



ELIXIR and de.NBI cooperation strategy: Towards German membership of ELIXIR

Purpose

The aim of this paper is to set out the areas and ways in which ELIXIR and de.NBI can collaborate, with the ultimate aim of ensuring German membership of ELIXIR. Its aim is ensuring that synergies between both infrastructures are exploited and fragmentation reduced.

Background

ELIXIR is a pan-European research infrastructure for biomolecular data. Prioritised by the European Council and ESFRI in 2014 as one of Europe's three priority new infrastructures, it builds on existing data resources and services and follows a Hub and Nodes model, with a coordinating Hub in Hinxton, Cambridge, and a growing number of Nodes located at centres of excellence throughout Europe (<http://www.elixir-europe.org/about/elixir-nodes>).

The goal of ELIXIR is to orchestrate the collection, quality control and archiving of large amounts of biological data produced by life science experiments and provide open access to world-leading data, compute, tools, standards, training and industry services.

At present, fifteen countries (Belgium, Czech Republic, Denmark, Estonia, France, Finland, Israel, Italy, Netherlands, Norway, Portugal, Sweden, Switzerland, Spain, UK) and EMBL are members; a further three countries, (Slovenia, Greece and Ireland) are Observers and are at various stages of joining as members.

de.NBI, the German Network for Bioinformatics infrastructure officially started on 1 March 2015, consists of eight service centers and is characterized by the following mission statement:

- The de.NBI project provides comprehensive first class bioinformatics services to users in basic and applied life science research.
- The de.NBI project coordinates bioinformatics training and education in Germany
- The de.NBI network coordinates cooperation of the German bioinformatics community with international bioinformatics network structures.

The added value of collaboration

There are many benefits – both scientific and operational – to ensuring that ELIXIR and de.NBI collaborate closely and develop a path towards membership in ELIXIR by Germany. The objectives of ELIXIR and de.NBI are complementary and indeed the national coordination efforts of de.NBI would be strengthened by European-level coordination and international exposure within ELIXIR.

Collaboration Plan

The **Collaboration Plan** comprises three sections, the first two representing progressive phases of cooperation leading to a final, full membership phase:

- **Phase I - Knowledge exchange** based on awareness raising of activities within both initiatives and linking of key groups and individuals



- **Phase II - Strategic collaboration** on specific and mutually agreed areas, such as tools and service registry, ontologies and training
- **Phase III - Full membership** allowing de.NBI and Germany to participate fully in ELIXIR

Phase I - Knowledge exchange

Mailing lists

de.NBI members are encouraged to sign up to the ELIXIR platform and communities mailing lists, which will be used by ELIXIR partners to share information about scientific and technical developments taking place in those respective fields. This will ensure that de.NBI partners are aware of the technological and operational developments within ELIXIR.

data@elixir-europe.org

tools@elixir-europe.org

interoperability@elixir-europe.org

compute@elixir-europe.org

training@elixir-europe.org

plant-community@elixir-europe.org

marine-community@elixir-europe.org

rare-disease-community@elixir-europe.org

human-data@elixir-europe.org

data-nodes-network@elixir-europe.org

genome-annotation@elixir-europe.org

node-development@elixir-europe.org

structural-funds@elixir-europe.org

On the de.NBI side ELIXIR members can get in contact with de.NBI by approaching the de.NBI coordinator or the head of the de.NBI administration office. The de.NBI coordinator A. Pühler (puehler@cebitec.uni-bielefeld.de) or the head of the de.NBI administration office (tauch@cebitec.uni-bielefeld.de) look forward to discuss collaboration with ELIXIR members.

ELIXIR members are invited to take part in de.NBI events and meetings, like workshops, summer schools and conferences. The ELIXIR director N. Blomberg e.g. will contribute a Distinguished Lecture to the de.NBI conference scheduled for November 2015.

ACTION

- de.NBI partners to register directly for the mailing lists above

ELIXIR events and meetings

de.NBI representatives will be invited to the following ELIXIR meetings and events:

ELIXIR Group or meeting	Purpose of group	De.NBI role
ELIXIR Board (http://www.elixir-europe.org/about/groups)	Bi-annual meetings of highest ELIXIR decision-	Nanette Kälin invited as Guest

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	making body	
Heads of Nodes Committee (https://www.elixir-europe.org/about/groups#Heads_of_Nodes)	Bi-annual meeting of the main scientific and strategy body of ELIXIR	de.NBI coordinator (or nominee) to be invited as guest
Training Coordinators meetings (https://www.elixir-europe.org/about/groups#training_coordinators_group)	Bi-annual face to face meeting of ELIXIR training coordinators	de.NBI representative (or nominee) to be invited to face to face ELIXIR Training coordinators
Ad-hoc platform and EXCELERATE meetings	Meetings and workshops organized by ELIXIR partners on topics such as rare diseases, marine, plant sciences, human data, etc.	Invitation for appropriate de.NBI participation will be sent to the de.NBI coordinator for further dissemination
ELIXIR All Hands meeting (http://www.elixir-europe.org/events/elixir-all-hands-meeting)	Major annual conference for all stakeholders within ELIXIR Nodes	Invitation for appropriate de.NBI participation will be sent to the de.NBI coordinator for further dissemination

ACTION

- ELIXIR to invite the aforementioned de.NBI individuals to future meetings
- de.NBI to provide similar invitations to ELIXIR for relevant meetings

Phase II - Strategic Collaboration

Several areas of potential synergy exist and these provide natural areas for closer, more structured collaboration. These should be explored in more detail through a face-to-face meeting, although discussions around the registries and ontologies have already begun in parallel and should be prioritised. The following platforms naturally lend themselves to collaboration:

- ELIXIR Tools and Service Registry and Ontologies (described below)
- Training (described below)
- Standards and interoperability

The following application areas are also likely to be ripe for further collaboration:

- Systems biology
- Marine metagenomics
- Plants sciences

Action

- de.NBI to consider the areas of most interest



- ELIXIR Hub to host small exploratory workshop between key members of both infrastructures to discuss these in more detail

Tools and Data Services registry

There are many benefits to harmonizing registry curation efforts and this should be progressed as a priority. The ELIXIR Tools and Data Services Registry (<https://elixir-registry.cbs.dtu.dk>) is led by Søren Brunak and ELIXIR Denmark. The schema uses the EDAM ontology for curating tools. A series of hackathons across Europe have already taken place so that communities can curate the tools and databases with the ontology. More are planned. Linking this with the de.NBI catalogue solution would allow for a dynamic, well curated list that is searchable by tags and keywords. Using the existing ontology of categories and keywords and indeed contributing to further refinement of the ontology would be valuable. A joint hackathon would also securing additional visibility and international exposure for tools and services developed in Germany.

Action

- Run next ELIXIR hackathon in Germany to collaborate on the service registry and EDAM ontology development

Training

ELIXIR's emerging training platform, TeSS (<https://tess.oerc.ox.ac.uk>), will provide a comprehensive overview of the training courses, materials and content provided by ELIXIR Nodes and third party providers. By aggregating content from hundreds of providers, it will act as port of call for researchers in finding and accessing training materials. Including relevant de.NBI materials in this will make the service more relevant for researchers.

The Training Coordinators are currently working with the global GOBLET initiative to develop a joint ELIXIR-GOBLET train-the-trainer/researcher event (winter 2015 or Jan/Feb 2016), hosted in NL. Such an event would focus on training themes related to ELIXIR priorities, and could deliver training materials for deposition in the GOBLET repository and surfacing through the TeSS. Similar themed events with de.NBI could be organised.

Action

- ELIXIR Hub to connect the ELIXIR Training Coordinators group with the training group of de.NBI

Phase III - Full membership in ELIXIR

Ultimately, the aim of the collaboration is to ensure that Germany joins ELIXIR as Member and can immediately benefit from the full range of benefits and activities described below:

Participation in ELIXIR's EU applications

As an ESFRI research infrastructure ELIXIR is eligible for, and actively participates in, many H2020-funded projects. It has recently been awarded a large implementation grant from Horizon 2020. The [ELIXIR-EXCELERATE](#) project will kick off in September 2015. The contribution from the European Commission is EUR 19 million over 4 years, and this will be allocated to ELIXIR partner organisations in 16 countries. In addition, ELIXIR is also the coordinator of [CORBEL](#), the new EUR 14.5 million ESFRI cluster project for the Bio Medical Science Research Infrastructures.

Participation in Pilot Actions



ELIXIR funds Pilot Actions (<http://www.elixir-europe.org/about/pilot-projects>), which are funded by the ELIXIR Hub budget but carried out by the ELIXIR Nodes. Support through ELIXIR Pilot Actions are focused on countries that have signed the ECA - the budget for Pilot Actions in 2015 is around 10-20% of the Hub operating costs. In future, as technical activities ramp up and the staff costs in Hub remain stable, a larger proportion of the budget will go on such technical activities in the Nodes.

ELIXIR Commissioned services

We are currently developing plans for Commissioned Services, which are long-term investments in ELIXIR Nodes to run services for users. In many cases they will build on ELIXIR Pilots and follow the same principle of using ELIXIR Hub budget to support services run by ELIXIR Nodes.

ELIXIR Node development programme

ELIXIR's Node development and capacity building programme will allow those countries that are in the process of developing their national bioinformatics infrastructure to adopt best practice from established national Nodes such as the SIB Swiss Institute of Bioinformatics. Support is provided to Nodes on aspects including establishing legal and governance models for the Node, using the Linked Third Party clause in Horizon 2020 and developing business cases for national roadmap applications.

ELIXIR's industry programme

ELIXIR Members can benefit from the ELIXIR Innovation and SME Programme (<http://www.elixir-europe.org/industry/supporting-industry-users>), where local events, funded by the ELIXIR Hub, are organised by and hosted in ELIXIR Nodes. Hosting an event in Germany could directly support research-intensive companies and SMEs. Through local, hands-on training and showcasing of ELIXIR's resources, the companies attending are able to integrate ELIXIR's services into their own research and product development.

Niklas Blomberg

A handwritten signature in black ink, appearing to read "Niklas Blomberg".

ELIXIR Director
04 February 2016

Alfred Pühler

A handwritten signature in black ink, appearing to read "A. Pühler".

de.NBI coordinator
02 February 2016