

Belmont Forum DMP Scorecard (v.20190819)

Background and Purpose

The Belmont Forum e-Infrastructures & Data Management (e-I&DM) project was funded to develop resources to make operational the Belmont Forum's [Open Data Policy & Principles](#) (adopted in 2015; see Appendix for details) in Belmont Forum funded research projects. This Scorecard helps prospective proposers construct Data Management Plans (DMPs) that will facilitate data organization and sharing throughout the entire project, and facilitates quantitative evaluation of data management. The Scorecard was informed by the Belmont Forum Grant Operations (BFGO) process, the DART project rubric used to assess NSF data management plans (IMLS National Leadership Grant LG-07-13-0328 project), the Open Data Policy and Principles, and [FAIR Data Principles](#). It is designed to align with the Digital Curation Exercise presented in the [Data Management Toolkit](#) and the questions in the [Data and Digital Outputs Management Plan \(DDOMP\) template](#) to create an access point to data management at the outset of research that can be refined and expanded throughout the project development. Researchers are encouraged to use this Scorecard to help define and organize the elements of their DMPs.

The purpose and use of this Scorecard is three-fold:

1. as an evaluation tool to quantitatively assess full proposal DMP responses to questions drawn from the Data and Digital Outputs Management Plan (DDOMP) template that are included in the Belmont Forum grant application process on BFGO.org;
2. as a training resource to be shared with potential proposers to help define expectations for data management and/or with awardees (i.e., post-award) to identify specific elements of their data management planning efforts that may be unclear or lacking; and/or
3. as an evaluation tool employed by the Secretariat or TPOs to assess milestones and progress during mid- or end-term project review/valorization.

Reviewer Instructions for Preparation, Evaluation and Scoring Procedures

Preparation:

1. Read through the Scorecard to familiarize yourself with the criteria and the scoring examples.
2. Read **all** submitted DMPs first, without reference to the Scorecard criteria. The purpose of this step is to provide mental 'gateposts' for the range of responses in the DMPs so that you can more consistently evaluate and score DMPs relative to the criteria. Sometimes a DMP requires several reads to get a complete picture of the overall plan. Feel free to make notes or highlight areas with questions.

3. Allocate approximately 1 hour to evaluate each DMP using the Scorecard. Do not evaluate more than 3-4 DMPs at one sitting to avoid burnout.

Evaluation:

4. For each criterion, assign points (0, 1, or 2 only, no partial scores) in the column “Score,” according to the rubric.
5. The Scorecard has a total of 16 elements, but not all criteria may be relevant to each DMP. Note the number of criteria that are applicable to the project being scored (n).
6. To ensure only applicable criteria are counted in the Scorecard, enter “--” into the score column for any non-applicable criteria (Note: do not enter “0” as this will register in the spreadsheet as a counted criterion)

Scoring:

7. Once all of the criteria have been reviewed and scores assigned for the project, the Scorecard will automatically sum the scores and divide that sum by the total number of applicable criteria to produce a score at the bottom of the Scorecard.
8. Next, check that the total number of applicable criteria (n) that were considered in the review was used in the Total Criteria cell to produce the final score at the bottom of the Scorecard.

Interpreting the Score

An average score of 1 (all criteria addressed, even if incomplete) is a minimum for a complete DMP. DMPs not scoring at least an average of 1 will likely not align with the [Belmont Forum Open Data Policy and Principles](#).

Complete DMP ≥ 1 (maximum score = 2)

Incomplete DMP < 1

The magnitude of the final score correlates to the DMP’s relative completeness with regard to DDOMP criteria, e.g., a DMP that scores a 0.9, while still incomplete, is relatively more complete than a DMP with a score of 0.3; similarly, a DMP that scores a 1.8 is more detailed than one with a score of 1.1. These differences reflect the reviewer(s)’ confidence that the proposed management of the data will be consistent with Belmont Forum Open Data Policy and Principles.

| Criteria | Complete Response (score = 2) | Incomplete Response (score = 1) | No Response (score = 0) | SCORE |
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| 1. What types of datasets and other digital outputs of long-term value do you expect the project will produce or reuse? | | | | |
| <p>1.1 Plan lists the <u>types</u> of data and other digital outputs of long-term value.</p> <p><i>(e.g. text, databases, images, 3D models, software, audio files, code, video files, reports, surveys, patient records, samples, and so forth)</i></p> | <p>Datasets and other digital outputs of long-term value are identified, including data type and encoding.</p> <p><i>“Environmental data will be delivered as NetCDF (Network Common Data Format) files. Raster files will use the raster2pgsql PostGIS module. Maps and other geographic data will use shapefiles.”</i></p> <p><i>“Transcripts and coding will be provided in text files. Audio recording will be MP3 format.”</i></p> | <p>Datasets and other digital outputs of long-term value are identified, but lack detail for users beyond the project to understand.</p> <p><i>“A combination of geo-referenced data at various spatial, temporal, and taxonomic scales (e.g., populations, regions, nations, circumpolar, biomes, habitats) will comprise our data of long-term value.”</i></p> <p><i>“Long-term value data include data from anthropological field studies: transcripts of interviews and discussion workshops, associated metadata.”</i></p> | <p>No information about data types is included.</p> | <p>X</p> |
| <p>1.2 Plan describes how the data and other digital outputs will be <u>collected, captured, or created</u>.</p> <p><i>(e.g., new observations, results from models, reuse of other data, or other)</i></p> | <p>Clearly defines how data will be collected, captured or created, including methods, instruments, software, or infrastructure where relevant.</p> <p><i>“The MIP compatible model runs to the ISI-MIP servers, where existing Fish-MIP runs are already stored. Scenario outputs will be archived.”</i></p> <p><i>“Socio-economic data will include household food security, nutrition, and demographic data. Spatial data produced will include ground-truthed land use/land cover data ~3 km from 50 farms, land use scenario maps for 12 villages and 4 regions. All ecological/social data will be recorded on physical datasheets and entered directly into Excel or STATA.”</i></p> | <p>Missing some details regarding how some of the data will be produced; makes assumptions about reviewer knowledge of methods or practices.</p> <p><i>“Models will produce a broad range of output simulation data.”</i></p> <p><i>“Data collection includes gathering in-the-field various phytoplankton, zooplankton, fish and flooded forest biodiversity.”</i></p> | <p>No information about data collection, capture or creation.</p> | <p>X</p> |
| <p>1.3</p> | <p>Datasets and other digital outputs volume estimated.</p> | <p>Datasets and other digital outputs amount is vaguely estimated or</p> | <p>Amount of expected data is</p> | <p>X</p> |

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| <p>Plan lists (quantifies) <u>how much</u> data is anticipated.</p> | <p><i>"The project is expected to produce up to 9 GB of new data."</i></p> | <p>partially described.</p> <p><i>"A new database will be made."</i></p> <p><i>"As the total population size is unknown, the amount of user demographic data that will be collected for this task is not easily or accurately estimated at this time."</i></p> | <p>not mentioned.</p> | |
| <p>2. How do you intend to ensure that the data and digital outputs from your project conform to the Belmont Forum Open Data Policy and Principles?</p> | | | | |
| <p>2.1. Plan specifically addresses <u>metadata</u> standards or formats for the data and other digital objects.</p> <p><i>(e.g., Dublin Core, Ecological Metadata Language (EML), W3C RDF (Resource Description Framework), and so on)</i></p> <p>http://www.dcc.ac.uk/resources/metadata-standards/list</p> <p><i>Open Data Policy and Principles addressed:</i> -Discoverable through catalogues and search engines -Understandable in a way that allows researchers—including those outside the discipline of origin—to use them.</p> | <p>The metadata standard or format is named for the datasets and other digital outputs.</p> <p><i>"Data representation will be guided by FAIR principles regarding metadata (e.g. following ISO 19115:1 for geographic information)."</i></p> <p><i>"Data from the project will have descriptive metadata according the DataCite Metadata scheme 4.0."</i></p> | <p>The metadata standard or format is not named for the datasets or digital outputs, but metadata is mentioned.</p> <p><i>"Deliverables from the project will have key-words and appropriate metadata to maximize discoverability."</i></p> <p><i>"Deposited data will be accompanied by a range of metadata, such as geographical coordinates, dates, taxonomic information and information on publications and authors."</i></p> | <p>The metadata standards or formats is not named.</p> | <p>X</p> |
| <p>2.2 Plan describes <u>when</u> data and other digital outputs will be made available outside and within the project team.</p> <p><i>Open Data Policy and Principles addressed:</i> -Accessible as open data by default, and made available with minimum time delay</p> | <p>The plan defines when the data and other digital outputs will be made available outside and within the project team.</p> <p><i>"Data generated from our research will be shared incrementally throughout the time period of the project, and the full dataset will be available no later than one year after the project ends or at publication of our research."</i></p> | <p>The plan provides only a vague timeframe for when the data and other digital outputs will be made available outside and within the project team.</p> <p><i>"It will be the policy of the project to publish relevant findings expeditiously in the peer-reviewed literature."</i></p> | <p>The plan does not estimate when the data and other digital outputs will be made available outside and within the project team.</p> | <p>X</p> |

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| <p>2.3 Plan describes <u>how</u> data and other digital outputs will be made available beyond the project team. (e.g., this may include a domain or institutional repositories)</p> <p><i>Open Data Policy and Principles addressed: -Manageable and protected from loss for future use in sustainable, trustworthy repositories</i></p> | <p>The data repository is named.</p> <p><i>"The data that accompany publications or other published deliverables will be made available by using an online repository for ecological data (e.g. DRYAD, http://datadryad.org/)."</i></p> | <p>The data repository is not named, but some language exists to indicate that the data will be made available.</p> <p><i>"The non-sensitive data collected as part of this project will be made available upon reasonable written request for academic, research, educational and other not-for-profit professional purposes (e.g. conservation, environmental policy) according to the DMP."</i></p> | <p>Does not provide information on how the data and other digital outputs will be made available.</p> | <p>X</p> |
| <p>3. Which member(s) of your team will be responsible for developing, implementing, overseeing, and updating the Data and Digital Outputs Management Plan?</p> | | | | |
| <p>3. Plan describes which <u>member(s)</u> of the team will be responsible for developing, implementing, overseeing, and updating the DDOMP.</p> | <p>The plan indicates by <u>name</u> or <u>role</u> the member(s) responsible for developing, implementing, overseeing, and updating the DDOMP.</p> <p><i>"The data manager (WP4.Task 3 leader) and Gilberto Ribeiro from INPE partner will ensure the data management of the project. The task leader is head of the French Global Biodiversity Information Facility (GBIF) node, Gilberto is a database development specialist working at the OBT INPE department."</i></p> <p><i>"A full-time data manager responsible for overseeing, implementing and updating this data management plan will be hired upon award of funding."</i></p> | <p>The plan indicates that developing, implementing, overseeing, and updating the DDOMP will be done, but in <u>vague</u> qualifiers, or by multiple team members working independently, or done passively.</p> <p><i>"Overseeing and updating the data management approach during the project period will be the responsibility of each team's leader(s) of data collection work in the different WPs. Each leader will be responsible for developing and implementing their respective data management plans."</i></p> | <p>The plan does not indicate the member(s) or a team role responsible for developing, implementing, overseeing, and updating the DDOMP.</p> | <p>X</p> |
| <p>4. How do you intend to manage the data and digital outputs during the project to ensure their long-term value is protected?</p> | | | | |
| <p>4.1 The plan recognizes describes the <u>security</u> measures to prevent unauthorized access to the data and other digital outputs.</p> <p><i>Data security refers to the process of protecting data from unauthorized access and data corruption throughout its lifecycle. Data security includes data encryption, tokenization, and key management</i></p> | <p>The plan describes security measures for the data and other digital outputs to prevent unauthorized access with specific examples.</p> <p><i>"The data security plan includes: i) data input in REDcap or other secure data management platform; ii) storage within an encrypted drive with access controlled by research team</i></p> | <p>The plan describes security measures for the data and other digital outputs to prevent unauthorized access, but in vague terms.</p> <p><i>"Data will be stored on the secure research servers of the team's respective universities during the project."</i></p> | <p>The plan does not describe security measures for the data and other digital outputs to prevent unauthorized access.</p> | <p>X</p> |

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| <p>practices that protect data across all applications and platforms.</p> <p>Open Data Policy and Principles addressed: -Manageable and protected from loss for future use in sustainable, trustworthy repositories</p> | <p>members; and iii) a process for managing human research ethics that complies with national funding body guidelines.”</p> | | | |
| <p>5. How and by whom will the data and other digital outputs be managed after the project ends to ensure their long-term accessibility?</p> | | | | |
| <p>5.1 Plan indicates <u>how long</u> the data and other digital outputs will be retained</p> | <p>The plan indicates the specific timeframe for how long the data and other digital outputs will be retained.</p> <p><i>“These data will be stored for at least 10 years after the project has ended using the institutional infrastructure of (named partner).”</i></p> <p><i>“At publication of results, all data will be stored in a trustworthy and/or certified repository; after 5 years, data will be archived for permanent storage in the repository.”.</i></p> | <p>The plan indicates how long the data and other digital outputs will be retained, with a <u>vague</u> time, including <i>in perpetuity</i>.</p> <p><i>“This archive will be kept for at least several years (with the intention of making these available for a longer time).”</i></p> | <p>The plan does not indicate how long the data and other digital outputs will be retained.</p> | <p>X</p> |
| <p>5.2 Plan indicates <u>who</u> will be responsible for managing data <i>after the project ends</i> to ensure their long-term accessibility.</p> | <p>The plan indicates <u>who</u> or what entity will be responsible for managing after the project ends.</p> <p><i>“The Data Manager, responsible for developing, implementing and updating the Data Management Plan, will ensure data are archived for permanent storage in a certified repository after publication of our research.”</i></p> | <p>The plan indicates management of the data and digital outputs after the project ends, but in <u>vague</u> qualifiers.</p> <p><i>“Project leads from each country will be responsible for ensuring long-term access to data from their country.”</i></p> | <p>The plan does not indicate management of the data and digital outputs after the project ends.</p> | <p>X</p> |
| <p>6. What restrictions, if any, do you anticipate could be placed on how the data and digital outputs can be accessed, mined, or reused?</p> | | | | |
| <p>6.1 (if applicable) Plan describes how <u>sensitive</u> data and other digital outputs will be made available beyond the project team.</p> <p>(Note: human subjects research can be made open if informed consent contains the language)</p> | <p>The plan explains how sensitive data and other digital outputs will be made available outside the project team and outlines the specific considerations.</p> <p><i>“In some cases, locations of sampling sites must remain confidential during and after the project for protection of sensitive species or habitats.”</i></p> <p><i>“Sensitive data (human identifiers, endangered species, etc.) will be anonymized before</i></p> | <p>The plan explains how sensitive data and other digital outputs will be made available beyond the project team, but in a vague way.</p> <p><i>“These data will be made available beyond the project team members only upon written request by qualified researchers.”</i></p> | <p>The plan does not explain how sensitive data and other digital outputs will be made available beyond the project team.</p> | <p>X if applicable</p> |

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| | <p>publication. A letter explaining the purpose, approach and dissemination strategy of the research will be prepared, translated into the relevant languages and shared with all participants in any event."</p> <p>"In order to comply to the EU General Data Protection Regulation (GDPR), we will not provide data which can be linked to individuals or certain locations."</p> | | | |
| <p>6.2 (if applicable) Plan describes any <u>limitations</u> on the ability to share data and other digital outputs <i>(e.g. proprietary nature, indigenous rights, or others)</i></p> <p><i>Open Data Policy and Principles addressed: -Accessible as open data by default, and made available with minimum time delay</i></p> <p><i>FAIR: R1.1. addressed by exemplar DMPs.</i></p> | <p>The plan describes any <u>limitations</u> on the ability to share data and other digital outputs with detailed reasoning to limit access.</p> <p><i>"In recognition of the important socio-cultural and ecological information being collected about and with local communities, we will also honor the principles of community-owned research, drawing on the OCAP (Ownership, Control, Access and Possession) principles developed by First Nations communities in Canada (http://fniqc.ca/ocap.html). Storing hard copies of data at the Soils, Food, and Healthy Communities office will ensure that local community members can control and access the data. Researchers interested in using the hard copy data will need to sign an agreement of understanding with SFHC to ensure that community rights, control, and access to this information are respected and retained."</i></p> | <p>The plan describes any <u>limitations</u> on the ability to share data and other digital outputs with vague terms and conditions.</p> <p><i>"Our data will be accessible after the end of the project with a specific license on how to use them in both scientific and other contexts; appropriate licensing will be selected to avoid or minimize misuse or over-interpretation of the results by non-informed people."</i></p> | <p>The plan does not describe any <u>limitations</u> on the ability to share data and other digital outputs.</p> | <p>X if applicable</p> |
| <p>7. How will you ensure that any data security, privacy, and intellectual property restrictions associated with datasets and digital outputs will be honored and preserved in derivative products?</p> | | | | |
| <p>7.1 Plan describes the <u>intellectual property</u> rights to the data and other digital outputs</p> <p><i>FAIR: R1.1. addressed by exemplar DMPs.</i></p> | <p>The plan indicates the intellectual property rights to the data and other digital outputs in detail.</p> <p><i>"The Intellectual Property Rights (IPR) relating to all project data, analyses, and outputs will be negotiated and specified in the Consortium Agreement and the Data Management Plan. The Steering Committee will maintain an IPR Directory throughout the lifetime of the project,</i></p> | <p>The plan indicates the intellectual property rights to the data and other digital outputs in detail, but with vague terms.</p> <p><i>"Public data are managed according to the highest standards available and will be available for reuse upon request in compliance with the data's reuse license."</i></p> | <p>The plan does not indicate the intellectual property rights to the data and other digital outputs.</p> | <p>X</p> |

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| | <i>which will inventory all items of knowledge relating to the work of the project and make explicit for each item its owner, nature, accessibility status and dissemination and protection measures."</i> | | | |
| 7.2 Plan describes <u>licensing</u> of the data and other digital outputs | The plan describes licensing of the data and other digital outputs by naming a license(s). <i>"We will use CC-BY license (https://creativecommons.org/licenses/by/4.0/)."</i> | The plan describes licensing of the data and other digital outputs, but in vague terms. Provides a general overview of how data may or may not be reused, or the applicability of the policy can be inferred from general/broad/blanket statements about data being made open or being kept private, or policies can be inferred based on the sharing location. <i>"Upon publication of our research, data will be accessible under open access and a specific license to avoid any misuse."</i> | The plan does not describe licensing of the data and other digital outputs. | X |
| 8. What supporting documentation (i.e., metadata) do you plan to make publicly accessible to support the discovery and longer-term reuse of the data and digital outputs? | | | | |
| 8. Plan describes the supporting documentation and metadata that will be created to make data and digital outputs publicly accessible. <i>Open Data Policy and Principles addressed: -Discoverable through catalogues and search engines -Understandable in a way that allows researchers—including those outside the</i> | The plan includes supporting documentation and metadata on how to make data and digital outputs publicly accessible with specifics. <i>"i) On the project website we will upload project's public results, e.g. conference presentations, workshops, scientific papers, deliverables / milestones. ii) For the produced project datasets, descriptive metadata will be available according the DataCite Metadata scheme 4.0. All data sets of the project will be stored in X data repository."</i> | The plan includes supporting documentation and other information (e.g., metadata) on how to make data and digital outputs publicly accessible in vague detail. <i>"In our published results, we will provide supporting documentation (e.g., meta-data) that explain how the data were collected, provide an overview of dataset contents and variables, and specify the point of contact for accessing the data."</i> | The plan does include supporting documentation and other information (e.g., metadata). | X |

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| <p><i>discipline of origin—to use them</i></p> <p><i>FAIR: A.1-2 may be addressed by exemplar DMPs.</i></p> | <p><i>iii) We plan open access data publication (e.g. Copernicus publication), and iv) open access scientific papers.”</i></p> | | | |
| <p>9. How have you accounted for the costs required to manage the data and digital outputs to ensure long-term accessibility?</p> | | | | |
| <p>9. Plan specifies the costs or estimated costs associated with long-term data management or an assigned data manager role.</p> | <p>The plan includes information on institutional, national, or other fiscal support for long-term data management and names the funder.</p> <p><i>“As a publicly funded authority, Organization X guarantees the long-term availability of the data through already existing institutional storage infrastructure, which also means we can account for costs of long-term storage of the data.”</i></p> | <p>The plan includes information on institutional, national, or other fiscal support for long-term data management in vague detail.</p> <p><i>“The costs of maintaining data to be collected are already taken care of outside the project through the respective affiliate institutions of the research team.”</i></p> | <p>The plan does not address the costs associated with long-term data management.</p> | <p>X</p> |
| <p style="text-align: right;">Sub-total of the scores</p> | | | | |
| <p style="text-align: right;">Total number of applicable criteria</p> | | | | |
| <p style="text-align: right;">FINAL SCORE Subtotal score / # applicable criteria</p> | | | | |

APPENDIX

Belmont Forum Open Data Policy and Principles

Data should be:

- Discoverable through catalogues and search engines
- Accessible as open data by default, and made available with minimum time delay
- Understandable in a way that allows researchers—including those outside the discipline of origin—to use them
- Manageable and protected from loss for future use in sustainable, trustworthy repositories