

# Minutes of UKRI-BBSRC Council Meeting 6 December 2018

## Those attending:

Professor Ian Boyd  
Dr Belinda Clarke  
Professor Ian Graham FRS  
Professor Laura Green  
Professor Martin Humphries  
Dr Deborah Keith  
Professor Andrew Millar FRS  
Professor Malcolm Skingle CBE  
Professor David Stephens  
Professor Melanie Welham (UKRI-BBSRC Executive Chair, Chair of the meeting)

## Also attending:

Dr Paul Burrows  
Dr Peter Burlinson — for item 10  
Dr Amanda Collis  
Paul Gemmill  
Ian Kenyon  
Sir John Kingman — for item 6  
Dr Karen Lewis  
Dr Laura Notton — for items 7 and 8  
  
Dr Richard Brown  
Dr Oliver Hill-Andrews (Secretary)  
Sharon Southwood

## ITEM 1: OPENING REMARKS

1. Melanie Welham, Chair, welcomed everyone to the meeting and introduced Ian Kenyon (Chief Finance Officer UK Research and Innovation), attending to discuss item 6 and as an observer for the whole meeting.
2. Apologies were received from Professor Ottoline Leyser.

## ITEM 2: MINUTES OF THE MEETING HELD ON 20 SEPTEMBER 2018 (UKRI BBSRC 14/2018)

3. The minutes were **AGREED** as a correct record of the meeting.

## ITEM 3: PROGRESS ON ACTIONS AND MATTERS ARISING (ORAL)

4. Melanie provided Council with an update on all actions 'open' or 'in progress'.
5. A list of actions will be circulated to all Council members.

## ITEM 4: EXECUTIVE CHAIR'S REPORT (UKRI BBSRC 15/2018)

6. Melanie presented her *Report from the Executive Chair*, which provided Council with an update on UKRI-BBSRC's areas of activity, structured around the main elements of the *Forward Look for UK Bioscience*.

7. The Executive Chair highlighted the following:

- The 18RM2 Responsive Mode round included a highlight for projects applying machine learning to generate new biological understanding. 76 Expressions of Interests led to 38 full stage applications, seven of which were funded.
- The US-UK joint call with the US National Science Foundation and National Institute of Food and Agriculture, on *Breakthrough Technologies to Advance Crop Breeding*, funded via the UK Research and Innovation Fund for International Collaboration (FIC), had awarded 10 high-risk/high-reward collaborative projects (UKRI-BBSRC: £2m, US funders: \$3m).
- In November, UKRI-BBSRC (supported by UKRI-EPSC) announced £11m funding for six Networks in Industrial Biotechnology and Bioenergy (BBSRC-NIBB Phase II), which would build capacity and capability for research and translation in biologically based manufacturing by providing flexible funding for Proof of Concept projects.
- Six out of thirty-one outlines had been invited to submit full applications to the UK Nutrition Research Partnership (UK NRP) Collaborative Awards call, led by MRC. Up to £2m was available.
- 27 UKRI-BBSRC Discovery Fellowships (postdoctoral) applications and 16 David Phillips Fellowships (independence) applications had been shortlisted for interview by Committee E following the 2018 call. Up to ten Discovery and four David Phillips fellowships would be funded.
- 470 Expressions of Interest were received to the second round of the UK Research and Innovation Future Leader Fellowship scheme. Round one applications were undergoing assessment; interviews would take place in January 2019.
- 87 applications were received to UKRI-BBSRC's 18ALERT call; £10m was available to support the purchasing of mid-range equipment that would improve national capability. The panel meeting would be held in February 2019.
- An Interim Report (landscape analysis) of the UK Research and Innovation Infrastructure Roadmap would be published shortly.<sup>1</sup> UKRI-BBSRC was leading the Bioscience, Health and Food sector, working alongside MRC.
- The eleventh UKRI-BBSRC Innovator of the Year competition launched in October. The competition acknowledges and rewards inspirational scientists or small teams who have harnessed the potential of their research to deliver impact from UKRI-BBSRC investments.
- UKRI-BBSRC and UKRI-NERC, on behalf of the Department of Health and Social Care (DHSC) and Argentina's National Scientific and Technical Research Council (CONICET), had opened a call for collaborative research focusing on antimicrobial resistance in the environment.
- BBC Breakfast had aired a video report on Worms in Space, a collaborative project with the UK Space Agency which aimed to increase our understanding of healthy ageing. The story was reported by national and regional broadcasters, including Radio 5 Live (4.7M weekly listeners), Radio 2 (14.9M weekly listeners) and CBBC Newsround.

8. Council noted the Executive Chair's Report, and in particular:

- Commented on the relatively low success rate of the machine learning highlight in the 18RM2 Responsive Mode round, which was owing to the resources available. An Association of the British Pharmaceutical Industry report on machine learning in

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<sup>1</sup> <https://www.ukri.org/files/infrastructure/landscape-analysis-2-pdf/>

the pharmaceutical industry identified priority areas which mapped on to the highlight, reinforcing the importance of funding excellent work in the area.<sup>2</sup>

- Discussed genome editing in light of reports that a Chinese scientist had claimed to have used CRISPR-Cas9 to create HIV-resistance in twins. Council suggested that UK Research and Innovation could play a role in the ramping up of public dialogue on genome editing, which was necessary to ensure that the technology was responsibly used. Council was informed that UKRI-BBSRC had already been involved in work on this, for example with the Nuffield Council on Bioethics. **ACTION BB18-01: UKRI-BBSRC to inform the gene drive working group that Council considered public dialogue on genome editing to be a priority (Paul Burrows).**
- Suggested that UKRI-BBSRC could strengthen its alignment with the trade and investment priorities of the Department for International Trade.
- Pointed out that the creation of ‘artificial embryos’ from mouse embryonic stem cells raised philosophical questions about the nature of life. **ACTION BB18-02: ‘What is life?’ to be a discussion topic at a future UKRI-BBSRC Council dinner (Council Secretariat).**
- Approved of research which created a microbial fuel cell that converts coffee waste into electricity, and noted that there was an opportunity positively to reframe the idea of ‘waste’ via FoodWasteNet.

#### **ITEM 5: UPDATES FROM GOVERNMENT DEPARTMENTS (ORAL)**

9. Ian Boyd informed Council that the Government Office for Science was acting as a hub to improve the co-ordination and organisation between the Chief Scientific Advisers (CSAs) of different government departments, which would allow the CSAs to speak with a unified voice.
10. Within Defra, work had focused the Agriculture Bill, which was introduced in the House of Commons on 12 September. A Fisheries Bill and an Environment Bill would follow shortly.
11. Defra was also preparing for post-Brexit policy work, and had advertised for six senior research fellows to work on a part-time secondment basis within the department for one or two years. The fellows would act as a bridge between policy and the research community; five of the fellows would focus on a particular area (marine, air quality, rural land use, food, or resources and waste) and the sixth (the ‘Design Authority’) would direct the overall programme of work.
12. Ian Boyd was also working on the agricultural biosecurity strand of an international partnership, which would ensure that the UK was joined up with other countries (in particular Australia, Canada, New Zealand and the United States) regarding threats to agricultural biosecurity. Co-sponsorship of research would be discussed at the partnership’s meetings. **ACTION BB18-03: UKRI-BBSRC to share details of its work with the National Science Foundation with Defra (Amanda Collis).**
13. Defra’s next annual science conference would take place in May 2019. These were increasing in size each year, and presented an opportunity for policy professionals to connect with the science community. **ACTION BB18-04: UKRI-BBSRC to promote Defra’s annual science conference via its networks (Council Secretariat).**

#### **ITEM 6: OPEN DISCUSSION WITH SIR JOHN KINGMAN AND IAN KENYON (ORAL)**

14. The Chair welcomed Sir John Kingman (Non-Executive Chair of UK Research and Innovation), who provided an update on the evolution of UK Research and Innovation. He reminded Council that Sir Paul Nurse’s 2015 review of the research councils

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<sup>2</sup> [https://www.abpi.org.uk/media/3462/a\\_perspective\\_on\\_machine\\_learning\\_in\\_the\\_pharmaceutical\\_industry.pdf](https://www.abpi.org.uk/media/3462/a_perspective_on_machine_learning_in_the_pharmaceutical_industry.pdf)

highlighted the importance of interdisciplinary research, but did not advocate the abolition of discipline-focused councils.

15. Sir John noted that the new funding provided to UK Research and Innovation as part of the government's ambition to spend 2.4% of GDP on R&D by 2027 came with both opportunities and high expectations. UK Research and Innovation would take a long-term view and deploy the funding responsibly, noting where new funding mechanisms were less successful. Sir John also commented on the high calibre of the Executive Chairs, and the strength of UK Research and Innovation's Councils and Board. Ian Kenyon noted that UK Research and Innovation had achieved much since its formation, and that the councils' Strategic Delivery Plans would be published soon.
16. Sir John recognised the challenges involved in bringing the councils' corporate services together, particularly in combining grants systems (which needed to be done with care). Sir John also acknowledged the challenge of delivering excellent research via core grants at a time when core budgets had reduced.
17. Council welcomed Sir John's update, and discussed:
  - UK Research and Innovation's performance indicators and goals over the next two years. Sir John said that UK Research and Innovation would aim to continue to receive investment from whichever government was in power and could be judged in two years' time on the stature of its Executive Chairs. Ian Kenyon noted that the inclusion of Innovate UK would allow UK Research and Innovation to engage more with industry.
  - How to increase the funding allocated to core grants. UK Research and Innovation needed to remind ministers that such research also had economic value, and Sir John suggested that powerful stories and case studies could more effectively inspire Treasury officials than statistics alone. Industry partners — whether pharmaceutical companies or agri-tech SMEs — could also be persuaded to endorse basic science.
  - The difficulty of persuading the government to use its levers to help develop the bioeconomy. Sir John noted that UK Research and Innovation had a voice in government. Co-ordination between the network of Chief Scientific Advisers and UK Research and Innovation's Executive Chairs was one way of more effectively raising the issues in government.
  - The role of the devolved administrations. Sir John acknowledged that UK Research and Innovation included eight UK-wide councils and Research England. The Scottish authorities recognised that Scotland received a disproportionate share from the UK research funding system, and the Scottish Funding Council had delegated some work to Research England. Capitalising on research and development in Wales was also vital to the success of UK Research and Innovation.
  - Development of national infrastructure. Sir John noted that UK Research and Innovation's capability mapping work was excellent, and will provide an evidence base to recommend how money could be spent intelligently. UK Research and Innovation should take a broad view of infrastructure, and highlight where it was underfunded, but it should not take on responsibilities that were better borne elsewhere.
  - The role of the Councils in UK Research and Innovation, particularly in ensuring that Executive Chairs were encouraging interdisciplinary work. Sir John suggested that interdisciplinary work needed to be incentivised, and that councils would be rewarded for having innovative ideas (whether disciplinary or interdisciplinary). Council highlighted the difficulty of knowing whether UK Research and Innovation had encouraged more interdisciplinary research, and recommended that it considered how to measure interdisciplinarity.

## ITEM 7: BBSRC STRATEGIC DELIVERY PLAN (UKRI BBSRC 16/2018)

18. Paul Burrows introduced this item. UK Research and Innovation's nine councils were developing Strategic Delivery Plans (SDPs) based on a template, which would ensure consistency. The SDPs would cover both longer-term ambitions and key deliverables for 2019/20. Following discussion at the September Council meeting, UKRI-BBSRC's SDP had undergone further development with the Strategy Advisory Panels to refine the near-term actions and deliverables for 2019/20. ***ACTION BB18-05: UKRI-BBSRC to upload slides on the Forward Look to the Council extranet (Council Secretariat).***
19. Council gave detailed feedback on the current working draft, and in particular on the near-term actions. Council made the following suggestions:
  - Add more examples of multidisciplinary research areas (such as artificial intelligence) to the near-term actions of section 3.1.1.
  - Be more explicit about the link between UK Research and Innovation's Infrastructure Roadmap and transformative technologies in section 3.1.2.
  - In the long-term ambition/objectives section of 3.2.2, add a sentence on what UKRI-BBSRC was doing to make bioscience for renewable resources and clean growth an attractive area for students (for example Networks in Industrial Biotechnology and Bioenergy).
  - Highlight the 2.4% R&D target and the importance of supporting people who want to return to a scientific career in the long-term ambition/objectives section of 3.3.1.
  - Elaborate on how UKRI-BBSRC would engage with industry in the near-term actions of section 3.3.3.
  - Consider emphasising innovation in the long-term ambition/objectives and near term actions sections throughout the document.
  - Consider highlighting the strategically funded institutes in the general narrative sections (for example in section 3.2.1).
  - Change references to 'waste' throughout the document; highlight any links to artificial intelligence and industrial input; replace 'brokerage' with 'management' or 'leading'; under 3.3.1, acknowledge that several of the careers listed as non-traditional are traditional (such as technicians); replace 'well-found laboratories' with 'well-equipped laboratories'; be clear about the dual meaning of 'sectors' (which could refer to science or society).
20. ***ACTION BB18-06: UKRI-BBSRC to integrate Council's recommendations on the Strategic Delivery Plan, including adding: examples of multidisciplinary research, innovation across the remit, and the strategically funded institutes (Paul Burrows).***
21. Council also recommended exploring ways of making long-term ambitions/objectives more specific and ambitious in future strategic documents. ***ACTION BB18-07: UKRI-BBSRC to explore how to make long-term objectives in future strategic documents more explicit, concrete and ambitious (Paul Burrows).***

## ITEM 8: SPENDING REVIEW — INITIAL PRIORITIES (UKRI BBSRC 17/2018)

22. Paul Burrows introduced this item, and provided Council with a summary of UKRI-BBSRC's initial planning and preparations for the 2019 Comprehensive Spending Review. The UK Research and Innovation Strategy Unit was working with the nine councils to develop a strong case for investment in research and innovation, and to help secure the overall UK Research and Innovation budget for 2020/21 onwards. To inform the development of the overall UK Research and Innovation Spending Review narrative, councils were asked to describe their plans under three hypothetical budget scenarios.

23. In the event of a minus 20% reduction in funding, UKRI-BBSRC would 'retreat to core' (and protect basic science and talent) and not 'salami-slice' across all budget lines; instead it would make strategic decisions to ensure that limited resources were not spread too thinly. Under a flat (real) core budget settlement, there would be little room for new activities and the balance of funding across UKRI-BBSRC's main budget lines would remain broadly similar. Finally, if UK Research and Innovation's budget increased, UKRI-BBSRC would prioritise extra investment in: building the bioeconomy; animal and plant health; leading the world in bioscience discovery; driving impact from bioscience; transformative technologies; and talent.
24. Council broadly **AGREED** with UKRI-BBSRC's proposed approach under each of the budget scenarios and supported the six strategic areas to prioritise in the event of an increased settlement. Council suggested that the principles identified in the minus 20% scenario could appear in the other budget scenarios, and that people and talent could appear throughout the priorities under an increased budget settlement.
25. UK Research and Innovation's Strategy Unit also asked councils to outline their infrastructure priorities in advance of the Spending Review. Council **AGREED** with the priorities, noting that UKRI-BBSRC could be more explicit about its ambitions for infrastructure (including large investments along the lines of the Francis Crick Institute and multi-equipment infrastructures).
26. Council pointed out that UKRI-BBSRC's remit cut across all of the government's Grand Challenges — and could contribute to solving them on its own and in collaboration with others — and touched on high-value industries which were moving into bioscience (such as chemistry), so was well-placed to benefit from any budget increases.
27. ***ACTION BB18-08: UKRI-BBSRC to consider Council's recommendations on the Spending Review priorities, including: emphasising people and talent; being more explicit about ambitions for infrastructure (including multi-equipment infrastructures); and highlighting areas where UKRI-BBSRC's remit touched on other high-value areas that will benefit from bioscience (such as chemistry) (Paul Burrows).***

#### **ITEM 9: DOCTORAL TRAINING PARTNERSHIPS (UKRI BBSRC 18/2018)**

28. Karen Lewis introduced this item. Since the previous discussion with Council on the third phase of Doctoral Training Partnerships (DTP3) in July 2018, UKRI-BBSRC had further engaged with Strategic Advisory Panels and other stakeholders, and now sought Council's advice and decisions on remaining questions and approval to launch the DTP3 programme in 2019.
29. Karen explained that UKRI-BBSRC proposed using a minimum threshold of UKRI-BBSRC research income (of £20m from responsive and managed mode over the last three years) for eligibility of partnership bids to the DTP3 competition. This would help to ensure that DTPs were aligned with and covered a broad portfolio of UKRI-BBSRC funded research, and encourage the inclusion of a range of Research Organisations (ROs). Council **AGREED** the threshold for consortium partnership after discussing the assessment criteria and incentives for consortia to engage with industry. Council also suggested the publication of a guidance and FAQ document which clearly explained the criteria for assessment. ***ACTION BB18-09: UKRI-BBSRC to consider publishing a guidance and FAQ document to accompany the next round of Doctoral Training Partnerships (DTP3) (Karen Lewis).***
30. To ensure an appropriate balance in support of frontier bioscience and strategically important areas, UKRI-BBSRC proposed that applicants to DTP3 would be invited to describe how they aimed to address UKRI-BBSRC priorities and support other strategically important skills through the DTP model, rather than having a set of specific targets for studentships in priority areas (as was the case for DTP2). Council **AGREED** with this more flexible approach, providing strategic priorities were not neglected, and

suggested using the phrase 'DTPs **will be expected** to enable an appropriate balance of support for frontier bioscience, strategic priorities and areas of skills shortages.' Council also discussed the importance of including artificial intelligence as an element of this approach.

31. A new feature of DTP3 would be the separate allocation of CASE awards to DTPs assessed on the strength of their industrial collaborations and plans for the development of new collaborations, especially with SMEs. This would replace the previous method in DTP2, in which CASE was allocated algorithmically in proportion to the number of standard studentships. Council **AGREED** with the new approach to allocation of CASE awards.
32. Council noted the intention for DTP3 to include a £500,000 p.a. Flexible Supplement Fund (FSF), to be distributed across successful applicants. This fund would be used flexibly to support: the development of strategically important and vulnerable research skills and capabilities in the biosciences; exceptional training opportunities, such as overseas fieldwork; opportunities to provide training with industry or at the interdisciplinary interface; and widening participation activities to address identified discrepancies in the take-up of doctoral opportunities between different social groups. Cross-DTP network building would also be a permissible use of this money. Council welcomed the introduction of the FSF. Council also noted that Marie Skłodowska-Curie Actions supported the maintenance of doctoral networks post-PhD, and discussed whether there was merit in encouraging this type of activity as part of the FSF. **ACTION BB18-10: UKRI-BBSRC to consider encouraging activity to 'support ongoing relationships' (post-PhD) as part of the DTP's Flexible Supplement Funds (Karen Lewis).**
33. Council **APPROVED** the launch of the DTP3 programme in 2019.

#### **ITEM 10: INITIATING A REVIEW OF DATA-INTENSIVE BIOSCIENCE (UKRI BBSRC 19/2018)**

34. Melanie introduced Peter Burlinson, who informed Council that UKRI-BBSRC intended to conduct a review of data intensive bioscience to inform the council's future strategic approach to this important area within UK Research and Innovation. The approach proposed was primarily consultative, with the aim being to understand key issues and emerging requirements within the research community. The work would be conducted under the guidance of a Council Task and Finish Group with potential involvement of some Council members and representation from the wider research and innovation community. **ACTION BB18-11: Council members to volunteer to help with the review of data-intensive bioscience (Council).**
35. Data intensive bioscience cut across UKRI-BBSRC's portfolio, presenting a challenge to conducting a review in the area. An initial analysis of UKRI-BBSRC's research funding between financial years 2008/9 and 2016/17 indicated that at least 50% of UKRI-BBSRC research grants directly undertook some form of large-scale data research.
36. Council commented on the proposed scope of the review, which would be focused on research and consider such questions as methodology; emerging approaches such as artificial intelligence and imaging; skills; and partnerships. Council highlighted the importance of working with other parts of UK Research and Innovation and other organisations in the area of machine learning. Council endorsed the scope of the review with these additions, and reminded UKRI-BBSRC to draw on its existing work on careers in the review. **ACTION BB18-12: UKRI-BBSRC to draw on its existing work on skills and careers as part of the review of data-intensive bioscience (Peter Burlinson/Amanda Collis).**
37. The Task and Finish Group would meet three times in the first instance, and one or two workshops would take place where particular issues could be considered in detail. UKRI-BBSRC would aim to complete the review process by summer 2019. Council

noted and supported the proposed implementation plan and commented that the timely review could support UKRI-BBSRC's Strategic Delivery Plan near-term actions for 2019/20 and inform future work.

**ITEM 11: RISK REGISTER — 6 MONTHLY DISCUSSION FOR ASSURANCE PURPOSES (UKRI BBSRC 20/2018)**

38. Paul Gemmill introduced this item, and explained that UKRI-BBSRC risk management would be transferring from a bespoke system to a single UK Research and Innovation risk management system called EasyRisk. Owing to this upcoming change, UKRI-BBSRC had not updated the group structure on the dashboard and register.
39. Council noted and discussed the four red risks, the Organisational Risk Dashboard and the Organisational Risk Register. Council agreed that they wished to continue to see UKRI-BBSRC's full risk register once it had moved on to EasyRisk. UK Research and Innovation centre would also share the full UK Research and Innovation risk register with Council.
40. ***ACTION BB18-13: UKRI-BBSRC to continue to share full risk register with Council (Council Secretariat).***
41. ***ACTION BB18-14: UK Research and Innovation to share risk register with Council (UKRI centre).***

**ITEM 12: ANY OTHER BUSINESS/FORWARD LOOK (ORAL)**

42. Council was invited to suggest agenda items for discussion at future meetings. The importance of case studies, particularly in relation to Responsive Mode grants, was highlighted as a possible future item. UKRI-BBSRC was refreshing its strategy for research and innovation collaboration, which would be discussed at Council in summer 2019. ***ACTION BB18-15: UKRI-BBSRC to consider discussing case studies at a future Council meeting (Council Secretariat).***
43. Council would discuss UKRI-BBSRC's updated stakeholder map in March 2019. ***ACTION BB18-16: UKRI-BBSRC to send updated stakeholder map to Council, which will be discussed at the next Council meeting (Council Secretariat).***

Council Secretariat  
December 2018