EGI:
Advanced data and computing services for international research collaborations

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www.egi.eu

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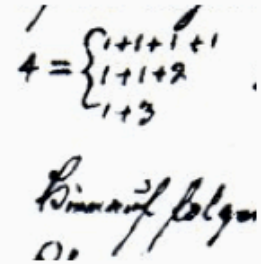
The needs of modern research

- In research and society, ICT has become one key enabling factor for progress
  - Changing the modus operandi of research, new possibilities for geographically distributed collaboration and sharing
  - Data-driven science and more open access to data and scientific results transforming how science is made
- All large-scale Research Infrastructures and the long tail of science are dependent on ICT resources
  - Need to find synergies and to develop ways to tackle the ICT challenges at a generic level
  - Effective and cost efficient services that can be of wide and general use

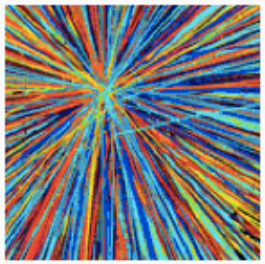
EGI

- A globally distributed ICT infrastructure that federates the digital capabilities, resources and expertise of national and international research communities in Europe and worldwide.
- Mission: empower researchers from all disciplines to collaborate and to carry out data- and compute-intensive science and innovation.



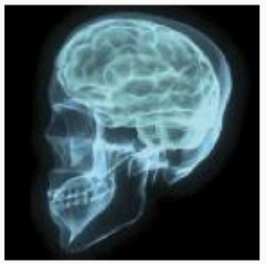
Natural Sciences

Life Sciences, Earth Sciences, Mathematics, etc



Physical Sciences

Physics, Astronomy, Chemistry etc



Medical and Health Sciences

Medicine, Clinical sciences, etc

Engineering & technology

Material science, civil and mechanical engineering, etc

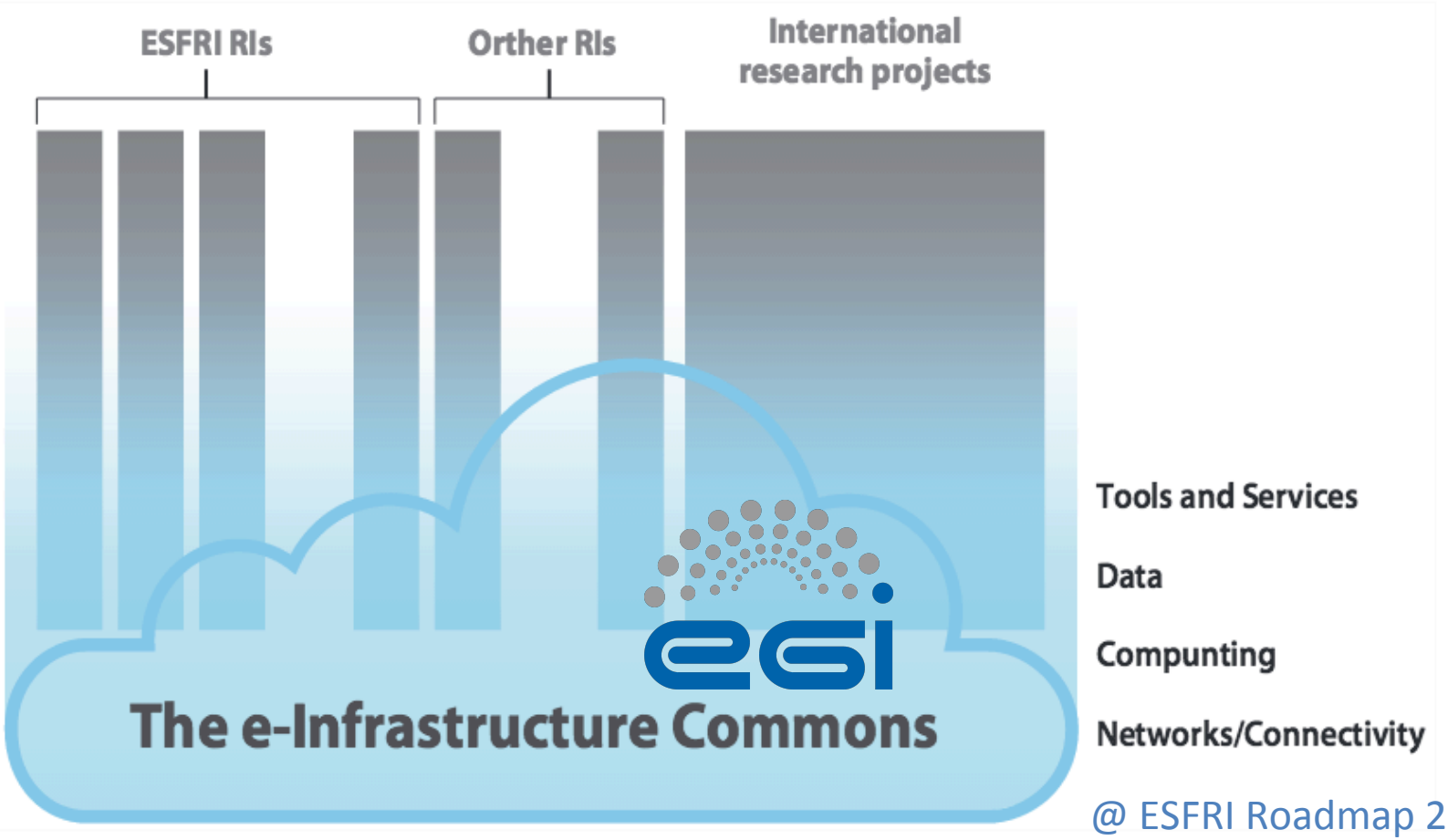
Agricultural sciences

Veterinary sciences, food technology, etc

http://www.egi.eu/case-studies/

Horizontal and thematic infrastructures

EGI contributes to the “e-Infrastructure Commons” with generic solutions for shared needs and requirements

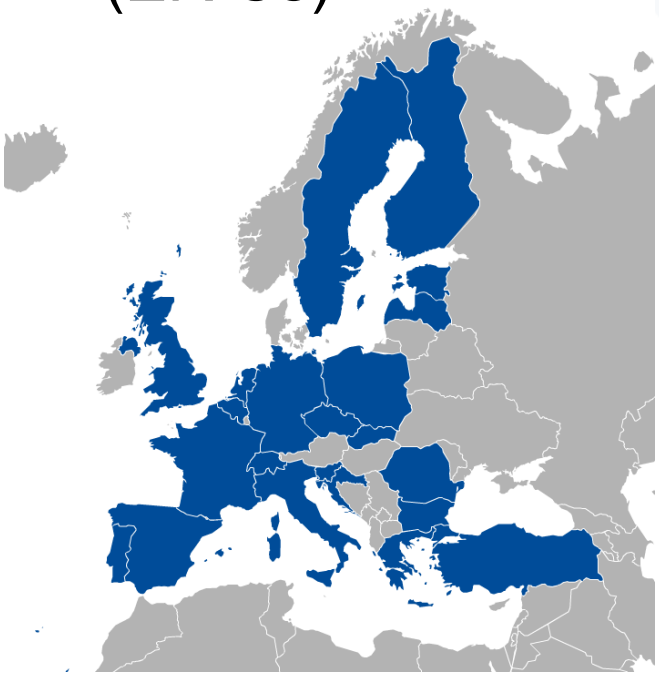


@ ESFRI Roadmap 2016

EGI Membership

http://www.egi.eu/about/EGI.eu/

- Major national e-Infrastructures: 22 NGIs
- EIROs: CERN and EMBL-EBI
- EGI Foundation
- (ERICs)



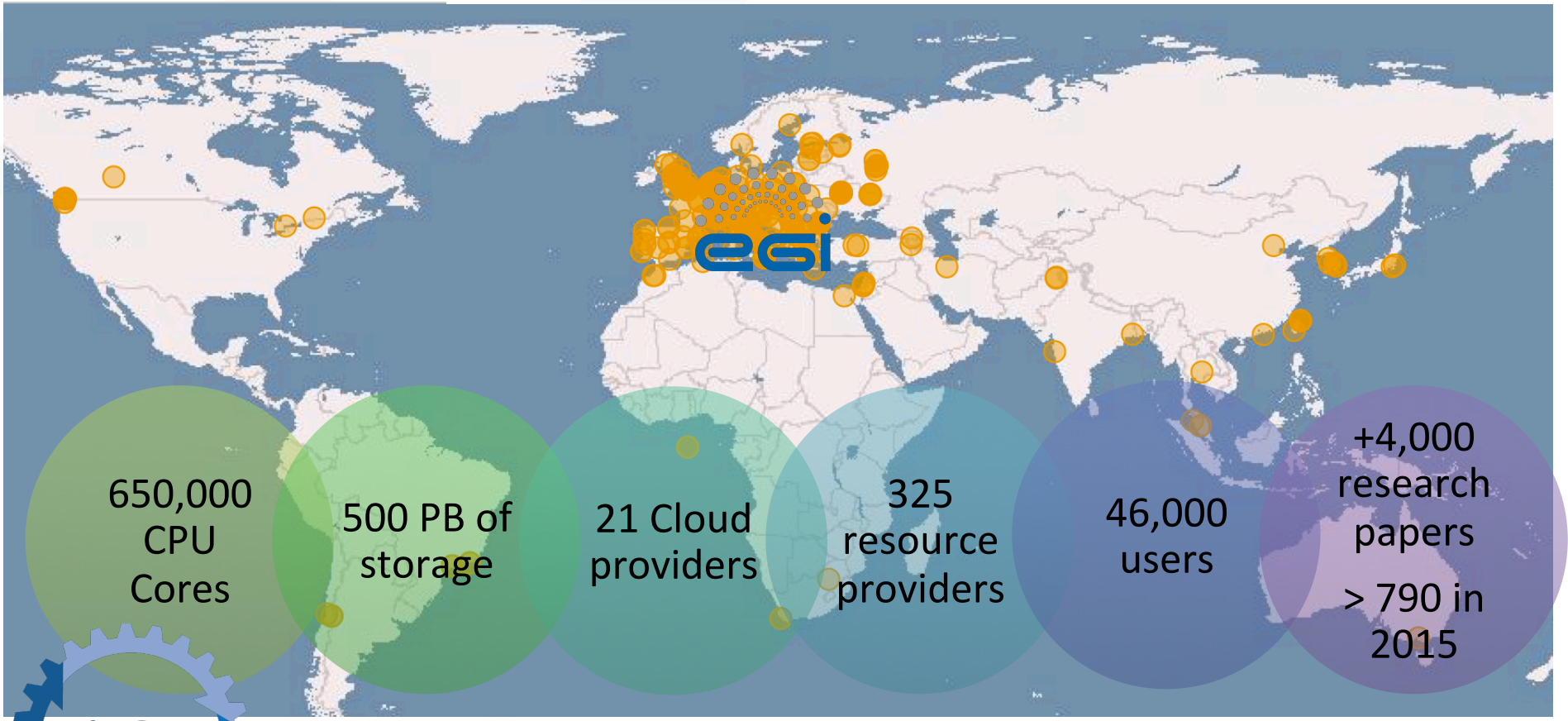
MoUs with infrastructure providers

- MoUs with integrated infrastructures (non-council members):
  - Integrated in the EGI production infrastructure, subject to the same operational requirements, policies and procedures
  - Asia Pacific (26 resource centres)
  - ROC Latin America (9 resource centres)
  - ROC Africa-Arabia (10 resource centres)
  - China (1 resource centres)
  - Ukraine (19 resource centres)
  - Canada (9 resource centres)

- MoUs with peer-infrastructures:
  - To enable interoperability to support common communities
  - Open Science Grid (US)
  - Compute Canada

A system of open e-Infrastructures

EGI Federation, 2016 QR1



EGI Federated Cloud

https://wiki.egi.eu/wiki/EGI_Federated_Cloud

21 providers

- Publicly funded, one commercial
- Offer of virtual access to GPU
- + 2 sites ready to enter production (JINR, BITP)

28 projects over the last 12 months

- Activity starting from CCs: Elixir, MoBrain, LifeWatch

Training infrastructure

- 5 sites, +10 events run on the infrastructure

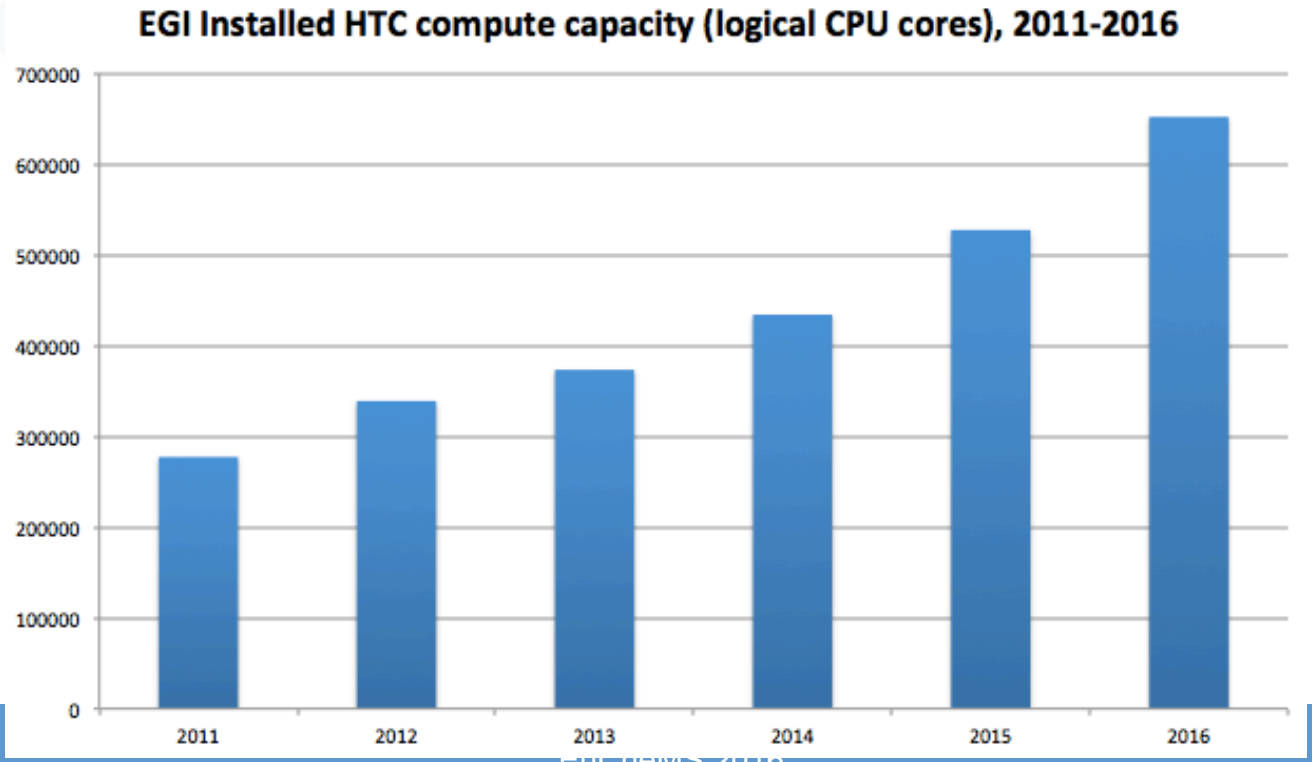
→ **EGI-Engage operates & develops cloud Federation with JRA2 and SA1**

EGI-Engage


06
TRAINING
LEARN WITH EGI INFRASTRUCTURE
01
COMPUTE
RUN, EXECUTE, ANALYZE
02
STORAGE
EASY AND SECURE ACCESS TO YOUR FILES
03
DATA
MANAGE, ACCESS, TRANSFER AND DELIVER DATA
04
SECURITY
MANAGE COMMUNITY, EXPOSE TRUSTED INFORMATION
05
OPERATIONS
CONFIGURATION, MONITORING AND TOOLS FOR YOUR INFRASTRUCTURE
EGI Service Portfolio

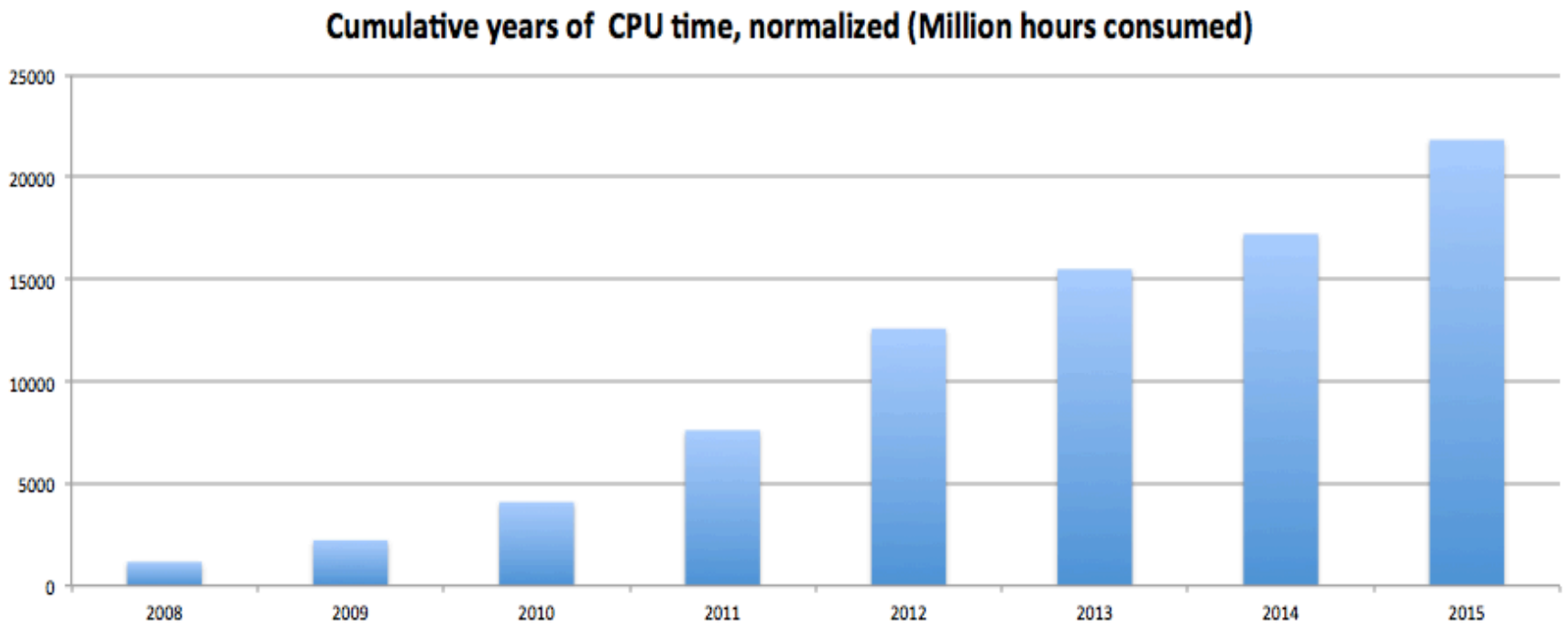
High Throughput data analysis platform (HTC)

	Logical cores	Computing power (HEP_SPEC06)	Online storage (PB)	Nearline storage (PB)
February 2016	652,000	5,842,000	264	239
Increase from January 2015	+ 23%	+ 38%	+ 11.8%	+ 42%



HTC capacity consumption

Metric	In the last year	Increase from 2014
Normalized CPU time	20,560 Million hours* HEP_SPEC06	26.4 %
Number of jobs	585 Million	9.3%
Online storage	160 PB	N.A.

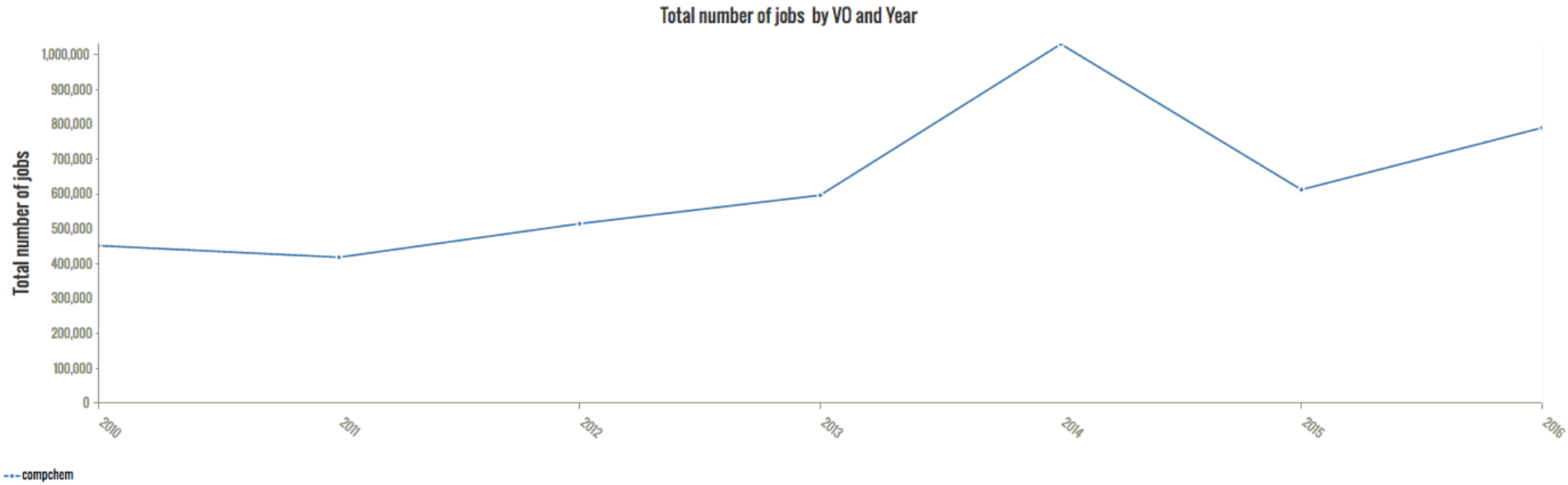


EGI access policies

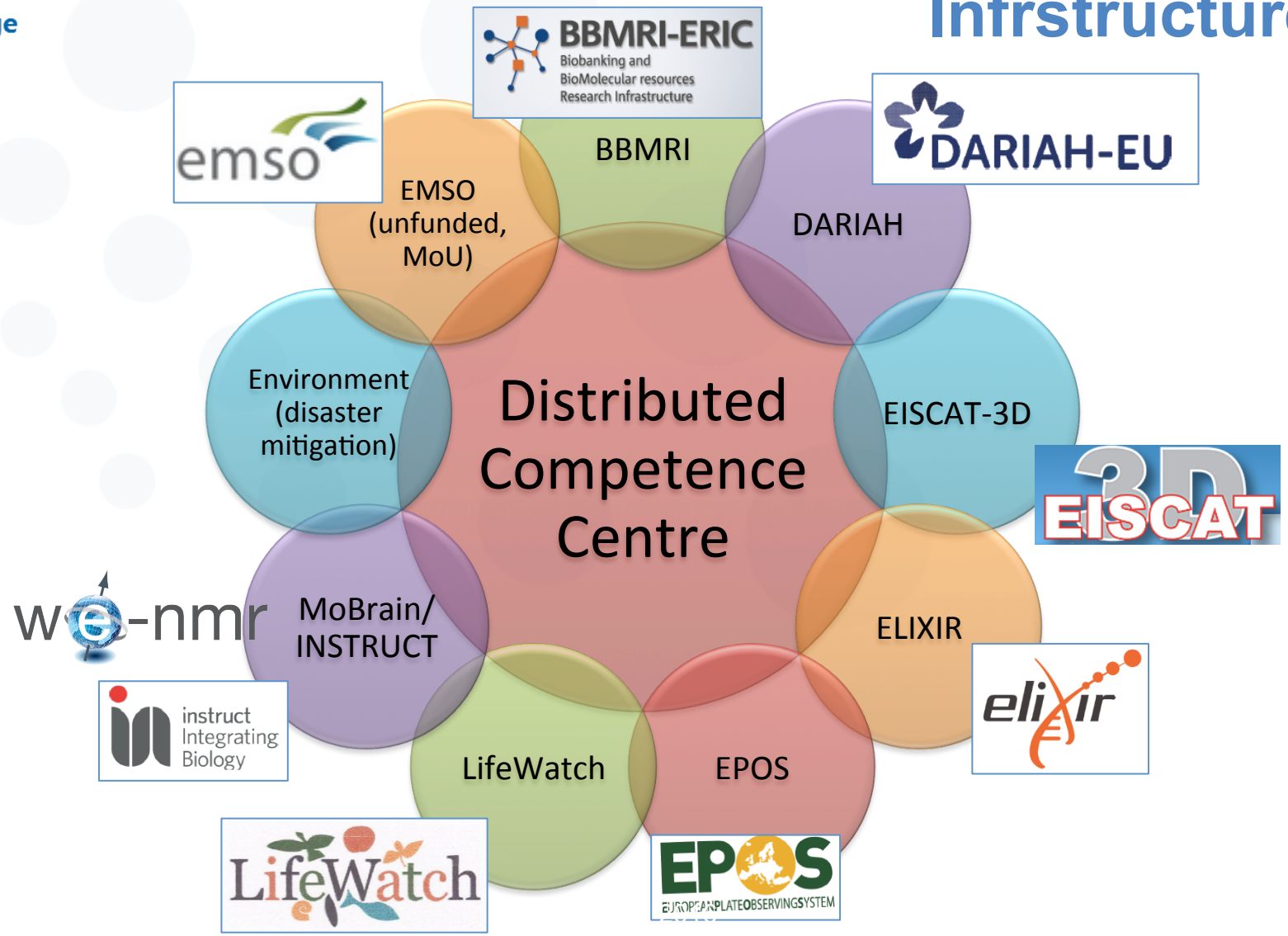
http://www.egi.eu/services/access_policy/

- Policy-based
  - users are granted access based on policies defined by the EGI resource providers or by EGI.eu; such policies usually apply to resources being offered “free at point of use” to meet some national or EU level objective
- Wide access
  - users can freely access scientific data and digital services provided by EGI resource providers
- Market-driven
  - users can negotiate a fee to access services either directly with EGI resource providers or indirectly with EGI.eu
- EGI aligned with the charter for access to RIs

EGI for computational chemistry



Collaborations with ESFRI Research Infrstructures



Outlook

- What role for EGI and other e-Infrastructures in Europe to better support the digital needs of Computational Environments for Molecular Sciences across Europe and beyond?
- Need for
  - Research Community governance
  - Discipline-specific services
  - Sustainable models to fund and operate services

A vision for the future

Thank you for your attention.

Questions?

Acknowledgements
This presentation used icons made by Freepik from www.flaticon.com