to increase the resilience of the energy sector and protect the energy systems. Since 2017, a dedicated expert group – the Smart Grids Task Force Expert Group 2 - with industry representatives of the transmission system, distribution system as well as from technology suppliers - was working to prepare the ground for such a network code. This expert group finalised their report in 2019 with recommendations for the network code on cybersecurity, addressing common minimum requirements, more advance cybersecurity measures for larger operators and supportive elements such as guidance on crisis management, supply chain management and a maturity framework.

Beyond legislation, the Commission also gives Guidance on cybersecurity in the energy sector to Member States (Commission Recommendation on cybersecurity in the energy sector) to help the energy sector to implement horizontal energy legislation and also to address smaller operators that are not necessarily covered by these horizontal rules.

c) Introduction of the report: questionnaire, panel of projects, report structure, main learnings and results, …

Olivier Genest (chair WG Data Management)

13 projects answered, representing a large scope of EU calls. Three main topics: Cybersecurity experience within H2020 projects; Feedback on EC recommendations; Expectations for cybersecurity certification framework. Main learnings are described. Few projects faced cybersecurity issues, but most probably due to the structure of pilot projects: short timescale, limited area, several partners with the required skills, no combination with legacy. Further topics of interest: situational awareness and Incident management are the most common topics. Five general barriers to EC recommendations implementation have been identified. Fixe draft recommendations have been defined in the report and need to be discussed with the members in interactive sessions.

d) Interactive session #1 “Experience from projects: issues, barriers and recommendations”

Isidoros Kokos (E-LAND)

Introduction of the feedback of the projects

Discussions:

- Experts holding the information of the system: difficulty to state that this system just implemented (2 years ago) need to have some improvements
- Olivier G: could be part of the recommendations

Particularities of the energy sector

Specific recommendations from the EC have been studied, project faced 3 types of issues: real-time, cascading effect, legacy systems. 5 extensions have been addressed by the team, related to 4 points in the regulation thanks to the project experiences. EC is looking for incentives, data set cases to prepare operators could be useful. Three general barriers have been identified: slow implementation of EC guidance to high cost / effort needed, device ecosystem is growing in complexity and heterogeneity, and the market is not aligned with EC recommendations. And two specific barriers were treated, concerning insufficient monitoring of critical cyber-physical systems and heterogeneous authentication mechanisms.

Summary of the Commission Recommendation

- Requirements for real time: see list indicated in the PPT
    - Question on Segregation of networks: what is expected national? logical zones?
    - Zone categorized with the level of risk of these zones to be compromised
- Cascading effects considerations: see list in the PPT
- Legacy and IoT devices: legacy technology combined with new internet-of-things considerations
- Particularities: Extensions on use of standard, cooperation among stakeholders, usage of unsecured IoT devices and usage of unsecured devices

Question from Nikos Hatziargyriou (ETIP SNET): is there any how to deal with identified compromised data? If data compromised? How to identify the compromised data? How to make sure that your system is not affected by the attack?

- ⇨ EUSYSFLEX: look at how to tackle the problem. The question is on industry side (SMEs) what steps could be taken. How to bridge the gap between the projects report and the EC working groups on Cybersecurity? => Needs to tackle the issue with Backup solutions but also address how to restore the situation.
- ⇨ EC: is pushing this in various ways with communities of experts in different sectors. Would be interested to hear how to promote the exchange of information between projects and EC task force groups.

How can we promote cooperation and share information about threats and attacks between actors? Which threats are they facing? TSO/DSO would agree to share their data?

- ⇨ It will depend on the type of actors. Need to define what kind of data would be useful, for which purpose, between who and how that could be done as technology providers. The operator side (interest in this cascading effect) can be targeted first. TSO/DSO information don’t need to be fully public.

Comment from CROSSBOW: cost of the damage, cost of the measures are not the only ones. Risk assessment is key here.

EC: what about the cost for the consumer? There must be much bigger cost for the people. How to integrate these external costs in the equation? By legislation to push people to take this into account?

Nikos Hatziargyriou (ETIP SNET): some studies are assessing some quantifiable cost (numbers) like the CIGRE, but nothing on social cost.

- Presentation of the general barriers (see PPT)
    - EC: What is meant by barriers? Difficulties to implement the recommendations

- Presentation of the specific barriers (see PPT)
- Recommendations on General Barriers
    - What kind of devices are indicated here? For example, a heat pump, isolated device and how to operate it with the grid
    - Comment from CROSSBOW: the more devices are connected to the grid, the philosophy of the grid shall be adapted. For methodological devices: update of such devices might be compromised => link to barriers identified (cost of the updated
    - The aim of the certification shall be the measurement of those devices? Certification framework recommendations: "depending of the type of the device" should be added on the report.
- Summary (see PPT): The list will be fine-tuned based on the discussion
    - Nikos Hatziargyriou (ETIP SNET): what is meant by resilience?
    - Providing the know-how on how to do that. See how you can quickly restore your service. How you can fix
    - Nikos: resilience for operators, how to defend the system in case of attack
    - COORDINET: Is the commission interested in the infrastructure resilience? Hardly committed on this topic and try to discuss with the EC. Resilience on cyber-attack or wider attack?
    - Mark Van Stiphout: What is meant on R&I best practices? How BRIDGE can help in organizing those best practices to be known? What things can be done to provide visibility.
    - Someone from the Commission is in the room to work on how BRIDGE could improve for the follow-up of the project

MVS: how BRIDGE can help in terms of R&I topic, maybe further what it is doing currently

e) Interactive session #2 "Cybersecurity certification framework"

Heribert Vallant

Presentation of the EU Cybersecurity Certification Schemes. Union rolling WP is ongoing on Cybersecurity and constitutes the phase 1 (out of 3). In BRIDGE, European certification framework has been assessed by projects to see how it could help. Hard to differentiate system and service when certifications are provided. The WG must show on what ENISA should go further in details.

- Question: What is the timeframe of the development Cycle of EU?
    - No specific information
- EC: few words on what is a framework, it is a set of rules. A scheme could be used for a product, process (the product development life cycle: whether a vendor has in place a security policy), a process at European level. By 2023: the EC will have to assess how the scheme can become mandatory. Each scheme will go in detail on how many years you will have to check if your certification is valid.
- Olivier: proposal of raising the following question in the report, which scheme shall be relevant? How shall they be prioritize?
- Olivier: shall we certify the interface?
- Integrid (Elektro Ljubjana, Slovenia DSO): as DSO we have our own SCADA. In the future we would like to have new services. Project Phoenix just started in her company about service security.

- Will certification process involve different companies, so-called “in-between” (for example communication provider)?
    - EC: this is considered in EC work

Certificate for device is following specific steps. Need to know which certification schemes and how many: this is something already treated, and this is what EC needs in the future. Certification process for the network operator should be included for the security, not only the devices.

Presentation of Further questions to be raised (see PPT):

- Olivier: for open access, priority, monopoly position
- EC: need to have a transparency of the framework. The way the framework is built offers a lot of possibility to interact (open consultation, applying to the stakeholders’ group). You can also channel your priorities by your national group. The process is quite transparent with a lot of steps (heavy process but open and transparent).
- Regarding the number of Conformity assessment Bodies per country. The question: how do make sure we have conformity assessment bodies have the same level of competence (possibility for peer reviews). National authorities could check each other and confront opinions.
- Olivier: How BRIDGE can help for the certification definitions?
- EC: important to know what is needed for the scheme. ENISA prepare a scheme.
- IoT device certification: shall it be specific?
- EC: what are the requirements are needed to secure an IoT device. Need to take into account the level of criticality. Could have a scheme for IoT with different granularity (low level of insurance … High level of insurance).
- Mark: need to be able to identify a certain type of scheme depending on the project.

f) Wrap-up: main recommendations and topics of interest for future work

See PPT written in live by Olivier.

Recommendations in the report are first inputs and are validated by EC, but some further work has been identified. Regarding the session 1: helping ICT security experts to understand specificities of energy sector, sharing information about threats and attacks between actors, potential R&I topics (best practices, resilience, situational awareness, incident management, smart meters).

For session 2, it has been raised that current recommendations are quite general. Then further work to identify the relevant schemes are needed, on scope, priority, energy specificity. ENISA ad-hoc groups could prepare specific schemes and BRIDGE could help on what is relevant topics for the scheme. Projects could be useful for conformity assessment to improve, based on tests with approved rules.

For the next steps, DS04-2018 projects need to be implied in the topic. Also, regarding certifications, energy sector needs specific certification scheme: ECSO published a state-of-the-art report[1] on this topic, projects could check the relevance, opportunity for elevation at EU level, and finding the gaps.

DSO4-2018 projects, and other related to ICT, could be added in the BRIDGE brochure.

Next steps would be to present the final report at the next General Assembly

[1] https://ecs-org.eu/documents/publications/5a31129ea8e97.pdf

g) Action plan for the next period of work

Cybersecurity report:

- Finalize the report based on comments (from EC and projects) and today's workshop discussions.
- Release the report before end of 2019.
- Present the results during next General Assembly (most probably 11/02 and 12/02)

Future topics (to be discussed during next GA):

- Identified concerns/needs:
  - Liaison with SU-DS04-2018 projects
  - Threats and attacks information sharing
- Certification: energy-specific certification schemes

For this GA, it could be interesting to contact BRIDGE projects to get their feedbacks on topics identified. Then, EC colleagues (Michaela et Domenico) shall identify what could be useful or not useful to be discussed at the next general assembly.

Mark van Stiphout: share the "Next steps" slide noted by Olivier with all the projects of BRIDGE as conclusions.

3) Annex 2: Afternoon session on TSO-DSO Cooperation

a) Introduction by the Commission

Mark Van Stiphout (DG ENER)

Thanks for the work done, need to see if the job done so far is in line with legislation and EC discussions ongoing. Tomorrow will be presented the outcomes of this session during the workshop, in front of various projects (not only EU).

b) Policy context

Manuel Sachez-Jimenez (DG ENER)

What's going on, on policy side for DSO-TSO cooperation platform. Flexibility can concern producer and provider. Information and data are major topics in the value chain. Collaboration between TSO and DSO is mainly about data exchanges and their interoperability. This must lead to optimal utilisation of resources, efficient operation and facilitate market operation. By early 2021, DSOs and ENTSO-E will go further in terms of cooperation and communication.

A first report on Data Management was released in 2016 in collaboration with DSO and TSO associations, followed by the report in 2019 on Active System Management. Reports have been released by EC on Demand Side Flexibility, including "Toward Interoperability within EU for electricity and gas data access & exchange". About 30 recommendations. Analysis of the huge number of use cases.

Commercial platforms for flexibility developed are ENERA, GOPACS, NODES, PICLO. Two examples of projects: INTERRFACE and COORDINET. The outputs of the 2 projects shall feed the platforms.

- Question: What about network codes for TSO-DSO cooperation?
  - Today, the network codes are very weak on the topic.

- Regarding the timeframe to develop it: Wait the new commissioner to present and discuss the new work program by end of the year. 2-3 years from now.

c) Joint introduction of the report

Helena Gerard and Gregory Jarry (chairs of the WG Regulation)

EC asked to tackle the TSO-DSO cooperation topic by Regulation and DM WGs. Role models developed in each project can be optimised and BRIDGE is important to find synergies between projects.

Good variety of participants (utilities, consulting firms…). The type of services developed in the project is balanced between only services for TSOs, only services for DSOs, and both. The same is valid for the different coordination models under discussion. A wide variety of flexibility mechanisms is explored, but most projects focus primarily on market-based flexibility mechanisms.

Kalle Kukk (leader of TSO-DSO cooperation topic in WG Data Management)

Topics addressed were related to data models, application of CM, data platforms, interoperability, data types. 14 projects responded even though not all of them have TSO-DSO data exchanges in their projects – they still could answer some other more general questions. As biggest challenges the projects mentioned data access, data quality, role definition, interoperability, standardization and harmonization.

- EC: about the data, was there a question?
  - Kalle: TSO-DSO data means a full range of different types of data – meter data, sub-meter data, flexibility data, grid data, identity data, etc. Projects were asked which data they exchange not only between TSOs and DSOs but also with other parties (e.g. supplier, aggregator, customer, etc.) if relevant for TSO-DSO, TSO-TSO and DSO-DSO processes. Also information about some characteristics of data was requested (like frequency and volume of data, etc.)

d) Round 1: Roles and responsibilities with WG Data Management

Kalle Kukk

Data roles used in the projects were identified during the survey and projects were asked have they identified new roles. One project suggested clear data roles like data exchange platform operator and authentication service provider while others suggested market roles like flexibility platform operator, storage owner… (see slides for all the roles). It was recommended by projects than the role definitions should be shared between projects, new roles identified and recommended to Harmonized Role Model.

- EC comment: Still need to clarify which data we are talking about, and then to know to whom the roles belong. Are projects assuming that the service providers would still be energy providers only? Network operators are not the only ones to play a role in the future data management.
  - KK: There is a distinction between roles and actors. Anyone can take the roles if satisfying the responsibilities given to respective roles. We are not saying in the survey that all the roles mentioned should be taken by network operators, rather opposite.

Many data exchange functionalities have been analysed and the roles can be linked to them. It was recommended to apply IEC 62559 for use case description, cooperate between projects while developing use cases, but also build a repository containing the use cases from different projects (such

as IoT catalogue[2] for IoT Large Scale Pilots). This repository would increase participation but considering that some data are not public in the business cases.

Use cases should not just look at energy use-cases but also for other sectors or combinations of sectors based on IoT. The platform that would host the data is not well defined yet, the linked third parties engaged are not defined. A European data space has been studied and it is still under discussions.

For the data platforms, it might need clear definitions and clarify the functionalities of different types of platforms (projects mentioned data platforms like Data hubs, IEGSA, ECCO SP, Estfeed, but also several market/trading platforms as different from "pure" data platforms).

- EC: projects have to agree on terminology and to ensure a glossary of definitions is accompanying to reports. Information on the principles (e.g. interoperability, etc.) governing the data platforms used in the projects should be provided. This is a condition for replicability and for ensuring the creation of an interoperable cross-border and cross-sector ecosystem. As a forward looking exercise, possible ideas to the newly proposed European Data Space[3] could also be formulated.

SGAM approach has been applied in all projects implementing TSO-DSO data exchanges, and the good results are confirming that this should continue to be the case.

- EC: The H2020 projects which are part of the BRIDGE cluster are invited to take a look at the recommendations formulated by the Expert Group 1 of the Smart Grids Task Force in its report "Toward Interoperability within EU for electricity and gas data access & exchange"[4], as well as in the EC funded "Study on ensuring interoperability for enabling Demand Side Flexibility"[5], and possibly comment if relevant. It is important to start from the same point, to keep the same terminology. Concrete examples applying the models to the platforms are needed.
- KK: In fact, the survey followed the recommendations given in the Task Force report. Next steps of BRIDGE could further build on this.

e) Round 1: Roles and responsibilities with WG Regulations

Helena Gerard and Gregory Jarry

Presentation of key issues related to roles and responsibilities (role of the market operator). Also presentation of the role models used by the projects.

Quid on how many are using USEF and how many are starting from the Harmonised Role Model (HRM). USEF is based on EbIX.

Discussions in 3 sub-groups on 3 questions. *10 minutes each topic then wrap-up with the whole group.*

1) Looking at the role of market operator: should it be a regulated or a non-regulated role?

⇨ If you have multiple buying parties, you might want an independent market operator. However, this 'independent market operator' could still be under the regulated framework, but would be different from TSOs and DSOs.

[2] https://www.iot-catalogue.com/
[3] https://ec.europa.eu/digital-single-market/en/news/communication-towards-common-european-data-space
[4] https://ec.europa.eu/energy/sites/ener/files/documents/eg1_main_report_interop_data_access.pdf
[5] https://op.europa.eu/en/publication-detail/-/publication/a61d67de-9ecd-11e9-9d01-01aa75ed71a1/language-en/format-PDF

- ⇨ Also in countries with multiple DSOs (e.g. Germany), you might prefer an independent party to operate the 'local' market for flexibility compared to one DSO
- ⇨ Advantage to have a commercial party operating the market: they can operate relatively fast + have experience with existing market platforms
- ⇨ The activity of 'market operation' should be split into different activities (clearing, collecting bids, settlement) -> while the activity of clearing should be regulated due to the presence of sensitive data, other activities such as collection of bids,…could be commercialized. However, this set-up entails the risk of duplication of efforts.
- ⇨ The design of the role of 'market operator' depends also on the coordination model chosen (centralized versus decentralized)
- ⇨ The type of grid (radial versus meshed) will also play a role in the decision of a market operator should be regulated or not (= risk of market power in small radial grids)
- ⇨ Feedback from the EC -> currently, the 'MCO'-function, performed by Px faces many challenges in terms of governance. Currently, for balancing platforms (which could be extended to flexibility markets), ACER supports a separate joint venture company, owned by system operators, operating independently under a regulated structure.

2) In particular the sharing of data with respect to local grid constraints is sensitive which might require a regulated approach: What are the benefits and limitations of each role model used?
   - ⇨ When roles were added by projects, there are often big differences observed between modifications made by projects. These differences can sometimes be explained by the nature of the project (each project develops roles to describe their project specific innovations), but could also be related to individual choices of researchers.
   - ⇨ Roles are different but use cases are overlapping. Need a clear and common definition of roles and actors as sometimes there is a confusion and miss-understanding of the difference between them.
3) What could be the role of Bridge to facilitate the use of role models in the project?
   - More detailed knowledge sharing on concrete cases how role models were built up, which roles were added and why.
   - Spend more times on project needs, the uses cases and identify common understanding => bottom-up and not a top-down approach.
   - Share useful information about experiences, use cases and then define for which cases which role models are used. Not define a new role model or a unique one (models from previous project)
   - Innovation implies an adaptation of the role models. Could be interesting to map the different projects and innovative elements/modifications performed on the EbIX model.
   - Need to dig deeper into this topic – we might need a separate webinar to discuss this further, in particular how to consolidate the different approaches from individual projects.
   - Starting from project experiences, it could be discussed which changes could be made to the existing role models that are commonly used (e.g. HRM). These changes could be transferred/discussed and used for next modifications of the HRM model.

Feedback from USEF

- Harmonized model but not endorsed by the TSOs while the EBIX/HRM model is in general considered as a good starting point by project partners.
- A support on USEF is proposed: webinar or workshop and define how it could fit and map with the different projects
- UK roles model were mapped against USEF. This ongoing exercise is done for several countries.
- USEF has additional roles compared to EbIX

View of the EC and what should be the next steps?

- Test different market models from time to time. Have to find a balance between the classification in a meaningful way but not force it if different approaches have been taken.
- Need to come up with some classification and description on how projects organised themselves and explained/argued why they go in this way or another?
- Next iteration: compare projects role models to the EbIX and see what was added and why and harmonize the description of it!

f) Round 2: Data models and standards with WG Data Management

Some questions could be clarified in the future survey to be sure to receive the expected answers: in particular, there is a general confusion between the data model and the syntax. Several standard data models are already available, e.g. for SAREF for smart appliances, however they are not sufficiently adopted by the market yes.

EC: hard to see who the recommendations are addressed to. EU projects don't contribute to the standards: individuals do. A proper recommendation would be that projects should define (and publish) extension proposal that will be pushed to the standards. Also, the purpose of the standardization should be further detailed (CIM for energy forecast? TSO-RSC interface? …). Feedback on the report[6] "Toward Interoperability within EU for electricity and gas data access & exchange" from SGTF EG1 would be very much appreciated. Any comment regarding also the semantic is valuable.

Projects may identify gaps in existing standards.

Application of the CIM has been used in 5 projects, it still needs to be harmonized. One option would be to create a BRIDGE CIM data model, that could be used by the projects (instead of reinventing it in each project) and finally be pushed to standardisation.

EC: important to say in the report what works and what didn't, to fix the roles and responsibilities. Interesting to understand the principles, to get the thinking for development. Important to use as a starting point the TSO-DSO report to avoid the same discussions.

g) Round 2: Regulatory barriers for replicability of services and coordination models with WG Regulation

Presentation of the outcomes of the survey:

- Technical, economic and regulatory barriers for the realization of market concepts for coordination and flexibility procurement have been detailed (see the PPT).
- Balancing responsibility of RES and role of the DSO are different between the countries. Lack of a marketplace for services (e.g. reactive power market)

[6] https://ec.europa.eu/energy/sites/ener/files/documents/eg1_main_report_interop_data_access.pdf

Discussions

- Evolution of the role of the DSO is a key barrier. Not sufficient incentives from regulation authorities exist in some countries. But in the other way, are DSO innovative/proactive enough?
- Proactive position of regulators to incentivise DSOs. Not mandatory, DSO should be allowed to use flexibility. Incentives: remuneration mechanisms (OPEX, CAPEX, TOTEX approach) regulatory sandboxes, sharing of best practices,….
- Lack of standard products available on the market. However, open question if we really need standardised products as they might lack the flexibility to respond to individual needs of countries. What can be recommended is to propose harmonized ranges of products instead, or even propose only technical parameters. That was the approach in Coordinet and EU-SysFlex. It is a more flexible approach, but it requires advanced algorithms. However, in case you have less standardized products, it is very hard to compare different products and prices -> issue of transparency and price comparability.
- Next Topic that could be addressed: Standards market products and dynamic pricing. Organise a knowledge sharing session with Coordinet and EU-SysFlex (and other projects addressing this issue).
- Could there be a market for reactive power? Maybe at TSO-DSO interface but this is a topic to be further investigated.

h) Wrap up of the conclusions of the parallel sessions

Regulation WG:

- Role models: identify the modifications done to the standard model, have them mapped (where are the differences and why) so as to see if in the next version there could be some specific recommendations.
- Regulatory barriers: Make sure that DSOs have the right incentives. Should products be more standardized? Some solutions exist (CoordiNET, EUSYSFLEX). Some knowledge sharing sessions shall be made between the projects.
- Next steps:
    - Go deeper into the TSO-DSO cooperation/coordination in the scope of the market mechanism itself
    - For the general assembly: have a list of topics to be discussed

Market design: prepare the presentation of results and an approach on the topic during the next GA.

Data Management WG (see PPT from Kalle):

- Recommendations identified that will be improved by the projects for the report in the next weeks
- SGAM could be a starting point. Important to have a clear definition of the role.
- A use case repository could be useful.
- BRIDGE will help and provide evidence and examples for the future work on network codes, and can help to consult projects, but not contribute to the regulatory. BRIDGE provides examples, advices, based on their experiences.

i) Conclusion from the discussions

EC: Next steps could be discussed tomorrow at the workshop and feed the future works. Standard approach was something new learned this afternoon. In some topics, the follow up could be to go further in details, and tomorrow's workshop will help.