

E-infrastructure Leadership Council

Wednesday 4th July 2012, 13:00-16:00
BIS Conference Centre, 1 Victoria Street, London SW1H 0ET

Attendees**Joint Chairs:**

Dominic Tildesley Unilever

Ministerial Members:

Ed Vaizey Minister for Culture, Communication and the Creative Industries

Industry Members:

Paul Best Frazer-Nash/CFMS
David Docherty Digital Media Group
Andy Grant IBM
Darren Green GlaxoSmithKline
Prof Tony Hey Microsoft
Sean McGuire Intel
Andy Searle Jaguar Land Rover
Kaitlin Thaney Digital Science

Academic Members:

Prof Peter Coveney University College London
Prof Richard Kenway University of Edinburgh
Dr Oz Parchment University of Southampton
Prof Mike Payne University of Cambridge

Public Sector Members:

Prof John Bancroft STFC
Dr Stuart Bell Met Office
David Bott TSB
Dr Bob Day JANET
Prof Douglas Kell BBSRC
Dr Lesley Thompson EPSRC

Secretariat/Observers:

Graeme Reid BIS
Dr Martin Ridge BIS
Robert Downes BIS
Paul Lewis BIS
Dr Anne-Marie Coriat RCUK
Will Searle Axillium Research (on behalf of the Engineering and Manufacturing Working Group)

Apologies

Rt Hon David Willetts MP Minister of State for Universities and Science
Ian Dix AstraZeneca
Prof Robert Glen University of Cambridge

1. Welcome, Previous Minutes and Actions

Dominic Tildesley took the Chair, and welcomed everyone to the second meeting of the E-infrastructure Leadership Council.

The Chair thanked the Working Groups and the EPSRC for their work in producing their reports.

The Agenda for E-Infrastructure Leadership Council 02 was accepted by the council.

The meeting minutes from the ELC 8th March meeting were accepted, with written comments from Prof Richard Kenway.

The ELC Secretariat presented the Actions Register to the Council.

The Chair reminded Members of the need to maintain the Register of Members' Interests.

Comments were received regarding the representation of the e-health community on the ELC. The Chair acknowledged the importance of e-health to the UK economy and the wider health sector, noting that this was addressed in the report of the Life Sciences Working Group. It was also noted that Peter Coveney is on the GO_Science Working Group that is preparing a report on algorithms, big data and HPC for the Prime Minister that will emphasise e-health.

2. Gateway 5 Programme Report and Programme Board

The Chair introduced Graeme Reid, Chair of the e-Infrastructure Programme Board (EPB), to discuss the role of the EPB and its first meeting, held on 2nd July 2012. Graeme noted that the EPB:

- Was created in response to a recommendation of the Gateway 5 Review of the £145 million investment to oversee implementation in accordance with BIS requirements, acting as a "self-help" forum where the funding agencies can interact.
- Exceeds the Gateway 5 Review's membership recommendation, with two members of the ELC sitting on the EPB alongside representatives of other delivery bodies.
- Has a crisply defined role, which does not replace existing governance processes within funding agencies, the Department or the ELC itself. In particular, the ELC produces visionary advice: the EPB's role is to translate this advice into a strong delivery programme.
- Must be transparent in its work. As such, papers from the EPB will be made available to the ELC.

The Chair noted the distinction between the ELC's visionary role and the EPB's delivery role.

The ELC commented that:

- There is a potential gap between the ELC and the EPB: there is no clear executive representation of UK e-Infrastructure interests, which is particularly important in EU dealings (e.g. PRACE). A clear point of contact (e.g. on European matters) is needed.
- The e-IRG and other EU member states recognise the need for a user-centric approach, with forward-looking investments driving use and recognising both the role of expert guidance and rapid technological changes.
- an “e-Envoy” tasked with champion UK e-infrastructure interactions with public bodies, industry and international organisations should be identified.

The Chair reaffirmed that the EPB is not the executive arm of the ELC, and that the ELC is inherently user-centric (giving the Working Groups and their role in the formation of the Business Case as an example). The Chair also acknowledged the concerns raised by the ELC concerning the need for a clear executive lead on e-infrastructure.

A question was raised around the longevity of EPB membership, as well as its role in compliance issues. Graeme noted that:

- Organisations, rather than specific people, are represented on the EPB.
- The EPB will help to deliver a cohesive programme.
- The EPB has no compliance role: delivery bodies have internal accounting procedures.

The Chair thanked Graeme and the membership of the EPB.

3. Working Group Reports – Q&A

The Chair thanked the Working Groups (WG) for their work and opened the discussion, reminding the ELC that this was an opportunity for clarification of points made in reports.

The Minister for Culture, Communication and the Creative Industries welcomed their work and gave his support to the ELC as a whole, stating that:

- The Department for Culture Media and Sport (DCMS) has an interest in the work of the ELC as it is the policy lead on broadband provision in the UK via direct and Local Authority funding.
- The wide range of perspectives the ELC provides are vital to understanding user needs and will help shape Government’s approach to this area.

The Chair and ELC Members thanked the Minister for his comments.

Engineering and Manufacturing Working Group (E&M WG)

The E&M WG leader, Andy Searle, thanked his Working Group participants and Axillium Research for their support, and noted the following:

- The E&M WG adopted a survey and workshop-based approach and noted the low number of completed surveys against the high number of targeted businesses indicates a lack of awareness around e-infrastructure.
- Commonly recorded issues included:
 - Limited interaction between academia and industry;
 - Cross-border Intellectual Property (IP) issues;
 - Lack of skills;
 - Connectivity barriers;
 - Software expense, usability and licensing restrictions;
 - Affordability for the wider business community.
- The key recommendations were: awareness building; and developing a UK e-infrastructure community around a “virtual hub” with easily identified points-of-contact to facilitate knowledge sharing.

The Chair thanked the E&M WG leader for his report and opened the floor to questions. The ELC commented that:

- There was little mention of long term (over 10 years) data curation in the report, which is important for certain engineering sectors (e.g. aerospace). The E&M WG leader acknowledged the highly sector-specific nature of these requirements and the commercially available storage solutions.
- Awareness was recognised as a key issue, especially for Small to Medium Enterprises (SMEs). Restrictive regulation stands in the way of public bodies marketing available of public resources (e.g. STFC, EPCC, and Daresbury Innovation Campus). It was suggested that this is less of a problem in other EU countries and the USA.

Life Sciences WG (LS WG)

The Chair introduced the LS WG leader who reported that:

- The life sciences are exceptionally diverse, which necessitated the formation of a large number of subgroups.
- The pharmaceutical industry, in the context of e-health, needs a suitable access policy for large datasets held in diverse locations. Collaboration is very much part of the current paradigm in the Life Sciences and so information security is a major concern.
- The E&M WG assessment of the lack of awareness and uptake of e-infrastructure, and the need to better exploit existing investments through the provision of “on-ramps” , was mirrored in the work of the Life Sciences WG.
- SMEs in particular need “on-ramps” to access appropriate resources with a level of support that recognizes inexperience and lack of clear articulation of the business need that e-infrastructure can address.
- Skills, training, and software, as well as improved “e-literacy” amongst life scientists as a whole are issues in order that modeling and simulation can precede expensive and time consuming experimentation. A flexible approach to these problems in genuine collaboration with academia, seen as a skills repository, is essential.

The Council commented that:

- There are strong similarities between the Life Sciences and Engineering and Manufacturing reports.
- Modeling and simulation activities prior to “wet” experimentation is increasingly commonplace and hence a key focus for industry and academia.
- Both reports place an emphasis on the e-infrastructure ecosystem and business engagement rather than solely HPC facilities.

The Chair thanked the LS WG leader and participants.

Training and Skills

The Chair introduced Lesley Thompson from the Engineering and Physical Sciences Research Council (EPSRC) to discuss training and skills from a pan-Research Council perspective. Lesley noted:

- There are scarce skills in software engineering, particularly in build and optimisation of software.
- Computational scientists are generally not recognised professionally and there is no clear career path on offer. Confidence building, mentoring and nurturing talent is necessary. Professional accreditation would help.
- There is no shortage of training courses: the difficult part is successfully embedding these courses in the right study programmes. This is partly an historical issue.
- A cultural change is needed to foster the idea that the “e-literacy” skillset is a basic requirement for 21st Century research (e.g. PhD supervisors may not be computer literate and therefore younger researchers may not be encouraged to develop these skills).

The ELC commented that:

- Job security is a concern for younger computer scientists.
- Current metrics are insufficient in the sense that, for computer scientists, publications are still the main currency in academia: data and code generation are not recognised in the REF despite their obvious importance.

The Chair thanked Lesley Thompson for her contribution.

SMEs and the “Missing Middle” (SME WG)

The Chair introduced the SME WG leader, Kaitlin Thaney, who extended her thanks to Andrew Carr and Bull for their assistance and noted:

- The final report will be based on a survey of SMEs and related organisations, which received 167 responses. The data is publicly available and will be disseminated within the community along with the WG report.

- The survey focused on spinouts and SMEs and aimed to determine current usage of hardware/software/network infrastructure and awareness of Government initiatives alongside available infrastructure.
- HPC was considered to be less of an issue than connectivity for SMEs, and small budgets implied the need for distributed and easily accessible resources.
- Training is again a concern with improved big data manipulation training (statistics and software skills) accessible to smaller businesses.
- Awareness of network offerings was positive with JANET scoring well. However, the perception exists that JANET is poorly suited to cloud-based technologies and applications outside the traditional higher education academic sectors.

The Chair thanked the SME WG leader and participants.

Digital Media Post-Production (DMPP WG)

The chair introduced the DMPP WG leader, David Docherty, to discuss the work of the Digital Media Post-Production WG:

- A roundtable with a range of post-production community representatives was held and highlighted many of the same issues covered by the SME WG.
- Connectivity and cost were both seen as key from this introductory investigation, and the need for commodity pricing for e-infrastructure access and use to address the wider big data issue for both academe and industry.
- There is no awareness of the “state-of-the-art” in academia, nor of the Government initiatives available that could be exploited by the industry.
- Rapid technological change is likely to be a bigger challenge in this sector.
- The introductory work highlighted the need for a more in-depth report with a broader base across other communities in digital media: this will be available for the next Council meeting.

The ELC commented that:

- BIS via JANET has invested significant funds in “next-generation” capability, but that connectivity on its own is not enough to guarantee successful exploitation of infrastructure.
- JANET does not currently deal with the last mile issue, and nor should it for commercial connectivity due to State Aid rules.
- Ultimately it is the “service wrap” (complete package available commercially rather than any given core service) that will make the difference.
- A “one-stop shop” for business development aimed at SMEs, rather than, say, exascale HPC resources, is needed.
- Government’s role is to build awareness, followed by education and training.

The Chair thanked the DMPP WG leader and participants.

UK Participation in HPC at EU Level (EU WG)

The Chair introduced the leader of the EU WG, Richard Kenway, to discuss the work of the group:

- Coherent engagement with Europe with clear points of contact representing the UK's user-communities and unified central coordination is required.
- Scientific competitiveness leads to economic competitiveness.
- UK uses 8.6% of EU-level HPC resources: hides the fact that only 39% of applications are successful, versus an EU-wide success rate of 56%.
- The UK must align its policy with the broader EU approach, in line with Horizon 2020 and HPC ETP initiatives. The UK needs to understand the importance of precommercial public procurement in EU policy in this area.

The Chair extended his thanks to the EU WG leader, participants and, indeed, all WGs.

4. Business Case Overview

The Chair stated that the Business Case was focused on the provision of e-infrastructure, not science and innovation funding. Within the business case there needs to be a strong central theme linked to the agenda for growth: this could be the "up-skilling" of UK industry in the use of e-infrastructure for competitive advantage. Access to exascale machines or Tier 1 compute resources is not the sole focus: Tier 2/3 facilities appear to be most appropriate for the upskilling agenda.

The subsequent roundtable discussions focused on: desirable outcomes; Critical Success Factors; and the role of WG findings in the Business Case. In plenary feedback, rapporteurs made the following points:

- While new hardware must complement the overall holistic vision, the real issue is around big data, business development and translation activities. More market research is needed to understand the requirements in industry.
- Regional access centres/hubs must be scalable whilst not diluting the domain specific knowledge necessary for success. A nationally recognized brand (not necessarily new, but capable of being developed, e.g. TSB led Catapult Centres) would allow national centres of excellence to be accessed through local e-Science Centres acting as an "on ramp".
- Regional centres consisting of local HEIs could provide local expertise, with an option to move to centres of national excellence if necessary. Such a system should be pump-primed, and academics involved properly funded. A scarce resource, good people to act as "translators" of business need and e-infrastructure solutions should be identified, properly funded, and used to mentor other centres.
- Awareness of business opportunities (from the solution of pre-existing problems to the uptake of new technology) must be developed through the use of case studies and "citizens' advice bureaus" to begin the journey and to gain maximum economic impact and value-for-money from existing and future investments. Industry will not use facilities unless the benefits are clearly articulated. There should be a clearly identified organisation tasked with this role.

- The Business Case and subsequent investments must be more user-focused rather than the historical six strand provider-focused model. Also, the pyramid model of the four Tiers is out of date: researchers need access to all the Tiers as appropriate to the specific challenge.
- This user-focus should recognize that a majority of business users will be “e-novices” and so accessibility software and training will be necessary.

The Chair introduced Tony Hey who gave a short presentation entitled “A National e-Infrastructure.” This emphasised a move to data science rather than e-science, and drew out the distinction between data storage (bytes) and true data curation (accessible knowledge).

5. Next steps and meeting close

The Chair thanked the ELC for its participation. The focus will now be on developing the Business Case for agreement at the next meeting: a well developed version was required by Ministers in late September/early October.

The Chair emphasized the need for the Business Case to take a rigorous approach backed with evidence for submission to Ministers. It should address both capital and recurrent requirements.

The ELC Secretariat will circulate a revised draft of the Business Case. Written comments from the ELC would be welcomed.

Next meeting: 6th November, location and time to be determined.