Belmont Forum Collaborative Research Action: e-Infrastructures and Data Management

Phase 2 Implementation Plan: 2016-2020

Prepared by: Lee Allison, Mark Asch, Robert Gurney, Sophie Hodgson, Maria Uhle, Rowena Davis, Matthew Dobson, Kim Oakley, and Kelly Watson

Updated by: e-I&DM Secretariat Coordinating Group

Revision Date: 23 March 2017

Table of Contents

Quick Links

This Implementation Plan is based on recommendations described in the Community Strategy and Implementation Plan (June 2015). Many thanks to the Steering Committee members who contributed their input and expertise.

Statement of Purpose

The Belmont Forum (BF) Implementation Plan for the e-Infrastructures and Data Management Collaborative Research Action (e-I&DM CRA or "Project") describes the coordination of four interrelated programs that leverage existing knowledge and resources to illuminate achievable, reproducible systems for effective, sustainable data management practices. This effort will help achieve the Belmont Forum's stated goal "to deliver knowledge needed for action to avoid and adapt to detrimental environmental change including extreme hazardous events."

In June 2015, a Community Strategy and Implementation Plan (CSIP) was released as the final report of a two-year scoping phase. Recommendations developed in the report describe a path toward integrating large amounts of diverse data across scientific disciplines to deliver policy-relevant, decision-focused knowledge that decision makers require to respond and adapt to global environmental change and extreme hazards, manage natural resources responsibly, grow our economies, and limit or even escape poverty.

The five recommendations are:

1. Adopt Data Principles that establish a global, interoperable e-infrastructure with cost-effective solutions to widen access to data and ensure its proper management and long-term preservation. Researchers should be aware of, and plan for, the costs of data intensive research.
2. Foster communication, collaboration and coordination between the wider research community and the Belmont Forum, and across Belmont Forum projects through a Data and e-Infrastructures Coordination Office established within a Belmont Forum Secretariat.
3. Promote effective data planning and stewardship in all Belmont Forum agency-funded research to enable harmonization of the e-infrastructure data layer through enhanced project data planning, monitoring, review and sharing.
4. Determine international and community best practice to inform Belmont Forum research e-infrastructure policy, in harmony with evolving research practices and technologies and their interactions, through identification and analysis of cross-disciplinary research case studies.
5. Support the development of a cross-disciplinary training curriculum to expand human capacity in technology and data-intensive analysis methods for global change research, and increase the number of scientists with cross-cutting skills and experience in best practice.

The Belmont Forum adopted a data policy based on the data principles described in the report at the Plenary Meeting in Oslo, Norway in October 2015. The remaining four recommendations are being developed as internationally-coordinated Action Themes under the e-I&DM Project.
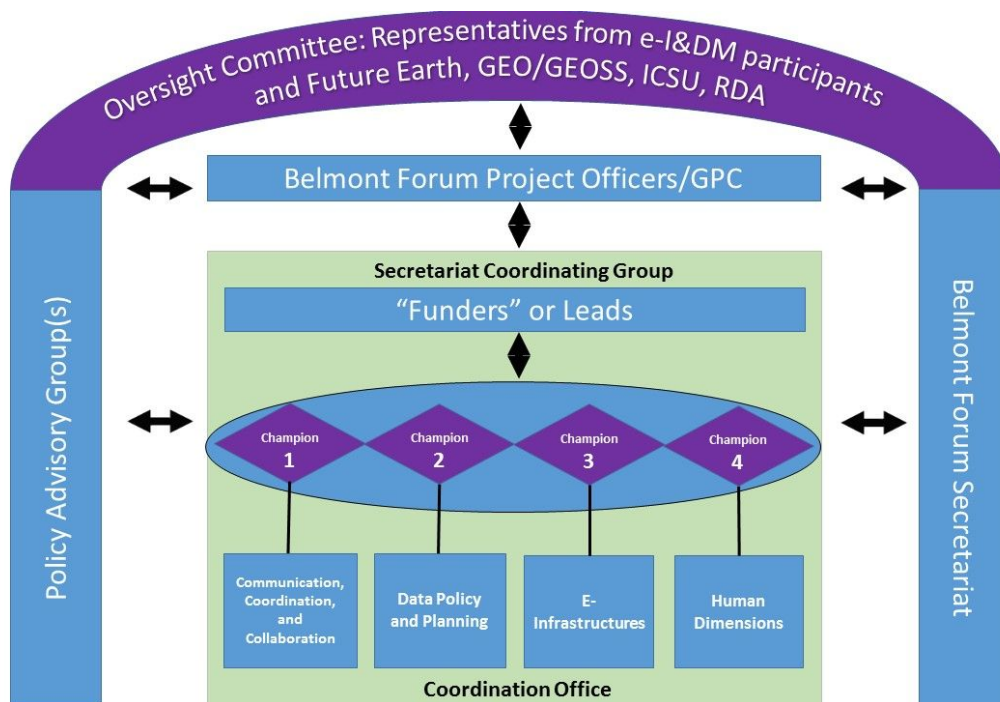
Each Action Theme group will work to accomplish its own set of objectives: Development of a Coordination Office (Action Theme 1); Data Planning and Policies (Action Theme 2); e-Infrastructures (Action Theme 3, delivered through scoping workshops and future CRAs); and Human Dimensions (Action Theme 4, focusing on training materials, curriculum, etc.). Completion of the CSIP's stated objectives is dependent upon tightly choreographing activities throughout Action Themes. A priority of this approach is to coordinate the objectives of these Action Themes with resources and ongoing Belmont Forum funded projects. Because activities and findings from one Action Theme will heavily influence activities in other Themes, this organizational structure requires a top-down collaborative approach, described in detail below.

The overall objective of the e-I&DM Project is to provide advice and recommendations to the Belmont Forum agencies regarding policies, programs, procedures that could be adopted to accelerate open data sharing, data reproducibility, data curation, and other aspects of long-term data management and access. Figure 2 provides a timeline for anticipated deliverables over the five years of the Project. The deliverables are also described within each Action Theme section of this Implementation Plan. Specific deliverables will be shared with the agencies as they are developed, and will be reported to the Belmont Forum Principals by the e-I&DM Co-leads at the BF annual meeting. The Implementation Plan and timeline will be updated periodically to reflect additional deliverables identified during the course of the Project.

e-I&DM Organizational Structure

The 2013-2015 e-I&DM CRA Secretariat was organized through the funding provided by two BF member agencies, the US National Science Foundation (NSF) and the UK National Environment Research Council (NERC), with an Oversight Committee engaging experts from all participating agencies and several partner organizations. In the Implementation Phase, more Belmont Forum member organizations have offered help with leadership and organization of specific Action Themes, so the new organizational structure (Figure 1) reflects these changes. However, the structure also needs to preserve the openness and inclusivity which has been the hallmark of this Project to date, and the work must remain congruent with that of other international initiatives, such as the Group on Earth Observations (GEO) and Future Earth (FE), and organizations such as the Research Data Alliance (RDA) and ICSU World Data System (WDS).

Figure 1: e-I&DM Implementation Phase Organizational Structure

Oversight Committee

The Belmont Forum agencies participating in any Action Theme will appoint one or more representatives to an Oversight Committee (OC) that will also include representatives or observers from appropriate international bodies or initiatives, such as CODATA, GEO, WDS, and RDA. Representatives from these bodies may self-nominate for inclusion in the Oversight Committee. When necessary, substantive experts in such areas as privacy and security, who would be nominated by the Secretariat Coordinating Group (SCG, defined below), may also participate in Oversight Committee meetings. There is a continuing need to work closely with the Group of Program Coordinators (GPC) from the Belmont Forum agencies and the Belmont Forum Secretariat to ensure good governance and conformance with Belmont Forum principles and practices, as reflected in the inclusion of the GPC and BF Secretariat in the Oversight Committee, as well.

The objective of the OC is to provide guidance and input from the perspective of both the Belmont Forum members and the scientific and technical communities most affected by the outcomes of the e-I&DM Project. The OC will review scientific drivers and priorities, provide scientific and technical feedback, and perform special assignments as requested by the GPC or the SCG.

The OC is expected to meet two to three times per year to review the progress of the e-I&DM Project. Additional meetings may occur as needed, called by the GPC, or requested by the SCG.

OC duties include:

● Providing advice, in cooperation with relevant agencies, on how participant organizations can work together more effectively, avoid mission creep and overlap, and curb counter-productive competition.
● Offering recommendations to the SCG on priorities related to science/tech/infrastructure that should be supported or encouraged within the project.
● Identifying knowledge gaps that are being or could be addressed outside the BF framework so BF can strategically direct its limited resources.
● Identifying specific assessment needs that could be addressed by ongoing evaluation matrices or new activities.
● Advising on issues related to data-intensive science and transdisciplinary data needs and use in global change research.

The Communication, Collaboration and Coordination Office (C3O), led by the Coordination Officer, will be responsible for relaying communications regarding developments in the Action Themes to the OC as a whole. Champions and Leads of individual Action Themes will liaise with Advisory Groups (described below) as the need arises.

Action Themes

Each Action Theme (AT) will be funded and supported by self-forming groups of participating Belmont Forum members independent of other actions. Participating countries each choose which Action Theme(s) to participate in and the type and amount of resources they can contribute.

Action Theme groups will develop and manage their own activities, recommendations, and deliverables on an individual basis, yet commit to work in coordination with the other Action Themes. AT deliverables shall be coordinated to integrate with activities of other Action Themes through the SCG, with oversight from the OC, GPC and Belmont Forum Secretariat. An overview timeline of each AT and their activities and deliverables is provided below. The e-I&DM Coordination Office will provide administrative support, including management of a master timeline, organization of virtual and face-to-face meetings, maintaining a website (a.k.a. the Knowledge Hub), and coordinating communication and collaboration of activities among the Action Themes.

Each Action Theme group will identify a Champion, with expectations of agency support of at least 0.25 FTE (Full Time Equivalent or one person working full time). The Champion will be an intellectual leader, chosen and supported by the corresponding Action Theme Lead and Co-lead agency. Each Champion will represent their Action Theme in regular meetings of the SCG. The Coordination Officer (see below) will serve as the Champion for Action Theme 1.

The e-I&DM CSIP identified the need for a Coordination Officer (Action Theme 1) and Data Information Officer (Action Theme 2). These positions were filled in late 2016; more information is provided in the Action Theme descriptions below.

Each Action Theme Lead or Co-lead agency is expected to provide support for activities within that Action Theme. Support could include:

- Funding scientists to work on the Action Theme, and providing in-kind donations, including personnel and facilities.
- Supporting agency staff participation in Action Theme planning and activities.
- Organizing and hosting meetings and workshops.

Action Theme Leads and Co-leads participate in e-I&DM governance, including through: support of a Champion on the SCG; representation on the OC and GPC; and participation in and input to AT activities and agendas.

Figure 2: Timeline of Deliverables
Please click on the timeline image to open an expandable version on your screen.

Secretariat Coordinating Group

A Secretariat Coordinating Group (SCG), comprised of a representative from the Belmont Forum Secretariat, Champions from all Action Themes, the e-I&DM Project Co-leads and the e-I&DM C3O staff will act as a coordinating committee for the initiative's activities and milestones. Champions will provide outreach and communication regarding the activities, goals and needs of their Action Theme to the SCG and to the wider community, as necessary. Due to their role in the SCG and their work within an Action Theme, Champions will not be expected to participate in additional advisory or working groups.

As a body, the SCG will communicate with the OC, BF Secretariat, and the GPC about needs, goals and activities of each Action Theme group.

The SCG will meet virtually on a regular basis (biweekly) and additionally as needed. Scheduling will be organized by the Coordination Officer, with the assistance of the C3O. Tasks set by the SCG will be executed via the Action Themes with support and assistance from the C3O.

Advisory Groups

The CSIP originally recommended the formation of a Strategic Coordination Network and two Advisory Groups (AGs), one on Data Planning (DPAG) and one on Legal and Security (SecAG), to be drawn from the wider scientific, legal and social science communities. As implementation of the e-I&DM initiative has commenced, it has become clearer that a more streamlined organizational structure is warranted, but one that ensures the necessary engagement and collaboration with critical technical and scientific communities, and draws on relevant expertise from across the globe in several important areas.

Moving forward, the e-I&DM project will include a single Policy Advisory Group (PAG) that will include experts providing perspective on legal, privacy, security and publishing issues, which will be managed by AT2 with assistance from the C3O. In addition, a Curriculum Advisory Group may be formed under the aegis of AT4. Further, the Oversight Committee (described above) will include representatives of important scientific and technical organizations (e.g., GEO, Future Earth, WDS, RDA) to provide conduits to national, regional and global developments, trends, needs and opportunities in e-infrastructures and data management.

The Policy Advisory Group will advise the DIO, AT2 Champion, Coordination Officer and the SCG on issues of privacy, cyber-security and data policy, and liaise with data publishers and repositories.

The specific responsibilities of the Policy Advisory Group will include:

- Assist in implementing the Belmont Forum Data Policy and Principles by advising on the potential legal issues individual governments may confront in implementing the Policy and Principles;
- Examine the technical issues around the resources and infrastructures available to develop implementation plans for research data management at the institutional level;
- Advise the Belmont Forum member agencies on best practices to monitor the implementation of global change research data management plans by grantees;
- Advise the Belmont Forum member agencies on best practices to monitor the implementation of national global change research data management plan requirements;
- Help to develop guidance for Belmont Forum agencies to encourage data repositories to utilize appropriate certification mechanisms to ensure robust data system security;
- Collaborate with the publishing industry to develop common policies with Belmont Forum agencies to enable grantees to make datasets available for publishing;
- Provide guidance on best practice to ensure the trustworthiness and provenance of research data; and
- Identify best practice to avoid inappropriate release of global change research data, including social science data.

In addition, the Data Information Officer and AT2 Champion, in conjunction with the C3O, will engage with individuals and existing groups already addressing these issues by participating in their activities, soliciting additional input as needed through workshops, surveys and other mechanisms, and generally networking among organizations. Additional knowledge-sharing from broader research communities will be achieved through participation and/or presentations at relevant professional society and stakeholder meetings (e.g., American Geophysical Union, European Geophysical Union, ecological societies, and other global and regional data science, social science and natural science professional gatherings). Further, the e-I&DM Knowledge Hub is intended to provide a variety of conduits to support these communication and collaboration goals and activities.

e-I&DM Action Theme 1: Coordination Office

Expected Outcomes

To create a more sustainable and cohesive international community of practice, and to better support data-intensive research funded by the Belmont Forum and others, a Coordination Office (C3O) tasked with fostering communication, coordination and collaboration among the diverse scientific, data and computational communities has been established. By leveraging the data management activities and efforts of these communities, the e-I&DM project can more effectively reduce barriers to data sharing and interoperability and promulgate procedures, standards, workflows, and other elements critical to identifying a path toward cooperative e-infrastructures and data management policies and practices that enable and accelerate the open access to and reuse of Belmont Forum-funded interdisciplinary research data.

The C3O will focus on generating inputs to BF agencies, developed through the work of the Action Themes, regarding policies, programs and procedures to accelerate open data sharing, data reproducibility, data curation, and other aspects of long-term data management and access. Reports will be provided to the GPC and additional interested BF members on an annual basis summarizing actions, developments and recommendations.

Expected outcomes of this Action Theme include:

1) A Communication, Collaboration and Coordination Office (C3O) which supports communication, collaboration and coordination among Belmont Forum-funded activities and e-infrastructure and relevant discipline-specific organizations, projects and experts, to promote greater awareness of the wider landscape of activity, facilitate access to external resources, and foster cooperation with other projects;
2) Identification of activities globally that would aid in the implementation, monitoring, support and evaluation of interoperability capabilities, and the needed training/capacity building elements at the data and system level among Belmont Forum-funded projects and participants;
3) Reduction or avoidance of duplication of efforts;
4) Participation in development of a "Map of the Landscape" of global change research-oriented data and e-infrastructures activities, products, services, and organizations; and
5) Development of a Knowledge Hub that provides access to relevant materials, databases, and communication resources related to the e-I&DM initiative.

Scope and Partners

The scope of this Action Theme, as described in the CSIP, calls for the Belmont Forum to establish a C3O to foster communication, collaboration and coordination across Belmont Forum funded projects; engage with the wider global e-infrastructure community, including communication with global data and e-infrastructure entities; coordinate and support Theme actions and the Belmont Forum Secretariat.

The Action Theme proposes the following activities:

- Establish a C3O to foster ongoing communication, collaboration and coordination;
- Retain a Coordination Officer by contract to direct the C3O, manage tasks, oversee office staff, and develop and execute a comprehensive outreach and communications plan. The Coordination Officer will report to the SCG, GPC and OC and work with the Data Information Officer and other Action Theme Champions and Leads;
- The Coordination Officer will serve as the Action Theme 1 Champion;
- Assess and respond to administrative and logistical needs of other Action Themes, including:

    - Scheduling meetings and providing virtual meeting space.
    - Assisting Acton Theme 2 in identifying and recruiting members of the Policy Advisory Group.
    - Maintaining materials, databases, and communication resources on the Knowledge Hub.
    - Tracking activities and scheduling against shared timelines.

- Assist the various Action Themes in organizing and engaging a network of experts from national, regional, and global organizations, projects, and agencies external to the Belmont Forum that are involved in relevant aspects of e-infrastructure and data management, as well as the environmental, natural and social sciences, in order to identify and leverage expertise and best practices for use in Belmont Forum activities;
- Participate in global efforts to develop and maintain a "Map of the Landscape" that catalogues the evolving global e-infrastructure activities and resources in order to foster collaboration and coordination among Belmont Forum activities; and
- Coordinate and support outreach activities among Action Themes 2, 3, and 4 in support of their expected outcomes.

The agencies that lead this Action Theme are:

- NSF (USA) Lead (contract awarded to Arizona Geological Survey/University of Arizona)
- JST (Japan) Co-lead
- MoST (Chinese Taipei) Co-lead

Co-leads and participants shall engage in the support of the C3O by advising on work plans, roles, methodology and protocols for the C3O in accordance with the objectives listed below. Co-leads and participants are further expected to provide support for their participation in the OC, to support travel to and from relevant meetings, and to represent C3O activities where appropriate. Participants may further support these activities by acting as national communications officers to disseminate information to and from agencies and stakeholders within their own spheres of influence.

Near Term – 0-2 years

Action	Objective	Timeline/Participants
Allocate Resources and Roles (with input from other Action Themes)	Determine and allocate resources, terms of support from co-leaders and participants to develop work plans for Action Theme Champions.	Q1-2 2016
Establish and Fill Role of Coordination Officer/AT1 Champion	Co-leaders and participants define duties and qualifications of Coordination Officer/Champion.	Q3 2016 (CO/Champion hired)
Establish Communication, Collaboration, and Coordination Office with internal Terms of Reference and operations plan	Define duties and qualifications of Coordination Officer and interactions with all Action Theme members. Set up communications plan with goals and schedule.	Q1-2 2016 (completed)
Establish ties with expert participants external to Belmont Forum	Identify and recruit representatives of potential collaborating organizations and define priorities for their input in other Action Theme activities.	Ongoing collaborative activity involving all participating agencies
Map of the Landscape	Coordinate "Map of the Landscape" activities to inform participants and	Ongoing - initiated conversations with

	stakeholders of global e-infrastructures and data management activities.	existing efforts on first iteration (Q3/Q4 2016)
Support Coordination of Implementation Plan Elements	Host semi-annual meeting of OC, including Action Theme Champions, Leads/Co-leads, GPC and Belmont Forum Secretariat, and associate organizations: What's working and what's not; opportunities, challenges, and recommendations.	Ongoing - OC meeting held during International Data Week, 9-16 September; next meeting planned for EGU Week, April 2017
Semi-Annual and Annual progress reports	Describe overall activities and distribute to GPC, OC, Belmont Forum Secretariat, etc.	Ongoing

Medium and Long Term – 1-5 years

Action	Objective	Timeline/Participants
Outreach and communication	Create outreach plan for BF members, stakeholders on results of Near Term activities.	Q1 2017
Continue development of external collaborations	Identify and recruit representatives of relevant organizations and agencies and further refine priorities for their input in Advisory Groups and other Action Theme activities.	Q1-Q4 2017 collaborative activity involving all participating agencies
Ongoing support and management	Liaise with Advisory Group(s) and networks (working with Data Information Officer), refine protocols for interaction with Belmont Forum Secretariat and Theme Champions, establish of project evaluation metrics. Turn the implementation actions into an effective process for e-infrastructures with recommendations for Belmont Forum funding actions, policy adoption, and operational requirements.	Ongoing

	These programs should also be aimed at data stewards in order to share best practice internationally.	

Roles and Responsibilities

A C3O was established by the National Science Foundation in March 2016 with the equivalent staffing of two FTEs, along with necessary operational and travel expenses to launch Action Theme 1.

Funding includes support of a full-time Coordination Officer, a high level position responsible for executing the recommendations of the SCG, overseeing office staff, outreach and communications, and coordinating and supporting activities of the three additional Action Themes. The Coordination Officer/Action Theme Champion (Robert Samors) was hired in September 2016. Additional positions include two professional support staff.

It is anticipated that all Belmont Forum agencies and affiliate organizations participating in the e-I&DM project will contribute to Action Theme 1 by:

● Providing representatives to the boards, committees, and groups as appropriate;
● Hosting or participating in virtual and in-person meetings for the planning and conduct of the Action Theme;
● Maintaining engagement with external experts from relevant international groups of strategic interest; and
● Identifying and committing resources as available towards the successful implementation of the Action Theme.

Initial duties of the C3O include proposing organization of the leaders, participants and observers within the Action Theme to carry out its tasks, in a framework that is flexible to accommodate new commitments from others on the team. A second element is to formalize an organizational structure for coordination of all the Action Themes and communication protocol for interactions with stakeholders, advisory groups, the SCG, OC, GPC, and Belmont Forum Secretariat.

The C3O's role will be to:

● Oversee and coordinate tasks relating to all four Action Themes under the supervision of a Coordination Officer.
● Set the structure and schedule for management, stakeholder and other meetings and provide updates to SCG, OC and GPC at regular intervals.
● Communicate and collaborate with BF Secretariat.

- Establish organizational framework and lines of communication with Action Theme 1 Co-leads, Action Theme Champions, Belmont Forum Secretariat, and additional stakeholders.
- Support the SCG in its duty to steer development of collaborative Action Theme activities.
- Develop an OC comprised of representatives of Belmont Forum members and external members to assist in the implementation of the e-I&DM activities.
- Establish collaboration opportunities and procedures among relevant e-infrastructures, data management and scientific bodies.
- Assist other Action Themes in maintaining their lists, shared files, and databases.
- Work with the OC to develop an outreach plan for stakeholder organizations to adopt or to disseminate results and products, including training materials.

e-I&DM Action Theme 2: Data Policy and Planning

Expected Outcomes

This Action Theme will help to promote active and effective data management and stewardship in all Belmont Forum funded research, and enable harmonization of e-infrastructures through enhanced project data planning, monitoring, review, and sharing.

1. Liaise and coordinate a Policy Advisory Group (PAG) by participating in existing CODATA and RDA groups;
2. Generate a Data Management Plan (DMP) template for use in Belmont Forum-funded research. The DMP should cover the management of data, connection of the data to associated context (research project, resulting publications, researcher details, data provenance, etc.), facilitating the discoverability of the data, and ensuring that the data is capable of reuse/exploitation;
3. Develop CRA language and FAQs related to DMPs, as well as guidelines for technical review of DMPs in conjunction with AT3 and AT4;
4. Assign budget requirements for implementation and sustainability of the Belmont Forum data policy;
5. Develop an incentive system to promote adoption of open data practices;
6. Develop evaluation processes and matrices to ensure continued efficacy of DMPs;
7. Direct grantees to existing guidance for accepted repositories (World Data System certification; NERC repositories; other recommended approaches/repositories - Springer/Nature/Elsevier, other lists); and
8. Conduct a gap analysis of BF-funded data to determine where data from funded projects currently resides, including data that was not archived. Use this information to identify gaps, possible interventions (including policies, programs and training), and funding needs.

Scope and Partners

The scope of this Action Theme, as described in the CSIP, calls for the Belmont Forum to communicate best practices in data and information stewardship, paying attention to the full lifecycle of data use and the rates at which information is gleaned from data; evolve policies to promote better and more effective data planning; adopt data stewardship principles; and implement incentives for their adoption, similar to the ways in which scientists are incentivized to publish research results. Current DMP requirements vary greatly across Belmont Forum agencies in their level of detail and compliance with general stewardship principles, including use of certified, trusted data repositories. DMP templates do not generally include sufficient guidance on current best practice and available e-infrastructures, and how to enable data exploitation. Furthermore, there is often little or no formal accountability to ensure DMPs accomplish what is proposed or to learn from their successes or failures.

The Action Theme proposes the following activities at an early stage:

- Identify support to appoint a full time Data Information Officer (DIO) to work closely with the C3O and the other e-I&DM Action Themes;
- Review existing DMPs, templates, and forms, with the goal to adopt a standard data management plan template for Belmont Forum projects;
- In conjunction with the C3O, identify and liaise with existing data security, data policy, and publishing groups;
- Coordinate input from Advisory Groups and other Action Themes, notably the workshop participants from Action Theme 3, to develop a standard data management plan template for use in Belmont Forum projects;
- Establish mechanisms for regular review and monitoring of the application of the DMP template;
- Provide support for the development and implementation of standard data management plans, including assessment of budget requirements for data curation and publishing costs to be factored into funding agency standard grant policy;
- Draft a plan to extend the current approval system associated with national grant awards to include a conditional sharing and sustainable archiving requirement to complete the data lifecycle, and to reinforce successful implementation of a DMP template;
- Examine ways to incentivize/recognize the level of effort by Principal Investigators to make data open and accessible; and
- Develop DMP language for future CRA calls.

The agencies that lead this Action Theme are:

- NSF (USA) Lead
- NERC (UK) Co-lead

NSF has agreed to supply a full time DIO through the AAAS Science & Technology Policy Fellowship Program. This position must be assisted by in-kind support in expertise and resources from theme Co-leads and participants and the C3O. Recruitment for this position was circulated in April 2016 and the DIO (Carrie Seltzer) began in mid-September.

The Action Theme 2 Champion is being supported by NERC and Mark Thorley took on this role in September 2016. The AT2 Champion will work closely with the DIO and the C3O to advance AT2 activities.

<u>Near Term – 0-2 years</u>

Action	Objective	Timeline/Participants
Allocate Resources and Roles	Establish resources, terms of support, and implementation schedule for Action Theme.	Completed
Establish and Fill Roles of Data Information Officer and AT2 Champion	Define duties and qualifications of DIO from co-leaders and participants and develop work plans for Action Theme Champion.	Completed
Establish and liaison with Policy Advisory Groups	Leverage existing connections within known organizations such as RDA, CODATA, WDS, to pull relevant information back to the SCG	Q1-3 2017 - collaborative activity involving all participating agencies
Develop a Belmont Forum Data Management Plan template	The template should support implementation of the Data Principles and Policy adopted by the Belmont Forum by providing consistent structure for CRA applicants.	Q4 2016 - Q1 2017
Evaluation metrics for Data Management Plans	Develop and maintain a set of metrics to assess compliance with the Belmont Forum-funded DMPs.	Q1-2 2017
Integration of DMPs into CRAs	Integrate DMP requirements and evaluation metrics into BF funding calls.	Q1-4 2017

Action	Objective	Timeline/Participants
Monitor Implementation of Data Management Plans and update data plan accordingly	Review and monitor implementation of the DMPs, starting with funded research projects under the Belmont Forum initiative, to determine efficacy and make recommendations to the Belmont Forum for additional actions or policies. Update where necessary.	Q2 2017/ongoing
Identify Key Data Repositories	Direct Belmont Forum CRA proposers and awardees to ICSU World Data System and re3data initiatives (and others as appropriate) as useful resources to identify trusted digital repositories. Feed this information to C3O to ensure placement in Map of Landscape activities.	Q3 2017/ongoing
Gap Analysis	Determine what Belmont Forum data are *not* in trusted repositories and explore ways to ensure compliance. Update Data Management Plan template accordingly.	Q1-4 2018

Roles and Responsibilities

The Data Policy and Planning Action Theme is expected to be led by the DIO and Action Theme 2 Champion working in close association with the C3O. Primary duties include:

● establish a Policy Advisory Group, drawing on the experience and expertise of the existing CODATA/RDA group, legal and security experts and representatives of the publishing industry, to provide input on relevant legal, privacy, security and publishing issues and contribute to the development of the DMP template;
● Work conjointly with the Co-leads (NERC and NSF) with a correspondent of each partner agency to develop a strategic plan with resource loading, budget and timeline for achieving long term goals of the AT;
● Provide direction and support to Advisory Group;
● Synthesize information and submit reports and recommendations to the C3O and SCG; and

- With C3O, schedule conference calls, as needed, with AT Champions to ensure integration of outcomes from scoping workshops and recommendations on a training curriculum for data management.

It is anticipated that all participating organizations will contribute by:

- Regularly participating in virtual and in-person meetings for the planning and conduct of the AT; and.
- Identifying and committing resources to the successful implementation of the AT.

E-I&DM Action Theme 3: e-Infrastructures

Expected Outcomes

This Action Theme expects to attain the following objectives:

1. Identify and fund interdisciplinary best practice use-cases of combined data- and e-infrastructures for environmental and global change problems;
2. Identify and fund large-scale best practice Data and Model Intercomparison Projects (DMIPs) that are relevant to global change research; and
3. Through the above two outcomes, inform data and e-infrastructures policy with case-proven best practices that respond to concrete issues, including training.

Scope and Partners

The scope of this Action Theme, as described in the CSIP, calls for the Belmont Forum to implement iterative cycles of scoping workshops and international calls for research-driven case studies of the way researchers address the full path of data use across different infrastructures in large interdisciplinary investigations. The overall objective is to identify gaps and best practices and to foster the development of concepts and prototypes through case studies that support the full cycle of open data use and reuse. This Action Theme will identify existing inter- and transdisciplinary research projects already funded by the Belmont Forum, Future Earth, and similar international initiatives and build upon them. The aim is to provide additional funding to promote collaboration *between* projects and to add additional expertise to tackle these gaps.

The Action Theme proposes a multi-stage process, consisting of cycles of:

- Scoping workshops beginning in late 2016;
- Publishing a series of 2-year calls for proposals, presented to BF principals for approval in 2017; and

- Annual evaluations, through mid-term workshops, to ensure an agile follow-up of the coherence, progress and impacts of the above activities, as well as possibilities of coordination with other Action Themes.

The agencies leading this Action Theme are:
- ANR (France) Lead
- JST (Japan) Co-lead
- MoST (Taiwan ROC) Co-lead

<u>Near Term – 0-2 years</u>

Action	Objective	Timeline/Participants
Allocate Resources and Roles	Establish resources, terms of support, and implementation schedule for Action Theme.	Completed
Establish and Fill Role of e-Infrastructures Champion	Define duties and qualifications of e-Infrastructure Champion and co-Champion from leader, co-leaders and participants. Develop work plans for Action Theme Champion.	Completed
Coordinate/ Organize the Evaluation Matrix Elaboration	Develop Evaluation Matrix to select interdisciplinary case studies.	Q1 2017 collaborative activity involving all participating agencies
Coordinate/ Organize the Exemplars Workshop	Analyze inter- and transdisciplinary scientific use cases of existing Belmont Forum-funded and Future Earth projects and other international initiatives, using the derived Evaluation Matrix. Liaise with the associated communities and identify critical gaps and barriers. Define any required funding calls and priorities for task-oriented multi- and interdisciplinary case studies.	Ongoing - first workshop held in Paris in November 2016
Exemplars Analysis	With DIO, update the Evaluation Matrix in light of the Exemplars Workshop. Draw conclusions for informing the Human Dimensions and Data Planning	Q1-2 2017 / EC, ANR, JST, MoST

	Action Themes. Prepare and submit a BF call proposal in coordination with existing initiatives of RDA, GEO/GEOSS, and the Coordinated Research on e-Infrastructures initiative led by EC, NSF and ANDS.	
Call Finalization	Finalization of the 2 year competitive call proposal, with the C3O.	Q2-4 2017
Future call preparation		Q4 2016, Q1-Q3 2017

Medium and Long Term – 1-5 years

Action	Objective	Timeline/Participants
Call Monitoring, Coordination, Annual Meetings	Organize continuous analysis and annual follow-up meetings of the call to steer interactions and collaborations between the selected pilot projects and communities. Set up and manage remote collaboration for the elaboration of conclusions, recommendations. Coordinate with C3O and Inform the Human Dimensions and Data Policy and Planning Action Themes.	Q4 2017, 2018, 2019
Develop next round of calls	Foster collaboration and synergies between BF e-I&DM Project, international funding agencies and the European Commission. Objective: put in place a supporting call of international ERA-NET type for relay funding from 2020 onwards.	2017, 2018, 2019
Inform Data Policy and Planning Action	Inform the Data Policy and Planning Action Theme with best practices, gaps and barriers.	2017-2018
Inform Human Dimensions Action	Inform the Human Dimensions Action Theme of the "intellectual ramps" and	2017, 2018

	related curriculum/training needs resulting from workshops and calls.	
Data-oriented e-Infrastructures Recommendations	Develop a set of recommendations for exemplary data-oriented e-infrastructures and research practice based on the analysis of the call results.	2018, 2019

Roles and Responsibilities

The e-Infrastructures Action Theme is being led by ANR-nominated Champion and Lead (Jean-Pierre Vilotte and Mark Asch, respectively). The Champion's and Lead's roles are to:

- Coordinate planning and execution of workshops with AT Co-lead(s);
- Coordinate analysis and reporting with AT Co-lead(s);
- Coordinate with the C3O and the "call secretariat" (described below);
- Work conjointly with Co-leads (JST, MoST), participants (EC, NSF, NERC, FAPESP, MoST, NRC, CSIRO, etc.) and with a correspondent of each participating organization, as well as members of the OC and Advisory Groups as applicable;
- Continuous monitoring and analysis during the call with mid-term and final meetings - an annual follow-up with recommendations for interactions and collaborations between and among projects and communities (see Medium-Term Actions above);
- Ensure the different initiatives co-evolve with the most recent Information and Communications Technology and research developments and practices; and
- Identify outstanding challenges to inter- and transdisciplinary data sharing, and paths to resolve them.

The activities above will contribute to creating and maintaining a momentum, bringing together research, analysis and redirection, throughout the duration of the project.

The Call Secretariat will be housed initially at ANR and will:

● Coordinate sub-actions and handle continuity between workshops and calls;
● Coordinate with the BF Secretariat and the C3O - reception and transmission of proposal-related information; and
● Assist the Champions with pre-selection procedure and the action management.

The Lead and Co-leads will share the workload by successively organizing and hosting the follow-up workshops.

● ANR hosted Exemplars Workshop in Paris, November 2016;
● JST, MoST and ANR will coordinate the construction of the Evaluation Matrix. Target date: March-June 2017; and
● JST and MoST will support future workshops to monitor the progress of the first call cycle.

It is anticipated that all participating organizations will contribute by:

● Regularly participating in virtual and in-person meetings for the planning and conduct of the AT;
● Covering the travel costs of their invitees to the workshops;
● Identifying and committing resources to the successful implementation of the AT.

An important task of this AT is to engage and develop synergies with other international initiatives such as European Commission, Future Earth, GEO/GEOSS, WDS, CODATA, RDA.

Resources

The Co-leads (ANR, JST, MoST) share the hosting costs of the workshops that they organize. Call support follows the established Belmont Forum practice, where each participating agency finances its own nationals on participating in successful proposals.

Schedule

A Scoping Workshop was held November 2016.
The first international call is expected to be launched end 2017.
A mid-call follow up workshop will be held Q4 2018,
A final-call workshop will be held Q4 2019 and call recommendations will be submitted to the Belmont Forum Principals in Q4 2019 for approval.
A second cycle of international calls is expected to be launched in 2020.

E-I&DM Action Theme 4: Human Dimensions

Expected Outcomes

Overall objectives include:

1. Investigate resource gaps, with a focus on training and skills;
2. Identify, promote, or develop cross-disciplinary education and training; and
3. Consider education and training needs across all ATs to identify possible areas where the Belmont Forum could contribute.

Scope and Partners

The scope of this Action Theme, as described in the CSIP, calls for the Belmont Forum to define an overall curriculum of training modules, which are necessary to support the objectives of the Belmont Forum. Key to this will be to ensure that good practice is identified, shared and propagated.

This action may require decisions on funding calls to be made outside of the standard Belmont Forum plenary process.

The Action Theme proposes the following activities at an early stage:

- Identification of existing training activities being provided nationally and internationally;
- Convening of a Curriculum Advisory Group (CAG);
- Delivering a skills gap analysis;
- Scoping Workshop to define the overall curriculum;
- Possible calls for proposals for courses initially based on existing provision, which address the curriculum identified;
- Delivery of short course curricula and "added value" curriculum components to existing training courses to deliver a "Belmont Certified" course; and
- Annual review of curriculum, to incorporate evidence and outputs of other Action Themes.

The agency leading this Action Theme is

- NERC (UK) Lead

There is always room for additional Belmont Forum member countries to play a more substantial role if they choose to contribute to the Human Dimensions Action Theme. Contributions of high impact include:

- Hosting an additional curricula development workshop, in particular in the Southern Hemisphere to gauge the needs of the global South.
- Hosting a test course to help define the market (especially for mid-career researchers), solidify course outcomes, and provide feedback on curricula and overall course design.

This Action Theme will also leverage resources and connections beyond Belmont Forum members. Resources from additional parties to be engaged include:

- Current practitioners in data science and data management relevant to all aspects of global change will be the potential recipients of training courses will be asked to complete surveys to guide training course development. Relevant fields include social scientists, environmental scientists, policy makers, academics, civil servants, current providers of HE training, such as research librarians. Ensure a range of career stages, from Early Career Researchers (ECRs) to senior academics;
- Belmont Forum DIO and relevant AGs or working groups;
- Economic and Social Research Council (ESRC -UK) – may also be helpful in identifying networks within the social sciences for advice and to establish training needs overlaps with environmental science and computer science, and to keep them up to date on progress; and
- Relevant global institutions and learned societies who would actively promote best practice in relevant subject areas such as data management. Relevant bodies may include the American Meteorological Society, the Royal Society or the Japanese Society of Environmental Education and international bodies such as RDA, CODATA, WDS, COPDESS.

Near Term – 0-2 year

Action	Objective	Timeline/Participants
Allocate resources and roles	Establish resources, terms of support, and implementation schedule for Action Theme.	Completed
Establish and fill role of Human Dimensions Champion	Appoint a Human Dimensions Champion (HDC) to oversee activities, coordinate with activities from other Action Themes, and liaise with Belmont Forum	Completed

	funded projects and the new Belmont Forum Secretariat. Recruitment process in Q2, HDC assumed post in Q3 2016.	
Identify existing initiatives	Working through the C3O, the HDC should ask all Belmont Forum members and others to identify existing training initiatives being provided in this area.	Q3-4 2016
Create and maintain database	The C3O should create and maintain an accessible database of these training initiatives.	Ongoing
Deliver skills gap analysis	The HDC will survey for desired skills and best practices, cross checked against current training offerings and other recent skills surveys, to be delivered in January 2017	Q4 2016- Q1 (January) 2017
Organize and convene a curricula workshop at EGU 2017	Convene curricula workshop in Vienna immediately after European Geophysical Union. Focus of workshop is finalizing curricula suitable for 'BF Certification' for digital skills in global change research with a focus on adding value and filling needs in existing courses, not creating a new course series. Possible discussion of a competitive funding call for the delivery of future training courses against this curriculum based on existing successful courses or on newly proposed courses.	Q1 - Q2 (April) 2017
Identify options for 'BF Certification'	Present options for delivering 'BF Certification' and, with C3O, finalise location(s) for hosting course listings.	Q2-4 (September) 2017
Present finalized curricula recommendations	Post workshop - continue to liaise with experts to finalize curricula consistent	Q2-4 (September) 2017

	for 'BF Certification', report issued to BF Secretariat; press release sent.	
Final feedback and report	Incorporate final feedback on course listings and publish on website, press release. Nov 17 Project summary meeting, recommendations for future work reported to stakeholders.	Q3 (November) 2017
Call for "Belmont Forum Compliant" short courses	[tentative, dependent on previous call/activity.] An additional competitive funding call should be initiated for the design and delivery of short courses, which incorporate the recommendations of this report, including both environmental and relevant aspects of social sciences, as well as informatics. The purpose of the call would be to make nationally funded short courses Belmont Forum compliant, and then allow people in other Belmont Forum member countries to attend these courses if they are qualified and would benefit from the training.	Q-4 2017

Medium and Long Term – 1-5 years

Action	Objectives	Timeline/Participants
Call to Develop Online Training Programs	[This action is tentative and depends on the outcomes of the previous calls and activities under action theme 4 to assess what is appropriate.] Belmont Forum to initiate a subsequent competitive funding call to develop existing exemplars and results from the funding calls, into online training programs. These should incorporate on-going developments in Action Themes 2 and 3, to ensure that trainees	Q2 2018

	have the capabilities and tools to pass on their skills to their local communities. These programs should also be aimed at data stewards in order to share best practice internationally.	
Course Provision and Evolution	Belmont Forum funding should be provided for the continuing provision and updating of the courses particularly to utilize new and innovative delivery mechanisms. Individual Belmont Forum member agencies may separately allocate funds for appropriate students and scientists to attend international short courses and summer schools to better prepare them to compete in data-enabled activities.	Ongoing
Implementation of 'BF certification'	Belmont Forum to investigate the launch and sustainable maintenance of 'BF certification' consistent with curriculum.	2018

Roles and Responsibilities

The Human Dimensions Champion (HDC) is hosted by NERC through a successful bid by Institute of Environmental Analytics (IEA) to carry out the tasks of the Human Dimensions Champion. The IEA has experience with developing sciences-related training and is informed by authoritative surveys such as the NERC review of 2012 and the ESRC plans and data strategy for social and economic research.

As Human Dimensions Champion, Vicky Lucas will draw on skills from her team at IEA, including Colin McKinnon (IEA CEO), Fiona Murphy (IEA Associate), and Hugh Shanahan (RHUL). The IEA employs or has a formal working relationship with the majority of those required for delivery of the AT, mitigating risks of complex subcontracting and maximising a good gap analysis and excellent curriculum.

The Champion's role will be to oversee the IEA team to achieve the following:

● Coordinate the identification and analysis of existing provision and gaps across all Belmont Forum countries and the organization of a scoping workshop;

- Consider how we can better utilize and gain added value from existing activities across all Belmont Forum members;
- Consider at what stages of the "career pipeline" skills and training needs should be addressed;
- Bring expertise, courses, facilities etc. to bear from across member countries
- Consider how Belmont Forum partners can maximize participation in training activities individually and collectively;
- Collaborate and liaise closely with the C3O and other AT Champions; and
- Ensure that information about the provision of courses is disseminated widely.

It is anticipated that this role will be of the order of 0.2 FTE.

The C3O will facilitate and assist the actions of the HDC in the following ways:

- Create and maintain an online database of existing training carried out by Belmont Forum members and others, for the purpose of providing an overview of available training and helping to identify gaps;
- Assist AT4 and the HDC and act as liaison to Belmont Forum members and additional stakeholders; and
- Ensure clear, precise communication between HDC and other AT Leads and Champions.

It is anticipated that all participating e-I&DM organizations will contribute by:

- Identifying training provision in their country or region;
- Supporting the travel costs of their invitees to the workshop;
- Disseminating and promoting information and training opportunities in their country or region; and
- Linking their national doctoral training programs/centers into the training activities identified.

Each attendee (both for the workshop and for any courses) will be responsible for their own costs, whether supported by their Belmont Forum member or from other sources. It would also be beneficial to include funding for students from non-Belmont Forum countries, particularly those from developing countries with little existing national training. An aspect of the training will be to recommend data management skills for environmental scientists generally and to support the general responsibility of all scientists to archive data for long-term interoperability. Courses may be designed for researchers, science end users, or data scientists as training needs are identified. It is likely that a combination of these elements will be packaged to recommend a "Belmont Certification" designation that can be added to existing training modules. Participants in short courses could then use the recommended materials and online tools to complement existing courses and promote good practice and cascade the skills more

widely in their respective communities. It could be conditions of funding to follow the 'Belmont Certification' and also to promulgate the training locally.

Collaboration with External Organizations

The Belmont Forum has developed productive working relationships with many organizations that share similar goals and objectives across the e-Infrastructures and Data Management landscape. In accordance with the recommendations of the CSIP developed by the e-I&DM CRA, the succeeding implementation project(s) shall nurture relationships with relevant organizations to achieve maximum impact and knowledge of global Best Practices across this domain. Collaboration with such organizations is crucial to the success of this initiative and may occur in a number of ways: in communication roles related to the C3O; through participation in Advisory Groups, the OC, scoping activities and workshops; and through additional collaborative roles.

All collaboration is subject to the following considerations:

- Support for the participation of any organization is driven by the needs of this initiative and the community it works with in relation to the expertise and experience put forward by that organization.
- Collaboration on this initiative is on the understanding that access to any subsequently arising calls for proposals, supported by the Belmont Forum, is on the basis of open competition as defined by Belmont Forum governance.
- Any organization eligible to receive Belmont Forum funds[1], or able to provide its own funds, may submit bids into the competitive funding processes delineated by the e-Infrastructures and Data Management Theme Program Office to increase its participation in development of the Action Themes.

---

[1] The Belmont Forum is not a funding body in its own right; "Belmont Forum funds" refers to the funding made available to the community from the participating Belmont Forum members, in response to calls for Collaborative Research Action proposals.

Acronyms

ANDS   Australian National Data Service
ANR   Agence Nationale de la Recherche
AT   Action Theme
BF   Belmont Forum
C3O   Communication, Collaboration, and Coordination Office, based in Action Theme 1
CAG   Curriculum Advisory Group
CODATA   Committee on Data for Science and Technology
CRA   Collaborative Research Action
CSIP   Community Strategy and Implementation Plan
DIO   Data Information Officer
DMIP   Data and Model Intercomparison Project
DMP   Data Management Plan
EC   European Commission
ECRs   Early Career Researcher(s)
e-I&DM   e-Infrastructures and Data Management
FE   Future Earth
FTE   Full-time equivalent
GEO   Group on Earth Observations
GEOSS   The Global Earth Observation System of Systems
GPC   Group of Program Coordinators
HDC   Human Dimensions Champion (i.e., AT4 Champion)
ICSU   International Council for Science
IEA   Institute of Environmental Analytics, University of Reading, UK
JST   Japan Science and Technology Agency
MoST   Ministry of Science and Technology, Republic of China (Chinese Taipei)
NERC   National Environment Research Council, UK
NSF   National Science Foundation, USA
OC   Oversight Committee
PAG   Policy Advisory Group
RDA   Research Data Alliance
SAB   Science Advisory Board (term used in CSIP, defunct)
SecAG   Security Advisory Group
SCG   Secretariat Coordinating Group
SCN   Strategic Coordination Network (term used in CSIP, defunct)
WDS   World Data System

Glossary of Terms

Belmont Certification - a term that refers to the designation applied to training courses for data management and stewardship that comply with the Belmont Forum's adopted open data policies. The standards and criteria for Belmont Certification are being developed and will be delivered under e-I&DM Action Theme 4, Human Dimensions.

Call Secretariat - the entity housed in ANR responsible for coordinating with the Belmont Forum Secretariat the activities and processes to execute the call for Exemplars (expected to occur in Spring 2017).

Champion - the intellectual leader of an Action Theme.

Committee on Data for Science and Technology (CODATA) - codata.org CODATA was established in 1966 by the International Council for Science (ICSU) to promote and encourage, on a worldwide basis, the compilation, evaluation and dissemination of reliable numerical data of importance to science and technology. It works to improve the quality, reliability, management and accessibility of data of importance to all fields of science and technology. It is a resource that provides scientists and engineers with access to international data activities for increased awareness, direct cooperation and new knowledge.

Collaborative Research Action (CRA). Projects administered through the Belmont Forum with funding from at least three participating member countries. Belmont Forum CRAs address the Belmont Challenge priorities, leverage BF members' existing investments through international added value, and bring together new partnerships of natural scientists, social scientists, and users/local stakeholders.

Community Strategy and Implementation Plan (CSIP) - a document prepared by the Steering Committee for the two-year scoping phase of the e-Infrastructures and Data Management Collaborative Research Action (final June 2015) of a set of recommendations on how the Belmont Forum can leverage existing resources and investments to foster a more coordinated, holistic, and sustainable approach to the funding and support of global environmental change research.

Curriculum Advisory Group - A group of training resources experts convened through e-I&DM Action Theme 4 to provide input and feedback on appropriate standards and criteria that must be met for the designation of "Belmont Certification" to training courses for data management and stewardship.

e-Infrastructures and Data Management Collaborative Research Action (e-I&DM CRA) - The BF-funded project to implement the data policies adopted by the Belmont Forum in Oslo

2015. Phase 1 (scoping) occurred 2013-2015. Phase 2 (implementation) began December 2015 and is expected to continue through 2020.

Future Earth (FE) - futureearth.org Future Earth is a major international research platform providing the knowledge and support to accelerate our transformations to a sustainable world. It will be an international hub to coordinate new, interdisciplinary approaches to research as well as being a platform for international engagement to ensure that knowledge is generated in partnership with society and users of science. The Governing Council of Future Earth is composed of members of the Science and Technology Alliance for Global Sustainability, an informal international partnership that is committed to making full use of science and technology to inform equitable, sustainable solutions to the most pressing issues currently confronting humankind. Future Earth is open to scientists of all disciplines, natural and social, as well as engineering, the humanities and law.

Group on Earth Observations (GEO) - earthobservations.org Established in 2005, GEO is a voluntary partnership of governments and organizations that envisions "a future wherein decisions and actions for the benefit of humankind are informed by coordinated, comprehensive and sustained Earth observations and information." GEO membership includes 96 nations, the European Commission, and 87 participating organizations comprised of international bodies with a mandate in Earth observations.

Global Earth Observation System of Systems (GEOSS) - earthobservations.org/geoss.php The GEO community is creating a Global Earth Observation System of Systems (GEOSS) that will link Earth observation resources worldwide across multiple societal benefit areas - agriculture, biodiversity, climate, disasters, ecosystems, energy, health, water and weather - and make those resources available for better informed decision-making.

Group of Program Coordinators (GPC) - a Belmont Forum entity consisting of one representative from each of the members participating in a Belmont Forum call.

International Council for Science - World Data System (ICSU-WDS) - icsu-wds.org The WDS is an Interdisciplinary Body of the International Council for Science (ICSU) created by its 29th General Assembly in Maputo, Mozambique in 2008. Its goals include: enabling universal and equitable access to quality-assured scientific data, data services, products and information; ensuring long term data stewardship; fostering compliance to agreed-upon data standards and conventions; and providing mechanisms to facilitate and improve access to data and data products.

Knowledge Hub - an online resource (website) that provides access to relevant materials, databases, and communication resources related to the e-I&DM initiative.

Map of the Landscape - an online resource of global change research-oriented data and e-infrastructures activities, products, services, and organizations being collaboratively developed by several data organizations, including e-I&DM CRA through the C3O.

Policy Advisory Group (PAG) - A group of data policy, legal, security and publishing experts convened through the e-I&DM Action Theme 2 to provide input and feedback on challenges, innovations, other relevant issues and best practices involving data policy.

Research Data Alliance (RDA) - rd-alliance.org The RDA builds the social and technical bridges that enable open sharing of data. Its vision is researchers and innovators openly sharing data across technologies, disciplines, and countries to address the grand challenges of society. The RDA is supported by the European Commission, the U.S. NSF and other US agencies, and the Australian Government.

Secretariat (Belmont Forum Secretariat) - The Belmont Forum Secretariat is the administrative arm of the Belmont Forum, based currently in Paris at Agence Nationale de la Recherche. The BF Secretariat implements the decisions made at BF plenary meetings.

Secretariat Coordinating Group (SCG) - an entity comprised of Action Theme Champions, Co-leads and the C3O which coordinates day-to-day project management activities of the e-I&DM Project as a whole.

Strategic Coordination Network - a term used in the Community Strategy and Implementation Plan for an entity comprising organizations to identify collaborative strategies to address BF objectives and actions to implement a more coordinated, holistic, and sustainable approach to the funding and support for global environmental change research. This term is defunct and has been replaced by the Oversight Committee in the current Implementation Plan.

Theme Program Office - a term that refers to the Belmont member entity that runs individual Collaborative Research Actions.