

## **The LOOP Zurich BioMedical Informatics Platform (BMIP): Call for Proposals for Project Planning and Management**

The LOOP Zurich is seeking proposals from companies or individuals to assist in developing an IT research platform between the major Zurich hospitals and academic partners (University of Zurich and ETHZ) of strategic importance to the Zurich medical research ecosystem. The platform will allow for translational data-driven research involving routine clinical data. It is an integral part of The LOOP Zurich's precision medicine vision and aims to be compatible with national and international biomedical data sharing initiatives.

For the initiative, we are looking for proposals that address the following specific tasks:

### **Project Planning**

This task will involve in-depth discussion with stakeholders, consensus finding rounds for key technologies, assessment of current IT capabilities of hospitals and academic units, and the development of a project plan that sets the milestones and deliverables for the platform's components. Key deliverables include the project plan with work packages and deliverables for the planned 25-30 FTE, the architecture, and the operations and security concept. Project planning should be completed within 4 months.

### **Project Management**

This task will involve all matters of successful IT project execution, including team coordination, setting up sprint and milestone meetings, deciding on appropriate testing schedules, and setting up project management tools and communication channels. The expected duration of the project implementation is two years.

Proposals should address one or both tasks. Preference will be given to proposals that allow for a seamless transition between the project planning and execution phases.

Applicants should ideally demonstrate the following general and specific IT expertise:

- Experience with IT project planning and management in the healthcare field
- Experience in multi-party collaborations including consensus building and lateral management
- Experience with data integration projects involving diverse and heterogeneous data sources
- Experience with scalable data management, ETL, and different database types
- Knowledge about common clinical data exchange formats (such as FHIR, RDF), respective APIs and services
- Knowledge about clinical data types (labs, images, clinical reports), standards (SNOMED, ICD), and common data models in biomedicine (i2b2, OMOP, SPHN)
- Experience with clinical data harmonization
- Knowledge of data governance, privacy, and security regulations as well as approaches
- Knowledge of university hospital IT environments

Applicants should send their documentation (including CVs with relevant expertise and sketch of the implementation) as a digital file to the address below by June 15<sup>th</sup>, 2022. The start of the planning phase should be July 15<sup>th</sup>, 2022 and the project implementation is expected to start by October 2022.

The executive summary of the project is available below (page 3). A more detailed description of the project is available on request.

## **Contact**

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**Appendix to:  
Call for Proposals for Project Planning and Management  
The LOOP Zurich Biomedical Informatics Platform (BMIP)**

## **Executive Summary**

With the increasing digitalization of medicine, patient data have become ubiquitous with access to ever-larger sets of clinical information. Powerful computational approaches allow us to capitalize on this data and to generate novel medical insights by using predictive models of increasing precision for disease outcome and treatment efficacy. There is little doubt that we see the emergence of data-driven medicine, in which data and algorithms increasingly shape how we diagnose and treat patients.

However, in practice, getting access to and using clinical data for research is a non-trivial endeavour that traditionally involves many challenges. To overcome these, a uniform, cross-site solution is mandatory instead of individual approaches of single institutions. The availability of a central, harmonized, and searchable clinical database combined with efficient data exchange capabilities following international standards is a prerequisite for realizing the vision of data-driven research and medicine at the Zurich research institutions.

This project proposal describes the establishment of a central BioMedical Informatics Platform - The LOOP BioMedical Informatics Platform (The LOOP BMIP) - across four university hospitals in Zurich, i.e., the University Hospital Zurich (USZ), the University Children's Hospital Zurich (Kispi), the Balgrist University Hospital (Balgrist) and the University Hospital of Psychiatry Zurich (PUK) together with the two universities ETH Zurich (ETHZ) and the University of Zurich (UZH). Aim of this project is to create a compatible data processing environment, which will allow scientists and clinicians of the Zurich research community to access structured patient data for research purposes. Moreover, gained knowledge such as algorithms can be transferred back to the hospitals to be used for their patients. The LOOP BMIP will establish and nurture a cross-disciplinary research culture involving engineering, data science, basic research and medical disciplines.

The platform will be embedded into The LOOP Zurich as a multi-hospital clinical data store and artificial intelligence (AI) environment. The multi-data integration approach will build on and utilize the national initiative's Swiss Personalized Health Network (SPHN) technologies. In particular, the underlying IT platform used will be Leonhard Med, the BioMedIT node Zurich.

The LOOP BMIP will promote translational research towards data-driven medicine by:

- Integrating, storing and maintaining project-specific databases, harmonized clinical data from patients of the Zurich university hospitals with the aim of interoperability with SPHN.
- Developing a secure data exchange infrastructure between The LOOP BMIP and the Zurich hospitals.
- Establishing data mart and data cohorting capabilities in collaboration with SPHN to provide project-specific datasets and to query available patient data and samples.
- Building an AI infrastructure for the development of decision-making algorithms for improved patient care.

The existing expertise and structures in Zurich as well as the tight collaboration with several national data initiatives offer ideal conditions for the establishment of The LOOP BMIP. Overall, The LOOP BMIP will enable the digital transformation across the Zurich health care institutions and will allow Zurich to become a national beacon for advanced data-driven medicine and research.