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ESO Technology Advisory Council

TAC-4

Date:	03/09/2021	**Location:**	Virtual
Start:	09:00	**End:**	12:30

The feedback captured during the meeting on the Axis collaboration tool can be found in the accompanying spreadsheet. This document summarises the feedback received verbally and via the Chat function.

All material from the meeting can be found on the ESO Technology Advisory Council website: https://www.nationalgrideso.com/who-we-are/stakeholder-groups/technology-advisory-council

Participants

Attendee	Organisation
Vernon Everitt (Chair)	Transport for London
Randolph Brazier	Energy Networks Association
Graham Campbell	Scottish Power Energy Networks
Chris Dent	University of Edinburgh
Andy Hadland	Arenko
Jo-Jo Hubbard	Electron
Alastair Martin	Flexitricity
Simon Pearson	Energy Systems Catapult
Melissa Stark	Accenture
David Sykes	Octopus Energy
Anastasia Vaia	BP
Ulrika Wising	Shell Renewables and Energy Solutions
Fred Drewitt	Limejump
James Houlton	Amazon Web Services
Claudia Centazzo	Smith Institute
Judith Ward	Sustainability First
Sonia Lalli (Facilitator)	Accenture
David Bowman	ESO
Norma Dove-Edwin	ESO

John Twomey	ESO
Graham Dolamore	ESO

For specific agenda items

Attendee	Organisation
Matthew Howson	ESO
Niall Branley	ESO
Emily Leadbetter	ESO
Iain Shepherd	ESO

Apologies

Attendee	Organisation
Teodora Kaneva	TechUK
Emma Pinchbeck	Energy UK
Alvaro Sanchez Mirales	STEMY Energy
Kate Garth	RWE Renewables
Peter Stanley	Elexon
Chris Kimmett	Reactive Technologies

Agenda

#	
1.	Welcome and introductions
2.	Minutes of last meeting and matters arising
3.	Feedback from last meeting
4.	Digitalisation Strategy and Action Plan
5.	Customer and stakeholder
6.	Introduction to Networks
7.	Subgroups update
8.	Next meeting and calendar
9.	AOB

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Discussion and details

#	Topics discussed
1.	**Welcome and introductions**
	• The chair welcomed everyone to the meeting.
2.	**Minutes of last meeting and matters arising**
	• The chair noted that the minutes of the last meeting were agreed by circulation had been published on the ESO website.
	• The feedback from the meeting has also been published on the ESO website.
	• There were no matters arising from the previous meeting.
3.	**Feedback from the last Meeting**
	• David Bowman summarised how the ESO had used feedback from the previous meeting, which was the main considerations for the Digital Engagement Platform and the Single Markets Platform.
4.	**Digitalisation Strategy and Action Plan**
	• Matt Howson (IT Strategy and Digital Consultant) and Niall Branley (Head of Data) introduced themselves.
	• The presentation focussed on three areas – digital mindset, product model and agile delivery. Each area was introduced and discussed.
	The feedback captured on the Axis collaboration tool can be found in the accompanying spreadsheet. The notes here are a summary of the discussion during this section.
	Digital Mindset
	Key discussion question: what has been your experience of cultural transformation?
	• Don't view digital transformation as just an IT project. Looking at customer centricity and end-to-end processes needs to come before you start looking at the technology.
	• Maintain focus on outcomes – this needs strong leadership and regular reminders of what the "North Star" you are heading towards.
	• Before starting on a change journey, it is important to define what the end goal is using a "mission statement". This should be one sentence that has everyone's support and can be shared by all.
	• Everyone in the organisation needs to be engaged and feel part of achieving that mission statement. Everyone, at all levels and roles, has a key part to play, but it needs to be clear that this comes from the top and has full leadership buy-in.
	• Cultural transformation takes forever and never stops. It is a journey not a destination.
	• Start with the customer – what are you trying to deliver and then work backwards to consider what we need to be and do as an organisation.
	• Try writing a press article for one or two years in future. Consider what you have done for the customer, what opportunity you have provided them or what you have given them that they didn't know they needed.
	• Innovation needs to be part of the fabric of the organisation, rather than having separate teams that "do innovation".
	• Some companies have a set of cultural principles that they do everything against – hiring, rewarding, challenging people. It can be difficult to set these out but once you have them, they become the norm and the cultural transformation happens.
	• The ESO needs to have an open mind and channel for considering outside ideas, testing them and, if appropriate, implementing them. There have been examples in the past where it has been difficult to get the ESO's attention.

- When implementing new technology, the hardware, software and front-end are important, but it also important to remember the underlying decision science aspect. Algorithms and computation processes must serve the intended purpose and not be delivered for their own sake.

- Be very clear who you are defining your customer as. This is especially important in an organisation of the ESO's scale. Different teams may have varying views of who their customers are, so it needs to be clear from top of the organisation. Involve teams at the "coalface" when discussing customer needs and pain points, and check with the same teams that these have been addressed. They will also be the best source of information when things are going off-target and to give a "reality-check" on ideas.

- Sometimes culture is a product of the geography or environment you live and operate in. Some cultural aspects are forced from outside which drives behaviours inside. The technology needs to treat everyone as the same, even if the rules do not. IT should resist thresholding and grandfathering.

- There needs to be a focus on "doing". Hire smart "doers" because culture can be grown by achieving this and leading by example as an organisation. Ensure you have a good balance between facilitators, managers and researchers, and the people who build the solutions.

- The ESO should develop a culture statement that is used for internal and external feedback on when you have exhibited the behaviours or not.

Product Model

Key discussion question: how have you transitioned from a capability focused solution to a product model?

- The technology set-up or "stack" is crucial. The product manager and developers need to be able to manage the product end-to-end. Look at the technology stack, isolate products and give teams full control of that product so that they can deliver the solution.

- There are typically two different architectures in modern technology start-ups. Some run monolithic applications with set of technology principles and a very dynamic continuous integration and continuous deployment testing pipeline. Changes can then deploy within very quick timescales (sometimes less than on hour) to the platform. You ensure you are not going to impact another part of the data model or application through testing. Other organisations like Monzo run thousands of microservices so everyone has an isolated area that they manage. This can create its own interdependencies, but in both cases, you are empowering people to deploy very quickly (eg within day). Once you move away from these cycles and go to, say, quarterly cycles, things can slow down very quickly.

- One of the hardest challenges is working with the legacy estate to transition to the future state. Don't assume it can be left alone – identify the issues and put someone in charge of it.

- A modular approach is important. Otherwise you risk changing requirements overtaking what you are in the process of developing.

- Verification is important – check that the system produces the correct answers. The testing plan can be in parallel, but by a different team, as the development work to help accelerate the process.

- To embed customer views into the product team, the product owner is crucial. They are the ones who are responsible for ensuring you have listened to the customer.

- It is important to make sure the team is balanced with the right number of developers, testers and other roles. You also need to make sure the number of teams you have is right. You can break them up into logical groups but within that you may need more than one team. For example, group products as clusters, for example customer management or asset management and then have a "super product owner" responsible for all of these to provide an overarching view with one or more teams underneath.

- A big difference between capability focus and product focus is taking ownership (by the product owner/manager). Irrespective of the technology architecture and team structures (monolith vs. microservices and all in-between), you need people and culture that drives individuals to own the outcome, in a transitory manner. The product manager or owner needs to own it end-to-end. This is quite different to a capability focus where you end up with several people all owning a small part of the outcome.

Agile Delivery

Key discussion question: the value is iterative and incremental delivery. How do you manage that at scale and transition to it?

- Think end-to-end: there needs to be a very strong link between the business and technology teams. This is even more crucial in an Agile way of working than with waterfall delivery.

- Needs to be a feedback loop after go-live. This needs to go back to the product manager and back through the DevOps procedure. Often the feedback loop is not planned for and instead the focus is simply on developing new features.

- In in Agile world, flexibility means having more discipline: ruthless prioritisation, a clear view of how many features are coming into the pipeline and a clear definition of done.

- You don't need to codify all aspects of the Agile methodology into your organisation. You can take the bits of it you need and run with that.

- To get the most success from Agile you really need to align the product and delivery teams to the classical "line of business". Some companies have removed these divisions – the "tribes" concept. You also need very clear handovers between teams. Some companies assume that everyone else outside a product is an external team and so each product is self-contained. This gives a high degree of independence and allows the product team to set their own agenda because the external dependencies are done on a "contractual" basis.

- Amazon have the idea of "two-pizza" teams of 10-12 people responsible for a discrete product. They will be cross-functional to avoid the business and technology demarcation. If there is a delivery that requires changes to multiple products then there is an organisational construct that sits behind it to facilitate this.

- The product model and feedback loops need to be enduring, with effective, iterative and indefinite delivery using that. This is opposed to setting up a temporary product model within a programme or project which then gets handed over to production.

- Having someone at the top who understands the systems from top to bottom and can help define the strategic direction is useful and important.

- Hire a group of smart product and technology people let them define their own way of working. Trying to force people into a certain structure or methodology is unlikely to work. It is OK to have different teams working in different ways, with management managing the interdependencies and priorities.

- Technology teams can have a practice of "guilds" that define best practices. This can be done at the top level and also within specific areas.

Review of feedback on Axis

- *Ban size thresholds and grandfathering* – technology should treat all market participants the same, regardless of what codes or regulations say. IT should not be constraining any market participant.

- *No split between business and IT; make sure (transformation) is not seen as an IT project; siloed working* – industry is concerned that there appears to be a split in the ESO between the markets team and the IT teams.

  - ESO response: the ESO is moving to a TechOps way of working with greater collaboration between all teams to address this.

- *Customer focus*

  - This ESO is thinking about the product model and agile delivery differently. In the product model, product managers and owners are entirely focused on customer requirements, rather than technology.

5. **Customer and stakeholder**

- Emily Leadbetter (Head of Customer, Stakeholder and Consumer) presented an overview of the ESO's customer and stakeholder strategy.

- The ESO has an ambition to be a "trusted partner by 2025". Progress will be measured using the trust equation.
- The ESO is improving its stakeholder engagement by understand our customer journeys; improving our communications and engagement; and increasing opportunities to co-create.

Discussion and feedback

- Trust can be driven by factors such as safety and reliability; value for money; and progress and innovation. Society could rely on the ESO during the covid-19 pandemic and this provides the ESO with a great platform to build on. It is important that discussions on trust are not emotionless because the ESO plays a vital front-line role in society.
- The ESO has significantly improved its engagement over the last few years. Examples include Power Responsive, user groups and external forums like the TAC and the ESO RIIO-2 Stakeholder Group (ERSG).
- The ESO could be better at managing expectations and stating what the purpose of the engagement is – tell, consult, co-create, user-defined. This should then define the terms and method of the engagement.
- Think about how to measure success, beyond satisfaction surveys. Many industry participants are bombarded by them.
- There is a difference between "consumer" and "citizen" (like net-zero) outcomes and the ESO needs to balance current and future consumer priorities, bearing in mind that future consumers are not sat at the table.
- It is not always easy to engage the ESO on specific transformational projects, for example the offshore wind transmission network. Given the breadth of the ESO's role, it is not always easy for customers to navigate. They ESO should consider a central "point of entry".
  - This something we regularly review, particularly to consider the requirements of new customers. The digital engagement platform should help this.
- The ESO is considered one of the best companies in the industry for engagement, at all levels.
- The ESO needs to be aware of "lurking". For example, if a participant (or the ESO) wants to reject a proposal they should be open and transparent about the reasons for this. This allows other parties to challenge and to clear up any misunderstandings.
  - It is probably fair to say that there is a bit of a cultural aversion in the ESO to saying no.
- It is important to remember that all industry participants, not just the ESO, are going through transformation programmes. Timelines need to be aligned and the ESO's position means that they could do this.
- Need to consider the engagement method. In academia, there are benefits of putting material online, but face-to-face lectures bring indirect benefits in terms of discussion and social contact. The same principle will apply to the ESO. For consultation events, the ease-of-access and diversity arguments favour virtual events, but this can mean networking and uncurated discussion, which often creates the most interesting points, are missed.
- It might be useful to set up a discussion channel, maybe via LinkedIn, for the ESO to engage with the TAC.

6. **Introduction to Networks**

- Iain Shepherd (Enhanced Network Development Capability Manager) provided an overview of the Networks function within the ESO.
- The Networks function has teams responsible for network development; network operability; network access planning; customer connections; and whole electricity system thinking.
- Networks is responsible for delivering the ESO's Role 3 RIIO-2 ambition – "unlocking consumer value through competition and driving towards a sustainable, whole energy future".

Discussion and feedback

- Are the Networks team incentivised to allow non-network solutions to solve transmission problems? Some parties have been delayed connecting to the transmission network for many

years. The strategic narrative and vision are not translating to on-the-ground changes, which is a missed opportunity for the ESO and industry.

- Non-network, flexible providers can deploy solutions in 12 months, which is quicker than the time it takes for network solutions to be delivered. They are important for the ESO to meet its 2030 ambitions.

- Does the ESO have the resource and expertise in the future modelling capabilities that will be needed? For example, can the ESO model storage temporally and align this with voltage models and requirements?

- Transmission and distribution collaboration needs to be managed in the short-term but also longer term. Eventually we will need a principled system for coordination across all levels of the system which consider distribution constraints. Current schemes coordination tends to be distributed resources providing transmission services assuming there are no restrictions due to distribution constraints. The Energy Networks Association is looking at revised governance for transmission-distribution interaction as part of the Open Networks Project.

- There is a need for DNO/DSO metrics and outcomes to "dock" with the ESO's.

- Topics for a future discussion could include:

  - Resilience and security. While these have not traditionally been the responsibility of the ESO, the Texas power crisis of February 2021, shows that this might need to change. It would be good to understand what (if any) responsibilities the ESO currently has.

  - Offshore wind networks.

  - The technology framework that the ESO uses to deliver the stated outputs.

  - How ESO network modelling is integrated with the DNOs. For example, the ESO should not be modelling individual electric vehicles, but instead have an interface with the DNOs who do this.

  - What the ESO's desired outcomes (rather than outputs) are in the Networks space.

  - The need for innovation in decision analysis methods to support decision making, particularly where these originate from changes in supply and demand (e.g. increased renewables, increased penetration of active resources at distribution level).

7. Subgroups

- Based on feedback, it is proposed to set up two subgroups – *technology transformation* and *control room of the future*.

- An initial suggested membership has been provided, but thoughts are welcome. It should be noted that representatives need not be the same as those on the (main) TAC.

- The ESO will set up the subgroups over the next few months.

8. Next meeting and calendar

- The next meeting is scheduled for 3 December, 09:00 – 12:30.

9. AOB

- Vernon Everitt will be providing an update to the ESO Executive Team in October about the work of the group. TAC members can contact to Vernon if there is anything they would like raised.

- The future system operator consultation should be discussed by the TAC. The consultation outlines many responsibilities that could be placed on the future ESO. There are questions around technology and skills that the TAC would be well placed to address. In addition, the consultation document is quiet on responsibilities for security and resilience.

The chair closed the meeting by thanking members for their participation.