Arenko Response to Ofgem's Consultation on Governance of a Data Sharing Infrastructure

27th September 2024

About Arenko

Arenko is a technology company in pursuit of a zero-carbon grid worldwide and was established in 2014 to enhance the value of energy storage assets. We have been operating large scale battery assets since 2016 and now focus on developing our Software Platform 'Nimbus'. Arenko's Nimbus Platform is a product ecosystem that maximises portfolio performance at scale. Our modular products are founded on our experience controlling assets and provide proven technology that standardises, controls, dispatches and optimises energy storage assets by managing and manipulating vast amounts of data in enterprise grade software using the latest AI techniques. These products are built with a philosophy of openness & extensibility at their core so that our customers can master their own innovation. Whether via access to our trusted pool of third-party developers or through personal usage of the Product APIs, our customers have the freedom of choice.

We now manage over 600 MW of battery storage on our platform, with a contracted pipeline exceeding 2 GW across five countries. Our customer base has recently expanded to include three of the world's largest energy companies and two of the UK's top three listed energy storage funds, underscoring our rapid growth this year. We are also active players in the Balancing Mechanism (BM), having delivered the first automated system to allow batteries to participate in the BM and led on the BM Reserve from Storage trials with National Grid ESO in 2021.

Introduction:

Arenko would like to thank Ofgem for the opportunity to respond to this consultation and can confirm that we are happy for our response to be published.

The pressure to deliver at pace to prepare the energy system for Government targets like Clean Power 2030 should not be at the expense of a robust, deliberative assessment of the delivery options. Otherwise we risk developing inadequate solutions that produce unintended consequences like vendor lock-ins and limited European interoperability—ultimately increasing the overall costs of decarbonisation. As with any IT project, the set-up and planning is where the time needs to be spent to allow smooth and effective delivery.

Ofgem should recognise where the path forward does not appear clear and leverage the collective digitalisation expertise[1] in industry in a more inclusive way. We believe this consultation proposes pathways poised to pursue the wrong governance model with what we believe to be risky lock-in effects, as it relates to commercial interoperability for GB cleantech business with EU, significant undue cost to the consumer through ESO product ownership mentality and the lack of wide-spread adoption of actual Data Sharing Infrastructure (DSI). This risk is due to choosing consultant-driven delivery models to coordinate a process that at its core must be driven by stakeholders. This is especially pertinent when the track record of the System Operator - Ofgem's preferred candidate for interim DSI coordinator (IDC) - is one of poorly managed procurement exercises, failed 'big bang' approaches to IT roll-out, emerging vendor lock-in risks, and an antiquated data management and cloud strategy.

The apparent governance agent vacuum at the cross-section of digital expertise and authority that can coordinate the development of DSI should be re-visited. There are plenty of examples of successful industry working groups (WG) that have incorporated more deliberative and collaborative consensus-building at pace. Different code working groups, trade association digitalisation groups and Government/ESO Taskforces have all ended up defining industry-wide digitalisation initiatives and standards setting to differing extents. These should have been adequately appraised, a gap analysis of what was delivered versus where we need to be. We see where we need to be based on where Europe are - including but not limited too: (i) the International Data Space Association (IDSA) working group on energy fostering a community of developers (ii) the European Commission's BRIDGE data management WG agreeing common reference architectures and standards and (iii) the int:net project which has formalised the culminating stakeholder network of years of Horizon EU funded DSI innovation with the common European energy data space (CEEDS) blueprint outlined in the Annex.

Successful digitisation projects involve software engineers and product teams (actual end-users) directly, **not** solely energy system engineers and consultants planning and then managing software delivery. Don't reinvent the wheel: Our response highlights an alternative approach to interim coordination that has a long-term largely self-funded route built into it from Day 1. It would be able to quickly iterate upon EU and GB blueprints and act as a vehicle to enable industry-wide adoption of open data standards. We call it the Hybrid model, as it combines components of the System Operator's Digitalisation Orchestrator vision[2] with enhanced use-case oriented industry working groups. The proposed model is about inviting companies to form their own consortia, and iteratively testing open-source containerised software and wider DSI components and open standards, reporting back on learnings and providing standard open artefacts (i.e. code-bases) as part of an agile development model. Only with this iterative, industry-inclusive approach involving real communities of data users and producers can companies understand how to agree on data governance that satisfies commercial and legal risks.

For example, Arenko is currently working with a potential consortium of asset owners, OEMs and battery health management companies on a data sharing infrastructure looking at the use-case of asset operation and maintenance optimisation. This could involve a standard, open data management

[1] Skills to improve data management amongst stakeholder data exchange platforms.
[2] https://www.nationalgrideso.com/document/324846/download

approach for sharing asset-level and market-level data that utilises common DSI. This could be a useful contribution to the exploration of other use-cases related to flexibility services. Such a consortium could test out the DSI components thus far from the Virtual Energy System (VES), National Digital Twin Programme (NDTP), IceBreakerOne (IB1) and/or any other specified component provider. We could also trial the plethora of open source DSI components found in Europe and begin contributing to a common GB knowledge repository. This industry-inclusive approach is tried and tested as can be seen in the latest International Data Spaces Radar 2024[3] and the latest round of European Common Energy Data Space grant funding[4].

Given the scale of the task at hand - evidenced by the vast amount of funding being extended and learnings being generated in Europe - Ofgem should also seek to make a conscious decision on why we appear to seek to reinvent the wheel here. Why not iterate on both existing GB and DSI open-source components and learn from the successes of the industry-inclusive governance models in the EU?

Our key asks:

- Ofgem should commit to publishing a Request for Proposal for industry-consortia inclusive DSI development using common DSI components and requiring standard artefacts, as soon as possible.
- Ofgem or IDC should oversee a technical alignment exercise with outputs to date of GB DSI components and the int:net CEEDS blueprint components, and adopt their terminology (or map how Ofgem terminology aligns).
- VES should publish DSI components and building blocks on the EU Data Spaces Support Centre to encourage openness and transparency.
- Ofgem or IDC should support industry consortia in funding in-motion projects that focus on delivering participation in Proof of Concept (POC) initiatives and developing DSI components that align with European standards.

Q1. Do you see potential uses for the DSI within your day-to-day operation in the energy sector?

Yes, we believe that a well designed Data Sharing Infrastructure (DSI) could potentially catalyse delivery of a sustainable energy system facilitating industry across a wide range of stakeholders to rapidly digitalise and manage future complexity and volatility. We understand the contribution of simple and intuitive articulations of DSI as having Trust, Prepare and Share components in Ofgem's policymaking process, largely owing to the Digital Spine Feasibility study.

However, we are concerned that the lack of a more technical definition of the constituent components of DSI will serve to obfuscate potential alignment opportunities with the European Data Space initiative

[3]https://internationaldataspaces.org/wp-content/uploads/dlm_uploads/The-Data-Spaces-Radar-Version-4.pdf
[4] https://eufundingportal.eu/energy-data-space/

which is the most advanced example of a common industry-wide DSI in the world. Furthermore, the lack of a clear set of technical definitions for these components, and their constituent building blocks, may lead to the development of non-interoperable solutions with unclear outputs and expectations about how they all fit together.

We want to take this opportunity to clarify what the component and building block terminologies that will be used in the European framework for Data Spaces are (based on the latest Common European Energy Data Space (CEEDS) blueprint) and attempt to map what Ofgem means to this. **Please refer to the Annex portion of this document in advance of the following sections**.

As shown, the European Union now has a blueprint for describing the components and their respective building blocks for the common Data Space (considered to be an international example of DSI). Different DSI participants (existing data exchange platforms) are connected through a software component called a Connector. The overarching layers - the federated data space - have a Trust Framework, Log, Vocabulary Hub, Contracting and Publication and Discovery components to facilitate standardised and secure data exchange. Each component has its respective building blocks, for example the Trust Framework has "Access & usage policies and control" and "Identity Management" building blocks.

The fact that the Digital Spine Feasibility study did not adopt the same common component terminology, and that Ofgem has not mentioned what the constituent building blocks of Trust, Prepare and Share are, makes proper scrutiny of outputs difficult. The absence of common reference architectures (e.g. the data exchange reference architecture v3.0 of the BRIDGE WG) to describe how components fit together has the added effect of making clear expectations around procurement even more difficult. It also has the added effect of European companies not being aware of or able to immediately decipher the exact requirements of any future GB procurement exercise, rendering them potentially less competitive.

Ofgem should recognise that common language is key to enabling clear communication and clear expectations and should consider if there are benefits of adding their own into the mix.

The specific uses for the DSI within day-to-day operation in the energy sector would be manifold:

- As described in the EU's ETIP SNET Energy Data Space policy paper[5] (December 2023), a fundamental prerequisite to fully capitalise on the benefits of the data space is to design use-cases that a) explore and combine data from different owners (i.e. cross-silo data sharing) and/or b) exchange/transfer data-driven models and knowledge extracted from shared data. The proposed use-cases should align with existing social, political and regulatory requirements, utilise readily-available technology in the market and solve an important and real-world need. The report includes 12 exemplary use-cases.

[5]https://op.europa.eu/en/publication-detail/-/publication/43b8d2d1-6975-11ee-9220-01aa75ed71a1/language-en

- The European Commission's Energy Transition Expertise Centre report on Common European Data Spaces[6] (November 2023) highlights the following use-cases based on high technology readiness levels in European innovation projects:
    - A resource aggregator wants standardised and easy data access as well as control ability to flex assets in order to scale onboarding and operational processes.
    - A metered data administrator wants to provide customers with access to a range of flexibility services. Ultimately this role could be reduced with more efficient data management processes. *This will not be offered from this sector as they collect rent from the complexity of operations.*
    - An original equipment manufacturer wants to provide customers with required data and specific data usage rights so that data can be exposed in flexibility markets and compliance with data regulations is ensured.
    - The system operators wants to make use of new flexibility services providers to ensure an efficient and reliable grid operation.
- The int:net project outlines five use-cases[7] (August 2024) that will be trialled and will foster and support the large-scale deployment of the CEEDS blueprint:
    - Use case #1 – Collective self-consumption and optimised sharing for energy communities
    - Use case#2 – Residential home energy management integrating Distributed Energy Resources flexibility aggregation
    - Use case #3 – TSO-DSO coordination for flexibility
    - Use case #4 – Electromobility: services roaming, load forecasting and schedule planning
    - Use case #5 – Renewables O&M optimization and grid integration

Arenko are in a unique position to drive forward use-case #5 of the int:net CEEDS blueprint document as we develop new innovative partnerships with existing clients, co-sellers of services and other use-case specific third-parties. Specific benefits that would be realised through the use-case that Arenko would be open to participating in and driving forward would include:

- DER asset management - presently data collected from operational renewable and battery assets is typically siloed within the walls of asset owners and OEMs. DSI would enable controlled data sharing and pooling between any software company that the data owner will be doing business with. Only through these innovative approaches to data management will the sector be able to fully leverage novel ML expertise and disparate data sources (e.g. satellite images, robotics inspection, advanced sensors) to fully exploit access to real operational data. This is necessary to realise advanced O&M actions (e.g. predictive maintenance) and truly assess the financial risks of new investment. The need to capitalise early and lead in the development of standard API for use by international energy clients is of strategic importance to national competitiveness.

[6] https://op.europa.eu/en/publication-detail/-/publication/21b0260e-a2d5-11ee-b164-01aa75ed71a1/language-en
[7] https://enershare.eu/wp-content/uploads/Blueprint_CEEDS_v2.pdf

- DER flexibility services - to support grid integration via flexibility services, the existence of DSI would massively simplify the amount of market on-boarding/registration work we need to do for grid-scale batteries and renewables projects, and would enable better switching between service providers e.g. in the provision of EDL/EDT software services for accessing the BM[8]. There are clear common benefits delivered by DSI for flexibility services including integrations between flexibility service providers, a central flexibility register, a dedicated TSO-DSO coordination module and market operator systems (See OneNet work package 7[9]).

When considering the technical promise of the CEEDS blueprint in the annex, virtually all existing approaches to data sharing could be replaced with DSI today, with the exception of niche typically hardware-oriented control loops e.g. dispatch, telemetry, set-point instruction. This would massively simplify the amount of work the GB energy industry would need to do for digital services and enable better switching between service providers.

It would make it seamless to sell predictions data, you could sell historic data, you could sell aggregated feeds of data or - better yet - publish it all for public consumption and innovation under strict access and usage policies - in the spirit of open data.

Q2. Do you have any comments on the funding mentioned within this section?

We do not support the near-term funding approach outlined given the presumption that the System Operator (SO) is best placed to assume all costs in the interim development of the DSI. We disagree with the assumption that the only funding tool to develop DSI ought be through the SO pass-through cost mechanism and thus on consumer bills. Whilst the SIF and NIA funds are convenient funding mechanisms for the ESO they are by no means agile. The Virtual Energy System[10] has taken over four years producing a grand total of 6 PDF reports and 7 Advisory Group meetings. The common framework - which took two years to develop a 'high level design and wireframe of the demonstrator to test core components', does not include any open-source code-base for wider stakeholders to implement or iterate on.

The core issue with this funding mechanism is how it precludes anything other than System Operator and/or Government led use-cases for the Pilot or MVP from being prioritised. The Pilot project involves not-technically led companies with a proven track record of failure to deliver modern technology projects - TOs, DNOs, ESOs, and would lead to something that in its DNA not agile and entails a slow, industry-exclusive, process-oriented approach. It's also likely that use-cases that involve tinkering with the OpTel network[11] which will require engagement of NCSC and only increase the time before the 'MVP'

[8] See page 26, https://www.nationalgrideso.com/document/320711/download
[9] https://www.onenet-project.eu/wp-content/uploads/2024/04/OneNet_D7.6.pdf
[10] https://www.nationalgrideso.com/future-energy/virtual-energy-system
[11]https://www.nationalgrid.com/electricity-transmission/document/132126/download#:~:text=The%20National%20Grid%20OpTel%20network,of%20the%20electricity%20transmission%20network.

becomes 'generally available' in the absence of parallel use-case development. The slim chance of project success with these organisations would have meant putting together a fundamentally different group of individuals that will drive this change within these companies. However this still represents a huge unproven delivery risk and we are not sure there is strong enough incentive to do agile delivery.

Additionally, fundamental consideration of use-cases should be had about where energy data sits at the moment and how readily available common standards to support data pooling and sharing will be. Most data likely to be transferred in wider energy sector use-cases would be row-based, time-series data (not network diagrams or simulation files). The use of either Pub-Sub or REST APIs could enable high-frequency data-sharing, and even the eventual full-automation of certain use-cases. Innovation report literature from EU projects and Ofgem's own OGS Market Standards Study all suggest prioritisation of use-cases that involve a diverse range of stakeholders and data-needs and have readily-available common standards to inform the Vocabulary Hub.

That's not to say that improved data sharing using DSI technology between TOs, DNOs and the ESO should not be progressed. Instead, there should also be alternative funding streams to progress common industry-consortia-led use cases in parallel with the ESO Pilot and MVPs, as expanded upon in Question 6.

Unfortunately, the MVP candidates for the DSI read as a list of problems the ESO needs to solve. This is echoed in DESNZ recent letter[12]: stating that "initial work should be focussed on areas that contribute to strategic priorities, particularly as ESO transitions into the NESO". We recognise the power that digitalisation has to offer solutions here. However, that does not imply that the only way to deliver on the DSI is for NESO to deliver more innovation projects or for the NESO to develop a 'product' it will 'own'. Instead it needs to be a living set of agreements and interactions between parties who will drive forward new data management strategies using common decentralised open-source containerised solutions.

We have concerns about how useful the outputs of the Pilot and MVP will be for wider industry, given the NESO looks poised to procure all the parts at different stages of the process (a risk we elaborate on in Question 9) . Whilst the consultants might end up open sourcing project deliverables, this does not guarantee industry will be interested in using it or that it will necessarily be fit for purpose.

Finally, a critical issue with this funding approach is that it does not guarantee the long-term financial sustainability of the DSI and adoption of outputs by the industry. In Europe, the prospect of end-state data-for-data, data-for-money, data-for-x (innovation) valorisation regimes is shaped by the industry-inclusive development of use-cases. This is elaborated on in Question 11.

[12]https://assets.publishing.service.gov.uk/media/66bf20d2a44f1c4c23e5bd10/government-response-to-the-digital-spine-feasibility-study.pdf

Q3. Do you have any comments on the timeline shown?

As stated above we believe the fundamental approach proposed is flawed with costly implications so the timeline detail presented is of secondary concern.

The proposed funding approach excludes a wider range of use-cases that may be better served by existing harmonised data models, ontologies and IT architectures that can mean shorter timelines of development.

The dependency on the NIA to develop the MVP up to 2026 puts us misaligned with European timelines.

Consider the following key European Commission (EC) milestones:

- Established 'Smart Energy Expert Group' and a dedicated 'Data for Energy' working group (Q1 2024)
- Preparing the ground for deploying the energy data space (Horizon Europe, 2022-2025)
- Deployment of a first operational version of the energy data space (DIGITAL, 2024-2027)

Notably, 2024 has also seen the launch of the Data Spaces Support Centre (DSSC)[13] and talk of a Smart Open-source Middleware (SIMPL)[14] public procurement plan under the Digital Europe programme and Horizon Europe. The DSSC represents a milestone in the consolidation of Data Space learnings. It will act as a single point of truth about data spaces which opens and activates a place to host, grow and curate discussions related to data spaces for all the actors of the data economy and where they can access a knowledge base including the DSSC assets. Meanwhile, the EC has stated plans to publicly procure for the provision of Smart Open-source Middleware (SIMPL) that would enable cloud-to-edge federations and support sectoral Data Spaces (aka use-case agnostic DSI building blocks that support cross-sector NDTP 'vertical capabilities'). This is an indication of the maturity of the EU data sharing landscape.

Misalignment would limit growth opportunities for UK software clean tech companies in the EU and quickly undermine GB's leading reputation on delivery of digital energy services. The real impacts would mean spiralling costs of doing business in a digital economy, vendor lock-in risks for big-tech multinational vendors who may instead seek to develop closed industry integrations and a less compelling GB landscape for the 'AI revolution'[15] and the data centre investment boon.

Furthermore, there are limited details provided on what the activities in the design stage will involve, or any indication of a standard architecture development framework that will be employed. Therefore on what basis can we say if this best advanced through the ESO and innovation funding for networks.

[13] https://dssc.eu/
[14] https://digital-strategy.ec.europa.eu/en/policies/simpl
[15] https://www.mckinsey.com/capabilities/operations/our-insights/the-ai-revolution-will-be-virtualized

Four years is a long time in the development of the energy and digital sector, especially in our current decade where data-centre growth is expected to accelerate immensely and at a very rapid pace - the GB energy sector and relevant DSI **must** match this pace of development in order to remain competitive and fit-for-purpose with the developers' needs.

Q4. Do you agree with our short-term governance structure model where the Interim DSI Coordinator is responsible for leading the short-term governance (2024 – 2028) of the DSI?

No, we broadly disagree with the short-term governance model given its industry-exclusive nature, its divergence from successful EU development models and the reliance on the System Operator fulfilling primary roles that there is insufficient evidence that it can do at all. We are concerned that Ofgem thinks privilege management, data standards, cybersecurity and cross-sector integration are best delivered via the creation of a new central expert entity that will rely on procurement exercises and external consultants.

Why would a System Operator interim DSI coordinator (IDC) be best positioned to provide an assessment of the appropriateness and development requirements of industry-led DSI use-cases? DSI is fundamentally about open-source decentralised containerised software for data sharing - the IDC should be in no position to gate-keep the development of this technology, except to steer and coordinate its development to realise collective benefits.

Once more, we see no evidence of the System Operator being well placed to undertake a forward-looking technology assessment to future-proof the DSI and expose novel digital tools that should be integrated into the DSI. We highlight the stark evidence base supporting this conclusion in Question 9.

The IDC role should focus on the specification of common components and building blocks by effectively harnessing the learnings generated from industry-consortia led-approaches. This includes:

- Promoting priority use-cases for development and highlighting best practices and testimonies.
- Specifying the solution architecture for common building blocks and cross-sectoral 'vertical capabilities' that require independent development to facilitate the use-case specific needs of DSI participants. For example, the specification of the Log, the overseeing of the Publication and Discovery Catalogue of self-annotated Data Products, the overseeing of the 'health' (e.g monitoring uptime) of all the Connectors in the system, and the necessary feedback loop with the NDTPs cross-sector integration architecture etc.
- Acting as an authority on standards implementation - can endorse certain standards being used for a certain use-case and act/feed-in as a GB standards body authority for then feeding into international standard working groups and increasing adoption. Can recognise cross-sector, international benefits if a certain standard is adopted over another.
- Ensuring consistency in Trust framework components (Access and Usage policies, identity management framework) across use-cases and acting as an expert advisor on: legal matters to ensure data sovereignty is respected and cyber-security matters for compliance involving CNI.

- Overseeing a knowledge base and support centre that defines standard artefacts in the development of industry-consortia-led use-cases. Consider the repository of OneNet Use Cases[16] or DG Energy's EIRIE platform[17] which recently absorbed the BRIDGE use-case repository[18] or the aforementioned Data Space Support Centre.

We expand in detail on the role the IDC could play in an alternative Hybrid governance model approach proposed in Question 5.

Separately, the ESO may wish to use competitive tender exercises to complete its own IT development work in order to integrate with the open-source Connector, and trial common DSI components with regards to its own set of priority use-cases.

There are also transparency concerns with development to date that suggests Ofgem can not appropriately recognise the risk of incumbent parties, consultants and big-tech trying to distort the development and access to funding in this area. For example, Ofgem neglects to mention who is in their Digitalisation Technical Advisory Group that was convened in December 2023 (or even mentioned in this consultation) as referenced in DESNZ's response to the Digital Spine Feasibility study[19]. This does not suggest that Ofgem are well-placed to oversee the activities of the IDC or will ensure that assessment tools are available in an open manner.

Q5. If not, state your reasons and propose an alternative governance model or improvements to our proposed solution.

International experience has shown that the development of common infrastructure requires constant iteration of ever expanding industry consortia, focused on delivering many diverse use-cases, especially those that interconnect different sectors. This enables rapid development and parallel learnings to feed into one another. This is inherently a stakeholder driven, industry-inclusive approach that requires a central entity to coordinate but not dictate the terms of engagement.

All organisations can not otherwise be expected to mutually agree to expose a minimum layer of data if they do not believe it to provide any competitive edge. Data providers (distinct from data owners) will need to devise the internal business case to incentivise the data owner (huge multinational OEMs, households and businesses etc.) to authorise access to their data so that the provider can then expose it to a common (GB-specific ?) data sharing infrastructure. Uptake will also depend on what incentives organisations can perceive in installing their 'Prepare' nodes/Connectors and completing the (potentially) additional data engineering (e.g. ETL pipelines to new open data standard) needed. All this with the backdrop of existential lingering questions. Will there be other organisations willing to pay for

[16] https://zenodo.org/records/10784935
[17] https://ses.jrc.ec.europa.eu/eirie/en
[18] https://bridge-smart-grid-storage-systems-digital-projects.ec.europa.eu/use-cases-repository
[19] https://assets.publishing.service.gov.uk/media/66bf20d2a44f1c4c23e5bd10/government-response-to-the-digital-spine-feasibility-study.pdf

this data? How much trust can be put in the common security and quality protocols being upheld? Are there new intermediary entities and business models required to facilitate certain use-cases i.e. complex brokerage of data to deliver consumer-consent solutions, services for logging relevant data exchange transactions?

If so, how are we expected to learn about this when essentially the System Operator will be procuring a DSI 'product' which satisfies only use-cases that it will get to define until 2028.

The Virtual Energy System emphasises the business culture change needed to diffuse across industry to realise successful DSI. But this is not delivered through weekly webinar shows and tells. Communities need a shared endeavour that all parties are mutually-invested in.

Only through stakeholder-led trials can we effectively test the socio-technical principles agreed by the VES Common Framework, the common open-source building blocks (e.g. IB1, NTDP and H2020 EU outputs) and suitability of open standards.

The UK needs to incubate its own cross-industry developer community that can agree common reference architectures and iteratively mature common component/building block technologies based on agreed standards, to foster their acceptance and generate learnings to catalyse further development. The following proposed model is based on EU best practices (IDSA Energy WG, BRIDGE Data Management WG, int:net) and UK-specific governance models such as the ESO's Sub Synchronous Oscillation Task Force. It uses the Strategic Planning, Knowledge Base and Enterprise Architecture elements of the ESO's recent Digitalisation Orchestrator proposal[20] but re-defines these roles and expands the governance model to ensure industry inclusivity.

This model blends both System Operator and Industry working groups to introduce a **Hybrid governance model** that will deliver valuable learnings in weeks not years and tap into the latent engineering talent in the UK clean-tech industry.

Hybrid Governance Model:

This model leverages enhanced use-case oriented industry **working groups** where funding is tied to delivery. The enhancement refers to the fact that in attendance we need engineers in industry (not solely energy systems consultants or policy managers) who share an hour or two of their team's time a week (dependent on the funding extended) to basically trial the implementation of open-source containerised solutions in their respective simulation environments by sharing data amongst a pre-agreed industry consortia and reporting back on learnings. The working group itself would comprise self-nominated representatives of industry consortia and members of the synthesis group to ensure coordination. Working group activities would entail providing project updates, sharing feedback on common architectures and artefacts, the development of standards and the dissemination of knowledge and learnings etc.

[20] https://www.nationalgrideso.com/document/324846/download

The **synthesis group** would coordinate the iterative development of common components and building blocks (as described in Annex 1) used within the working groups. This is enabled by the use of commonly agreed reference architecture, such SGAM diagram and the EU Data Exchange Reference Architecture 3.0[21] to illustrate reference data flows. This is crucial to ensure the reporting back can be done in a standard way so that it can feed into the common knowledge repository for future DSI participants.

A **steering group** would oversee the knowledge repository and raise awareness of the DSI initiatives. It would act as strategic decision-body on potential use-case specific disputes (e.g. regarding standards adoptions, artefact definition). Importantly it would provide strategic buy-in from the Government enabling access to the alternative funding route which would catalyse the use-case oriented working groups.

Further detail on how these groups interrelate and the key outputs each would deliver is proposed in the visual description of the Hybrid Governance Model in Annex 2.

The role of the IDC should be to coordinate this process and act as an expert and strategic authority to support the Steering and Synthesis group. They should oversee the common knowledge repository by which learnings from specific projects are documented and shared. They should also have the mandate to decide on specific standards[22] adoption (i.e. what standards should be used) should there be disputes at the working group level. This would enable us to capitalise on GB's unique position that avoids the bureaucratic agreement of standards agreement amongst EU member countries. The UK has the advantage of not being constrained by market fragmentation, exacerbated in the EU by varying regulations and standards across EU member states. The interim DSI coordinator would also have some steer to define what use-cases are to be explored to hit the criteria outlined in Q1.

This approach could practically be advanced with Ofgem issuing as soon as possible a Request for Proposals (RfP) from industry consortia, that builds as much as possible on the open-source building blocks of the VES, NDTP and/or relevant EU initiatives. Following the EU Energy Transition Expertise Centres advice in the development of minimum viable data spaces[23], an RfP would include:

- Initial user stories and an understanding of the business case of key participants
- Agreement of the common DSI building blocks (including Trust Framework)
- Commitments to making their data assets indexable and discoverable
- Commitments to develop a process to solve pain points in the use-case
- Commitments to extend DSI building block features in an iterative process

[21] https://op.europa.eu/en/publication-detail/-/publication/dc073847-4d35-11ee-9220-01aa75ed71a1/language-en

[22] In addition to standards, the ultimate IDC aim is to lead / coordinate agreement on the commonly agreed reference architecture, replicable and scalable 'building blocks' (e.g. data models and formats, data exchange APIs, data provenance and traceability, metadata and service discovery, identity management / identifications and authentication, data access and usage control arrangements, business agreements, operational agreements, governance agreements) as highlighted in response to Q1.

[23] https://op.europa.eu/en/publication-detail/-/publication/43b8d2d1-6975-11ee-9220-01aa75ed71a1/language-en

This could lay the ground-work for ultimately extending grant funding for projects that meet governance criteria, conditional on the production of projects that produce common outputs that can feed into a shared knowledge repository, as undertaken by the EU[24].

We believe a competitive industry-collaborative grant funding approach with knowledge sharing is integral to ensuring DSI delivery outputs can be specified clearly, developed rapidly and iteratively, and disseminated openly to interested parties that can further advance use cases. The importance of bringing in engineers, and not just strategic steers, can not be overstated. Under this model, ESO, TOs, and DNOs will definitely be involved in some use-cases but will not be exclusively relied upon to drive forward the adoption of common standard data sharing until at least 2026.

Thus far, Ofgem has only articulated how it intends to obtain feedback on specific use cases for the MVP - however, the MVP is not applicable to much of the wider industry. It is key for the IDC to develop a plan for how wider industry feedback, and continued iterations, will be supported in order to develop architecture that is actually usable and fit-for-purpose.

There are encouraging, emerging signs that there is a budding community of developers that can contribute to this more collective and deliberative approach. The Centre for AI and Climate for example continues to publish valuable data products for open consumption[25]. Many DSOs are continuing to open-source data in line with Data Best Practice this year. Modo Energy recently announced that many of their APIs are publicly available.

Arenko to be clear are currently working with a potential consortium of asset owners, OEMs and battery health management companies on a data sharing infrastructure looking at the use-case of asset operation and maintenance optimisation (in line with use-case #5 of the int:net CEEDS blueprint document). This could involve a standard, open data management approach for sharing asset-level and market-level data that utilises common data sharing infrastructure. This could be a useful contribution to the exploration of other use-cases related to flexibility services. Such a consortium would test out the DSI outputs of the VES, NDTP, IB1 and/or any specified connector provider. We would be delighted to test the plethora of open source building blocks found in Europe or the GB and report back learnings and common artefacts to a common knowledge repository. Grant-funding would significantly de-risk this activity and provide a small incentive to all parties involved to put their best foot forward.

Arenko, on behalf of our industry partners, would be delighted to evolve thinking in tandem with Ofgem and the System Operator as soon as possible, to explore the viability of a Hybrid governance model.

Q6. Are there any additional governance roles that are not covered by the proposed governance model? If so, what are these?

Yes - as discussed in Question 5, we believe in a highly collaborative approach between government, network companies, and agile industry consortia to deliver DSI outcomes. With our alternative model

[24] https://eufundingportal.eu/energy-data-space/
[25]https://www.c-ai-c.org/

proposed there are a number of governance roles that it fulfils, in addition to improving the way Ofgem's oversight role gets fulfilled. Developing DSI is **not** about outsourcing product development in a way that excludes industry actors (who hold the practical expertise and are best placed to understand and build on actual use cases).

Ofgem should not reinvent the wheel in terms of considering the governance model for DSI delivery. This is the prime instance where industry leadership is essential to tap into - rather than focus on tasks for a central IDC body, Ofgem should focus efforts on ensuring there is clear transparency in documenting and sharing learnings / artefacts from DSI projects.

As IcebreakerOne makes clear, the development of a governance structure and the consensus of participants should start early in the process. The availability of an array of European and GB models for the set-up of rules for participants, methods for decision-making and ultimately an approach to fund the long-term cost of operating the data sharing infrastructure. We expand on this in response to Question 10 below.

Q7. Do you agree with the responsibilities of the interim DSI Coordinator? Are there any additional responsibilities that it should undertake?

We largely disagree with responsibilities defined for the IDC given the issues with the industry-exclusive framing of this minded-to coordination approach, as expanded on throughout our response.

Additional to the responsibilities tied to the IDC within a Hybrid governance model outlined in response to Questions 4 and 5, we believe the following additional responsibilities will be essential to successful DSI delivery:

- International and cross-sector horizon scanning, which can closely engage with and iteratively learn from similar international initiatives (e.g. taking part in the int:net working groups and other relevant EU initiatives). Data sharing is fundamentally unrestricted by national borders - it is key to ensure that GB's DSI development aligns with and allows for smooth interoperability with other country partners, for our energy (and transport) sectors to remain competitive in the face of digitalisation.

Q8. Do the proposed deliverables reflect the outputs that the Interim DSI Coordinator should focus on in the initial DSI stages? Do you suggest any additional deliverables?

No. The limitations inherent to SO led development for the next four years as outlined would likely render any library of data pertaining to the introduction of use-cases redundant.

There are additional mechanisms needed for enabling long term financial sustainability and securing the uptake of the data sharing infrastructure as explored in Question 2 and 9.

Additionally, the suggestion that the 'share' building blocks for the use-cases can be delivered using standard tendering processes for implementation, program management and additional software development is concerning. The complexity of the 'sharing mechanism' as highlighted in Annex 1 and its deep interrelation with use-case specific stakeholder needs should cause a reevaluation of this approach.

Additionally, the suggestions that IceBreakerOne should act as Identity Governor, Manager and Provider and Contractual Framework provider - is unlikely to render the optimal cheapest approach without competition and/or alignment with EU initiatives- consider OPEN DEI[26] and GAIA-X Trust Frameworks, to name but a few, which already have been tested in the energy sector in Europe.

We suggest additional deliverables in line with the alternative Hybrid model approach, described in response to Question 5.

Q9. Do you agree with us that the System Operator is the best option as the Interim DSI Coordinator? If no, explain your reasons and justify your proposed option.

No. We do not see ESO as aligning with any of these criteria, except stakeholder management and to an extent: independence. Interoperability and common standards - they are very bad at this, not for lack of trying.

The degree to which each component neatly corresponds to a solution architecture that the interim DSI coordinator can 'go shopping' for as a procurement exercise is concerning. This is typical of a mis-managed digitalisation project of which there are many costly examples in the UK energy sector such as Energy Balancing System EBS (conceived for delivery in 2013 but never delivered tangible value and will finally be decommissioned in 2025). Fundamental issues stemmed from the 'big bang' project implementation instead of agile delivery and vendor-lock-in concerns with Hitachi. Interestingly ESO has acknowledged these issues with EBS delivery[27], yet will be doing the same for their new network control and management system[28] provided by GE and ostensibly this is the path being suggested for DSI MVP development.

Experience has shown that ESO IT projects have been fully reliant on consultants - from project scoping to testing. Additionally we find ESO has difficulty judging whether it has done a good job, and has poor experience on basic technology delivery: user requirement gathering, product delivery management, doing user testing, basic definitions of 'done' for internal projects let alone on external facing projects/interfaces. For example see the conclusions from its two recent mid-scheme performance

[26] https://www.fiware.org/project/open-dei.html
[27] https://www.nationalgrideso.com/document/249391/download
[28]https://www.ofgem.gov.uk/sites/default/files/2024-08/Coforge%27s_BP2_midscheme_review_of_ESO_Digital_Data_and_Technology_performance.pdf

reviews by Zuhkle[29] and Coforge[30] on IT overspend and bad practice. The RIIO-2 overview states that £517m (93%) out of £556m of investment raised concerns, and 55% (£307m) raised serious concerns.

Moreover, in flexibility markets ESO still has and is actively pushing development for SOAP API interfaces from 20 years ago[31]. These are widely accepted as redundant technology that **will** present costly build out in the future.

Ofgem has pre-supposed the outcome of the SO being the best option as the interim DSI coordinator by only exploring one funding route. Therefore we do not consider there to have been a valid assessment process. We don't think enough effort has been given to evaluate the effectiveness of a working group (nevermind an enhanced, hybrid model) - to do something properly it takes time and resources, this is not a valid basis for disqualification.

To be clear, the SO may still wish to use tender exercises to complete its own IT development work to integrate with open-source connector software and trial other DSI components with regards to its own set of priority use-cases. This does not mean that SO procurement policy should be the sole means of development.

As discussed, the framing instead should be about ESO sponsoring an open source federation of DSIs that share core interoperability mechanisms, that are actively shaped to by stakeholders. If you are doing an MVP then both parties involved in building it should be the first party developers of it not people who are buying it. There is no established and proven software knowledge in the ESO, they outsource it all. Nor is there any demonstrated ability to run an open-source approach.

Our alternative approach and its justification can be seen in response to Question 5.

Q10. What assessment criteria do you foresee being required when transitioning from short-term governance to an enduring governance model?

The key assessment criteria we want to emphasise to ensure enduring governance and viability of DSI relates to data valorisation. Ensuring data valorisation challenges are overcome is crucial to ensure the financial sustainability of enduring DSI. While open data initiatives (i.e. implementing the 'presumed open' principle) are valuable for data of common interest, sustainable business models for data exchange platforms will require assessing data's value based on its specific use-case. Particularly, in the B2B context, promoting the development of fair data monetisation strategies and implementing data-by-data exchange strategies are vital.

[29]https://www.ofgem.gov.uk/sites/default/files/2022-11/Business%20Plan%202%20Draft%20Determinations%20-%20Electricity%20System%20Operator.pdf
[30]https://www.ofgem.gov.uk/sites/default/files/2024-08/Coforge%27s_BP2_midscheme_review_of_ESO_Digital_Data_and_Technology_performance.pdf
[31] https://www.nationalgrideso.com/document/324246/download

The following regimes that ensure long term financial sustainability are identified by the European commission:

Data-by-money (monetary incentive): data owners accept to share data because they are financially compensated if their data is relevant for solving analytics/optimisation tasks and pay in case data from others is relevant to their own tasks. This is more suitable for the B2B or B2B2C context (such as for flexibility service providers).

Data-by-data (non-monetary incentive): barter trading - data-by-data exchange schemes for non monetary compensation. Data owners agree to share and receive data with approximately the same value, exchanged data includes services as, for example, alarm signals, fault notifications, and indications of maintenance actions.

Data-by-X (novel social science and humanities approach/incentive): combining the sharing economy, co-creation and design thinking methodologies to place energy consumers (data owners) at the forefront. These would be innovative approaches to inspiring consumers to share their energy data for free (not treating it as a commodity).

Additionally, enduring policy and regulation measures are needed to oversee the transition from an interim model (Hybrid or otherwise) to ensure long-term viability. A DSI regulatory framework, which itself sets the policy and social parameters within which constituent components need to operate, will need to be developed. The following points are emphasised in the EC's recent Energy Data Space policy paper:

- **Avoidance of vendor and initiative lock-ins.** The accompanying DSI regulatory framework should support competition and disruptive innovation, avoiding customer lock-in to vendors and initiatives. It should furthermore facilitate the reuse of Open source libraries to ensure the fastest innovation to market. Future research initiatives should be guided to maximise the reuse of viable DSI components to minimise development duplications.
- **Foster harmonisation of mechanisms and standards**. Although new technologies require effort in developing new dedicated standards, most of the energy and transport use cases in Europe deploy data models, ontologies and functionalities that are already covered by existing standards with a predominance of CIM, SAREF4ENER[32] and OCPP. Hence investments on effective and long-term harmonisation mechanisms are necessary, not only at the energy domain but ultimately also on a domain agnostic perspective.
- **Regulation for the functioning of data markets**. The data sharing agreements and templates that legally bind participating in data sharing, should be formalised with an expansive group of market stakeholders to ensure an end-to-end validation of associated concepts (the EC recognises the flexibility network code drafting process as best practice[33] in this regard).

[32] https://www.fiware.org/about-us/smart-energy/
[33] https://smarten.eu/wp-content/uploads/2021/11/smartEn-DSF-NC-position-paper-FINAL.pdf

- **Quality assurance standards.** High data quality assurance is the bedrock of usable DSI. ACER's data quality framework[34], which assesses and ensures the data received under REMIT and Implementing Regulation are complete accurately and timely, is recognised best practice. To address the evolving requirements of DSI, it will be imperative to develop frameworks and guidelines that specifically highlight data quality considerations. A cutting-edge approach to achieving this is by harnessing the power of machine learning and artificial intelligence algorithms[35]. Training these models to detect anomalies, outliers, and data discrepancies, organisations can proactively identify and resolve data inaccuracies, thereby enhancing data quality.

Q11. What suggestions or feedback do you have for refining these governance assessment criteria to better meet the requirements and challenges of digitalisation in the energy sector?

As highlighted, Arenko disagrees with the minded-to position of tasking the System Operator to be the IDC and rely solely on network innovating funding to develop the Pilot and MVP of DSI.

Throughout our response we have illustrated what an alternative, industry-inclusive approach to the development of Data Sharing Infrastructure could entail. We believe that such an industry-inclusive approach is the only way to mitigate a costly, non-interoperable, uncoordinated outcome that System Operator - led development would entail.

Ofgem should critically consider why it appears reluctant to engage with European initiatives to the same extent it engages with the big-tech community despite the obvious consumer benefits of regional interoperability and not 'reinventing the wheel'.

Finally, Ofgem should also make explicit the fact that no data sharing infrastructure exists without an underlying cloud provider infrastructure. This introduces another useful lens for evaluating DSI delivery: an understanding of the extraterritorial rules which apply to remote server farm (cloud) providers. Consider for example, the Cloud Act 2018[36], which allows U.S. authorities to request access to data held by U.S. companies, regardless of where the data is stored. Data sovereignty - the concept that data is subject to the laws and regulations of the jurisdiction that it is collected or stored - is now at threat across the world. The DSI therefore should consider the extent to which the Trust framework component needs to consider the compliance of hardware infrastructure.

[34] https://www.acer.europa.eu/remit/data-collection/data-quality
[35]https://www.researchgate.net/publication/373214669_Machine_Learning_Applications_for_Detecting_Anomalies_and_Ensuring_Data_Integrity_in_Clinical_Trials
[36] https://conceptboard.com/blog/us-cloud-act-european-data-protection/

The European Commission certainly thinks this is important to make a deliberate decision about. The Dynamo model[37] is based on a novel approach to federated virtual cloud service providers which allow independent cloud providers (from American and Chinese hyperscalers) to join together to produce a collective service that can compete with the hyperscalers. GAIA-X[38], a leading candidate Trust Framework component in Europe, proposed rules for data storage and transfer that all participating cloud services would need to abide by.

Whilst the EU Data Space will not force organisations out of the hyperscalers, it might give organisations the ability to not be, and at least recognise where other data exchange platforms are hosted. The strategic national importance of data sovereignty in the context of DSI warrants Ofgem join-up with OpenUK, DSIT and DESNZ to crystallise where hardware data sovereignty sits within the implementation of GB Smart Data bill[39] and our National Data Strategy.

Conclusion

Arenko hopes the opportunity presents to meaningfully progress Data Sharing Infrastructure with Ofgem and the System Operator throughout the interim development phase within a more industry-inclusive governance model.

If you have any further questions regarding Arenko's response or would like to talk to us about it, please do not hesitate to contact me on the details below.

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[37] https://www.dynamo.cloud/#benefits and see: https://digitalindependenceeu.wordpress.com/agenda/
[38] https://gaia-x.eu/what-is-gaia-x/about-gaia-x/
[39] https://www.dataguidance.com/news/uk-government-introduce-digital-information-and-smart

Annex 1:

Connector

The EC has the terminology of having distributed Data Space **Connectors** ('Prepare' ?) downloaded within data exchange platforms (either on-premise or on cloud data infrastructure) associated with regulated or unregulated actors and entities, which realises the interconnection and data exchange.

The Connector plays a crucial role in enabling identification, data harmonisation/standardisation and brokerage towards Data Spaces. This approach of adopting containerised[40] solutions to integrate data from diverse sources and for allowing multiple applications to access the same data without having to duplicate it in multiple places is at the core the European Data Strategy.

Connectors typically have built-in standardised data exchange protocols to facilitate the transfer of data between different data exchange platforms. These Connectors exchange data through REST or Pub-Sub APIs using the Data Discovery and Data Indexing outcomes of the Federated Data Space.

These Connectors enable access to the Federated Data Space which refers to where data is indexed, made discoverable and has provided a sort of marketplace for sharing (and, possibly trading) both data and data services. What this necessarily entails is that the Connector must operate to exchange metadata (e.g. via the identity manager and credential manager components) and traded data (e.g., via the publication and discovery - catalogue - component).

Federated Data Space

The **Trust Framework** ('Trust' ?) is associated with two building blocks: **Access and Usage policies and control** and **Identity Management**.

The first building block is connected to the concept of data sovereignty which in the context of data spaces is about the control of access and usage of data.

Different policies are normally used to express the rights and obligations to maintain the control of data usage; hence, one objective in data space management is the definition of interoperable policies, i.e. rules to give access to a specific energy service (e.g., booking a charging slot with a chargepoint operator or executing a saving estimation in an energy community or pre-qualifying in a flexibility market) and understanding the rules for the usage of the data (i.e., which energy services they enable, the privacy rules with respect to other energy stakeholders).

Two types of policies are defined:

- Access policies, which specify the conditions to access services and data.
- Usage Policies, which specify rights and obligations for the usage of the data, including the future usage of data.

[40] https://aws.amazon.com/what-is/containerization/

The second building block is Identity Management, which enables authorisation mechanisms based on identity attributes. Identity Management refers to the set of activities that enable data exchange platforms/organisations to (i) identify data space participants (i.e. via an identity registry in which parties are registered that have committed to the data space governance framework and comply with any other requirements), (ii) identifying connectors and other technical components and (iii) identifying trusted data providers (such instances enable data space participants to learn which parties have been certified to provide particular data).

Multiple sub-components form the identity management building block:

▪ Identity Governor: the data space role that is used to refer to the party that performs the identity governance function for a specific identity registry.

▪ Identity Manager, which is used to refer to the party that performs the identity management function for a specific identity registry.

▪ Identity Provider: the data space role that is used to refer to the party that performs the identity provisioning function for a specific identity registry.

The remaining set of building blocks ('Share') are the **Log**, the **Vocabulary Hub**, the **Contractual Framework** and the **Publication and Discovery Catalogue**. These are all interdependent and complete the Federated Data Space.

Each building block is described briefly below:

The **Log**: This building block is used to log information or store information about data usage (e.g., incidents) for improved provenance and traceability. This is closely associated with the concept of a 'Clearing House', defined as an intermediary that offers clearing and settlement services for financial and data exchange transactions. It records all activities during a data exchange, which subsequently proves useful for billing and conflict resolution.

The **Vocabulary Hub**: This building block provides the API endpoints to enable seamless communication with data space connectors. Vocabularies are defined as commonly known, standardized terms to describe data, services, and contracts; hence the vocabulary hubs give access to the defined terms and their descriptions present changes and outline the different versions. Moreover, it provides information about the ontology/language used for data and, on the other hand, checks that the data being indexed is compliant with the provided vocabulary.

- The **W3** **DCAT** (Data Catalog Vocabulary) is recommended as a publisher to describe datasets and data services by leading European work.
- Again, being this an **energy sector oriented** approach, IEC (CIM, 61850, COSEM, etc.) and ETSI (SAREF, etc.) standards are what this vocabulary module is expected to be reliant in leading European work.

This building block has the following six different functions as further described in the blueprint: storing vocabularies, search on the semantic sources, documenting non-standardised data, export semantic sources, automatic integration with the catalog and the validation of data.

The **Contractual Framework**: The foundational element of the contractual framework encompasses contract templates, model clauses, or modules that empower transaction participants to manage and execute specific data transactions. Integrating tools to automate various stages of the contracting process, such as concluding contracts, monitoring compliance, and terminating agreements, can further streamline data transactions while upholding the legal validity of the agreed-upon terms.

The **Publication and Discovery Catalogue**: This building block acts as a catalogue containing self-descriptions of the data products available in a data space. This includes management of self-descriptions (publication, update and removal of self-descriptions by the providers), discovery of self-descriptions by potential users, enabling dynamic transactions and managing the access to self-descriptions.

This building block is particularly key to ensure loose coupling between data providers an potential users in true decentralised fashion. The European study identifies implementation through two different scenarios:

- Centralized or distributed catalogue, which includes all descriptions coming from the providers, and publishes them either in a centralized (a unique catalogue for the whole data space) or distributed (several catalogues that will have to implement some kind of synchronization) way. An example of such implementation could be the Metadata Broker specifications provided by IDSA, which contain an endpoint for the registration, publication, maintenance and query of Self-Descriptions.
- Decentralized or p2p catalogue, where the capabilities are included as part of the data connector used by each participant in the data space. In this case, participants directly contact each other on a p2p basis and establish the relationship by using the functionalities defined in the control plane of the connector.

For a full articulation of the Common European Energy Data Space Blueprint, please read the August 2024 document here. This includes further detail on each building block, their importance and how they necessarily interrelate to deliver interoperability. This is from the int:net project which builds off all the learnings from OneNet, Enershare etc.https://intnet.eu/#whoweare

For the full blueprint which illustrates the different components and their respective building blocks and differentiates between control planes and data planes, see below.

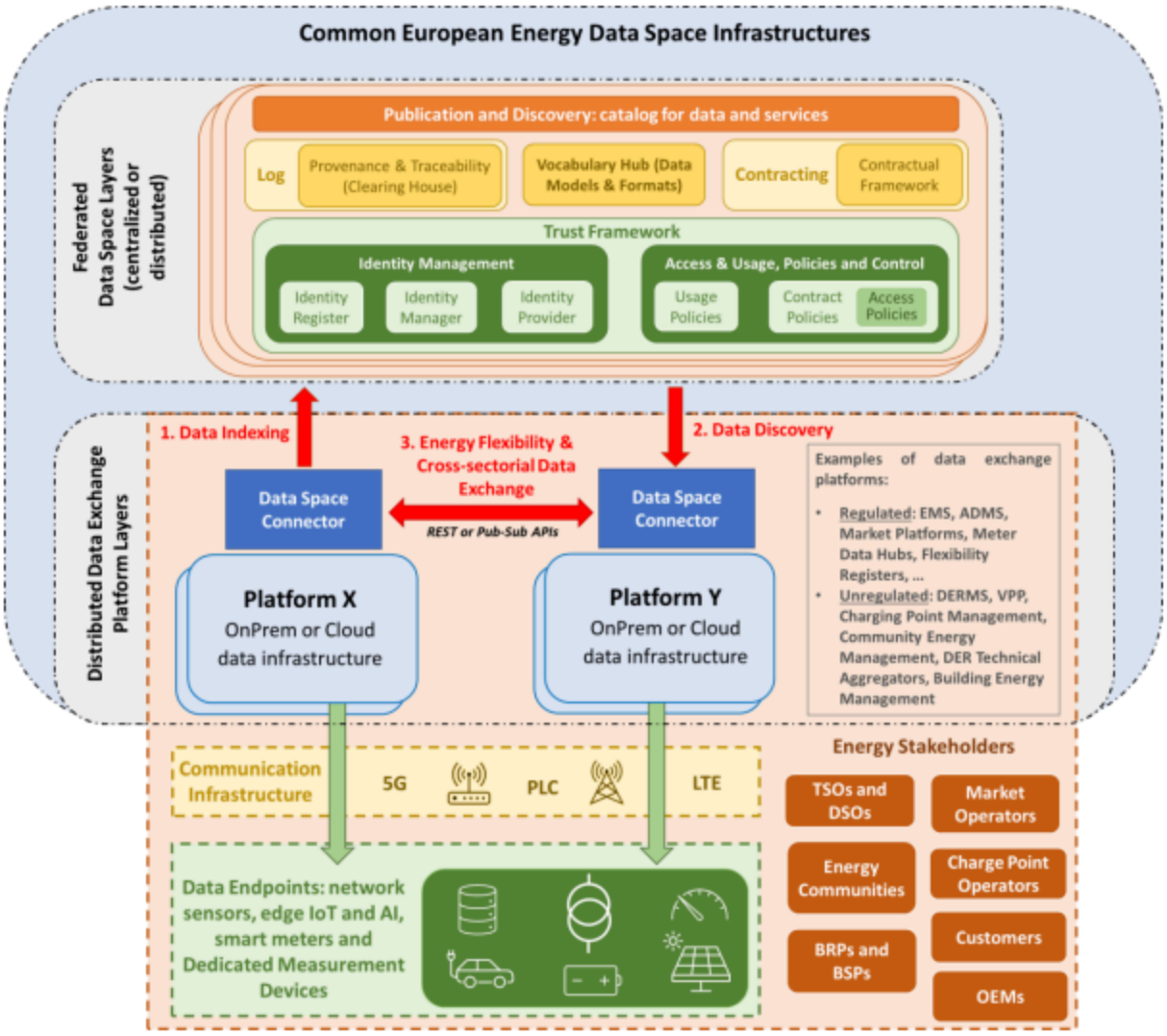


Figure 12 – Complete CEEDS architecture.

Annex 2:

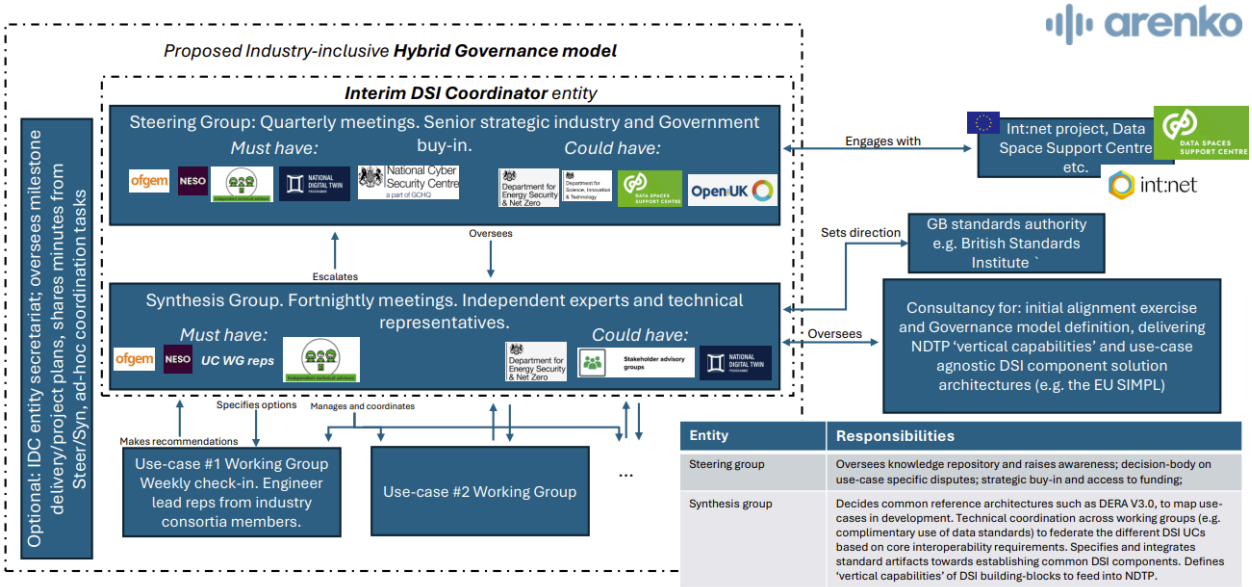
Summaries of governance structure of successful EU industry-inclusive development of DSI components:

- The **BRIDGE** initiative is an EU initiative that coordinates over 90 Horizon 2020 and Horizon Europe projects, with over €1 billion in funding, to advance smart grids, energy storage, and digital energy technologies. It operates under a structured governance framework led by a **Steering Group**, which provides strategic direction and oversees alignment with EU energy policies. The initiative includes four core **Working Group**s (WGs) focusing on regulation, data management, business models, and customer engagement, meeting regularly to address challenges and develop common frameworks. Subgroups are formed for specific issues, and twice-yearly plenary meetings gather participants to review progress. All Horizon 2020 and

Horizon Europe projects related to energy systems are invited to participate, contributing to reports and guidelines that help shape EU energy policy.

- The **IDSA Energy Working Group** operates under a structured governance model to drive secure, interoperable energy data spaces. Its **Steering Committee** (composed of representatives from energy companies, technology providers, and research institutions) sets strategic direction and ensures alignment with IDSA goals, while **working group chairs** (elected from within the group) manage day-to-day activities. The group forms **task forces** (focusing on areas like data interoperability, security standards, and specific use cases) to produce technical guidelines and real-world use case implementations. Participation is open to all **IDSA energy-related members**, with **monthly meetings** to review progress and collaborate on deliverables. The group coordinates with other IDSA sectors and external initiatives, such as **GAIA-X**, to ensure cross-sector interoperability and alignment with **EU regulations** (e.g., GDPR and emerging energy policies). Reporting to the **IDSA Steering Board**, the group holds **bi-annual plenary meetings** to set priorities and review achievements. Key outputs include **interoperability standards**, **data sovereignty frameworks**, and secure data exchange protocols, often in collaboration with standardisation bodies like **CENELEC** and **ETSI** to align with industry standards.

Visual depiction of proposed Hybrid Governance model in Question 6 response:



Entity	Responsibilities
Steering group	Oversees knowledge repository and raises awareness; decision-body on use-case specific disputes; strategic buy-in and access to funding;
Synthesis group	Decides common reference architectures such as DERA V3.0, to map use-cases in development. Technical coordination across working groups (e.g. complimentary use of data standards) to federate the different DSI UCs based on core interoperability requirements. Specifies and integrates standard artifacts towards establishing common DSI components. Defines 'vertical capabilities' of DSI building-blocks to feed into NDTP.
Working group	Tests open-source building-blocks and produces standard artifacts in line with grant framework timings. 'Do next best thing mentality', agile project delivery.
GB standards authority	Contributes to international standards working groups based on learnings