

ESO Technology Advisory Council Control Room of the Future sub-group

TAC Control Room of the Future 26/11/21

Date: 04/02/2022	Location: Virtual
Start: 10:00	End: 12:00

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 GBESO Technology Advisory Council MS Teams site: <https://nationalgridplc.sharepoint.com/sites/GRP-UK-National-Control-ESO-Technology-Advisory-Council>

Participants

Attendee	Organisation
Angela Wilks (Chair) (AW)	GBESO
Claudia Centazzo (CC)	Independent
Chris Dent (CD)	University of Edinburgh
Chris Kimmett (CK)	Reactive Technologies
Steve Sinclair (SS)	Flexitricity
Anthony Riding (AR)	Elexon
David Sykes (DS)	Octopus Energy
Simon Pearson (SP)	Energy Systems Catapult
Samuel Nhavira (SN)	Transport for London
Kane Forkasiewicz (technical secretary)	GBESO

For specific agenda items

Attendee	Organisation
Niall Branley (NB)	GBESO
Ian Dytham (ID)	GBESO

Apologies

Attendee	Organisation
Rob Rome	GBESO
Andy Hadland	Arenko
Peter Frampton	Elexon
Kerri Rogan	Transport for London

Agenda

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1. Welcome and introductions
2. Minutes of last meeting and matters arising
3. Feedback from last meeting
4. Data Analytics Platform: Data transformation & embedding a data culture & discussion
5. Next meeting and calendar
6. AOB

Discussion and details

#	Topics discussed
1.	<p>Welcome and introductions</p> <ul style="list-style-type: none"> The chair welcomes all members of the group for the first time. All present members give an introduction.
2.	<p>Minutes of last meeting and matters arising</p> <ul style="list-style-type: none"> No comments on the minutes from the last meeting were raised.
3.	<p>Feedback from the last Meeting</p> <ul style="list-style-type: none"> Since the last meeting CD and ID met to discuss how to progress building links between the research and industrial communities. CD updated the group that he was offering GBESO assistance in building connections to research in two areas of interest. One area was regarding transmission / distribution system coordination. The other area was towards exploring state estimation. There is a potential for forming a small group of researchers to explore further ideas that could be taken forward.
4.	<p>Data Analytics Platform: Data transformation & embedding a data culture & discussion</p> <ul style="list-style-type: none"> NB presented an overview of the vision behind the GBESO vision for data capability which is based upon 3 pillars consisting of people, ways of working and technology. There was a focus on how ways of working is critical to be able to meet the vision. A Hub & Spoke model was presented as the chosen organisational structure due to needing a mixture of centralised and de-centralised data and analysis operating models. NB summarised that the goal of the Data Analytics Platform (DAP) is to support GBESO activities and should: provide efficiency and data management, make data accessible both internally and externally, be product focused and enable the introduction of AI. In order to be successful NB highlighted how important it is to bring people along with the GBESO data transformation and one of the purposes of this session is to learn from the experience within the group from data transformations they have been involved in. The DAP will drive everyone onto a common technology development stack with a common codebase to leverage innovation and modelling. The need for Machine Learning (ML) has been identified to scale the models developed. Following the presentation NB opened the discussion with the group. SP encouraged for GBESO to recognise the data journey in that quite often data owners aren't always the consumers of the data which can have unintended consequences of groups of data becoming disconnected and uncontrolled. NB highlighted that GBESO is going to ensure to understand the full flow of data from the source to the consumer and engage with all the parties affected. DS gave some positive feedback on the current approach and recommended to minimise the distance between decision makers and data producers. NB explained that data stewards were going to be embedded within business teams that encompass data analysis and data management skillsets. DS also emphasised the challenges involved in bringing people across to new platforms, NB's strategy is to show users the benefits of a new platform to help get them on board. SP highlighted how critical trust in data sources is and that the trust is always focused around the documentation but also gained through checking and validating the data regularly. One potential pitfall with a Hub and Spoke is around the cultural challenges for people that are confined to working in certain areas. The benefits of having one team that combines data science and data analysis skills was re-enforced. NB is going to explore bringing the expertise within a central team. A question was posed to the group specifically around how to scale ML into processes and how to build confidence on ML based decision making. SP mentioned that ML operations is different for every organisation, a good starting point is to work out where ML ops sits within GBESO.

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- DS raised a discussion around the difference between real-time ML ops or batch ML ops and it is very important to understand the requirements for the relevant application before investing to start building the right experience. It was also suggested to think about coding data management documentation which negates the burden of trying to maintain parallel documentation. DS offered to share show NB Octopus Energy's DBT code within their ML ops team. A suggested starting point is to focus on a central data team before embedding within other parts of the business.
 - CD shared his experience from the National Grid ESO digital twin programme in the context of implementation where there are challenges in building the right skillsets to implement algorithms where it is essential to have a clear specification for the data dependencies. CD offered to share further experiences of these challenges separately.
 - CC expressed how important it is for a central data team to be part of the business model. NB mentioned that the current goal is to deliver DAP to be workable from day 1 and to enable a journey of continuous improvement.
 - SP gave an example on previous experience of ML in the telecoms industry to demonstrate that there are different applications for ML operations and for certain applications batch ML is more suitable however sometimes real-time ML operations is needed. The example is the system in place to mitigate the failure of a cell tower by automatically rediverting telecoms traffic to a different route. This is essential due to the volume and complexity of the network and the importance of doing it very quickly which makes it essential to be a real-time algorithm rather than a batch algorithm. Parallels can be drawn with GBESO requirements for speed in a high-volume, complex application.
 - AR provided an observation on the people side of a data transformation in that trust is very important to maintain as if it is lost it can be very difficult to regain. Very good communication with key workers ensures building trust and an incremental approach instead of a big bang approach will enable people to evolve with the transformation. NB wants to explore and identify some applications for new platforms and work with key users and capture user stories to share with the wider GBESO to show them the benefits of moving their data and applications to a new platform.
 - CD reminded the group to be very clear of definitions because different organisations and individuals have different interpretations of certain terms. One such example is ML it is often used in a broad sense, but some people have very specific interpretations of it. NB mentioned compiling a list of clear definitions to ensure that everyone has a common understanding of terms that could have multiple interpretations.
 - DS suggested providing new sets of tools to people without forcing them to be used but to let people test and experiment with them to enable them to see benefits for themselves. DS expressed the value in embedding tool experts within operational teams.
 - SS suggested that the data analysts should shadow the operational teams to understand the business processes and it makes it much easier to successfully migrate applications if the data scientists can see the previous applications in action.
 - SN gave an example of previous implementation of control room automation in the context of real-time rail track switching. Previously it was a demanding process to routinely switch preparation for traffic and following traffic. As it was a routine activity it was able to be automated however it was brought in top-down which left some people concerned around the intentions for the change.
 - AW mentioned the challenges in automations within the transmission function as there are so many variables impacted by reliability and raised it as an area that should be explored further.

5. Next meeting and calendar

- The chair will send out another poll to ascertain the best time for the next meeting.

6. AOB

- There was no AOB.

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

Decision Log

Note – this document contains current decisions and a rolling history of decisions. The complete log may be found in:

<https://nationalgridplc.sharepoint.com/sites/GRP-UK-National-Control-ESO-Technology-Advisory-Council>

Decisions: Made at last meeting

ID	Description	Owner	Date
1	Terms of Reference agreed	All	ERSG-1
2	Meeting frequency to be monthly	All	ERSG-1

Action Item Log

Note – this document contains in-progress items and a rolling history of completed items. The complete log may be found on the GBESO Technology Advisory Council MS Teams site:

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Action items: In progress and completed since last meeting

ID	Description	Owner	Due	Status	Date raised
1	Provide comments on Terms of Reference	All	26/11/2021	Closed	26/11/2021
2	Update TOR based on feedback received in the first meeting	GBESO	03/12/2021	Closed	26/11/2021
3	Determine the time and date for the next meeting	GBESO	11/02/2021	Re-opened	04/02/2022
4	Circulate the minutes within the group for comment at the next meeting	GBESO	11/02/2022	Re-opened	04/02/2022
5	Circulate the agenda for the next meeting	GBESO	04/03/2022	Re-opened	04/02/2022
6	GBESO to create clearly defined problem statements for the meeting to provide advice on.	Rob Rome	25/02/2022	Open	26/11/2021
7	ID to share the list of companies GBESO have visited / will visit for learning on transformational projects.	Ian Dytham	25/02/2022	Open	26/11/2021
8	GBESO to consider the Aletheia Framework™ and feedback on its application to the Network Control and Balancing programmes.	Rob Rome	25/02/2022	Open	26/11/2021