



## **Coordinated Research Infrastructures Building Enduring Life-science services - CORBEL -**

Deliverable D1.2

Project-wide data management plan adopted

WP1 – Management and coordination

Lead Beneficiary: ELIXIR

WP leader: Niklas Blomberg (ELIXIR)

Contributing partner(s): none

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## Executive Summary

As a cluster of Research Infrastructures, the CORBEL consortium's approach to ensuring effective data management and stewardship relies on the existing policies and expertise of the participating infrastructures. The Research Infrastructures have established data strategies appropriate for the type of data they hold and/or which their users produce, and - having the relevant expertise - are best placed to implement those strategies. Common across these strategies is a commitment to open science, pursuing the goal of sharing the outputs of publicly funded research whilst respecting the varying ethical and legal contexts of these outputs and taking account of the technical and social challenges of data sharing. Within CORBEL, the handling and deposition of research outputs will not be managed centrally. Instead, responsibility is delegated to the Research Infrastructures, who will retain control over and accountability for each dataset, service, publication and software tool produced in the context of CORBEL.

## Project objectives

With this deliverable, the project has reached/this deliverable has contributed to the following objectives:

- a) Effectively integrate CORBEL deliverables with long-term planning and strategy of BMS RI through BMS RI strategy board

## Detailed report on the deliverable

### Background

<b>Work package number</b> <sup>9</sup>	WP1	<b>Lead beneficiary</b> <sup>10</sup>	1 - EMBL
<b>Work package title</b>	Management and coordination		
<b>Start month</b>	1	<b>End month</b>	48

### Objectives

1. Establish and implement the Project Administration and Management functions
2. Effectively integrate CORBEL deliverables with long-term planning and strategy of BMS RI through BMS RI strategy board
3. Organise and deliver project management, advisory board and project open annual meetings
4. Develop and implement a risk management plan to ensure project objectives are achieved
5. Develop and facilitate the implementation of an BMS RI wide equal opportunities programme within the project

**Description of work and role of partners****WP1 - Management and coordination** [Months: 1-48]

**EMBL**, UMCU, ICFO, CRG, UNIVDUN, BBMRI-ERIC, BRFAA, Erasmus MC, EATRIS, ECRIN, U LIVERPOOL, IRFMN, UDUS, INFRAFRONTIER GmbH, HMGU, Instruct, CIRMMP, CSIC, CNRS, SZN, USTAN, FVB, Imperial, MDC, UNIMAN, VU/VUmc, DKFZ, DSMZ, JacobsUni, KNAW, CSC, CABI, MUW, UNITO

This work package deals with the overall project coordination. ELIXIR will be the coordinator for the project and will be responsible for the technical, financial and administrative management on a day-to-day basis and its interactions with the overall management structure. ELIXIR will be the official contact point for the EC. Decision-making procedures, as well as IPR, dissemination, implementation and exploitation issues, will be detailed in a Consortium Agreement that will be updated during the project if judged necessary.

Task 1 Establish and implement the Project Administration (EMBL-ELIXIR, BBMRI).

Subtask 1.1: Building on extensive experience in managing large, international project consortia, we will set up a Project Management Unit to deliver the overall project management and coordination including i) managing the timely delivery and follow-up of administrative and financial documents ii) ensure effective communication within the consortium by serving as a permanent contact point for all partners regarding their participation in the project, responding to any relevant requests and actively promote synergies, iii) notify the consortium of due dates for submission of documents/ deliverables and follow through on the timely delivery, and iv) prepare, organise and support the official project meetings and workshops (see part B 3.2.2). The formal scientific reporting period will be 18 months. In addition, the work package leaders (via the Project Management Unit) will submit a short progress report to the Project General Assembly at their meeting during the AGMs. This report will reflect work completed and ongoing, progress of deliverables and milestones reached as well as highlighting any possible delays or risks, together with suggestions of how to mitigate them. WP leaders will monitor the progress of the WP under their responsibility through regular meetings and an online reporting system.

Subtask 1.2: The Project Management Unit will ensure that the project runs within its detailed budget and that cost statements are reported online. Project expenditure will be closely followed, cost statements checked against scientific progress towards contractual deliverables, and deviations tracked and managed. Where necessary, the Project Management Unit will ensure that audit certificates are collected from the participants. To ensure effective cost control, EC requirements as well as good project management practice will be followed including: i) monitoring cost performance to detect variances from the plan, ii) ensuring that all appropriate changes are recorded accurately in the cost baseline, iii) preventing incorrect, inappropriate, or unauthorised changes (toward contract) and iv) informing the EC about changes and asking for permission before making adjustments if required by EC regulations. Requested project management costs include those for the processes required to ensure that the project is completed within the approved budget.

Task 2 Establish close integration with BMS RI long-term planning and strategy (EMBL-ELIXIR, all ESFRI BMS RI). For the duration of this project we will align the BMS RI Strategy Board (governed by an independent MoU between BMS RI as described in part B 3.2.2, consisting of the BMS RI directors and project coordinators for associated preparatory phase projects) to meet the critical need of closely integrating the project deliverables with the RI's long-term planning and strategy. Through the established infrastructures this secures effective interfaces between the project and user communities as well as key stakeholders and funding networks. This intimate connection between the project and the core mission of the BMS RIs will ensure a maximum reach and impact of the project deliverables and safeguard sustainability of the services developed.

Task 3 Organise and deliver all project management, partner and advisory board meetings (EMBL-ELIXIR, all).

Given the scope of the project, effective communication is at the core of all project management activities. Efficient meetings are a central part of this. The coordinator, supported by the Project Management Unit, will organise, lead, and document all project management and advisory board meetings, including those of the Project General Assembly, the BMS RI Strategy Board and the Project Executive Board and the

Scientific and Ethical as well as the e-infrastructure Advisory Boards. For the latter, besides the permanent members, additional experts may be called on at certain points in the project to provide input on specific issues.

Travel costs for members of the project management bodies is budgeted in WP1. To minimise costs, besides prioritising virtual meetings as described above, a maximum number of meetings of the project management bodies will be scheduled to coincide with the Annual General Meetings. This has the added great benefit of bringing the work package leads, all senior BMS research infrastructure personnel and the advisory body members together in one place, which has also in the past (e.g. in the BioMedBridges project) proven to be extremely productive and provided fruitful ground for detailed discussions and concrete follow-up actions.

Task 4 Develop and implement a management contingency plan (EMBL-ELIXIR, BBMRI).

During the early months, a management contingency plan will be developed by the Project Management Unit. As described in part B 3.2.7, risk will be assessed particularly in five major areas in the project that need special attention: Integration, IT, ethics, dissemination, and innovation. An action plan will ensure the follow-up and control of the areas at risk.

Task 5 Develop and implement an equal opportunities programme within the project (INFRAFRONTIER GmbH).

The BMS RIs involved in the project are in a start-up phase, putting in place their organisational and administrative structures and fine-tuning their processes. This is a key period in the infrastructure development to establish a lasting environment of equal opportunity for all qualified personnel. Based on a survey of existing or planned equal opportunity or diversity measures taken within the participating RIs, the identification of best practices and a gap analysis, we will develop and implement an equal opportunities program within the project. This program could include for example mechanisms to ensure that a certain minimum percentage of women is invited to participate in training activities within the project (see WP9 Training), setting up a mentoring program (in other activities we have found this to be an effective means to support equal opportunities), or ensuring that there is broad representation in project advisory and management bodies. Together with WP5 this task will also monitor the developing Charter and Code of Access to research infrastructures.

#### Participation per Partner

Partner number and short name	WP1 effort
1 - EMBL	47.30
2 - UMCU	0.10
3 - ICFO	0.10
4 - CRG	0.10
5 - UNIVDUN	0.10
6 - BBMRI-ERIC	2.70
7 - BRFAA	0.10
8 - Erasmus MC	0.10
9 - EATRIS	0.50
10 - ECRIN	0.50
11 - U LIVERPOOL	0.10
12 - IRFMN	0.10
13 - UDUS	0.10
14 - INFRAFRONTIER GmbH	2.50

15 - HMGU	0.10
16 - Instruct	0.10
17 - CIRMMP	0.10
18 - CSIC	0.10
19 - CNRS	0.30
20 - SZN	0.10
21 - USTAN	0.10
22 - FVB	0.30
23 - Imperial	0.30
24 - MDC	0.10
25 - UNIMAN	0.10
26 - VU/VUmc	0.10
27 - DKFZ	0.10
28 - DSMZ	0.50
29 - JacobsUni	0.10
30 - KNAW	0.10
31 - CSC	0.10
32 - CABI	0.10

Partner number and short name	WP1 effort
33 - MUW	0.10
35 - UNITO	0.10
<b>Total</b>	<b>57.40</b>

#### List of deliverables

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
D1.1	D1.1 Project handbook	1 - EMBL	Report	Public	3
D1.2	D1.2 Project-wide data management plan adopted	1 - EMBL	Report	Public	6
D1.3	D1.3 Implementation of an equal opportunities programme	14 - INFRAFRONTIER GmbH	Report	Public	24

#### Description of deliverables

Three deliverables are due, at M3, M6 and M24, respectively.

D1.1 : D1.1 Project handbook [3]]

D1.1 Project handbook

D1.2 : D1.2 Project-wide data management plan adopted  
D1.2 Project-wide data management plan adopted

D1.3 : D1.3 Implementation of an equal opportunities programme  
[24] D1.3 Implementation of an equal opportunities programme

**Schedule of relevant Milestones**

Milestone number <sup>18</sup>	Milestone title	Lead beneficiary	Due Date (in months)	Means of verification
MS1	MS1.1 Consortium Agreement adopted	1 - EMBL	3	MS1.1 Consortium Agreement adopted
MS2	MS1.2 Website and document management set-up for testing	1 - EMBL	4	MS1.2 Website and document management set-up for testing
MS3	MS1.3 Management contingency plan adopted	1 - EMBL	12	MS1.3 Management contingency plan adopted

## Description of work

### Introduction

As a major funder of research and infrastructure, the European Commission has a clear commitment to open science. This is exemplified by the Commission's 2012 recommendation on access to and preservation of scientific information<sup>1</sup>, recognising the societal and economic benefits that open access to publications and other research outputs can provide. These principles are subsequently reflected in its Horizon 2020 2016-2017 Work programme (Part 16: Science & Society)<sup>2</sup>. As the representatives of Research Infrastructures that have been established to support the ecosystem of modern collaborative science, the CORBEL participants are fully committed to this ethos and are actively working towards the same agenda.

As a large and highly distributed project, it is essential that the CORBEL consortium establish robust working practices that will maximise the value of the project's outcomes. As part of this goal, the

<sup>1</sup> [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/recommendation-access-and-preservation-scientific-information\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/recommendation-access-and-preservation-scientific-information_en.pdf)

<sup>2</sup> [http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016\\_2017/main/h2020-wp1617-swfs\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-swfs_en.pdf)

consortium is committed to enact effective data management policies both to safeguard data during the project, and to ensure responsible stewardship following its conclusion. This applies not only to any experimental research data generated by funded activities, but the tools and knowledge we expect to generate. In so doing, the consortium can maximise the utility of the project's deliverables in the communities of the participating Research Infrastructures, and thus maximise the return on the Commission's investment.

All of the Research Infrastructures participating in CORBEL take central roles in the provision of infrastructure to safeguard data for their respective scientific communities - facilitating access, re-use and reproducibility. Key to this is not only to ensure that research data is made available, but that it is published in such a way as to help researchers make use of it. These requirements are exemplified in the FORCE11 group's FAIR Principles<sup>3 4</sup> - that data should be Findable, Accessible, Interoperable and Re-usable. Indeed, improving the infrastructure that allows scientists to make research data conform to these guiding principles are a key aim of the CORBEL project itself, including the management of data across infrastructure boundaries. This builds upon and strengthens the data bridges laid down between the Research Infrastructures during the BioMedBridges project, the successful conclusion of which has begun to tackle the challenges of cross-disciplinary data sharing and integration.

#### General Approach

As a cluster of Research Infrastructures, the CORBEL consortium's approach to ensuring effective data management and stewardship relies upon the existing policies and expertise of the infrastructures. The Research Infrastructures have established data strategies appropriate to the type of data and - having the relevant expertise - are best placed to implement those strategies.<sup>56</sup>

Common across these strategies is a commitment to open science, pursuing the goal of sharing the outputs of publicly funded research whilst respecting the varying ethical and legal contexts of these outputs and taking account of the technical and social challenges of data sharing. For example, much of the data managed by ELIXIR is routinely made available openly, and similarly the INSTRUCT community has a long-standing tradition of depositing data in established domain archives as a matter of course. Euro-BioImaging is specifically seeking to encourage a similar ethos of data sharing by developing standards and technical solutions, by addressing data flow in tandem with access to the imaging infrastructure, as well as the identification of reference datasets. On the other hand, sharing of data and resources in BBMRI or ECRIN requires a specialised approach due to the sensitive nature of the data. The Research Infrastructures are working to improve access to human research

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<sup>3</sup> <https://www.force11.org/group/fairgroup/fairprinciples>

<sup>4</sup> Wilkinson, M. D. et al. The FAIR Guiding Principles for scientific data management and stewardship. *Sci. Data* 3:160018 doi: <http://dx.doi.org/10.1038/sdata.2016.18> (2016)

<sup>5</sup> ELIXIR et al.. (2014). Principles of data management and sharing at European Research Infrastructures. Zenodo. <http://dx.doi.org/10.5281/zenodo.8304>

<sup>6</sup> Suhr, Stephanie et al.. (2015). Data strategies for research infrastructures. Zenodo. <http://dx.doi.org/10.5281/zenodo.16413>



data through technical solutions for managed access. This includes secure computational infrastructure for specific individuals to access data consented for research, but also exposing metadata to allow for discovery.

Within CORBEL, the handling and deposition of research outputs will not be managed centrally. Instead, responsibility is delegated to the Research Infrastructures, who will retain control over and accountability for each dataset, service, publication and software tool produced in the context of CORBEL. By adopting this strategy, CORBEL can better ensure efficient and effective management by clearly and unambiguously assigning responsibility for the project's outputs to the investigators producing them. This allows the project to leverage the significant data management expertise of the partners implementing each task.

### Data

Many of the research infrastructures participating in CORBEL such as BBMRI, ELIXIR, ECRIN and Euro-BioImaging fulfil key roles in managing access to scientific data or metadata, with varying approaches to data sharing as appropriate. CORBEL is thus part of the effort to build Europe's data management and data stewardship infrastructure, and this is reflected in its tasks and deliverables. In WP3, ECRIN will lead task 3.3, focussed on the sharing of clinical trial data at multiple levels, from registration of trials through to access to patient-level data. Similarly, task 3.4 seeks to enable efficient biomarker research through the necessary sharing of data between hospitals, who may individually lack sufficient patient numbers. Both are challenging areas for data sharing, but are also of crucial importance in clinical research and thus in addressing the grand challenges of improving human health. Data management and data sharing infrastructure is itself built upon data - for example vocabularies, ontologies and schemas that are themselves datasets that must be sustainably managed. Interoperability of data is a core focus of CORBEL, and work done in WP6 will deliver standards and schemas that will address issues such as cross-domain identifier use and provenance.

In addition, during the CORBEL project it is anticipated that new experimental or informatics datasets may be generated as part of the joint research work packages. For example in WP3 (Medical), subtask 3.5.3 "Data generation and analysis" involves developing biomarker profiles for pancreatic cancer samples within BBMRI. The early stages of WP4 (Bioscience) involve the selection of a number of pilot projects through a competitive call; after proposals are evaluated, details of data to be generated can be identified. Thus at this stage in the project it is not possible to describe precisely the datasets involved and how they will be handled. However, provision for the management and stewardship of these datasets will be made in accordance with the General Approach (see above), i.e. responsibility rests with the work package leadership and following the procedures of the Research Infrastructures. Work package 4 also includes deliverables focused on user access to the underlying infrastructure.

### Tools

In addition to data, software tools are potential research outputs of CORBEL that require careful management and stewardship. Indeed, provision of core infrastructure for interoperability is a key

component of WP6 (Data access, management and integration). This includes good quality, reliable software services. Examples of services that will be developed in CORBEL include those for identifier management and mapping led by ISBE, and ELIXIR will develop semantic interoperability tools such as those for accessing ontologies and mapping data to ontologies.

ELIXIR and INSTRUMENT are also developing policies for software sustainability. This includes collaborating with the Software Sustainability Institute on developing best practices for software development. Both infrastructures are working to establish policies or recommendations around open development and open source, which provides a powerful mechanism not only to disseminate the results of publicly funded software development but also a major driver of software quality. Although not part of CORBEL, these outputs will be available for project partners and can benefit the implementation of CORBEL. A strong adoption of open source already exists within the biomedical science community but, as with data, the approach of research infrastructures and CORBEL must respect the commercial and operational context of the participants.

#### Knowledge

Wherever appropriate, CORBEL deliverables will be published in an open fashion and deposited in repositories such as Zenodo. Likewise, peer-reviewed articles will be published under open-access terms. The project may also result in the production of guidelines, standards and other documents, which will likewise be published openly. Partners retain responsibility for choosing the appropriate publication channel (e.g. the journal), but infrastructures can implement mechanisms to facilitate the publication process. For example, ELIXIR has established a gateway within F1000 Research<sup>7</sup>, using the post-publication transparent review process for peer-reviewed articles, and channels for other types of publications such as reports, posters and slidesets.

## Delivery and schedule

The delivery is delayed:                      Yes

It took more time than anticipated to get an overview about the existing, actual policies from all RI's and collect the necessary feedback.

## Adjustments made

N/A

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<sup>7</sup> <http://f1000research.com/channels/elixir>