# Division Informatique/Calcul Scientifique

## UNIL – Centre Informatique – A. Barenco

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# Agenda

- Description of the DCSR
- Infrastructure in place
- Requesting access – Demo
- FBM Research data migration and archival
- Timeline - future projects

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# Division Calcul et Soutien à la Recherche

- IT Department (Ci) : reorganised in 2018-2019
- Structure – 1 Groupe de gestion, 4 Divisions:
  1. Infrastructure & Operations (DI)
  2. Business solutions and integration (DSM)
  3. Services, Support & Helpdesk (DSSH)
  4. Computation and Research Support (DCSR)
- DCSR - Objectives:
  - Manage in a smooth way the transition  Vital-IT – UNIL
  - Provide a centralised infrastructure
  - Encourage a common approach for Research Data Governance and data lifecycle management (cf directive 4.5)

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# Services provided by the new unit

## Infrastructure

- Storage
  - Sensitive and non-sensitive data
- Compute
  - HPC on sensitive and non-sensitive data – 3 clusters in term
  - CPU/GPU
  - VDI on sensitive and non-sensitive data
- The PI is invoiced for the usage

## Consulting and support

- Transverse to all faculties:
  - HPC (CPU/GPU)
  - Advanced/predictive analytics machine/deep learning, big data
  - Full stack development: web and DB support
- Build a team with a set of competencies that can serve the whole university.

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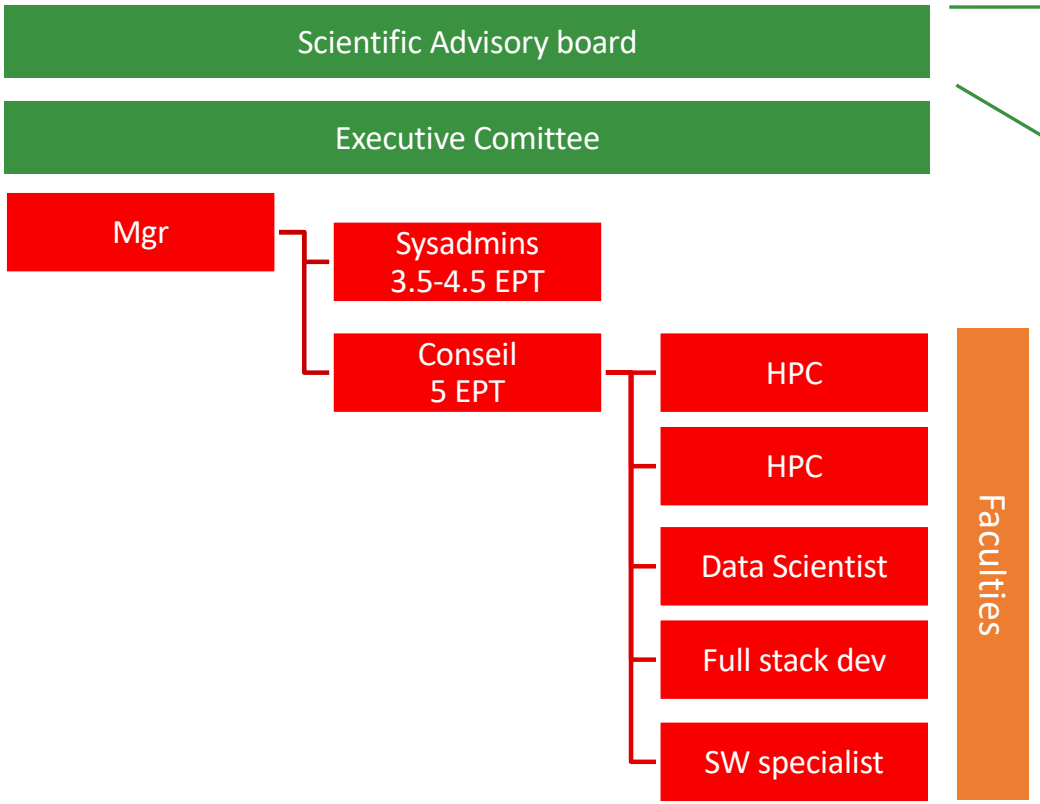
# Structure et governance




- Defines the strategy
- Evangelise the services
- Arbitrage ressource usage

- Implementation of the services
- Alignment with the other research platforms (cost model, invoicing)
- Link to the rectorate

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# Infrastructure currently in place

- Compute infrastructure (3 clusters in the mid-term)
  - Ca. 2200 cores, memory < 100Gb
  - In term 4’000 cores
  - A set of fat nodes a 512GB et 1024Gb. First fat nodes available early Sept.19
  - GPU to be added
- Data storage infrastructure
  - Non-sensitive. Available.
  - Sensitive/Personal. Planned, ETA H1-20
- Compute usage is managed through a scheduler (Slurm)
- Guiding principle: interoperability with neighbouring infrastructures

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# Getting access to the infrastructure – Storage & Compute

- Research data only (≠ publications, thesis, inventory, administrative documents, etc.)
- Organized by PI and by research projects
- Requests must be carried out by the PI
- All requests are project-based and must be tied to a DMP => change in paradigm
  - Once a request has been granted, the PI manages the access to the resources for his team
- Usage is invoiced to the PI. (see Operational and unit cost on Ci web)
  - Only U1 costs are charged. U2 and U3 costs are covered by UNIL. The 1st TB of space (per PI) is free.
- PI submit their requests through a dedicated app (see Service List on Ci web)
- Any user is expected to take a short training to get familiar with the environment, the do's and dont's
- NB: Research data currently stored on CI infrastructure will be gradually moved to the new storage infrastructure

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# Demo

- Services Catalogue:
  - https://www.unil.ch/ci/home/menuinst/catalogue-de-services.html
- Costs for the compute and storage infrastructure:
  - https://www.unil.ch/ci/home/menuinst/calcul--soutien-recherche/couts-operationnels.html
- Requesting access : Ressource request application:
  - https://conference.unil.ch/research-resource-requests/
- Training:
  - Next training: 20 Sept (9am-5pm). Inscription via the DCSR website, or here

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# Migration of existing FBM data

- Currently >600Tb in //nas.unil.ch/FBM/DEP/GROUPS/RESEARCH/
- This data must be migrated to the new infrastructure (cf. Directive 4.5)
- The new infrastructure is functionally equivalent to the existing one.
- A few pre-requisite before the move:
  - Hot data: organised by project in its current location (FBM IT will assist)
  - Redundant/spurious data: identified/removed
  - 'Cold' data: described and archived
- The physical move will be done by the Ci once the housecleaning has been done
- Important:
  - The work involved is significant. PI/Research have to be committed to this effort
  - The FBM IT team will contact you and assist you along the process.

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# Migration process

From
//nas.unil.ch/FBM/DEP/GROUPS/RESEARCH/
to
//nas.unil.ch/RECHERCHE/FAC/FBM/DEP/PI/Project

| Steps | Activities | Operated by |
|---|---|---|
| 1. | Contact and information | FBM local IT managers |
| 2.<br>2.1<br>2.2<br>2.3 | Data organization<br>Organization of the data by project<br>Deletion of all redundant/spurious data<br>Identification of 'cold' and 'hot' data | PI / Research group |
| 3. | Storage request for every projects | PI |
| 4. | Physical move of the data | Ci (DCSR) |

NB: Please wait for the information of your IT manager before you start organizing your data

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# Archiving data

- Archival costs are covered by Unil
- Data must be described and organised before being archived.
- UNIRIS has assembled a set of guidelines and will assist in this effort.
- The DCSR infrastructure will provide a mechanism and process to streamline the archival process.
- The archival data will be stored on tape, but will be accessible in read-only mode by either the PI only, or to the public depending on the type of archive (private vs. OpenData)

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# Q&A

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