FENIX

RESEARCH INFRASTRUCTURE

Guidance on submitting applications

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The ICEI project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement No 800858.

Agenda

- The ICEI project and its resources
- Access mechanisms for neuroscientists
- Access mechanisms for European researchers at large
- Questions & Answers

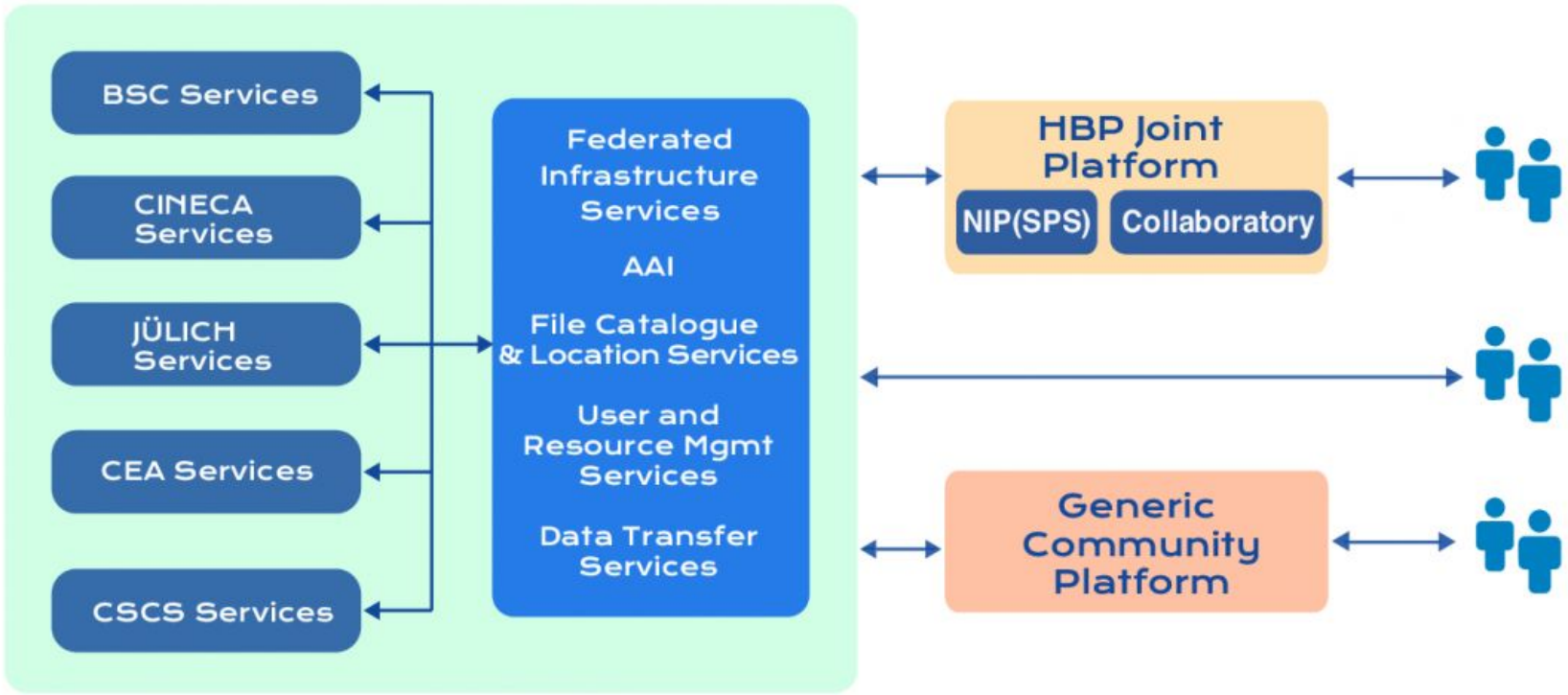
What Fenix and ICEI are

- Five European supercomputing centres agreed to align their services to facilitate the creation of the **Fenix Infrastructure**
- The distinguishing characteristic of this e-infrastructure is that data repositories and scalable supercomputing systems are in close proximity and well integrated
- An initial version of this infrastructure is currently being realised through the **ICEI project** (Interactive Computing E-Infrastructure), which is part of the European Human Brain Project
- Researchers from or associated to the HBP are the initial prime users of this e-infrastructure

Fenix/ICEI objectives

- To perform a coordinated procurement of equipment and related maintenance services, licences for software components, and R&D services for realizing elements of the e-infrastructure
- Design and build a generic e-infrastructure for the HBP, driven by its scientific use-cases and usable by other scientific communities
- Establish a suitable e-infrastructure governance
- Develop a resource allocation mechanism to provide resources to HBP users and European researchers at large
- Assist in the expansion of the e-infrastructure to other communities that provide additional resources

Fenix/ICEI Services



Fenix/ICEI Services

Interactive Computing Services

Quick access to single compute servers to analyse and visualise data interactively, or to connect to running simulations, which are using the scalable compute services.

Scalable Computing Services

Massively parallel HPC systems that are suitable for highly parallel simulations or for high-throughput data analysis tasks.

Virtual Machine Services

Service for deploying virtual machines (VMs) in a stable and controlled environment that is, for example, suitable for deploying platform services like image services or neuromorphic computing front-end services.

Active Data Repositories

Site-local data repositories close to computational and/or visualization resources that are used for storing temporary replicas of data sets. In the near future they will typically be realised using parallel file systems.

Archival Data Repositories

Federated data storage, optimized for capacity, reliability and availability that is used for long-term storage of large data sets which cannot be easily regenerated. These data stores allow the sharing of data with other researchers inside and outside of HBP.

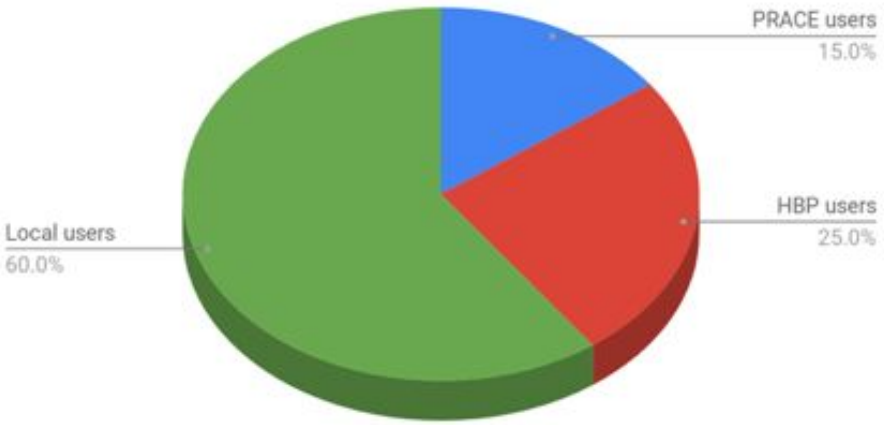
Fenix/ICEI resources allocation

For each community allocation is based on a peer-review process[1]:

- Transparency
- Fairness
- No parallel assessment
- Reviews are done by experts in the scientific field of the proposal, with no declared conflict of interest
- Confidentiality

All allocations will include:

- Technical assessment
- Scientific assessment



[1] http://www.prace-ri.eu/peer-review/

HBP community access

- HBP offers project access to compute and storage resources of Fenix to European neuroscientists if they contribute to research topics and main objectives of the HBP, in particular:
  - Analysis of brain data leading to understanding brain function
  - Building multi-scale scaffold theory and models for the brain
  - Simulation of brain function
  - Brain-inspired computing, data analytics and robotics

HBP community access

- Templates for proposal can be downloaded here: https://fenix-ri.eu/access
- All proposals should be sent to **ICEI Project Management Office (PMO)**: icei-coord@fz-juelich.de
- Applicants should target allocation of resources that do not exceed 12 months. Renewal of applications is possible if the project exceeds this period.

Proposal template -1

1. Summary

Please provide one paragraph summarizing the scientific question(s) that you intend to address using these resources. What is the scientific goal?

2. Relation to HBP DoA

Please provide information on how the project relates to the goals and objectives of HBP.

3. Preliminary Work (in case of a project extension)

Please provide a brief summary of project results obtained from your first resource allocation.

4. Scientific methodology, goals, impact and implementation plans

Please explain the methodology that will be used to achieve the scientific goal of the project, highlighting scientific excellence, novelty and potential for high European and international impact of the project. What are possible transformative aspects and expected advances?

Proposal template -2

1. IT resources requested
   a. Resources Resource type, Units and Quantity (required in total)
   b. Technical implementation plans

Please explain why the requested resources are needed to achieve the scientific goal.

What kind of jobs are planned (number and type of nodes, typical job duration)? How much storage needs to be available to execute the jobs? Please list the software components, HBP platform tools and services that are needed?

Proposal template -3

1. IT resources requested
   a. Do you currently use your software on a cluster or supercomputer?

Please select "Yes" or "No", if you selected "Yes", please specify, whether you have optimized, scaled, benchmarked your code before. What is the current job configuration (number of nodes, execution time, etc.)? What is the expected job configuration on ICEI resources?

   b. Does this project involve processing of personal data as defined by GDPR?

Please select "Yes" or "No", if you selected "Yes", please specify what kind of data is processed.

Proposal template -4

1. Resource management and work plan

Please describe how you intend to manage the requested resources, e.g. how will it be ensured that all resources are consumed by end of the project? How will input data and result data be moved to or from the system?

2. Dissemination

Please describe planned channels and resources for dissemination and knowledge exchange. If the requested resources are used to provide EBRAINS services then describe plans for attracting users for these services. In other cases, please explain where you plan to publish results.

3. References

Please provide recent/most important bibliographic references that are relevant to the project.

Proposal writing advices

- Applicants are advised to provide a comprehensive and self-contained proposal to facilitate its evaluation
- The level of details should be chosen according to the amount of requested resources
- The request of different type of resources is positively considered
- In case of lacking information, the applicants may be asked to provide additional information

European scientists at large

- European scientists can apply to use FENIX infrastructure services via PRACE calls
- Some PRACE Calls include the option to apply additionally for using Fenix resources provided by the ICEI project
  - Call for Proposals for HPC Compute Resources from DECI (Tier-1)
  - Opened in Dec 2019 closing 31st Jan 2020
  - Allocations for 12 months to be started in June 2020
- Dedicated PRACE calls for ICEI resources will open in the future
- Should you be interested in applying to the upcoming calls, please visit the PRACE Project Access webpage for further info

DECI Call proposals

- A section dedicated to ICEI resources has been added
- Selection of the services of interest and the amount of requested resources
- In this case, applicants should explain why these are required and how they would be used
- The request for more than one service type will be positively considered during the evaluation

Resources made available at present

- 4 centres are still procuring the HW components
- At present, resources are available at the CSCS site
- Updated information will be available at https://fenix-ri.eu/infrastructure/resources

CSCS offering

Component	Service Type	ICEI Total Allocation (100%)	HBP Total Allocation (25%)	PRACE Total Allocation (15%)
Piz Daint Multicore	Scalable computing	250 nodes	63 nodes	37 nodes
Piz Daint Hybrid	Scalable + INteractive computing	400 nodes	100 nodes	60 nodes
OpenStack IaaS	VM	35 servers	8.75 servers	5.25 servers
POSIX, Object and Tape	Archival storage	4 PB	1 PB	0.6 PB
Low- Latency Storage Tier	Active storage	80 TB	20 TB	12 TB

Other sites future offering - draft

Site	Total Allocation	HBP Allocation (25%)	PRACE Allocation (15%)
Interactive computing			
Julich	175 nodes	43 nodes	26 nodes
CEA	60 nodes	15 nodes	9 nodes
CINECA	350 nodes	85 nodes	52 nodes
BSC	6 nodes	1.5 nodes	1 node
VM services			
Julich	25 nodes	6 nodes	4 nodes
CEA	20 nodes	5 nodes	3 nodes
CINECA	84 nodes	21 nodes	12 nodes

Other sites future offering - draft

Site	Total Allocation	HBP Allocation (25%)	PRACE Allocation (15%)
Active Data repositories			
Julich	1000 TB	250 TB	150 TB
CEA	800 TB	200 TB	120 TB
CINECA	350 TB	87.5 TB	52.5 TB
BSC	70 TB	17.5 TB	10.5 TB
Archival Data Repositories			
CEA	7000 TB	1750 TB	1050 TB
CINECA	5000 TB	1250 TB	750 TB
BSC	6000 TB	1500 TB	900 TB

Questions & answers

https://fenix-ri.eu/