



Engineering Biology Leadership Council – Meeting 03
Wednesday, November 25th 2020
2h Online meeting

Attendees:

Prof Lionel Clarke, Prof Joyce Tait, Dr Tim Brears, Dr Jason Vincent, Prof Dale Sanders, Prof Richard Kitney, Dr Dana Heldt, Dr Gordon Ford, Dr Martin Cannell, Dr David Tew, Jamie Parkin (on behalf of Ceri Lyn-Adams), Rohan Kemp, Peter Cottrell

Apologies: Nadhim Zahawi MP, Prof Petra Oyston, Ceri Lynn-Adams
Invited speakers: Doug Friedman (EBRC) and Patrick Rose (ONRG)

1. Welcome and Internal Business

- Chair Lionel Clarke welcomed everyone, and apologies were noted. Minister Nadhim Zahawi was not able to join due to other commitments.
- Minutes from the last meeting were approved.

2. Position paper

The EBLC position paper summarising the findings and recommendations of the EBLC working groups was shared as pre-reading material. Lionel summarised the paper briefly. The previously discussed draft '7 key asks' to the government were combined and summarised in the paper as '4 key interventions' needed to leverage the value of UK Engineering Biology. Details can be found in the paper, which will be published on the EBLC webpage.

Dale Sanders raised awareness of China, how they are overtaking UK and their capabilities should not be discounted. There is a need to scope out the different collaboration opportunities between UK-USA, UK-Europe and UK-China.

Discussion on next steps took place. Joyce raised the point that a systematic approach is needed to link asks and how to take them forward. This should be made clear in the document and the diagram. She referenced the documents published by the Royal Academy of Engineering.

Note: After the meeting Joyce Tait shared the link to the RAE documents.

<https://www.raeng.org.uk/publications/reports/net-zero-a-systems-perspective-on-the-climate-chal>

The suggestion was made to reach out to RAE to establish opportunities of working together.

Action: Richard Kitney to reach out to RAE

Dale Sanders informed the EBLC that he is involved in a program on behalf of the Royal Society for COP26 on Food and Agriculture. This is involving China, US and India with focus on agriculture, food and climate change. Elizabeth Surkovic from the Royal Society is leading on this. Synthetic Biology/Engineering biology can play a role in addressing those challenges and discussion with Liz would be beneficial. A document will be published by January/February for COP26.

Action: Dale Sanders to introduce Elisabeth Surkovic to Lionel Clarke

Patrick Rose and Doug Friedman joint the EBLC to talk about BioMADE:

- Patrick Rose introduced himself as government Programme Manager for BioMADE. Within the US there is a need to develop and accelerate biomanufacturing of non-medical materials. The US has an ecosystem of established companies and start-ups but lacks manufacturing base that can deliver products at scale on demand for a variety of applications. BioMADE, a private-public partnership, is the 9th Department of Defence Institute and the 14th overall US Government Institute. It aims to build manufacturing capability in the US to create a resilient ecosystem. Over the next seven years, the Institute aims to deliver innovative technologies and be able to help transition proof of concepts to the commercial market. BioMADE, focused on manufacturing readiness levels 4 through 7, aims to establish a robust foundation for bio manufacturing that allows scale up and deliver products. It also focusses on ethical, legal, societal safety and security implications of biomanufacturing. Workforce, skill (re)training and regulations will also play a major role in the institute. Patrick made it clear they are looking for partnerships and are keen to discuss opportunities to leverage each other's (UK/US) expertise and ecosystems.
- Doug Friedman (BioMADE CEO) emphasised the need for biological scale up and being able to go from small lab scale to kg/tonnes scale. A key aim for BioMADE is to enable the collaborations between companies, academic institutions, the US government and international collaborators to achieve reliable scale up.
- EBLC will have ongoing discussions to agree how and when to best interact with BioMADE and explore specific ideas on working together.
- Doug and Patrick offered to provide a more detailed presentation (focus areas, vision, activities national and internationally) upon request.

Action: members to volunteer for smaller group zoom meeting to discuss next step (tie in with global impact meeting)

Discussions moved on how to take the position paper forward.

- Dale Sanders raised the point that global thinking needs to be reflected. Rohan Kemp pointed out that the relation to the UK Bioeconomy needs to be

clear. International relations and collaborations are important. The focus needs to be on the part the UK plays in the global science & technology scene, together with strategic partnerships that benefit the UK. The right framework needs to be in place to enable global partnerships.

The suggestion was made by Jason Vincent for a different perspective on how UK international aid is seen. Providing integrated solutions and engineering biology could be part of this. EngBio can deliver solutions for global challenges and to grow the UK Bioeconomy.

Action: Convene ad-hoc online meeting to discuss EBLC position on Delivering Global Impact via UK EngBio Regional Partnerships (Lionel Clarke)

The issues of communication was raised, being a major focus point which needs addressing. Joyce Tait gave the example of regulation and reminded everyone to engage with their own networks proactively to highlight the benefits of EngBio and how the technologies contribute to social and ethical goals. She mentioned the public Defra engagement initiative starting in December - an openly available questionnaire which everyone can join and voice their opinion. Everybody who's got an interest should be taking part.

Note: Dale volunteered to work with Lionel on wider communication opportunities.

Discussion on the position document itself took place and how/if/where to publish. Following comments and suggestions were made:

- Tie document to government priorities and how they can support deliverables set out by government
- add successful examples (what has worked and why)
- too academic, shorten document

Action: Generate an executive summary version, taking these suggestions into account, in addition to capturing the full version, making both available online via our website. (Lionel Clarke and Dana Heldt)

3. Updates from Stakeholder groups

Science and Technology Sub Group

The minutes from the Science and Technology Group meeting were shared as pre-reading material (Paper 3). For details please refer to the paper. Richard Kitney highlighted the discussion points.

- key areas of discussion in the meeting were the key interventions
- unclarity within the ST group on the status of the national engineering programme (Jamie Parkin follow up on this during the BBSRC update)
- Group endorsed developing key multiple disciplinary workforce
- Need for right funding (IB catalyst) and infrastructure in the UK was raised (start-ups, early stage companies rely heavily, if government stops supporting infrastructure it will create a huge problem)

- EBLC and working group are playing an important role in promoting UK's engineering biology community
- there is a need to establish a nimble regulatory system, but ST group feels that activity led by Joyce will cover this
- other topics addressed were: discussion around big ideas, SynbiTECH2020 and Global Biofoundry Alliance
- Update from the centres can be found within the shared document

UKRI

Jamie Parkin attended on behalf of Ceri Lyn-Adams and provided an update on the 'Engineering Biology National Programme'.

- Melanie Welham, Executive Chair of BBSRC, has presented an overview of the national engineering biology programme to the chief scientific advisors network
- BBSRC are developing a business case to outline the proposal, eg what it is, aims to achieve, costing,... This is still in development and has not yet been sent to BEIS.
- An internal assessment panel has been held within UKRI to obtain advice and to help steer the direction of the business case. The feedback from the panel was positive.
- The external engagement process was shared with the EBLC: a number of workshops May to get a broad overview, followed by focused workshops with smaller groups of relevant stakeholders to help shape and influence the direction of key elements of the programme (eg themes to focus on, which underpinning technology should be considered, what are the enabling themes within this programme), in addition to an engagement with a smaller number of stakeholders to help write the strategic part of the business case. Individuals were selected based on expertise matrix.
- The precise process of submitting the program is yet not clear, due to recent announcement from the Spending review.

Jason Vincent and Lionel Clarke raised the point the EBLC and other crucial stakeholders should be involved in a formal way in the process to ensure an aligned approach and joint message.

Governance

Joyce Tait gave update on the Responsible Innovation and linked it to BioMADE and how the US can learn from the UK

BSI Responsible Innovation Standard PAS_440:2020

- This standard, crafted by the Innogen Institute and InnovateUK has been met with exceptionally high levels of interest from industry. It had more than more than 1000 downloads within the first few days and a total of 2700 downloads since its launch in April.
- It is also being taken up by for student training by two doctoral training programmes in the UK and there are several students working with BSI on its implementation in companies

- Masters students are contributing to a BSI blog that will be publicly available for the general public, enabling them to understand how standards work

Regulatory Update

- EBLC can collaborate through Joyce with the Regulatory Horizons Council
- The RHC has strong government support behind and will contribute to some changes in the UK's regulatory system post Brexit
- Defra is the lead government department, but other stakeholders are involved
- The point was made that different regulatory systems are needed for different sectors and technologies and careful consideration is required to understand impact of each regulatory framework on all sectors/technologies.
- A number of workshops with companies, academics, policymakers and representatives of different stakeholder groups will be held to ensure their views are taken into account
- Joyce asked the EBLC member to get in contact to discuss how the current regulations are affecting their ability to innovate and what needs to be changed in the current regulations. Any ideas on how to adapt regulations in the future to be more flexible to technological innovation are welcomed.

EBLC Governance Advisory Panel

- Decision was made at one of the last EBLC meetings to have ad-hoc governance meetings with a larger stakeholder group as and when necessary. Due to other commitments the panel has not been reactivated but it's kept in mind and meetings will take place when required

Note: EBLC members to contact Joyce Tait with views arising from experience with current regulations

4. AOB

Lionel suggested to invite Mark Oakes (DIT) to join the EBLC. Janet Bainbridge left EBLC in 2019 and her role as DIT representative had not been replaced. With increasing discussions on international collaboration, re-establishing a formal role for DIT on the EBLC would be timely and beneficial. EBLC Members present at the meeting agreed to this proposal.

Action: Invite Mark Oakes formally to the EBLC

Actions

The actions are summarised in the table below

Actions	Description	Responsibility	Due date	Progress /outcome
3 – 1	Invite Mark Oakes, DIT, to the EBLC	Lionel Clarke	Before next meeting	done
3 – 2	ad-hoc meeting to discuss EBLC position on Delivering Global Impact	Lionel Clarke	Before next meeting	Meeting took place and the discussion points were summarised by LC and shared with the member.
3 – 3	Reach out to RAE on collaboration opportunities	Richard Kitney	Before next meeting	ongoing
3 – 4	Finalise EBLC position paper, provide Executive Summary and publish on EBLC web page	Lionel Clarke Dana Heldt	As soon as possible	ongoing
n/a	Success stories	all	ongoing	No update