

BELMONT FORUM COLLABORATIVE RESEARCH ACTION ON E-INFRASTRUCTURE AND DATA MANAGEMENT

Steering Committee Meeting Summary Report

October 15-17, 2013
Windsor, United Kingdom

EXECUTIVE SUMMARY

A 3-day Steering Committee Meeting was held in Windsor, United Kingdom, October 15-17, to identify and determine leadership of a number of 18-month work packages in the areas of Governance and Architecture & Interoperability. These work packages aim to provide recommendations on how to best address the Belmont Challenge¹ and identify where future activities might most productively be steered to promote better e-infrastructure and data management practices that can accelerate delivery of end-to end global change decision support systems.

The 31 meeting participants were composed of Steering Committee (SC) members representing Australia, Brazil, the European Commission, France, Germany, the International Council for Science (ICSU), Italy, Japan, South Africa, United Kingdom, United States, and the COOPEUS Project (Cooperation between the European Union and the United States). Other meeting participants included representatives from the Belmont Forum leadership, GEO/GEOSS, members of the Belmont Forum Group of Program Coordinators (GPC), members of the US and UK nodes of the Collaborative Research Action (CRA) Secretariat and representatives of the Natural Environment Research Council (NERC) representing the UK funding agency co-sponsor of the e-infrastructure scoping activities.²

The meeting opened with presentations on national e-infrastructure and data management activities, interests, and priorities by each SC member, followed by a synthesis of trending topics from these presentations with the list of topics developed at the initial San Francisco Scoping Meeting in December 2012, thereby advising the creation of the work packages focused on architecture & interoperability and governance in subsequent breakout groups. Participants closed the meeting by identifying the scope of, and determining leadership for, six work packages (three in Architecture & Interoperability, two in Governance and one overarching capacity-building Advisory Activity), in addition to affirming US-UK Secretariat leads Lee Allison and Robert Gurney as Steering Committee Co-Chairs. It was also agreed that coordination and collaboration between established bodies is essential to avoid duplication of effort, and facilitating research through improved access to relevant data and partners was of first importance. It was widely felt throughout the meeting that enthusiasm for ongoing participation, collaboration and action

¹ The Belmont Challenge aims “To deliver knowledge needed for action to avoid and adapt to detrimental environmental change including extreme hazardous events.” For more information, please see <http://www.igfagr.org/index.php/challenge>.

² Unfortunately due to the US Government shutdown, representatives from the National Science Foundation (NSF) were not able to be present.

was strong, and several near-term action items were identified to jumpstart the work package scoping activities.

NATIONAL PRESENTATIONS & TRENDING TOPICS

The meeting opened with a series of presentations on national e-infrastructure and data management interests, activities and priorities. The wealth of on-going activity at local, national and international levels addressing environmental change collaboration was acknowledged, with many who have, to a greater or lesser extent, already begun to address issues of data management and e-infrastructure. Following the national presentations, a list of trending topics was created;

1. Data Hoarding
2. Trust (Security, Ownership)
3. Data Integrity (Quality, Authenticity, Preservation, Context) - Certification, Openness.
4. Training – Technical and changing how we think of data
5. User-led system – Requirements analysis (engaging the wider community), Exemplars, Use cases.
6. Standards – Terminology, Search ability, agreements leading to integration.
7. Re-usability – Tools, Models and Access
8. Flexibility – Multiple and very different groups must all be able to use the system; sustainability
9. Direction – Framework for a way forward, actions not just discussions
10. User engagement – Incentives, “Carrots and Sticks”, reaching out across all relevant disciplines.

This list was then synthesized with topics identified at the San Francisco Scoping Meeting, leading to the development of the work packages.

WORKING GROUPS AND WORK PACKAGES

Participants identified three Architecture & Interoperability and two Governance Work Packages, plus one overarching Advisory Activity to look at Capacity Building, and their associated leaders and Steering Committee participants.

ARCHITECTURE & INTEROPERABILITY

Work Programme 1: Standards

- Areas of Focus:
 - Discoverability and annotation
 - Ontologies and semantics
 - Brokering
 - Access to models
 - Data provenance identifiers
 - Minimal standards to be identified for maximum participation
 - Identifying ways to facilitate cooperation between existing groups

- Identifying and bringing together domain experts from existing bodies (e.g. RDA, GEOSS) to address key community identified requirements in a holistic way
- **Work Package Leaders:** Roberto Cossu and Françoise Genova/Mustapha Mokrane, supported by Jean-Pierre Vilotte, Christoph Waldmann, Toshio Koike, and Stefano Nativi
- **Secretariat Support Person:** Kathie Bowden (UK Secretariat), Rachael Black (US Secretariat - additional governance support person)

Work Programme 2: Improved interface between the computation and data infrastructures

- Areas of focus:
 - Identification of the interface and existing gaps in synergy between data and computing infrastructure from a user perspective
 - Security Models and Access
 - Bringing together experts on infrastructure and computing to advise on current best practice and identify exemplars
 - Identification of the most immediate barriers to improving interfaces and potential funding to support lowering of these barriers
 - Measurement of performance and how the difference has been made
 - User community-driven and coming from the data community
- **Work Package Leaders:** Jean-Pierre Vilotte and Toshio Koike supported by Roberto Cesar and Andrew Treloar
- **Secretariat Support Person:** Jane Lewis (UK Secretariat), Kate Kretschmann (US Secretariat - additional governance support person)

Work Programme 3: Harmonisation of global data infrastructure for sharing environmental data

- Areas of focus:
 - Defining minimal interface for cooperation on environmental harmonisation
 - Identifying general requirements of the ecosystem, using user scenarios as the springboard
 - Building on experiences of the COOPEUS project, adding experiences of other work done internationally
 - Use Japan's experience as a key knowledge source
 - Findings from this Work Group to provide guidance to other Work Packages
- **Work Package Leader:** Christoph Waldmann supported by Andrew Treloar and Toshio Koike
- **Secretariat Support Person:** Jane Lewis (UK Secretariat), TBC (US Secretariat - additional governance support person)

GOVERNANCE

Work Programme 4: Data Sharing

- Areas of focus:
 - Investigating data authenticity and quality

- Investigating data provenance (certification, standards)
- Investigating incentives to share data
- Cultural Issues - different disciplines, national/regional
- Developing trust across spectrum of sources
- Preservation of data context
- Legal issues, within and across national jurisdictions, liability (subcommittee)*
- Long term sustainability and organisational continuity
- Community approach to standards (community implementation of standards)
- **Work Package Leader:** Dale Peters supported by Birgit Gemeinholzer and Andrew Treloar
- **Secretariat Support Person:** Genevieve Pearthree (US Secretariat), Jane Lewis (UK Secretariat - additional technical support person)

Work Programme 5: Open Data

- Areas of Focus:
 - Open access
 - Integration with civil society (Citizen science, crowd-sourcing, policy and the role of appropriate hardware/software)**
 - Development of a strategy to promote/implement open data across groups with an interest in environmental data who are at various stages of technical maturity
 - Development of match-making services linking data providers with suitable repositories to support open data
 - Uses of open data, liability/uncertainty in decision making
- **Work Package Leaders:** [Andrew Treloar](#) and Birgit Gemeinholzer supported by Toshio Koike, Stefano Nativi, Robert Samors, Jean-Pierre Vilotte
- **Secretariat Support Person:** Kim Oakley (UK Secretariat), Genevieve Pearthree (US Secretariat - additional support person)

Work Programme 6: Capacity Building (overarching activity)

- Areas of Focus:
 - Investigation into IT resource gaps, including Data Infrastructure
 - Cross-disciplinary education and training
 - Sustainable human resources
 - Cross-disciplinary education and training
 - The Capacity Building Champion will consider requirements across all work packages to identify possible areas where the Belmont Forum could contribute
- **Capacity Building Champions:** Lee Allison & Robert Gurney
- **Secretariat Support Person:** Kathie Bowden (UK Secretariat), TBC (US Secretariat - additional support person)

WORK PACKAGE METHODOLOGY

It was proposed that a general work methodology be used as a starting point for each work

package to begin activities:

1. Establish current **Best Practice Use Cases** (including solutions to problems, decision making processes and regional coordination) as advisory exemplars for on-going study.
2. Use these exemplars to identify **Barriers** to integration and collaboration (What is hindering coordination/collaboration at the moment? Possible factors include cultural, cross-disciplinary and international/national/regional issues. Externalities, constraints, dependencies by funding agencies and government) and;
3. Identify **Gaps** in current knowledge and activities (What has yet to be solved in terms of effective governance? What have people not found a solution to yet?), leading to the creation and/or development of;
4. Develop **Guidelines and Recommendations** (Codes of conduct, solutions to overcome barriers) in areas where the Belmont Forum could make a significant contribution through its involvement and intervention.

The Guidelines and Recommendations produced by each work package will be the primary deliverable to the Belmont Forum GPC. This deliverable has the potential to serve as the foundation of a future Belmont Forum Collaborative Research Action (CRA) on enhancing international e-infrastructures and data management practices for global environmental change research.

ACTION ITEMS AND DEADLINES

Several near-term action items and corresponding deadlines were identified at the SC meeting in the areas of Assembly Member nomination and selection process, development of a work plan and clarification of roles, and future communications and knowledge hub development.

ASSEMBLY MEMBER NOMINATION AND SELECTION PROCESS

1. November 15, 2013: Determine Assembly Selection Process. The Theme Programme Officers (NSF and NERC) will coordinate and seek agreement on the process that SC members and GPC will follow for selecting Assembly members that fit the needs of work packages (approximately 10 members per country). This process may be different for each country. [TPOs, SC and GPC].
2. November 22, 2013: Draft 1 Assembly Members List. A draft list of potential Assembly Members should be presented to the SC as a whole. This list should include each individual, institutional affiliation, area of expertise, country, email address and a short commentary on while this individual is being put forth as an Assembly Member. At this time, the complete list of potential Assembly Members will be open for review and comment by the SC and Secretariat. Any changes and/or additions to this list should be made before December 1, 2013. [SC Members, Secretariat]
3. December 1, 2013: Iterated Assembly Members List. An iterated list of potential Assembly Members should be finalized at this time. [Secretariat]
4. December 4, 2013: Belmont Forum Meeting. The iterated list will be presented to the Belmont Forum Meeting participants for comment and review. Comments and

review will be returned to the SC no later than December 13, 2013. [Dale Peters, Belmont Forum Members].

5. December 20, 2013: Final Assembly Members List & Notifications. Any changes to the Assembly Members list must be made by this time. Invitations to participate in the Assembly will be sent out to prospective candidates at this time [SC Members and corresponding GPCs].

WORK PLAN; CLARIFICATION OF ROLES

1. October 25, 2013: Report Content Guide: The Theme Programme Office will clarify with the Belmont Forum GPC the contents required for the Report which will be presented at the December 2013 meeting. TPO will follow up, on behalf of the Secretariat, with Achuo Enow (GPC for NRF, South Africa and Belmont Forum Secretariat) and Sandrine Paillard (ANR, France, Belmont Forum Secretariat) [TPO]
2. November 13, 2013: Draft Work Package Descriptions and Work Plan. Each Work Package lead will submit to the Secretariat a short summary of their group's goals and objectives. This will be compiled by the Secretariat. [Work Package Leads, Secretariat]
3. November 18, 2013: 1st Draft Work Plan. A draft work plan will be circulated by the SC for comment and review. SC members will provide feedback to the Secretariat by November 25, 2013. [SC]
4. December 1, 2013: 2nd Draft Work Plan. The Secretariat will circulate an iterated work plan with the SC at this time. [Secretariat]
5. December 4, 2013: Presentation of Work Plan to Belmont Forum Meeting. The draft work plan will be presented at the Belmont Forum Meeting by Dale Peters (South Africa), on behalf of the SC. Comments should be received by the SC no later than December 13, 2013. [Dale Peters]
6. December 20, 2013: Final Work Plan. Each Work Package Group will present a final work plan, outlining work goals, deliverables, milestones methodology, roles and responsibilities (within each work package). These will be compiled and co-ordinated by the Secretariat and submitted to the GPC for final approval. [Work Package Leads, Secretariat].
7. January 6, 2013: Each Work Package Group will begin activities proposed in the work plan. [Work Package Leads and Participants]

FUTURE COMMUNICATIONS & KNOWLEDGE HUB DEVELOPMENT

1. November 1, 2013: Listserv Creation. Listservs for the Steering Committee members, Secretariat and Working Group leads will be created. Additional listservs for Assembly Members, Working Groups, and others will be created as needed. [Secretariat: US Node - AZGS]
2. November 5, 2013: First Work Package Leads Bi-Weekly Virtual Meeting. These meetings will primarily be enabled by the GoToMeeting software, hosted by the Arizona Geological Survey (AZGS) [US Secretariat Node].
3. November 12, 2013: First SC Monthly Virtual Meeting. These meetings will primarily be enabled by the GoToMeeting software, hosted by the Arizona Geological Survey (AZGS) [US Secretariat Node].
4. December 1, 2013: Operational Knowledge Hub. By this time, a basic web

component of the Knowledge Hub will be operational for use by SC Members, the GPC, and other interested parties. It will include collaborative spaces for Working Groups and other communication resources. An agile development process will be undertaken to expand functionality of the knowledge hub; changes and additions to the knowledge hub will be made according to project need [Secretariat: US Node - AZGS].

5. Date TBD: Set dates and locations for SC in-person meetings. Potential locations discussed at the first SC meeting include Cape Town, Tokyo, Sao Paulo, and others. Potential dates include January or February of 2014, July or August of 2014, and January or February of 2015. These dates and locations will be discussed and decided upon during the first set of monthly SC Meetings. [SC].

Further action items and deadlines will be determined as part of the draft and final work plans.