APPROVAL OF THE CORE WORKPROGRAMME 2020

Document No. AoM/14/3

Author(s)	BBMRI-ERIC Headquarters
Purpose	Approval of the CS-IT Tender
Voting requirement(s)	**Statutes Art. 11(9a):** The following decisions shall require agreement of at least 75 % of Members present and voting representing at least 75 % of the Members annual mandatory contributions: decisions on the CS IT tender;
Action(s) required	Decision

TENDER FOR COMMON SERVICE IT

The Assembly of Members of **BBMRI-ERIC**,

Pursuant to Article 15 of the Statutes establishing BBMRI-ERIC
Adopts the text as following:

CALL FOR TENDER

BBMRI-ERIC COMMON SERVICE IT

Publication date: November 12th 2019

Main Objective of this Call

The main objective of this call for tender is **to propose continuation of the Common Service IT** (CS IT) that provides expertise, services, and tools relevant to the pursuance of tasks and activities of BBMRI-ERIC. The proposal is expected to build on the current CS IT, while allowing to optimize the structure, focus effort on the key services, and renegotiate contributions of BBMRI-ERIC Member States.

Short Description of BBMRI-ERIC

BBMRI-ERIC is a European research infrastructure for biobanking. We bring together all the main players from the biobanking field – researchers, biobankers, industry, and patients – to boost biomedical research. To that end, we offer quality management services, support with ethical, legal and societal issues, and a number of online tools and software solutions. Ultimately, our goal is to make new treatments possible.

Further information on the aims, mission, governance, and statutes of BBMRI-ERIC can be found at www.bbmri-eric.eu.

General Description of BBMRI-ERIC Common Services

BBMRI-ERIC Common Services form a key element for the infrastructure as they provide the biobanking community and biobank users with expertise, services and tools specific to biobanking.

In the Statutes of the Biobanking and BioMolecular resources Research Infrastructure – European Research Infrastructure Consortium (BBMRI-ERIC), as published in the Official Journal of the European Union on 30th November 2013 (L320/63-80) under Article 15 on the Common Services, it is specified that:

1. *Common Services shall consist of the facilities of BBMRI-ERIC that provide expertise, services and tools relevant for the pursuance of BBMRI-ERIC's tasks and activities, laid down in the Work Programme.*
2. *Common Services shall be established under BBMRI-ERIC and under the responsibility of the Director-General.*
3. *Common Services shall be hosted in countries that are BBMRI-ERIC Members. The selection procedure for hosting Common Services shall follow the principles set out in Annex IV.*
4. *Each of the Common Services shall be managed by a director, appointed by the Director-General after consultation with the national delegates of the hosting Member State.*

General Description of the Selection Procedure for BBMRI-ERIC Common Services

The selection procedure for hosting Common Services is specified in ANNEX IV of the BBMRI-ERIC Statutes:

The following selection procedure shall be applied to all Common Services where the benefits accrue to the entire scientific community and which are remunerated by BBMRI-ERIC:

1. *The hosts of Common Services shall be selected by an open call procedure. A description of the service to be selected shall be prepared by the Director-General and approved by the Assembly of Members. This will be made publicly available when the open call for a Common Service is launched. Only applicants from BBMRI-ERIC Members are eligible to answer the call.*
2. *The Assembly of Members shall define the composition of an ad hoc committee to evaluate the applications as well as a set of objective and non-discriminatory evaluation criteria that the ad hoc committee shall apply.*
3. *The Assembly of Members shall decide on the selection of a Common Service based on results of the ad hoc committee and after positive recommendation by the Finance Committee.*

General Requirements

The general requirements for the Common Service IT (CS IT) are split into the following sections: (1) structure of the service development, which outlines development phases for any service developed, deployed, operated, and supported within BBMRI-ERIC, (2) the minimum required services (components) and their required timing of service delivery, (3) software licensing and IPR aspects, (4) indicative budget, and (5) performance indicators.

Structure of the Service Development

The Common Service IT shall undertake development and operations of the services in at least the following phases by default:

- P1: Definition of users, terms, use cases, and benefits

  For each service, there needs to be a documentation specifying user needs, defining precisely terms in use, considering also their previous use in the field, use cases and discussion of benefits for the users.

- P2: Review of existing tools and standards (also outside BBMRI-ERIC)

  This phase will result in a concise surveys of existing standards and tools, and will provide a summary of their evaluation results, with recommendations for further steps. Relevant established standards must be followed by default (e.g., ICD-10[1] and SNOMED CT[2] standards for disease nomenclatures, CEN/TC 140[3] and ISO/TC 276 for vocabularies, MIABIS 2.0[4] for minimum biobanking datasets), and any deviations must be justified.

- P3: Design & development

  This phase will result in a software implementation that is ready for deployment and operation. Both design and development need to address all relevant security and privacy concerns. The development phase needs to include testing of the developed software (e.g., unit testing or other methods as appropriate). Choice of the development tools needs to be consulted with and approved by the IT/Data Security Manager of BBMRI-ERIC, who is responsible for including the MC accordingly in the process in order to ensure long-term sustainability of the BBMRI-ERIC infrastructure.

- P4: Deployment & operations

  This phase will start with delivery of software from phase P3 or P2 (in the case that existing tools are sufficient for the service) and its deployment. CS IT application has to include the costs of hardware investments and their operations, in order to provide the tendered services with at least 50% capacity reserve for expected growth of the services in the next 3-5 years. Together with P5, this phase is expected to deliver statistics about usage of the BBMRI-ERIC CS IT services.

- P5: User support, training, dissemination

  This phase will provide technical support for the users using specific services and will work with the BBMRI-ERIC communications team on developing training and outreach materials. Proposing consortium is encouraged to form a hierarchical support structure via NNs in order to scale the support and to liaise with NN outreach and dissemination activities. It is expected that this phase will also provide input for the next P1–P4 cycle based on users' feedback, and the input has to be delivered in a well-documented way.

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[1] http://apps.who.int/classifications/icd10/

[2] http://www.ihtsdo.org/

[3] http://standards.cen.eu/dyn/www/f?p=204:7:0::::FSP_ORG_ID:6122 &cs=1E6FE477DD1CD53BDDE5FF10BAA8ACFB3

[4] http://bbmri-wiki.wikidot.com/en:dataset

Depending on the specific needs, some phases may be omitted or new phases may be introduced, but there always needs to be a written record documenting reasons behind such decisions (e.g., if the existing tools are sufficient to achieve the goals, P3 may be omitted). The phases may also be reiterated based on outcomes of the previous phases, e.g., P3 may be repeated based on reflections from P4 and P5.

The tenderers shall adopt agile development models in order to obtain continuous feedback from the prospective users of the service. CS IT will continue to operate and further develop its User Forum, in order to have a representative user community be involved in the agile development.

Tenderers should also specify minimum requirements for BBMRI-ERIC National Nodes to implement and support services of the CS IT nationally. This specification will have to be maintained as a part of the CS IT operations.

The overall development capacity of the CS IT proposal must be no less than 2 full-time equivalent (FTE) positions continuously through the duration of the Common Service, as further listed below for specific services. This minimum capacity may not be fragmented into less than 0.5 FTE (while the persons may change within the duration of the Common Service IT, the minimum core developers should be employed no less than 4x 0.5 FTE to avoid unproductive fragmentation of the development effort; additional development effort may be fragmented as deemed necessary by the tender applicants).

Each of these minimum services must be developed and operated by at least 2 institutions in order to allow for a smooth transition in case that one of the contributing groups leaves the Common Service IT.[5]

Minimum Required Services

1. **BBMRI-ERIC Directory**[6] [minimum 1FTE with minimum 0.5FTE unfragmented]

   This provides basic findability service for biobanks, their collections of samples and data, and networks of biobanks. It works on the aggregate level, i.e., not sample-level data. The Directory is to be used by the researchers (consumers) to identify biobanks that have samples/data potentially of interest. This service shall be based on the MIABIS Core module (latest released version) and should contribute to further development of MIABIS Core[7,8].

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[5] For BBMRI-ERIC Authentication and Authorization Infrastructure (AAI) this requirement may be fulfilled by implementing LifeScience AAI with multiple life-sciences Research Infrastructures contributing to its development and operations.

[6] https://directory.bbmri-eric.eu/

[7] Merino-Martinez, Roxana, et al. "Toward global biobank integration by implementation of the minimum information about biobank data sharing (MIABIS 2.0 Core)." *Biopreservation and biobanking* 14.4 (2016): 298-306.

[8] https://github.com/MIABIS/miabis/wiki

Initial development priorities: Optimization of user experience for various browse and search scenarios. Enriching data structures related to availability of data to allow biobanks optionally to advertise finer granularity of their content[9]. Implementation of Persistent Identifiers Policy. Implementation of Bioschemas. Integration of the service into the EOSC portfolio. Integration with upcoming LifeScience AAI. Further information is available from the BBMRI-ERIC headquarters upon request.

Delivery timing: At least one major release put into production per year, based on user needs identified by the analysis of user requirements. More frequent releases based on agile development cycle. Minor releases with bug fixes with as minimal delay as possible.

2. **BBMRI-ERIC Negotiator**[10] [minimum 0.5FTE unfragmented]

This service implements the BBMRI-ERIC Access Policy, allowing to identify biobanks that have samples and/or data requested by the users of the BBMRI-ERIC research infrastructure. In collaboration with the EOSC-Life project (WP5 – Access), this service shall be integrated into the common access system that allows requesting services across Life Sciences Research Infrastructures[11].

Initial development priorities: Optimization of user experience for negotiating requests. Finishing complete implementation of access pipeline, including collection of research results and data return. Integration with upcoming LifeScience AAI. Integration with national Directories and cross-research-infrastructure access (via the EOSC-Life project).

Delivery timing: At least one major release put into production per year, based on user needs identified by the analysis of user requirements. More frequent releases based on agile development cycle. Minor releases with bug fixes with as minimal delay as possible.

3. **BBMRI-ERIC Authentication and Authorization Infrastructure**

This provides interface to single sign-on for BBMRI-ERIC IT services. It shall interface to federated authentication systems (namely European eduGAIN) while also providing standalone LifeScience Hostel functionality for users without accounts in authentication federations. It shall provide OpenID Connect and SAML interfaces at minimum. Current implementation of the service is based on Perun[12]. The service shall utilize synergy with LifeSciences AAI developed within the EOSC-Life project (WP5 – Access); i.e., it should contribute to operating LifeSciences AAI once it comes to production, while implementing services that might be missing.

Initial development priorities: Optimization of user experience for user registration. Support of integration with additional IT services of BBMRI-ERIC and its National Nodes. Supporting transition to LifeSciences AAI.

Delivery timing: Continuous development and releases based on user needs identified by the analysis of user requirements and based on needs of other BBMRI-ERIC IT services. Minor releases with bug fixes with as minimal delay as possible.

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[9] This is also needed by number of projects in which BBMRI-ERIC is involved as a strategic partner (e.g., European Joint Porgramming on Rare Diseases, IMI ConcePTION), which assume that BBMRI-ERIC Directory data can be enriched by additional optional data.

[10] https://negotiator.bbmri-eric.eu/

[11] If tender applicants are not familiar with EOSC-Life, more information can be requested from BBMRI-ERIC representatives in EOSC-Life project (http://www.eosc-life.eu).

[12] https://perun.bbmri-eric.eu/

4. **MIABIS Working Groups** and **BBMRI-ERIC Interoperability Forum** operations

The BBMRI-ERC Interoperability Forum provides a vendor-neutral platform for defining community interoperability standards, guidelines and best practice recommendations related to the services operated in the BBMRI-ERIC IT context. The interoperability group should include relevant stakeholders from both academia and industry.

MIABIS Working Groups is a specific activity sustaining development of the MIABIS community standard[13,14], with working groups set up to define common data models for particular scopes and purposes.

Initial development priorities: Completing update to MIABIS Core 3.0.

Delivery timing: Scope of work for each interoperability domain shall be approved by the CS IT management first. Thereafter, continuous development of community standards, guidelines and recommendations.

5. **BBMRI-ERIC Helpdesk**

This service operates and customizes a technical infrastructure to run the BBMRI-ERIC Helpdesk[15]. Currently it is based on the RT system[16] and supports helpdesks for IT services, ELSI services, rare diseases, BBMRI-ERIC website and for BBMRI-ERIC headquarters services. Common Service IT is responsible for the entire IT services helpdesk (including personnel), while for the other services (ELSI, rare diseases, website, headquarters) it only operates the RT system.

Delivery timing: Continuous development and releases based on user needs identified by the analysis of user requirements and based on needs of other BBMRI-ERIC IT services. Minor releases with bug fixes with as minimal delay as possible.

6. **Continuous analysis of user requirements**, **creation/maintenance of CS IT services roadmap**, evaluation **of services**, operation of **BBMRI-ERIC CS IT User Forum** [P1-P2]

This service will provide a continuous monitoring and analysis of users' needs, based on comprehensive analysis of users' needs as well as in-depth use of the CS IT User Forum. It will also provide continuous analysis of usage and usability of existing BBMRI-ERIC CS IT services, in order to propose shutdown or revamping of services. The User Forum needs to be maintained to have good representation of various types of end users, willing to contribute testing and further development of the IT services.

Together with the management of the CS IT, it will prepare and continuously update a roadmap of the CS IT services. Designs and development versions of CS IT services should be evaluated as a part of the agile development methodology. Proposals for new services as well as shutdown or revamping of existing services will be subject to review and approval by BBMRI-ERIC management.

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[13] Norlin, Loreana, et al. "A minimum data set for sharing biobank samples, information, and data: MIABIS." *Biopreservation and biobanking* 10.4 (2012): 343-348.

[14] Merino-Martinez, Roxana, et al. "Toward global biobank integration by implementation of the minimum information about biobank data sharing (MIABIS 2.0 Core)." *Biopreservation and biobanking* 14.4 (2016): 298-306.

[15] https://helpdesk.bbmri-eric.eu/

[16] https://bestpractical.com/request-tracker

Delivery timing: Continuous analysis and documentation of user needs, and evaluation of the. Continuous operations of user forum.

7. BBMRI-ERIC common IT infrastructure

This is the operational GDPR-compliant infrastructure to operate the IT services as a part of the CS IT. Beyond the CS IT services, the infrastructure will also host the ADOPT CRC-Cohort, including whole slide imaging (and possibly other similar central data sets, subject to negotiation regarding the extent of the data sets and costs of hosting). The infrastructure will implement continuous availability of monitoring and provide fail-over solutions based on geographical distribution (infrastructure operated by BBMRI-ERIC headquarters may be used as a part of such solutions, as with current CS IT).

Initial development priorities: Certification of the infrastructure with respect to relevant standards (ISO, Core Seal of Trust, etc.)

Delivery timing: Continuous operation of the infrastructure.

Initial development priorities are indicative based on the CS IT findings in 2019 and will be updated based on the continuous analysis of user requirements as well as feedback from the users in the agile development process.

Management structure

The CS IT is led by the Director representing users of the BBMRI-ERIC RI and co-led by BBMRI-ERIC Senior IT/Data Security Manager, who will act as Chief Information Officer (CIO) of the CS IT, in order to maintain alignment between CS IT and all IT activities of BBMRI-ERIC. Both Director and CIO report to the Director-General of BBMRI-ERIC.

The CS IT should be organized into Work Packages (WPs), with a designated WP leader who will be responsible for agile behaviour in development and operations and for timely delivery and quality of the service. WP leaders together with the CS IT Director and CIO will form the management team of the CS IT.

Synergies with activities of National Nodes

As agreed by the National Node representatives, additional services might become part of the CS IT portfolio, but may not be funded from the CS IT budget due to budgetary constraints. This includes namely the Locator[17] (service to allow in-depth distributed querying of individual data and sample-level data as well as populating data for the given biobank in the BBMRI-ERIC Directory), BIBBOX[18] (reference open-source toolbox for biobanks), and BiobankApps (registry and reputation system for biobank-relevant software solutions). BBMRI-ERIC management together with the CS IT management will prepare a generic procedural mechanism for endorsement of such services, as well as other services proposed by the National Nodes.

National Nodes shall declare such services as part of the CS IT proposal and including their anticipated roadmap. This portfolio of services can further evolve throughout the duration of the CS IT and roadmaps of those services shall be continuously updated in collaboration with the respective activity of the CS IT (point 6 above).

Synergies with projects

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[17] https://search.germanbiobanknode.de/
[18] http://bibbox.bbmri-eric.eu/

CS IT is expected to liaise with projects identified by the BBMRI-ERIC management that are critical for BBMRI-ERIC IT services. At the time of publishing this call, these include European Joint Programming for Rare Diseases (EJP RD) and EOSC-Life. Liaising needs to ensure bidirectional information flow about plans and development progress of the services, as well as proposals for sustainability of the services developed as a part of such projects.

Software licensing and IPR aspects

In order to achieve long-term sustainability and to support the growth of BBMRI-ERIC and its members, the developed software shall be implemented using one of the common open-source licences (BSD, Apache, MIT, GPL, or similar). In case pre-existing software is reused, it must be either open source or the source code must be made available perpetually to BBMRI-ERIC and its members at no additional charge for continuous use in the service portfolio as well as for reuse in the future development. In case that the software employs technologies covered by IPR protection (e.g., patents, commercial software licenses), it is the responsibility of the Common Service IT to ensure that BBMRI-ERIC and its members have perpetual license for use of these technologies. This is required for sustainability and cost-efficiency reasons.

Indicative budget

Year	2020	2021	2022	2023	2024
Indicative budget [EUR]	400,000	405,200	410,468	415,804	421,209

The indicative budget numbers are based on extrapolation from budgets from years 2016– 2019, with annual 1.3% indexing based on inflation coefficient as of 2019*.

 (*subject to change based on updated yearly EU area inflation rates provided by Eurostat).

Performance indicators

The key performance indicators will be:

- timely and high-quality delivery of new versions of the software based on schedule specified above;
- uptime of the operated services;
- reachability, network performance (latency, throughput) and compute/storage capacity of the operational IT infrastructure;
- reaction times to support tickets filed via the Helpdesk.

Tenderers shall take into consideration that the Common Service IT:

- has a designated national IT representative in each National Node and the IT decisions need to be communicated with the National Node representatives (both director and IT representative),
- is free of charge to be used by Members and Observers,
- is chargeable to Non-Members, and
- can provide ideas for financial sustainability.

Overall, the tender has to be in compliance with the Statutes of BBMRI-ERIC. The Statutes reflect the Commission implementing decision on setting up BBMRI-ERIC and its Member States.

Application Procedure

Participation in the tendering procedure is open on equal terms to all applicants coming from BBMRI-ERIC Member States. A single joint application, building on the existing IT expertise in Europe and a consortia reflecting the whole of Europe, is favoured.

Financial contribution of the hosting countries needs to be guaranteed for a minimum of 3 years. Applications should not exceed 10 pages (excluding CVs and supporting material).

As a minimum requirement, however, the tender must include:

(a) an administrative part including all information on the consortium,
(b) a technical part specifying how expertise, services and tools are provided in compliance with the general requirements of this call, and
(c) a financial part including documentation of the support of the host Member State where the Common Service shall be located.

Background Documents:

- BBMRI-ERIC Statutes[19]
- Minutes/conclusions of the 2 preparatory meetings with National Node representatives for second instance of BBMRI-ERIC CS IT:
  - November 14, 2018 in London[20]
  - April 11, 2019 in Frankfurt[21]
- BBMRI-ERIC Vision Paper[22]

Only tenders in compliance with the BBMRI-ERIC Statutes can be taken into consideration.

The **deadline to submit tenders** via email to the Director-General of BBMRI-ERIC Boelo Hendrik (Erik) Steinfelder (erik.steinfelder@bbmri-eric.eu) is <mark>15th December 2019 (17:00 CET)</mark>.

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[19] http://www.bbmri-eric.eu/wp-content/uploads/2016/12/BBMRI-ERIC_Statutes_Rev2_for_website.pdf
[20] https://docs.google.com/spreadsheets/d/1tbndxUzBKqXQxyUJwoqX6ur48jHyMYIiWutwJ7EEvTY/edit?usp=sharing
[21] https://docs.google.com/spreadsheets/d/1x30BgL2-7pe0I4yo1F2m4iPkyyqmLQG38kI8lOCP_3Y/edit?usp=sharing
[22] http://www.bbmri-eric.eu/wp-content/uploads/BBMRI-ERIC-Vision-Paper-2019-update.pdf