BRIDGE Feedback Survey

TSO-DSO cooperation

13th of February 2020

BRIDGE Data Management WG:
Kalle Kukk, Elering (kalle.kukk@elering.ee)
Olivier Genest, Trialog (olivier.genest@trialog.com)

BRIDGE Regulation WG:
Helena Gerard, VITO/Energyville (helena.gerard@vito.be)
Grégory Jarry, Accenture (laura.metenier@accenture.com)

bridge
HORIZON 2020

The TSO-DSO cooperation report

During Bridge General Assembly that took place on March 12th & 13th, the Commission requested the **working groups on Regulation and Data Management** to deliver reports on TSO-DSO cooperation

Based on the answers provided by the projects, a **first version** of the report was produced by the chairs:

- Data management: Olivier GENEST & Kalle KUKK
- Regulation: Helena GERARD & Grégory JARRY

A survey was launched by each working group in coordination with the European Commission

Final version of the report is published

https://www.h2020-bridge.eu/wp-content/uploads/2020/01/D3.12.f_BRIDGE-TSO-DSO-Coordination-report.pdf

October 23rd workshop allows for a deep dive in key topics and formulation of recommendations

bridge HORIZON 2020

Recommendations from Regulation WG

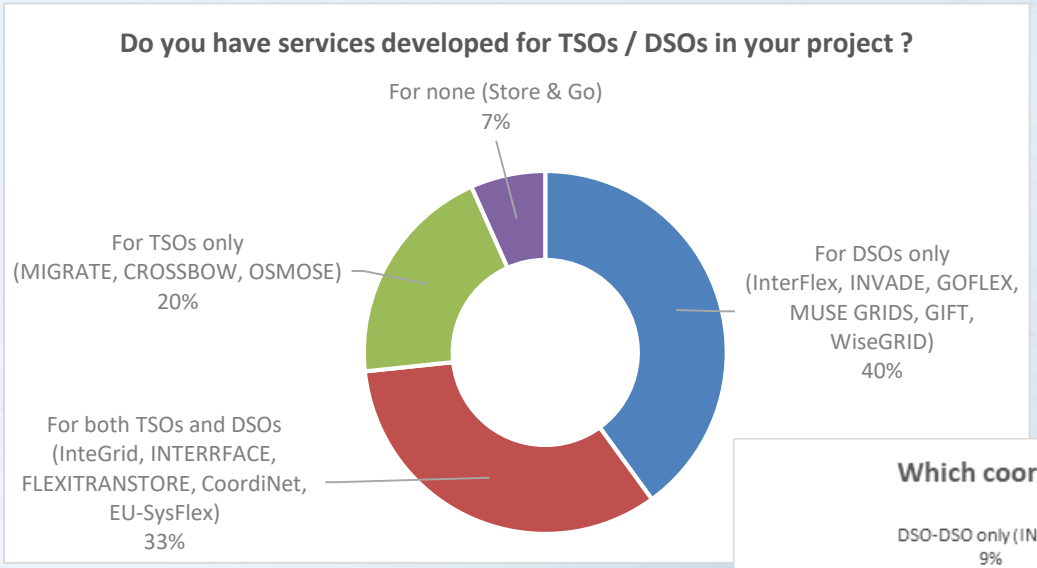
bridge
HORIZON 2020

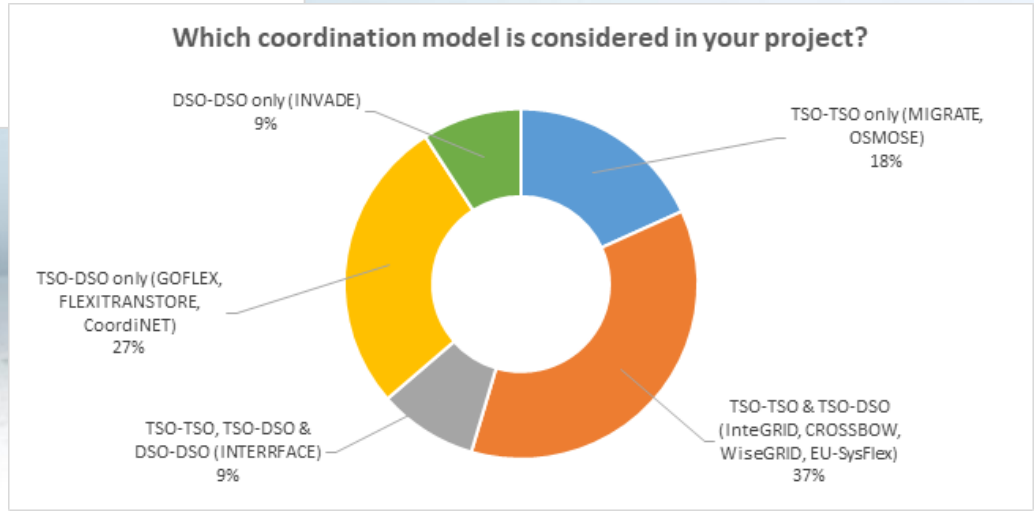
The regulation survey addresses different goals

- Overview of range of products and services developed and tested (part 1)
- Overview of coordination models and market design (part 2)
- Overview of role models used (part 3)
- Open question on additional subjects WG Regulation (part 4)

bridge
HORIZON 2020

The projects develop a variety of services and coordination models





Share of projects among those answering the survey

Regulation WG: Conclusions and recommendations (1/2)

Topic	Products standardization
Findings	The **standardization of products** decreases complexity for flexibility buyers and increases price transparency. However, a more flexible approach could be a better trade-off and respond better to countries' specificities
Recommendation	**Products ranges** could be defined instead, or even moving away from products towards a definition of flexibility as a set of technical parameters

Topic	Product development for system services
Findings	The need for new or **additional services** in the field of **congestion management** is considered highly important by both TSOs and DSOs
Recommendation	The **detailed design** for products providing congestion management services should be developed and implemented, taking into account • The link with products developed for **balancing services** – in particular assessing if and how these services could be **jointly procured** • The role of both **active and reactive power** • The implications for the **coordination** between system operators

Topic	Coordination models between system operators
Findings	**Coordination** between system operators (**TSO-TSO, TSO-DSO, DSO-DSO**) has been in the heart of the debate for the last years. Current research has focused to a large extent on organizing the coordination between system operators in the **operational planning phase**. Less attention has been paid so far to explore novelties in coordination in the field of network planning.
Recommendation	Due to the increasing role of **flexibility** as a **trade-off** for **capital investments**, further research should focus on coordination between system operators during network planning

Regulation WG: Conclusions and recommendations (2/2)

Topic	Flexibility Mechanisms
Findings	Most projects investigate **market-based flexibility mechanisms**. However, other mechanisms (technical, rule based, tariff based, connection agreements) remain also relevant and could complement market-based mechanisms
Recommendation	When designing different types of flexibility mechanisms, the **link between different mechanisms** should be clear and no conflicting set-ups should be installed.

Topic	DSO role
Findings	The **evolving role of the DSO** is considered as a major challenge for demos' replicability
Recommendation	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

Topic	Market Design
Findings	Besides centralised marked design options, decentralized and distributed design options are actively explored for specific services for system operators.
Recommendation	The emergence of new market design concepts should go hand in hand with • Analysing the **impact on coordination** between system operators • **Ensuring interoperability** between different platforms implementing different market design concepts

Topic	Market Operator – regulated versus commercial
Findings	Dependent on the market, service or country, the **role of market operator** is taken up by a regulated entity or by a commercial part
Recommendation	In order to ensure **harmonisation and integration** of both local, national and cross-border market models, it is advised to analyse which of the activities taken up by a 'market operator' should stay **regulated** and which activities should become or remain part of the commercial domain.

Action 1

❑ Product design

- Within BRIDGE, we will share and collect the different outputs from projects related to product design options (including specifications)
- Different ‘product concepts’ or ‘product options’ should be gathered in a repository

- ➢ Provide input to the debate on **harmonisation and standardisation** of new products and services for system operators
- ➢ Provide **a basis for new projects** with respect to products and services they can use as input
- ➢ **Leverage** more **on the work of past projects** related to product design

Action 2

❑ Coordination models and market design

- Projects will continue to advance on coordination models and market design concepts (from centralized – decentralized – distributed) – link between explicit and implicit flexibility mechanisms, …
- BRIDGE will try to define a ‘methodology’ – similar to the SRA methodology proposed, that allows to compare different options for coordination models, market models, product and service options,…

- ➢ Try to give **guidance** to project partners, regulators, system operators and policy makers **how to compare all the options** presented
- ➢ Allow a better **comparison** of the **work** coming out of **demo-projects**

Action 3

❑ Actively incentivizing DSOs to use flexibility

- Ongoing work to determine barriers for DSOs to actively use flexibility
- Look further than regulatory barriers (remuneration mechanisms) – include technical barriers, ICT barriers
- Valuable input will come from large-scale demo projects
- Focus on outcomes of large-scale demo projects + compare approaches and results

➢ Leverage on **insights** from **large-scale demo-projects**

➢ Provide **input to new started projects**, focusing on flexibility provision from the distribution grid

Action 4

❑ Interoperability and market design

- Market design concepts (including market places and market platforms) stay at the core of the research of several projects
- Key element dealing with these issues are *interoperability*, *data access*, *data governance*, *ICT maturity, cybersecurity,…*
- Joint action plan with Data Management WG to ensure that insights from both WGs can contribute to common guidelines in smart, flexible and interoperable market design

➢ Leverage on **insights** from **both 'energy focused projects' and 'ICT projects'**

➢ Support the **scalability** and **replicability** of proposed market concepts

Recommendations from Data Management WG

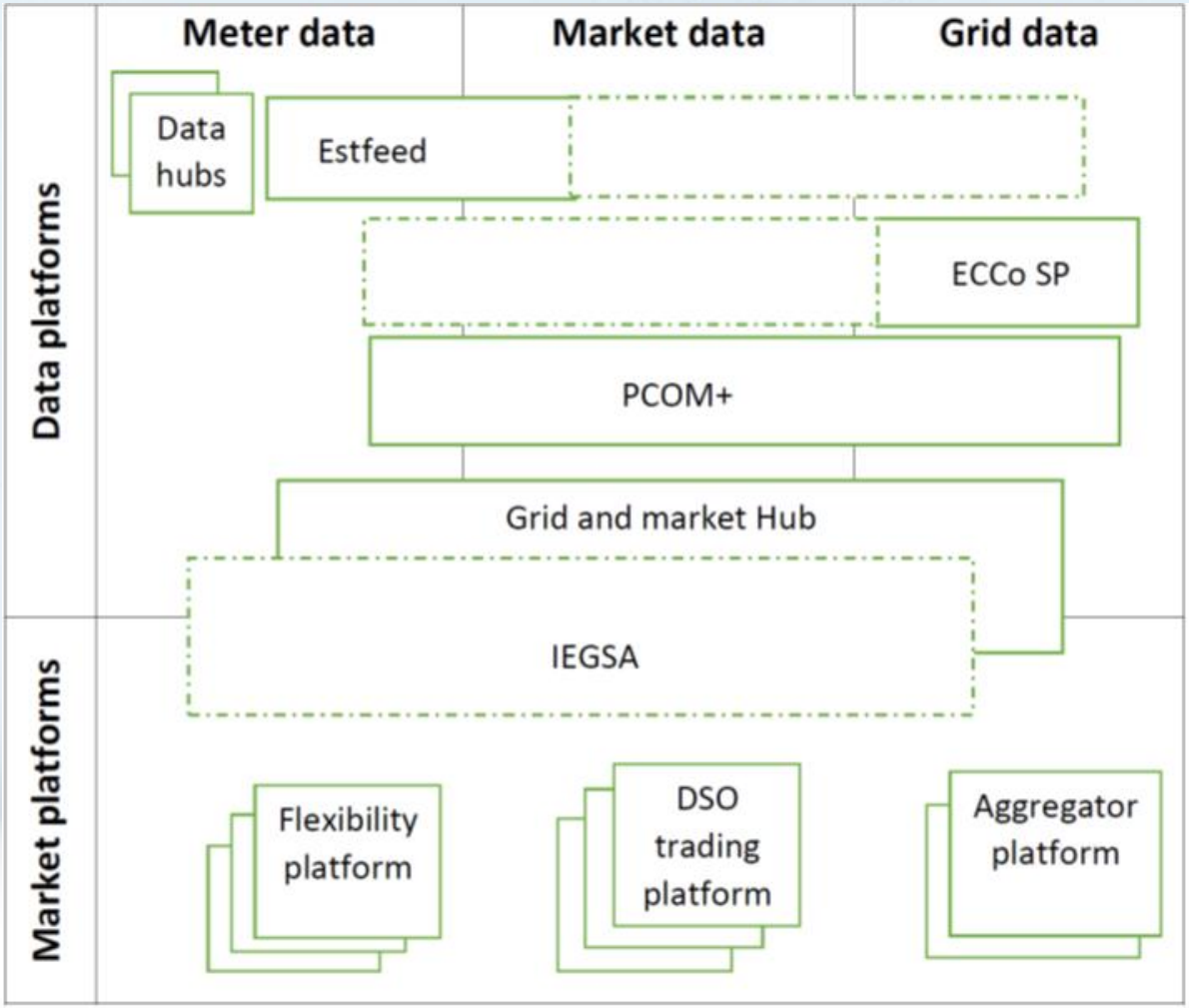
bridge
HORIZON 2020

Data management survey

- DATA MODELS
- CIM SPECIFIC QUESTIONS
- DATA PLATFORMS AND SYSTEMS
- TSO-DSO, TSO-TSO and DSO-DSO DATA
- OTHER

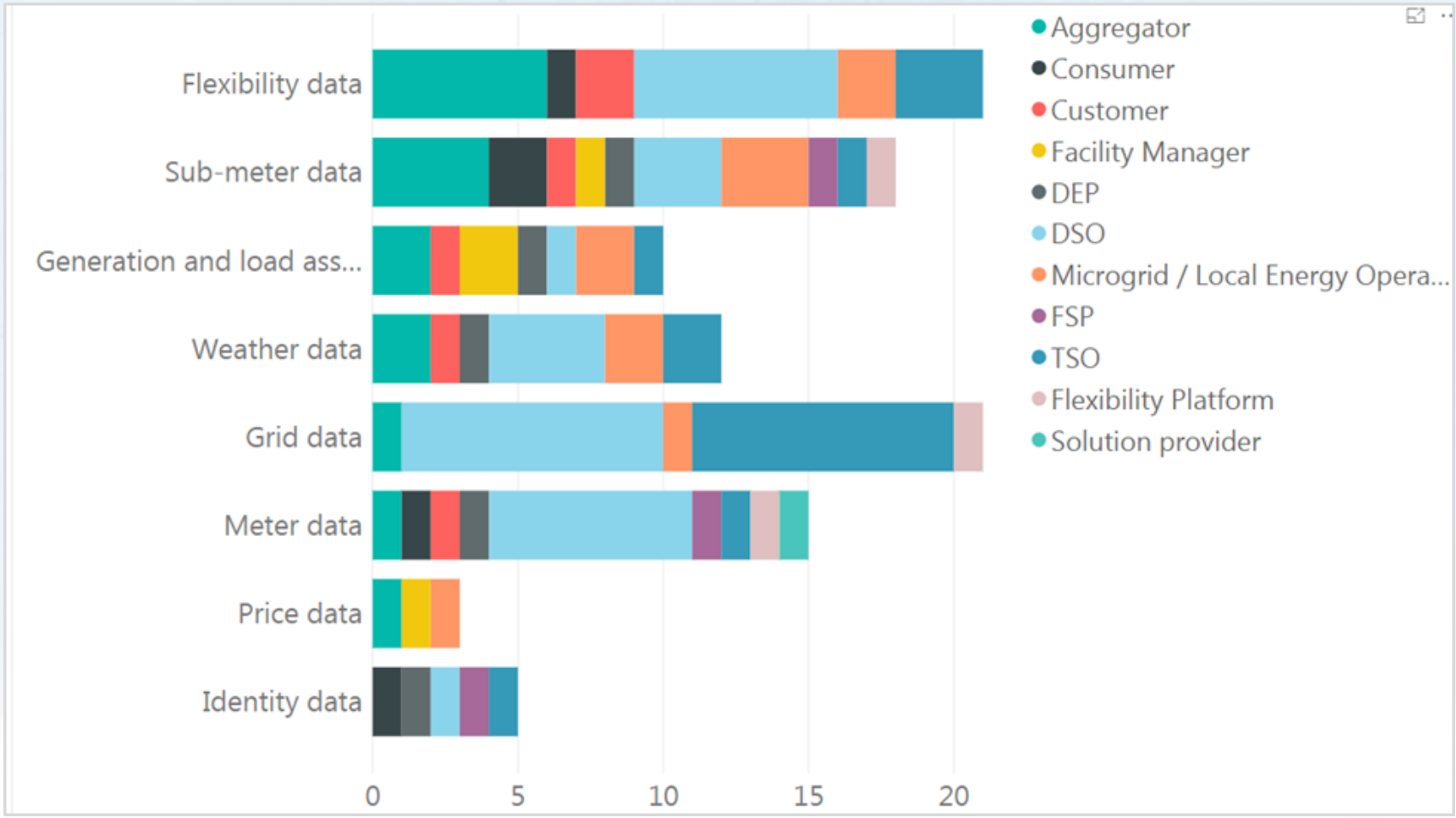
bridge
HORIZON 2020

Landscape of platforms



bridge
HORIZON 2020

Number of projects per data type



bridge
HORIZON 2020

Data Management WG: Conclusions and recommendations (1)

Topic	New roles proposed for data management
Findings	One project is operating with several **new "pure" data roles** (e.g. Data Exchange Platform Operator). Some projects mention further roles which are rather market than data roles. 6 projects out of 14 follow HRM, 2 projects USEF and 2 projects EDF's role model
Recommendation	1) Projects should share the role definitions between themselves and **align where possible**. 2) While identifying new roles projects should recommend these to be included **Harmonized Role Model** (HRM). 3) Projects by themselves and/or jointly should identify **gaps between** USEF and HRM, between EDF and HRM, etc.

Topic	Data models
Findings	For the interface to smart appliances, several standards or initiatives exist. However, none of them are sufficiently implemented by the solutions/market yet. CIM is extensively used for TSO and DSO interactions. However, the current **CIM standard does not cover enough** Energy forecast, DER, Flex data and TSO-RSC interface.
Recommendation	**1)** **On-going efforts on smart appliances interoperability**, such as SAREF and InterConnect (DT-ICT-10-2018-19) Horizon 2020 project should be pursued in order to reach an industrial maturity of this technology and its wide implementation by the solution providers. 2) Projects should bring their needs and **suggestions to CIM standardization groups**. This could be done via BRIDGE by defining a **BRIDGE CIM data model** and/or suggesting CIM extensions.

bridge HORIZON 2020

Data Management WG: Conclusions and recommendations (2)

Topic	Focus on CIM
Findings	5 projects declared to be working with the CIM Canonical Model. Application of CIM for TSO-TSO, TSO-DSO and DSO-DSO data exchange. 6 projects informed the use of CIM Data Model for data exchange between these actors. It is **largely used by TSOs, but it is not the case for DSOs**. 4 projects informed used CIM from vendors products. One requested for certification processes as well as extensions. 2 projects work with CIM on appliance level. 9 projects work with **CIM on platform/market levels**. Only one project needs harmonization between CIM and IEC 61850. Also another two projects declared necessity for IEC CIM extensions for their projects.
Recommendation	1) Keep the support from tools for the development of the CIM Canonical model. More **participation of CIM users** during the CIM WG meetings. 2) Certifications could be obtained through **interoperability tests** and it is an important step for vendors to participate with their products in the projects. 3) Vendors can be encouraged to participate into **interoperability tests** for appliance levels. 4) CIM harmonization to englobe **TSO-DSO data exchange**, since both uses different tools and solutions from different vendors. 5) **CIM extensions** to integrate new concepts like observability area between actors and to involve more actors during data exchange.

Data Management WG: Conclusions and recommendations (3)

Topic	Data platforms
Findings	There are **few dedicated platforms** for energy data exchanges, some of these used as input in the projects, some others even (further) developed as part of the projects. In addition, there are some data platforms not specific to energy data but rather vendor products for any data exchanges. More than one project mentioned platforms like data hubs, ECCo SP and Estfeed.
Recommendation	Next step for BRIDGE Data Management WG could be dedicated to joint **elaboration conceptual European data exchange model**, involving elements like functionalities of data platforms, governance of those platforms, data access, open source, standardisaton needs

Topic	Use case based approach and functionalities
Findings	Some projects provided detailed list of data exchange functionalities they are describing as use cases and/or demonstrating. 7 projects apply **IEC 62559 standard template** to describe the use cases. Majority of the projects (12 projects) would be in favour of having access to a Use Case repository expressing TSO-TSO, TSO-DSO, DSO-DSO use cases.
Recommendation	1) Projects should apply IEC 62559 for use case description. 2) Projects should **cooperate** while developing use cases. 3) **Use case repository** containing in a structured way use cases from different projects is required. Repository should be public and freely accessible. It remains to be agreed who and how is responsible for this recommendation.

Data Management WG: Conclusions and recommendations (4)

Topic	Interoperability
Findings	7 projects demonstrate **interoperability between platforms**. in terms of interoperability with other DSOs/TSOs. Only 3 projects demonstrate interoperability between platforms in terms of interoperability with other markets (e.g. mobility, health or home-security services). 7 projects would be interested to participate in interoperability tests. But only 3 projects would be possibly able or willing to share data for interoperability tests.
Recommendation	1) While working on conceptual European data exchange model (see above) "interoperability of platforms" has to be defined, interoperability of platforms to be ensured and **platforms with European ambition and potential to be identified**. 2) Cooperation with **other sectors** is required – e.g. through appropriate Horizon2020 calls. 3) Projects should elaborate ways how to share data between themselves enabling **cross-project interoperability tests**.

Topic	Transparency and data access
Findings	Projects were asked how would they ensure **transparency and non-discrimination** to access to data (including sharing of personal and commercially sensitive data). The answers cover full range of options for access: • Based on consent • Anonymization • Restricted access • Public
Recommendation	While developing conceptual European data exchange model (see above) **easy access to data** (CEP), **GDPR compliance** and data owner's control over their data has to be ensured.

Action 1

- **Develop conceptual data exchange model for Europe**
  - What?
    - Replicable and scalable solutions of European ambition and potential to be identified
    - Interoperability of the variety of existing (and planned) solutions
    - Enable cross-border data exchange
    - Accommodate any type of data, incl. real-time, sub-meter, TSO-DSO, etc
    - Ensure GDPR compliance and data owner's control over their data
    - Enable sector coupling – gas, heating&cooling, water, buildings, health, etc
    - Open source
    - SGAM based approach
  - Who?
    - Concerned Horizon2020 projects: EU-SysFlex, PlatOne, MuseGrids, …
    - External parties: Energy Data Access Alliance, ENTSO-E, DSO association, ETIP-SNET, EC (DG Energy, DG Connect) national data hubs and platforms (like EDA – energy data exchange Austria), ICT4Water, CEN-CENELEC

Action 2

- **Set up use case repository**
  - What?
    - Develop and agree (high-level / specific) use cases
    - Apply standardized IEC template
    - Create easily accessible use case repository
    - Coordinate with IEC and CEN-CENELEC initiatives and identify other existing initiatives to avoid duplication
  - Who?
    - Concerned Horizon2020 projects: X-FLEX, EU-SysFlex, GIFT, …
    - External parties: CEN-CENELEC-ETSI, IEC, ETIP-SNET

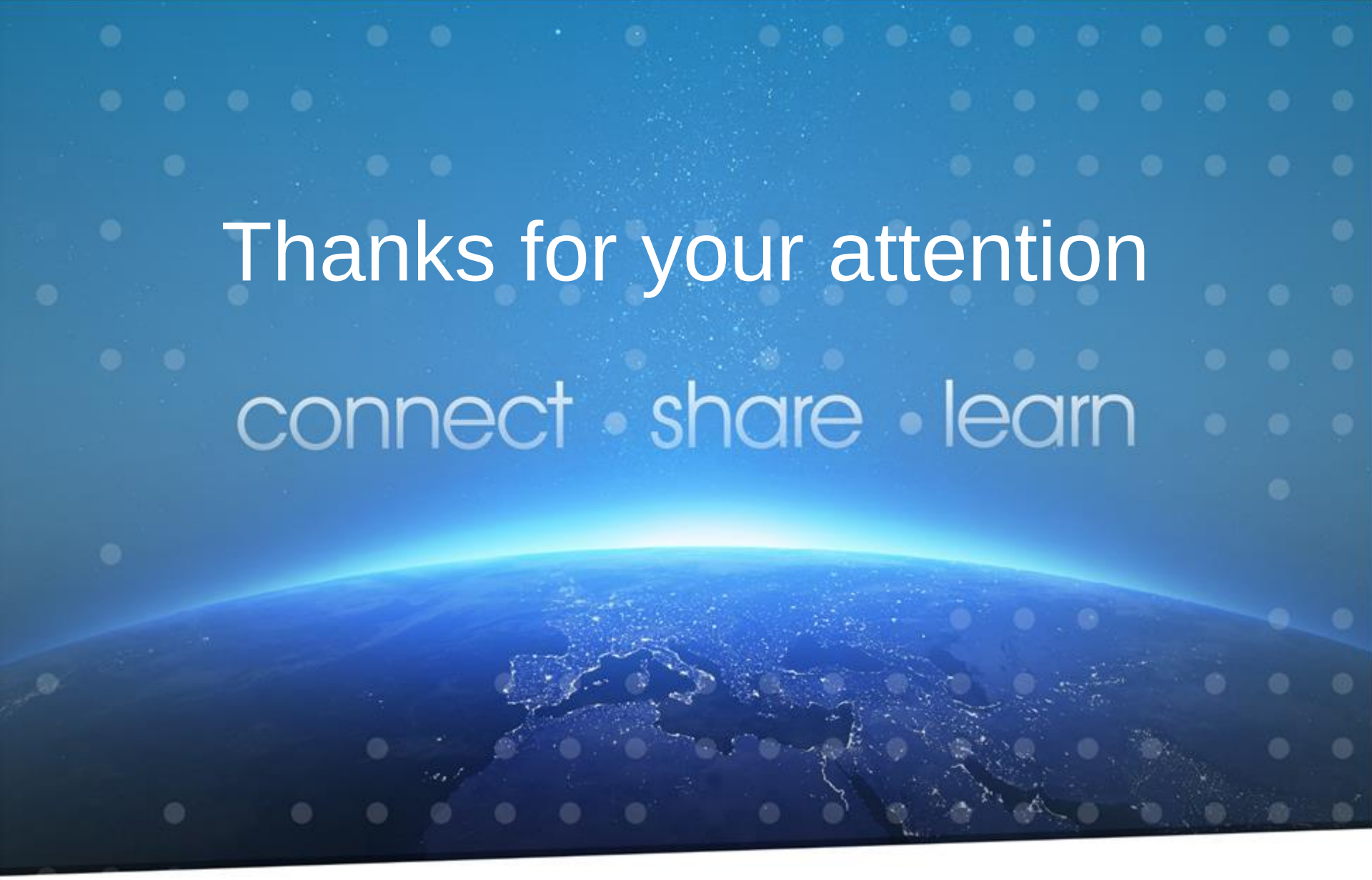
Action 3

- **Update Harmonized Electricity Market Role Model**
  - What?
    - Elaborate new data roles
    - Harmonize approach to role definitions
    - Recommend updates to HEMRM
    - Compare HEMRM with other models (USEF, EDF)
  - Who?
    - Concerned Horizon2020 projects: PlatOne, EU-SysFlex, GIFT, …
    - External parties: ebIX, ENTSO-E, DSO associations

Action 4

- **Reinforce application of CIM for standardization**
  - What?
    - Apply CIM standards in TSO-DSO coordination
    - Suggest extensions to CIM
    - Focus on ‘profiles’ instead of standards
    - While applying CIM consider frameworks like FIWARE, European Data Space, SAREF, COSMAG, …
  - Who?
    - Concerned Horizon2020 projects: E-DREAM, …
    - External parties: CEN-CENELEC, CIM User Group, ENTSO-E, DSO associations

Thanks for your attention



bridge
HORIZON 2020