

UK RESEARCH AND INNOVATION

ENGINEERING AND PHYSICAL SCIENCES RESEARCH COUNCIL

NOTE OF THE 2nd EPSRC SCIENCE ENGINEERING AND TECHNOLOGY BOARD (SETB) MEETING, HELD ON 3rd FEBRUARY 2020 AT THE HENRY ROYCE INSTITUTE/ UNIVERSITY OF MANCHESTER

In attendance: Professor Charlotte Deane (EPSRC) (SETB Chair)
Professor Cameron Alexander (University of Nottingham)
Professor Sir Richard Friend (University of Cambridge)
Dr Paul Gosling (Thales)
Dr Sarah Harris (University of Leeds)
Mr Jonathan Legh-Smith (BT)
Dr David Payne (Imperial College London)
Professor Nilay Shah (Imperial College London) (*items 1-3*)
Professor Susan Stepney (University of York)
Professor Rachel Williams (University of Liverpool)

Council Members: Professor Alison Etheridge (University of Oxford)

Apologies: Dr Alison Burdett (Sensium Healthcare)
Professor Muffy Calder (University of Glasgow, EPSRC Council)
Dr Deborah Pullen (Building Research Establishment (BRE))

EPSRC Staff: Dr Andrew Bourne (EPSRC)
Ms Jane Nicholson (EPSRC)
Dr Samantha Riches (EPSRC)

Secretary: Dr Sinead Balgobin (EPSRC)

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

- 1.1. Professor Deane welcomed everyone to the meeting and formally opened the meeting.
- 1.2. Apologies had been received from Dr Alison Burdett, Professor Muffy Calder and Dr Deborah Pullen.
- 1.3. Professor Deane provided an update on recent developments within EPSRC and UKRI for the board's information, including the recent SETB recruitment exercise, New Horizons, and two recent government announcements: the introduction of Global Talent Visas, and a new £300M investment in Mathematical Sciences.
- 1.4. With reference to the New Horizons call, due to go live in March 2020, Professor Deane noted that it would much appreciated if any SETB members were interested in participating as panel members. Anyone interested should contact Dr Claire Graves directly.

ACTION: SETB

2. Big Ideas – update on previous Big Ideas (Samantha Riches)

- 2.1. Dr Riches presented a dashboard of Big Ideas previously seen by the board and their current status. The SETB discussed the Big Ideas and provided advice on specific submissions.
- 2.2. The SETB agreed that BIG 18-15 (Computer-Aided Whole Cell Design) should be entered into the bank of Big Ideas, following a successful workshop held in July 2019.
- 2.3. Following a workshop combining BIG 19-03 and BIG 19-06, the SETB agreed that a good next step would be to look into opportunities for a Network(+) grant in order to further strengthen and grow this developing research community. EPSRC agreed to provide further information about this opportunity to the submitters.

ACTION: Ms Nicholson

- 2.4. The Big Idea BIG 18-04 (Trustworthy Autonomous Systems) was successfully funded through wave 2 of the Strategic Priorities Fund (SPF). The SPF bid was made at a UKRI level in partnership with AHRC, STFC, ESRC, Innovate UK and UKSA, and it was supported by a number of Government departments, CPNI, UKAEA, CCAV, the Royal Academy of Engineering, Lloyds Register Foundation, and a number of representative companies. The programme will consist of two discrete but interdependent parts: a central Hub and several research nodes. Hub and nodes are being delivered through two separate calls, one for the Hub (up to £12m) and one for the research nodes (up to £21m in total, roughly £3m per node). Both calls consist of an outline stage, followed by invited full proposal stage assessed by postal peer review and at an interview panel. The hub interview panel will take place in April 2020, and the node interview panel is due to take place towards the end of September.
- 2.5. The SETB also discussed the previous Big Idea BIG 17-05 (The UK's Next Generation Converged Digital Infrastructure), which has been gaining traction outside of EPSRC, notably being of interest to the Infrastructure Provisioning Authority (IPA). The board agreed that the Big Ideas process is not transactional, rather a mechanism to encourage the community to build momentum around Big Ideas with EPSRC. If discussions go on beyond the sphere of EPSRC, it would be good to be at the table, but EPSRC should also be comfortable acting as a broker/delivery partner for new collaborations and partnerships. Jonathan Legh-Smith, who was involved in the initial Big Idea submission, agreed to provide an update on the developments related to this Big Idea at a future meeting.

ACTION: Mr Legh-Smith

3. Ways of generating new Big Ideas

- 3.1. Professor Deane led a discussion about how the SETB can encourage the development of high quality new Big Ideas. She noted that a lot of work has gone into communicating the opportunity but work still needs to be done to prompt the kind of culture change that will lead to the generation of Big Ideas.
- 3.2. Key stakeholders and routes of engagement discussed by the SETB included:
 - Learned Societies
 - Regional groupings (e.g. N8, GW4, etc.) and workshops, and the EPSRC Heads of Regional Engagement
 - EPSRC Strategic Advisory Teams
 - Early Career Researchers – e.g. through EPSRC Early Career Forums

The SETB advised that EPSRC should consider what kind of mechanisms would be appropriate to approach these different stakeholders.

- 3.3. SETB also advised that EPSRC should start to publish examples of routes through which Big Ideas have been taken forward, to show the breadth of opportunities available.

ACTION: Dr Riches

4. Big ideas – assessment of new Big Ideas (Samantha Riches)

- 4.1. Dr Riches introduced this session, providing a short briefing to the board on the assessment criteria and potential recommendations. Professor Deane highlighted that the SETB should provide creative and constructive advice and feedback, using the assessment framework to guide them.
- 4.2. The SETB discussed four 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
Materials for a UK energy transition	Henry Royce Institute	Develop further. The SETB noted that this is clearly and important area, but the idea requires further investigation beyond the scope of the original submission. The SETB recommended that this idea gets taken forward in the context of related ideas in order to develop this further.	Develop further in the context of the Big Idea “Transition to a sustainable zero pollution economy”
Zero carbon materials to revolutionise our future energy landscape	Claire Grey	Develop further. The SETB recognised that there were some clear strengths to the idea in terms of the novel materials science in a hugely topical and important area however further development was needed to turn it into a truly big idea. The SETB also advised that the idea would need to be broadened out to the wider community as it was quite Cambridge-focussed.	Develop further in the context of the Big Idea “Transition to a sustainable zero pollution economy”
Transition to a sustainable zero pollution economy	Mary Ryan	Develop further. The SETB were very supportive of this idea and recognised the amount of thought and work that had gone into preparing it. This is clearly an important and timely area. A number of other ideas have come in to the Big Ideas process which relate to this and SETB recommend that these are brought into this wider zero-pollution idea to develop the idea further.	Workshops to further investigate the aspects of pollution and sustainability
Distributed mega cities: empowering UK regional economies, improving quality of life	Michel Le Lerre	Develop further. The SETB noted that this idea clearly addresses a topical big challenge however needed further work to articulate what the research need is, linking into to other relevant work and researchers.	Submitters to develop further, linking to other relevant work and researchers in the area

ACTION: Dr Riches

5. Overview of the Henry Royce Institute and research success stories (Royce CEO, Chief Scientist and Core Area Champion)

- 5.1. David Knowles, CEO of the Henry Royce institute, and Phil Withers, the institute's Chief Scientist, provided an overview of the institute and its research vision. Lata Sahonta, Cambridge Programme Manager for the Core Area of *Energy Efficient ICT* (EEICT), presented in more detail the activities and achievements within the area she manages. A particular scientific area highlighted in the talks was Materials for Energy, a key strategic area for the institute.
- 5.2. Key questions raised by the SETB included how organisations (especially SMEs) can access the Royce facilities, and how the institute captures outputs and manages IP agreements. These are both important issues for the institute, and they are working to establish a formal position on this. They noted that the Henry Royce Institute does not own any of the IP generated from the use of its facilities, rather it falls to the university partners. The SETB also discussed with the Royce representatives the development of a roadmap in the area of Materials for Energy, which the institute will use to understand global capabilities in this area and where there are opportunities for the UK research and innovation community.
- 5.3. This item was followed by lunch with representatives from the institute's Core Areas, and tours of the Royce facilities.

6. Reflection on Royce tours and talks (All)

- 6.1. Professor Deane led a round table discussion reflecting on the tours and talks of the Henry Royce Institute.
- 6.2. The Board reflected that the Royce Institute was making good progress and were pleased to see the development of the facilities at the HQ in Manchester and in the wider institute.
- 6.3. The SETB noted that, as part of their role stated in the Terms of Reference of the board, they want to understand the value and benefits of large investments like the Royce Institute. They discussed what information would be most useful to gather in order to inform their advice, and to help and support the further development of these investments. This would be particularly pertinent when, for example, institutes are subject to review by EPSRC or other government bodies. The SETB reflected that while it is useful to know how the money is invested in terms of facilities and people, it would be especially useful to understand the scientific advances enabled by the investments. The SETB was particularly interested in understanding the science questions being posed and how they are being addressed, and how investments like this engage with the wider community – and most importantly what difference this engagement makes to the UK landscape.

7. Comms from this meeting (Charlotte Deane, SETB Chair)

- 7.1. The SETB were asked to identify key messages to communicate from the meeting. These points are listed below:
 - The SETB are continuing to work with EPSRC to think of ways to generate new Big Ideas and help in the generation of these ideas
 - We are already seeing the outcomes from submissions to the Big Ideas process, and should publicise the different kinds of routes and successes being achieved

- It was very interesting and useful to see one of EPSRC’s major institutes, and this will help inform the SETB advice and thinking
- There is a need to engage with senior leaders in universities about Big Ideas ad the Big Ides process in order to prompt the culture change that comes with Big Ideas.

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

- 8.1. Professor Deane thanked the members of the board for their participation in both SETB and the Big Ideas Advisory Group, as this will be the final meeting for many of the members. EPSRC would greatly appreciate the continuing support and engagement of all the members of the board in whatever form this make take.

The next meeting of the EPSRC Science, Engineering and Technology Board will be held on the 21st May 2020, location TBC.

Summary of actions:

Action	Description	Owner
02-01	Contact Claire Graves (Claire.graves@epsrc.ukri.org) if interested in participating in the New Horizons call as a panel member	SETB
02-02	Find a suitable contact to provide further information about Network grant opportunities to the submitters of BIG 19-03/19-06 (Professor Stepney and Dr Harris)	Ms Nicholson
02-03	Provide an update on the progress of BIG 17-05 (The UK’s Next Generation Converged Digital Infrastructure) at a future meeting	Mr Legh-Smith
02-04	Communicate feedback to Big Ideas submitters and take forward any specific actions (e.g. workshops)	Dr Riches
02-05	Consider ways for EPSRC and SETB to engage with key stakeholders, and communicate the good news stories emerging from Big Ideas	Dr Riches