

UK RESEARCH AND INNOVATION

ENGINEERING AND PHYSICAL SCIENCES RESEARCH COUNCIL

NOTE OF THE 3rd EPSRC SCIENCE ENGINEERING AND TECHNOLOGY BOARD (SETB) MEETING, HELD ON 21st May 2020, HELD REMOTELY VIA ZOOM

- In attendance:
- Professor Charlotte Deane (EPSRC) (SETB Chair)
 - Professor Cameron Alexander (University of Nottingham)
 - Mr Jonathan Legh-Smith (BT)
 - Professor Paul French (Imperial College London)
 - Professor Dame Jane Jiang (University of Huddersfield)
 - Dr Leigh Lapworth (Rolls-Royce)
 - Professor Adrian Mulholland (University of Bristol)
 - Professor Graham Niblo (University of Southampton)
 - Professor Susan Rosser (University of Edinburgh)
 - Professor m.c. schraefel (University of Southampton)
 - Dr Mike Sutton (Lubrizol)
 - Professor Phil Taylor (Newcastle University)
 - Professor Su Taylor (Queen's University Belfast)
- Council Members:
- Professor Nick Jennings (imperial College London)
 - Dr Joe de Sousa (Astra Zeneca; Melhor Consulting from July 2020)
- EPSRC Staff:
- Andrew Bourne (EPSRC Director, Partnerships)
 - Jane Nicholson (EPSRC Director, Research Base)
 - Kedar Pandya (EPSRC Director, Cross Council Programmes)
 - Claire Graves (EPSRC Deputy Director, Research Excellence)
 - Diane Howard (EPSRC Senior Manager, Big Ideas)
- Secretary:
- Sinead Balgobin (EPSRC, Senior Manager, Governance and Planning)

1. Welcome and Formalities (Charlotte Deane, SETB Chair)

- 1.1. Professor Deane welcomed everyone to the meeting and formally opened the meeting. There were no apologies.
- 1.2. Professor Deane provided an update on recent developments within EPSRC and UKRI for the board's information, including an update on the Spending Review and the role of the SETB in supporting the development of our priorities and proposals for the Spending Review. Professor Deane also updated the SETB on the impact of the COVID-19 pandemic on industry co-funding and UKRI's plans for costed grant extensions for grants affected by the pandemic.

2. Induction (Sinead Balgobin)

- 2.1. Sinead Balgobin provided a brief introduction to the purpose and strategic context of the SETB, and overview of the EPSRC Advisory Streams, and the SETB Terms of Reference. The SETB agreed that they were happy with the Terms of Reference. Professor Deane clarified the procedure for conflicts of interest. Due to the nature of the board, where there are direct conflicts (e.g. a SETB member has been involved in the development of a Big

Idea) members would be asked to step out of the room for the discussion. For indirect conflicts, or where a SETB member has an indirect interest they will not have to leave the discussion.

- 2.2. The SETB requested a glossary of UKRI and EPSRC terms, for ease of reference.

ACTION: Sinead Balgobin

3. Big Ideas Overview (Claire Graves)

- 3.1. Professor Deane opened this session by providing some context about the Big Ideas Initiative. Dr Graves then gave a more detailed overview of the history of the Big Ideas initiative, which aims to make sure EPSRC and the research community is primed with the next big research ideas, ready for fiscal events, in a transparent and altruistic manner. A key feature of the Big Ideas initiative is that it is open to the community to participate in the development of ideas. Ultimately the audience is government - Big Ideas will help us make the case for funding for these scientific ideas. Dr Graves emphasised the scale of a Big Idea, being much bigger than e.g. a programme grant, but rather something that would galvanise communities to work on together to deliver and build into the scientific and political landscape.
- 3.2. The SETB recognised challenges associated with the community investing effort into developing Big Ideas in an altruistic manner and suggested that EPSRC need to clarify the messaging around the value of this effort, including the reassurance that EPSRC can provide support and potentially workshop funding for promising ideas.
- 3.3. The SETB suggested that EPSRC needs to improve communications with the research community about existing Big Ideas in the Ideas Bank as this could help encourage people to engage with existing Ideas and potentially stimulate new Ideas.

ACTION: Diane Howard and Samantha Riches (Big Ideas)

4. Big ideas – assessment of new Big Ideas (Diane Howard)

- 4.1. Diane Howard introduced this session, providing a opened this session by providing some context about the principles of the Big Ideas assessment process.
- 4.2. The SETB discussed five new Big Ideas submissions, providing specific advice for each one, which will be taken forward by the Big Ideas team in conjunction with the submitters. The Big Ideas discussed along with the overall SETB recommendations are listed below:

Title	Submitter	Recommendation	Next steps
Internet of Materials: Data-Centric Materials Discovery, Characterisation and Manufacture.	Iain Todd	SETB recognised the importance of this area and its potential to be explored as a Big Idea. However, it is not clear what problems will be solved by realisation of this Big Idea. A sharper focus on a well-formulated problem statement would strengthen the submission, bringing together UK strengths in the area. The submission was thought to lack a definitive focus. The research challenges need better definition, with discussion of how industry would engage and benefit.	Develop further; EPSRC-funded workshop not recommended

Continuously verified intelligent assets.	Robert Smith	Despite the breadth of areas covered, some others (for example cybersecurity, emergent behaviours of systems) were thought to represent potential gaps. An updated submission would benefit from a more coherent vision across the full breadth of areas, in order to better convey that this is a connected piece of work. SETB recommended that the submitter links with other communities in the development of an updated idea.	Develop further; EPSRC-funded workshop not recommended
Mathematical modelling for next generation formulated products.	Stacie Tibos	SETB recognised the importance of the area, and that the UK may be well-placed to deliver this idea. The situation with COVID-19 has highlighted this and the need for a fast response. SETB noted that the approach taken in this Big Idea has the potential to bring great benefit to the UK. However, the idea as currently written is very maths-centric. It should be further developed in close collaboration with other disciplines and in a way that can enthuse the public and policy makers.	Develop further; EPSRC-funded workshop recommended
Empowering Management, Decision Making and Growth in an Uncertain World	Katie Blaney	SETB recognised the potential for this as a Big Idea and that the UK is well-placed to contribute. They noted that the Big Idea was primarily concerned with the adoption of a systems approach, rather than in the underpinning maths itself. It should be seen as a way to design more robust, resilient systems, with far broader impacts than COVID-19. The relevance to industry could be improved in an updated submission.	Develop further; possibly with a workshop if appropriate
Living with Data - Visualising Uncertainty	James Dracott	SETB recognised the importance of this type of research, as it changes the way in which people respond to data. SETB advised a clear differentiation between operational and strategic decision making, noting that there is much visualisation work going at an operational level, but it's unclear how this translates across at a strategic level (which is where the interest in this as a Big Idea primarily lies).	Develop further; EPSRC-funded workshop recommended

ACTION: Diane Howard and Samantha Riches

5. Big Ideas – update on previous Big Ideas (Diane Howard)

- 5.1. Diane Howard presented a dashboard of Big Ideas previously seen by the board and their current status, noting those which are running or have run workshops recently and will be providing updated submissions. Going forward, it would be useful for SETB to flag any

overlaps with submissions/and existing ideas as well as commenting on the timeliness of Ideas in the Ideas Bank. EPSRC agreed to add a snapshot of the dashboard to the papers for upcoming meetings to ensure the SETB have enough time to consider these aspects.

ACTION: Sinead Balgobin

6. Institutes (Jane Nicholson)

- 6.1. Jane Nicholson (JN) led a discussion about the future of the EPSRC Institutes. SETB were asked to consider how they could be involved in the evaluation of Institutes. She emphasised that the focus will be on the science, and the added value of this in the landscape - what do SETB need to see to evaluate the scientific value add of the Institutes.
- 6.2. The SETB agreed that they would be happy to be involved in the evaluation of the Institutes as set out by Jane in this meeting and in the accompanying paper. SETB provided advice on the information they would need in order to be able to formulate advice and recommendations for the institutes, which included:
 - **KPIs** which incorporate the added value of the Institute in terms of scientific contribution and aspects that enable the Institute to support better research activity (e.g. inclusivity, support for early career researchers and the broader research community, public engagement, training, facilities.)
 - **International Benchmarking** – how competitive are the Institutes internationally?
 - **Encouraging Self-Analysis** – this should be a positive and constructive discussion. Where is the institute less content and where are there opportunities for improvement (potentially with reference to previous mid-term reviews)?
 - **Looking to the Future** – long term vision is crucial for strategic investments and must take into account the research landscape in a pandemic and post-pandemic context. How will the Institutes add value in the future, and contribute to the talent/human landscape?
- 6.3. EPSRC agreed to take forward the plan to work with the SETB to evaluate the Institutes taking into account feedback from the board. An initial step will be to plan the timeline for the evaluation and set out the template for submissions.

ACTION: Jane Nicholson with Claire Spooner

7. AOB and Close (Charlotte Deane, SETB Chair)

- 7.1. Jonathan Legh-Smith (JLS) gave an update on the Next Generation Infrastructure Big Idea. The idea is in the Ideas Bank and was used for an SPF submission but was unsuccessful. In parallel, there has been an activity to develop a vehicle outside of UKRI with IPA and NPL. The intention is to submit an updated idea into a future SPF, and the Head of Programme for ICT, James Dracott, is involved in developing the idea. At some point an updated idea will come back to the SETB.
- 7.2. Graham Niblo (GN) noted that the Royal Society of Edinburgh funded a workshop to help people to develop and submit Big Ideas; GN suggested that by interacting with these groups and events, the SETB can encourage and support better quality proposals from grass roots. CD agreed that it is important to help drive this behaviour broadly across the community to ensure breadth of idea generation.
- 7.3. CD summarised the meeting's key messages as follows:

- We need to help submitters to think bigger and more laterally, and come up with ways to encourage this behaviour
- We need to clarify the message that we value the effort of submitters, especially the ways EPSRC can help and support people, and the funding for workshops
- SETB agreed that we need to improve communications around existing Big Ideas
- Opportunity to improve the process internally in EPSRC to sift/develop ideas before they get to SETB
- For the major investments agenda item, there were lots of helpful comments including:
 - Need Institutes to define the future role of how they will add value in the future - need to ensure it is a positive process
 - Need to establish how the institutes are helping us to train, retain and recruit talent across the UK and international talent at all levels

The next meeting of the EPSRC Science, Engineering and Technology Board will be held on the 10th September 2020, remotely via Zoom.

Summary of actions:

Action	Description	Owner
03-01	Create a glossary of UKRI and EPSRC terms and upload to the Teams site for reference	Sinead Balgobin
03-02	Consider ways for EPSRC to improve communications around the benefits of being a submitter, and existing Big Ideas	Diane Howard and Samantha Riches (from August 2020 will be Luke Davies)
03-03	Communicate feedback to Big Ideas submitters and take forward any specific actions (e.g. workshops)	Diane Howard and Samantha Riches (from August 2020 will be Luke Davies)
03-04	Ensure a snapshot of the Ideas Bank dashboard is uploaded to Teams after this meeting and include in the Reading Room for future meetings	Sinead Balgobin
03-05	Take forward the plan to work with the SETB to evaluate the Institutes taking into account feedback from the board	Jane Nicholson (with Claire Spooner and Michael Jacob-Barclay)