Institut Laue – Langevin
IT Priorities

Dec 2013

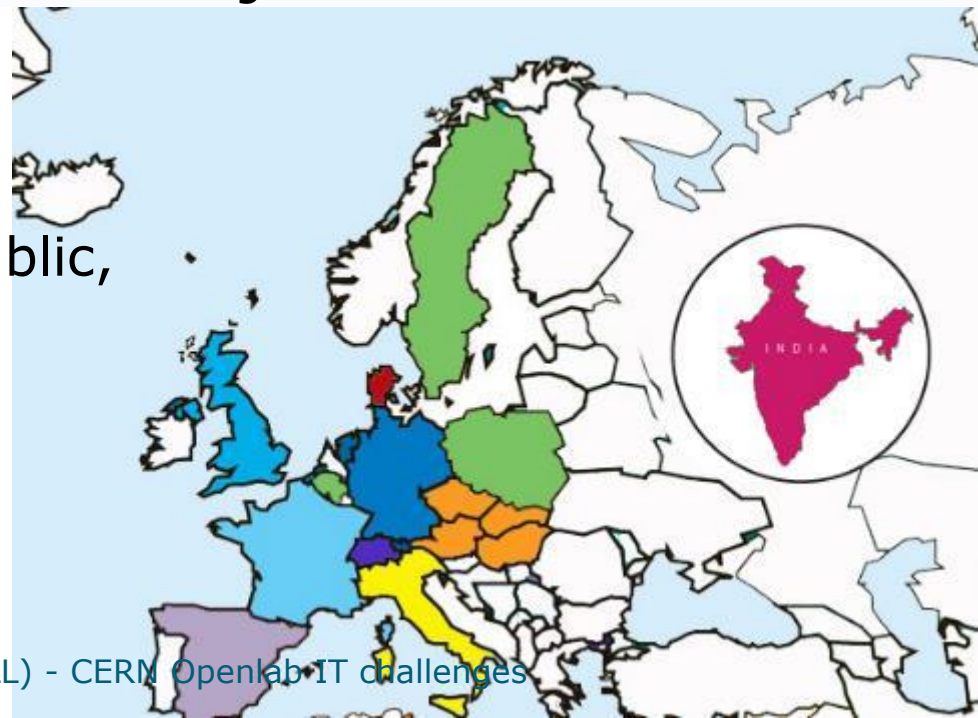
Who are we ?

ILL is an analytical facility
The most intense continuous neutron flux
38 world class instruments
2000 invited scientists /year
480 Staff
Location: EPN-Campus, Grenoble (France)

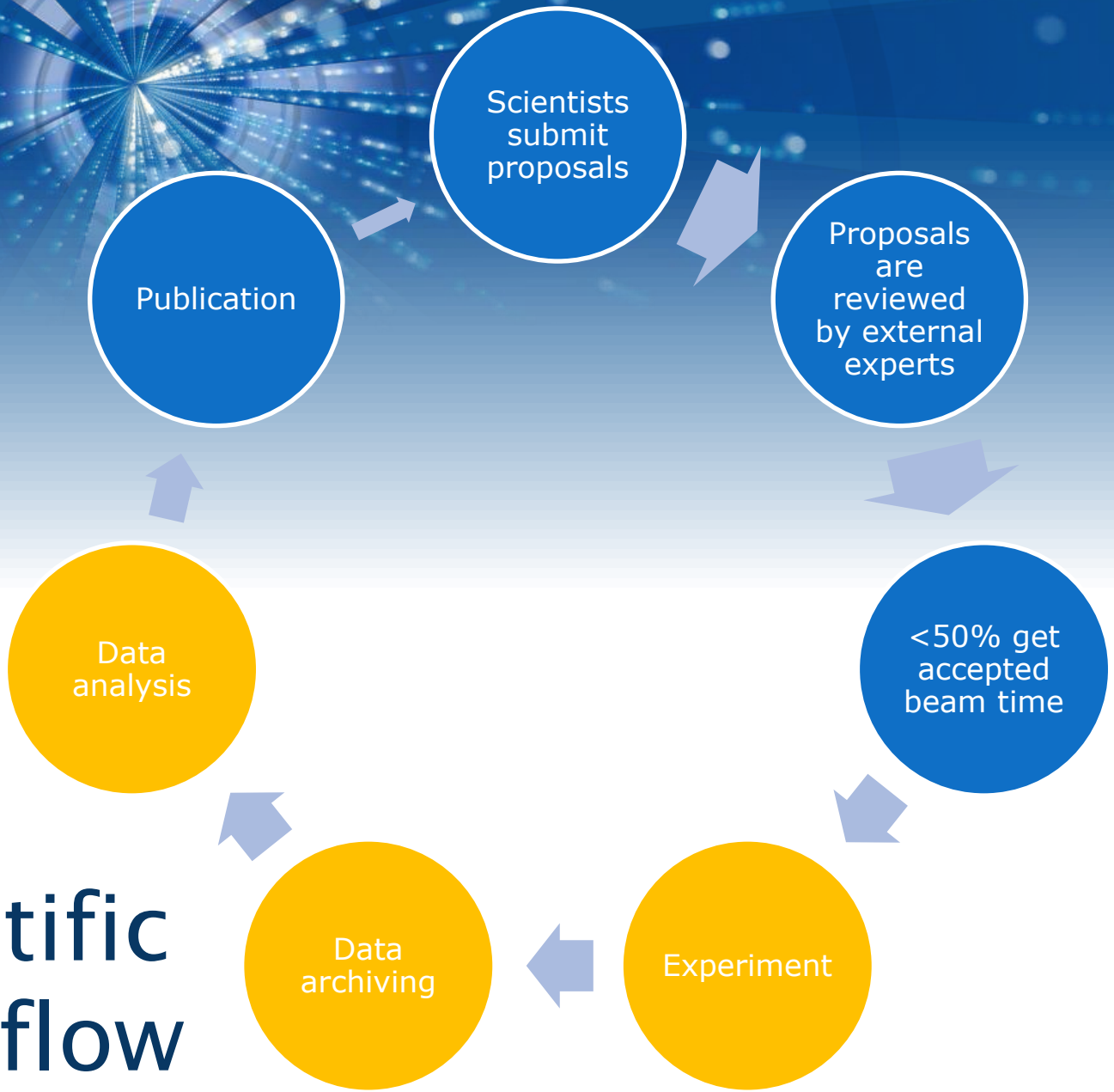
An international scientific collaboration

- Founded in 1971 by France, Germany and United Kingdom.
- Scientific partners that have joined in since then:

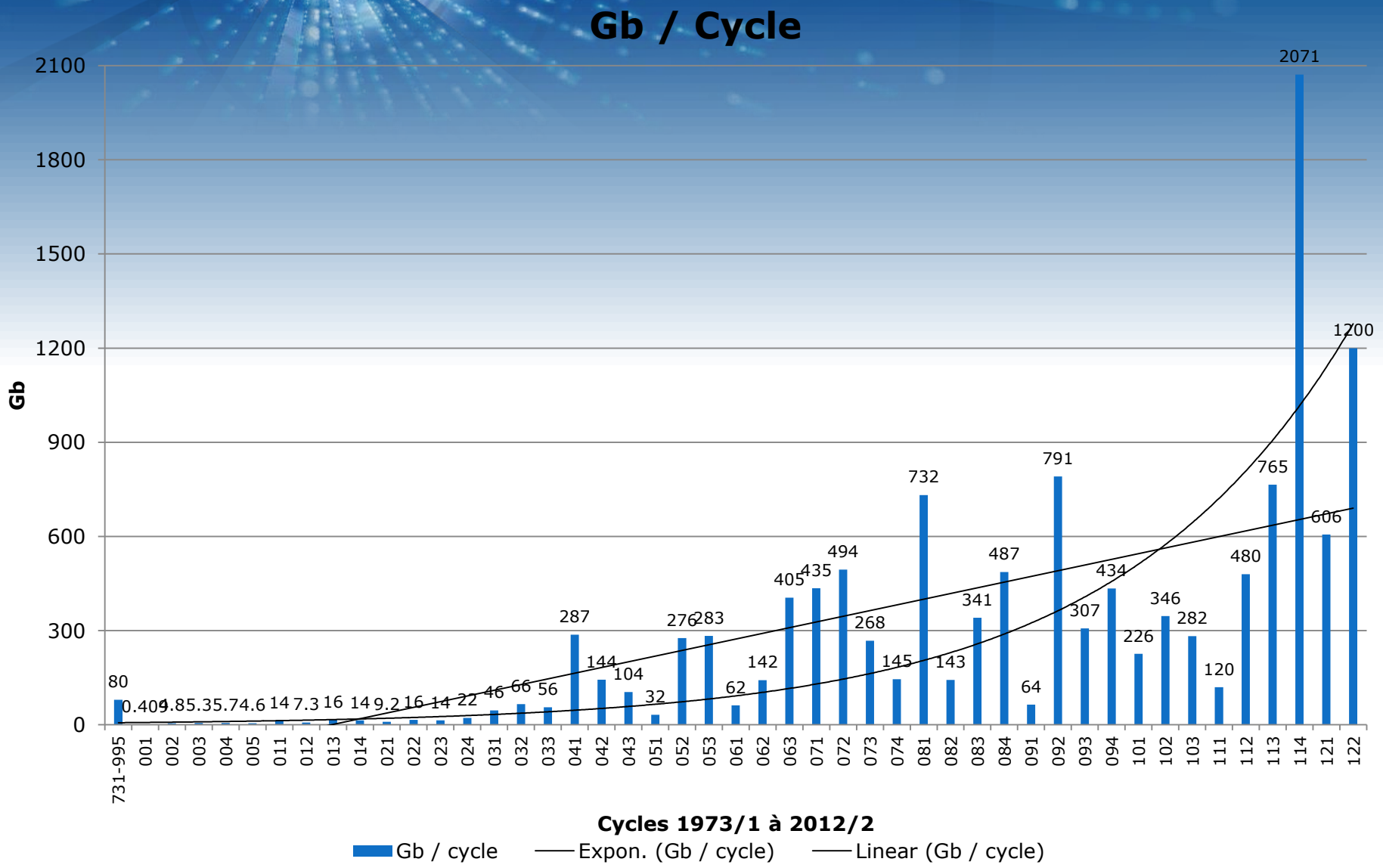
  Spain, Switzerland, Austria, Denmark, Italy, Czech Republic, Sweden, Hungary, Belgium, Slovakia and India.



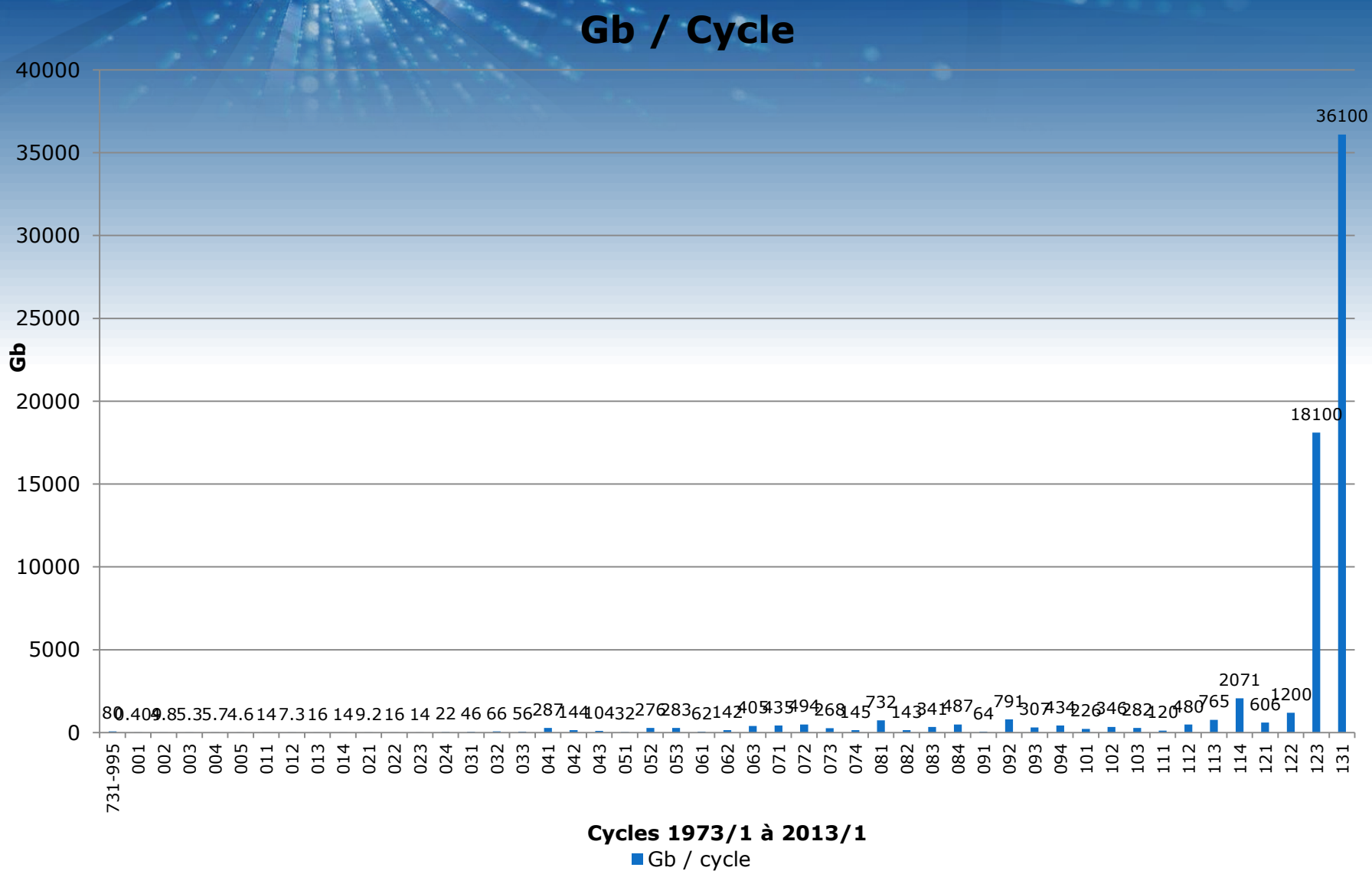
Scientific Workflow



Experimental raw data 1973-2012



Experimental raw data 1973-2013



Impacts of the “data deluge”

- Storage
  - ILL archive capacity & performance
  - Users’ storage becoming almost impossible
- Moving data
  - Today how to carry 40TB?
  - Why carrying them?
- Analysis
  - Almost impossible in most users’ home labs.

Our vision

- Large raw data sets should stay and be archived at the source (ILL in our case)
- Provide remote analysis infrastructure
- Preserve data and the scientific workflow

IT Priority #1: be prepared for PB

- Cost is a major issue
- Change from scale-up solution to scale out
- Object storage ? What about legacy applications ? POSIX semantic?
- Aim for manageable solution (avoid multiplicity of low cost solution)

IT Priority #2: remote analysis infrastructure

- The aim is to proposed to users to access workstation or analysis application remotely using standard web browser (Cloud for data analysis).

- Typical workflow:

  1) The user connects remotely using his web browser and its credentials (preferably FIM).

  2) Then select one of the experiment he has performed in the list.

  3) he gets access to a computer where the necessary analysis applications have been installed and configured for direct access to experimental data.

  4) If necessary he could receive help and support from facility expert, during the analysis.

Benefits

- Provide a user friendly environment (most of or users are not expert neither in data treatment, neither in IT and have no home IT support).
- Accelerate the analysis process, ease collaboration during analysis.
- Solve the difficult security problem of letting external users access internal networks.
- Solve the problem of transport of experimental raw data.
- Move the work from 'software installation' to 'scientific analysis‘.
- Authorize the preservation of the full workflow.

Thanks for your attention