Connected Places Catapult CReDo (Climate Resilience Demonstrator) Response to Ofgem's Data Sharing Infrastructure governance consultation

19 September 2024

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The CReDo team at Connected Places Catapult (CPC) are delighted to have the opportunity to respond to Ofgem's consultation on Data Sharing Infrastructure (DSI) governance published on 26 July 2024. CPC is the UK's innovation accelerator for cities, transport & place leadership, providing impartial 'innovation as a service' for public bodies, businesses, and infrastructure providers to catalyse step-change improvements in the way people live, work and travel. The views expressed in this response represent those of the CReDo team at Connected Places Catapult[1].

CReDo, Climate Resilience Demonstrator[2], is developing a product which shares data across infrastructure networks, currently energy, water and telecoms, to improve resilience across the infrastructure system. Since inception in 2021, CReDo has been exploring ways to share data across these sectors in a secure and scalable way. CReDo+ is an energy focused CReDo work programme which has received Ofgem SIF funding to develop CReDo into the Climate Resilience Decision Optimiser digital twin and data sharing platform, enhancing resilience investment planning and reporting for the energy sector[3].

The Ofgem consultation document makes a compelling case for the DSI and the need to govern the development and operations of the DSI. It is notable that the energy sector is making significant progress in developing data sharing infrastructure driven by the net zero imperative.

However, reaching net zero and increasing resilience is not just an energy sector objective and it requires data sharing across all parts of the economy to enable changes to take place to achieve net zero by 2050. The development of a data sharing infrastructure in the energy sector needs to enable the sharing of data between energy and other sectors of the economy. Intra-sector sharing of data within energy is crucially important and so is inter-sector sharing of data. Governance is required for both intra-sector sharing of data and inter-sector sharing of data. The governance proposals for the energy sector DSI (intra-sector) need to take account of the governance requirements for inter-sector sharing of data across the whole economy.

A1.1 Q1. Do you see potential uses for the DSI within your day-to-day operation in the energy sector?

CReDo is a potential user of the DSI drawing in energy data from energy networks, combining it with non-energy data and returning insights which could then be shared back on a need-to-know basis with other users of the DSI. Presently CReDo has its own bespoke mini-data sharing infrastructure which enables sharing of data (both raw data and insights) across participating infrastructure providers. CReDo is developing a distributed data sharing architecture and is investigating data licensing that enables scalable data sharing across multiple parties across multiple sectors. This CReDo bespoke DSI needs to connect with the energy DSI and other sector DSIs. Some potential example uses of the energy DSI for CReDo include:

- Access energy sector data for CReDo from other networks and National Grid Energy System Operator (NESO)[4]
- Ability to distinguish between actual and forecast data
- Share data from CReDo with specified stakeholders
- Climate resilience reporting

The CReDo technical team have made significant progress in exploring how to ingest energy data and how to combine it with data from other sectors, making use of a distributed architecture and focusing on security and scalability. The CReDo technical team welcome the opportunity to contribute to the development of energy DSI by sharing our learnings and progress to-date in inter-sector data sharing.

A1.2 Q2. Do you have any comments on the funding mentioned within this section?

Developing data sharing infrastructure, as infrastructure for all participants in the energy sector and beyond to use, requires funding. The status quo demonstrates that the market does not provide data sharing infrastructure as common infrastructure for all to use. Without dedicated funding, organisations will continue to develop bespoke solutions to data sharing problems which are not accessible as common infrastructure and do not scale. Therefore it is appropriate to allow National Grid Energy System Operator (ESO) to fund the proposed DSI MVP through the pass-through cost mechanism. However, all energy networks need to be engaged in the development of DSI and need to be able to access funding. Ofgem needs to be able to keep control of DSI costs in the same way that Ofgem monitors capital cost expenditures. Networks should also be able to make submissions in their business plans for DSI development costs. It is not the case that the DSI can only be built by the ESO, it must be a collaborative process involving all networks as a minimum.

Governance of the DSI also requires funding as good effective governance requires funding[5] and organisation backed up by authority. Funding needs to be allocated to governance functions.

A1.3 Q3. Do you have any comments on the timeline shown?

Both developing and governing DSI is high priority. It is commended that a pilot for the MVP is underway and plans for the MVP afoot. However, getting good governance in place is essential to ensure that the DSI MVP is successful and addresses the needs of the sector. Governance is required now, not in four years time, and to govern well, requires funding.

Section 3 Questions

A1.4 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?

The development of data sharing infrastructure in the energy sector is underway but it needs guidance and cohesion. It crucially requires leadership and governance now, not in a few years time. An independent report to Ofgem identified the need for governance in the short term.[6] It is essential to appoint an interim DSI coordinator who has the authority to lead the development of DSI over the short term, in these crucial years where engagement across the sector is key before adoption of the DSI becomes a licence condition.

A1.5 Q5. If not, state your reasons and propose an alternative governance model or improvements to our proposed solution.

Data sharing infrastructure needs to be developed across all sectors of the economy to enable seamless and secure data sharing to help address the missions of the day and in the future. Governance of cross sector data sharing infrastructure is urgently required to facilitate this development. A blog was recently published by members of the CReDo team setting this out[7]. The energy sector is leading the way in its progress of developing data sharing infrastructure, with the support of Ofgem and DESNZ, and the open consideration of governance requirements and solutions. Energy data sharing infrastructure needs to be part of cross-sector data sharing infrastructure and energy DSI governance needs to be part of and coordinated with cross-sector DSI governance. The governance model for energy needs to be connected to cross-sector DSI governance so that it can implement at the energy sector level what is agreed and common at the cross-sector national level. Economy wide governance for DSI could naturally fall under DSIT, the key government department for data and digital. Whilst economy wide DSI governance is not yet in place, energy needs an interim solution which can drive forward progress in the energy sector and help to guide the vision and functions of economy wide DSI governance, and then be an implementing arm of economy wide DSI governance. In other words, the interim energy DSI coordinator needs to coordinate with emerging cross sector DSI governance mechanisms.

It is only through a cross-sector governance model that it is possible to address the technical, legal, economic, financial, commercial and cultural challenges to sharing data across organisations and sectors. Siloed thinking will persist if DSI operational and governance solutions are sector based. It is not possible for an energy DSI operator or an energy DSI interim coordinator to directly address cross-sector data sharing challenges, yet there is the need to interact with all other sectors of the economy and particularly from a net zero perspective, transport. Single sector DSI governance, such as the interim DSI coordinator must work hand in hand with cross-sector DSI governance. Ofgem needs to consider how to enable the connection between energy DSI governance and cross-sector governance. Even though Ofgem's remit covers the energy sector only, an energy DSI cannot achieve its full objectives if restricted only to the energy sector and therefore Ofgem needs to consider how the interim DSI coordinator could interact with cross-sector governance.

A1.6 Q6. Are there any additional governance roles that are not covered by the proposed governance model? If so, what are these?

The governance model proposed by Ofgem includes overseeing "cross-sector integration". It is understood that in this context Ofgem is referring to integration across the energy sector rather than integration across sectors of the economy. We propose that engagement and integration with other sectors through cross-sector governance is a governance role that should be part of the proposed governance model.

The interim DSI coordinator should be concerned not only with the MVP but also other data sharing initiatives across the energy sector, such as CReDo, and should be looking for ways to incorporate learning from other initiatives into an evolving energy sector DSI. Therefore the

interim DSI coordinator needs to enable the coordination across data sharing initiatives to feed into the development of energy DSI, in addition to the work ESO has launched.

A1.7 Q7. Do you agree with the responsibilities of the interim DSI Coordinator? Are there any additional responsibilities that it should undertake?

The primary responsibility of the interim DSI Coordinator must be coordination across the sector in the build of energy DSI. The interim DSI coordinator needs to ensure that the DSI is designed and built by experts and users, so that the DSI works for the whole energy system not just for a limited number of use cases.

It is possible to federate build across the sector and the interim DSI coordinator needs to coordinate this according to a central plan – in same way that the energy system will have a Centralised Strategic Network Plan (CSNP). The role of the interim DSI coordinator is technical coordination rather than picking technologies or single vendors. The interim DSI coordinator needs to anticipate the prospects for digital monopolies to arise or to be created through technological bias and needs to work with Ofgem to prevent or address any monopolistic conduct which causes harm.

The interim DSI coordinator needs to be mindful of the balance between centralisation and federation, and use centralisation where DSI lifetime costs can be saved. The interim DSI coordinator can coordinate on principles and constraints through deep and wide stakeholder engagement in order to set agreed design principles and constraints. In this way, the DSI coordinator can gain consensus around a conceptual architecture that enables all willing participants in the energy sector to get on with collaboratively building the DSI. Top down coordination from the interim DSI coordinator can foster bottom up federated development of the DSI at pace and at lower cost. It is essential that the interim DSI coordinator recognises that the development of DSI is both technical and non-technical in nature, requiring digital and business skills[8] and significant cultural change. Developing the DSI is not just an information management and software development programme, it is also a change management programme.

In the CReDo project, whilst technical development has been underway, a significant part of the project is engagement and dissemination, sharing learning from the project and incorporating learning from elsewhere, for example the switch in CReDo from a centralised data sharing architecture to a distributed data sharing architecture. A key part of CReDo's progress is the ability to interact with organisations across sectors demonstrating the potential value to different users of breaking down the barriers to sharing data and how it increases climate resilience. CReDo includes a wide menu of technical and non-technical solutions, including secure hosting, distributed architecture, data licence, collaboration agreements and collaboration tools.

The interim DSI coordinator needs to create an environment where technical innovation can flourish allowing good technical solutions to emerge and standardisation to follow as a consequence.

A1.8 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?

The consultation proposes that the Interim DSI coordinator should publish a number of reports to share progress. It is recommended that in order to be agile and transparent, the Interim DSI coordinator should share progress in a more accessible and interactive way through open forums with industry, frequent updates on sharing mechanisms such as GitHub so that there a two-way connection with wider community both disseminating progress and feeding into it. A reporting timeline may restrict the ability of stakeholders to input to the development of the DSI after the event. For example, an online register of use cases rather than annual reporting of use cases may be more useful to the wider industry.

The Ofgem FSNR decision[9] acknowledged the importance of leadership and the calls from industry for Ofgem to take a leadership role in DSI as it states: "The overwhelming feedback from consultation responses and stakeholder working groups was a desire for concrete leadership to ensure convergence in digitalisation efforts between licensees and across sectors, moving into specific detailed discussions on the essence of the data sharing infrastructure...Responses to our consultation called for clearer guidance and leadership from Ofgem to ensure convergence across network companies." The interim DSI coordinator, if it is not Ofgem must have a responsibility to answer directly to Ofgem, with close oversight from Ofgem during the interim years. Reporting to Ofgem should be regular and transparent.

It is recommended that the interim DSI coordinator provide an annual report on progress of the DSI relative to cross sector data sharing infrastructure identifying where linkages have been made and where further work is required and what barriers need to be overcome. This deliverable would help to formalise the interim DSI coordinator's role in liaising cross sector.

Section 4 Questions

A1.9 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.

Governance of the energy DSI is required immediately. Ofgem has presented options for the delivery of the interim DSI Coordinator role including the System Operator, Ofgem or an independent working group. Whilst it is clear who and what the System Operator and Ofgem are, Ofgem has not fully explained what the independent working group is or how it is funded. Ofgem does not define an independent working group and in this way, the independent working group option is not fully considered.

It is understandable that Ofgem is of the view that it does not have the capacity or capability to take on the interim DSI coordinator role. However it should be noted that none of the options presented currently have this capacity or capability; it would need to be set up and resourced within either the SO, Ofgem or an independent working group. The question is how to do this most efficiently and effectively.

The SO is in a position, with new legal responsibilities as NESO, to build the capability and capacity to take on the interim DSI coordinator role. This in itself will require cultural change within the SO, in order to take on a governing role. Governing roles are akin to regulatory roles and NESO's conduct needs to be guided by common regulatory principles: transparency, accountability, proportionality, independence, focus, predictability, coherence, adaptability, efficiency[10] and as identified in other reports, responsive[11], anticipatory[12] and collaborative[13].

This is essential to ensure that the interim DSI coordinator takes due account of existing data sharing initiatives such as CReDo, and acts to develop the energy DSI in the lowest cost and most efficient way.

If NESO is to effectively co-regulate the sector with Ofgem, Ofgem would hold the ultimate regulatory oversight and needs to have effective checks and balances in place to monitor NESO's conduct, according to common competition policy practices. Ofgem need to be able to monitor NESO's progress and hold NESO to account on non-delivery. Ofgem's role is also to incentivise networks to participate in the DSI through licence obligations.

NESO has a huge opportunity to drive forward both the development of the DSI, due the foundations NG ESO has laid in the VES, and the current pilot and proposed MVP plans . If it takes on the short-term governance role of interim coordinator, it also has a huge responsibility to ensure that the energy DSI is developed by all for all. NESO may be a pragmatic choice for advancing the governance of DSI in the short term and it needs to be adequately resourced to do so.

A1.10 Q10. What assessment criteria do you foresee being required when transitioning from short-term governance to an enduring governance model?

In the consultation document, Ofgem has focused on the following criteria for selecting an interim DSI coordinator:

- Interoperability and common standards
- Operational capability
- Independence
- Engagement
- Cyber security

It is recommended that in the long-term, independence is a key criterion to ensure that the energy DSI is developed for use by all participants across the energy system and connects with the wider cross sector DSI. Again, common regulatory principles; transparency, accountability, proportionality, independence, focus, predictability, coherence, adaptability, efficiency, responsive, anticipatory and collaborative should be considered in setting the criteria for an enduring governance model. The long-term solution needs to be pro-competitive ensuring an energy DSI that works for all participants in the energy sector and ultimately promotes competition to achieve efficient outcomes for consumers.

Given the need to develop DSI at pace in energy and across other sectors, by 2028, much of the foundations of DSI and the required governance should be in place. It is important to ensure that short-term fixes do not persist where alternative longer term solutions may be preferable and should be planned for. Governance of the energy DSI needs to be considered in the context of wider cross-sector DSI governance. Whilst a DSI coordinator (interim or long-term) will ultimately become concerned with the details of data governance (how data is managed at all points of life cycles and supply chain – generation, processing, sharing), it is the organisational governance assigning roles, responsibilities, authority and funding across the sector that is crucial for developing the energy DSI in a coherent and efficient way.

A1.11 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?

The assessment criteria used by Ofgem

- Interoperability and common standards
- Operational capability
- Independence
- Engagement
- Cyber security

focus on both attributes and objectives. Interoperability, common standards and cyber security are part of DSI, and a DSI coordinator needs to facilitate their development. Operational capability is key for the design and build of the DSI and needs to be fostered across both the DSI coordinator and more broadly across the sector, to ensure wide adoption. Independence and engagement are paramount to ensure that the energy DSI is developed in a way that works for the whole energy sector.

DSI is a part of digitalising the energy sector, and there are many other requirements to make better use of data and technologies to advance progress towards green energy and climate resilience. A long term governance solution needs to incorporate both in-house skills and foster the development of skills across the industry to ensure the energy sector is able to fully harness the benefits of digitalisation. Independent, accountable, coherent, adaptable, anticipatory and collaborative governance is likely to be part of a longer-term picture which successfully connects energy sector digitalisation governance to cross sector digitalisation governance.

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[1] Computational Modelling Cambridge Ltd (CMCL) provided input to this response as part of the CReDo team

[2] Climate Resilience Demonstrator - Digital Twin Hub

[3] Strategic Innovation Fund (SIF) Beta Round 2 Funding Decision and Summary of Recommendations final version CLEAN (ofgem.gov.uk)

[4] Designation of the National Energy System Operator (NESO) - GOV.UK (www.gov.uk)

[5] Good practice guidance Principles of effective regulation (nao.org.uk)

[6] Workstream 5: Digitalisation and its role in unlocking smart regulation: A roadmap to an energy data sharing infrastructure by 2028 (ofgem.gov.uk)

[7] Data Sharing Infrastructure - Digital Twin Hub

[8] Skills and Capability - Digital Twin Hub

[9] Decision on frameworks for future systems and network regulation | Ofgem

[10] Economic regulation policy paper (accessible webpage - HTML) - GOV.UK (www.gov.uk)

[11] Responsive regulation | John Braithwaite

[12] Anticipatory regulation | Nesta

[13] Strategic Investment and Public Confidence (nic.org.uk)