

Information infrastructure-based (regional) innovation

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PRAGUE, 24 MARCH 2009

My storyline

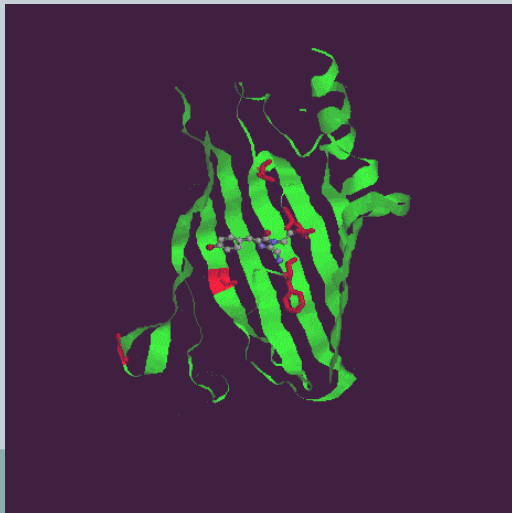
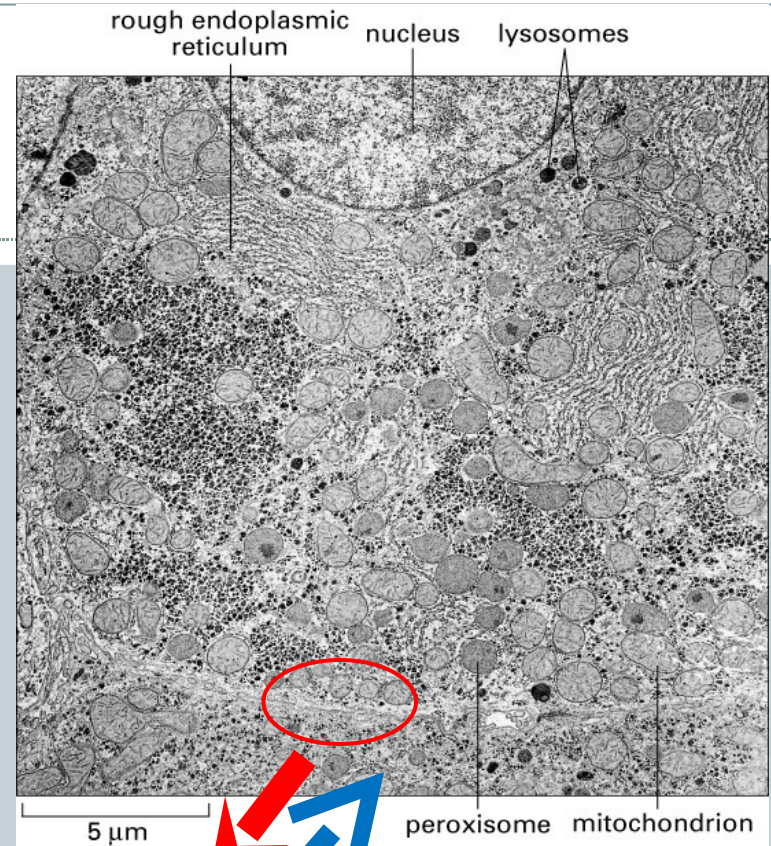
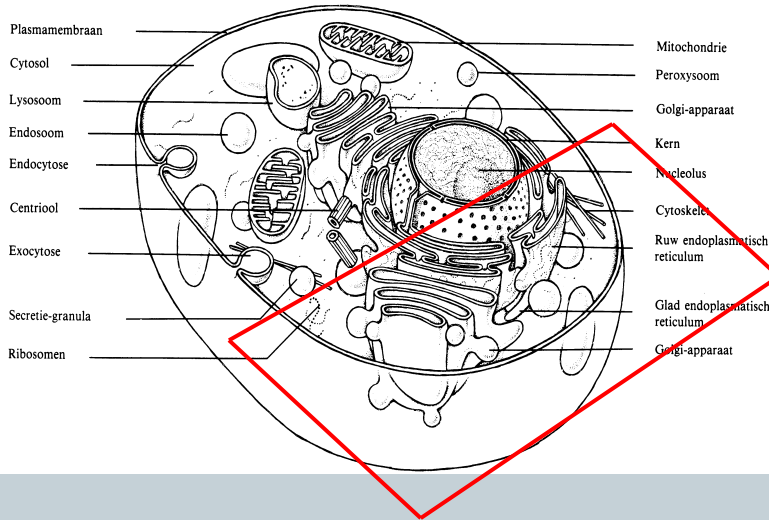
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- Data-driven science adds new dimension: examples from biodiversity, systems biology, linguistics,
- Requires infrastructure: European Digital Data Infrastructure
- How to create this infrastructure
- Regions key for economic development and innovation
- Physical research infrastructures can be central for clusters and open innovation
- Building blocks for (generally) distributed Data Infrastructure can equally be stepping stones
- Think innovatively about innovation and regional development!

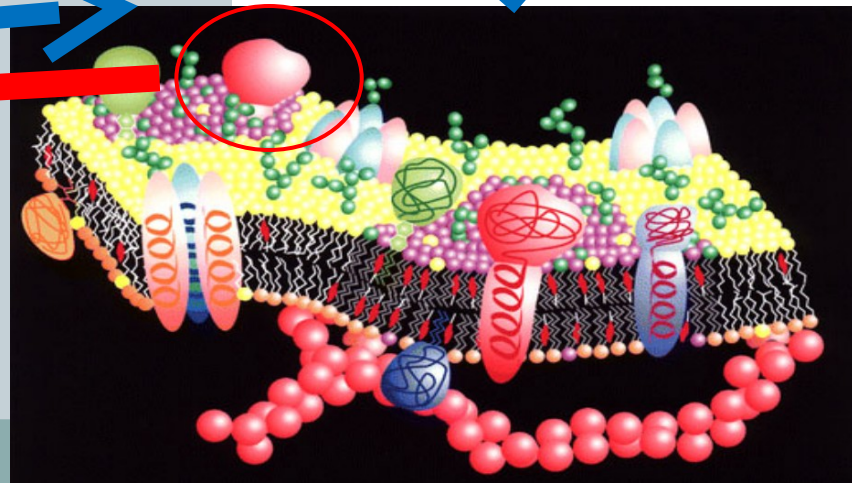
Biology today

Biology tomorrow

Overzichtstekening van de cel.



Courtesy
Roel van Driel



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CLARIN project on ESFRI Road Map



A European Digital Information Infrastructure

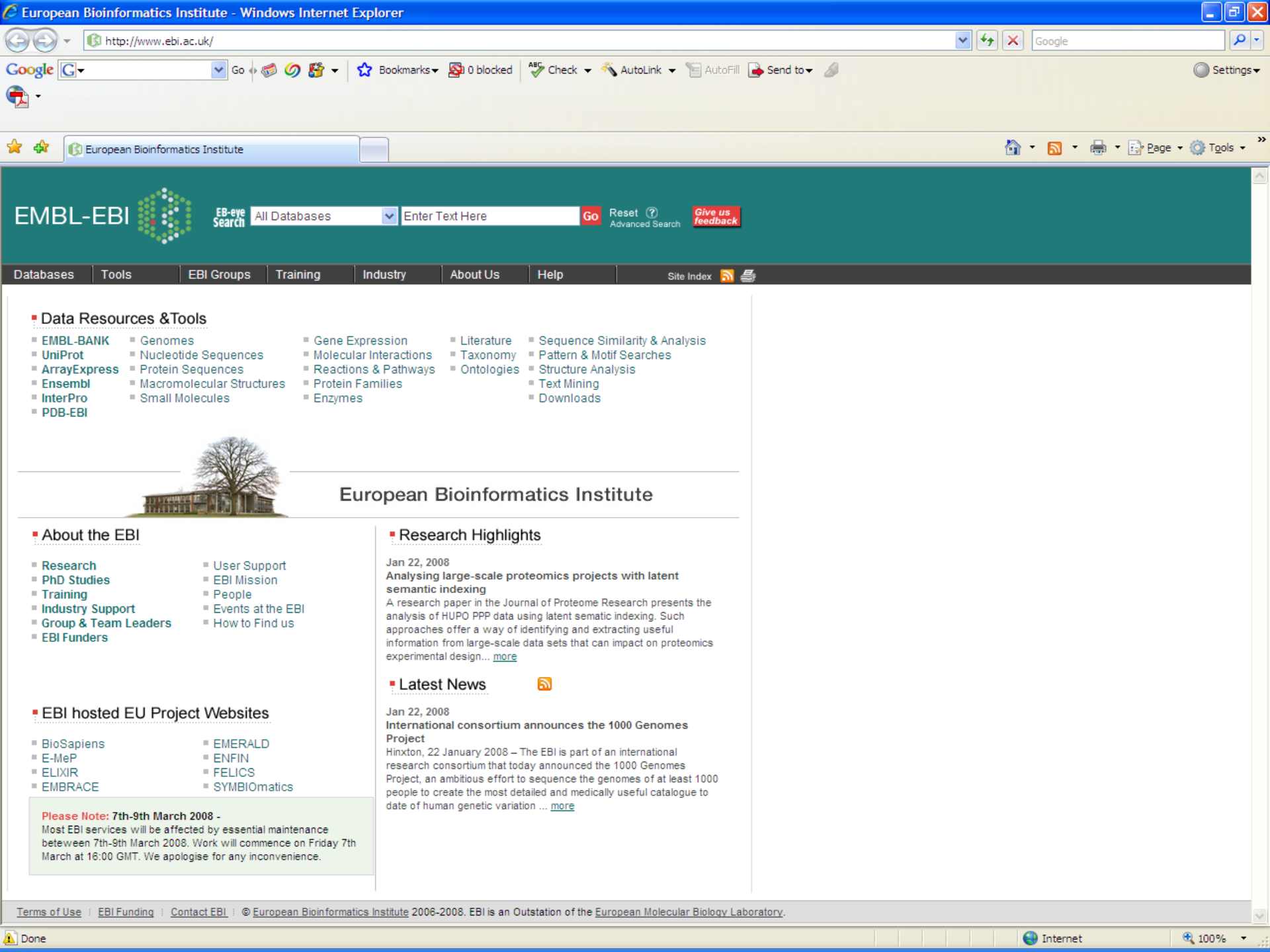
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Identify **core physical digital archives/repositories** in several initial communities and among cross-community organisations. Do this for documents and for data

- These must **OAIS-compliant** to ensure proper archiving, interoperability and long-term preservation
- Framework for **metadata**, Framework for **persistent identifiers**, and number of **registries**, possibly **other standards**
- Cost-effective **preservation methods and services** must be available
- Common framework of **principles and guidelines for management of access and rights** (underlying the technical tools to implement this framework)
- Create **Financial mechanism** for developing and testing implementation tools, techniques and services, and for strengthening collaboration and training
- a. **Certification service providers**, accredited according to
b. Common **European accreditation mechanism**.

← Alliance for Permanent Access →

Source: Task Force Permanent Access, December 2005



to contribute to realise this infrastructure

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Key Stakeholders from Science and Science Information committed *at Board level* to develop coherent European solution from which they will benefit themselves

Research organisations

- ESA, CERN, Max Planck Gesellschaft/Max Planck Digital Library, STFC, CNET, CNRS (tbc), EUA (tbc), Helmholtz Gesellschaft,

Funding agencies

- ESF (representing all national funding agencies), JISC (UK)

National libraries and archives, and their consortia

- British Library, Koninklijke Bibliotheek, Deutsche National Bibliothek, Swedish National Archive; Portico (global)

Publishers

- International Association of STM Publishers;

National 'coalitions'

- DPC (UK), NESTOR (DE),(NL)

US NSF DataNet

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DataNet : 5 projects @ 20 M\$ (plus 10 M\$ possible renewal); 2 approved: The Data Conservancy, DataNetONE (earth observation)

- Provide reliable digital preservation, access, integration, and analysis capabilities for science/engineering data over decades-long timeline.
- Achieve long-term preservation and access capability in an environment of rapid technology advances.
- Create systems and services that are economically and technologically sustainable.
- Empower science-driven information integration capability on the foundation of a reliable data preservation network.
- Each project needed to develop a model for shared governance and the standards and protocols to enable interoperability

Courtesy Dr Lucy Nowell NSF

Joint programming helps matching NSF DataNet

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Problems in Europe

- EU's FP is for Research and Technological Development, not for operational infrastructure (GEANT exception)
- Cooperation needed between DG INFSO (Content, Technologies, Infrastructures) and DG Research (Research Infrastructures)
- National Funding Agencies only begin to support projects

Two interesting developments might converge

- 'Joint Programming': member states to take initiative
- EUROHORCS (Heads of Research Councils) accepted challenge to common activities with common funding

So why wait?

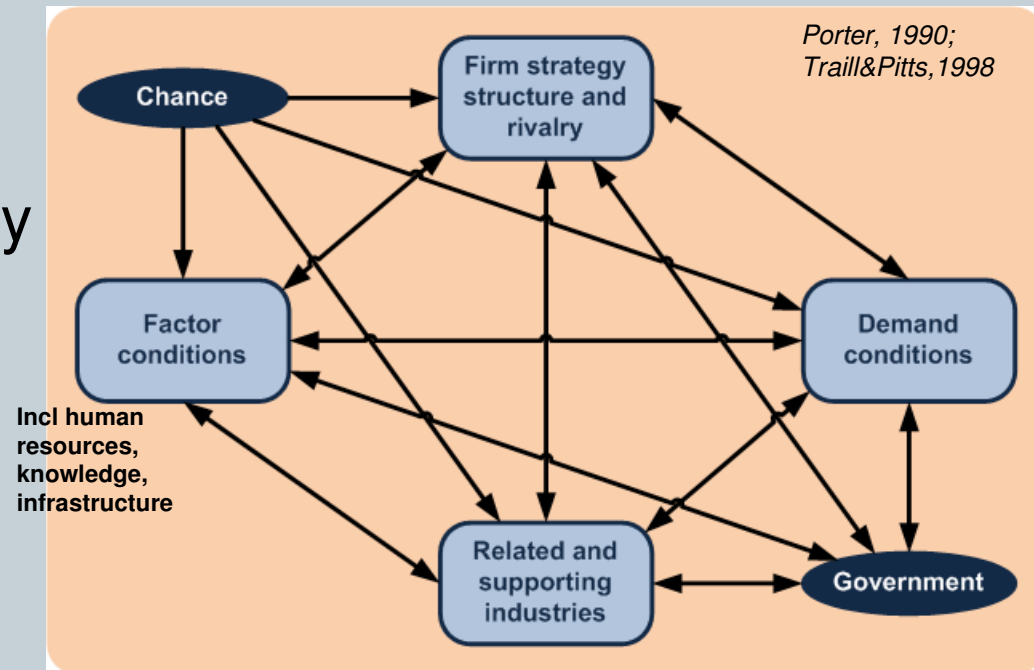
- Let EC and EUROHORCS/ESF define a joint EC-EUROHORCS/ESF programme to create the first large-scale

Regions key for economic development and innovation

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1. Economics: agglomeration and proximity effects.
2. Open innovation
3. Specialisation creates innovative regions throughout EU

Point 1 illustrated by
M.E. Porter's
'Diamond'



Open innovation

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Worldwide search for
knowledge and technologies

Value creation

Researchcampus

- Venture capital and business development
- 'Incubator'
- Technology support

Technological
core competences
firm

Spin-offs

New business
line firm itself

Joint ventures

Selling
technologies
(licensing etc)

Pre-competitive R&D with
competitors

University-industry
cooperation

Public-private
partnership

High-tech
SMEs

Firm's
own R&D
lab

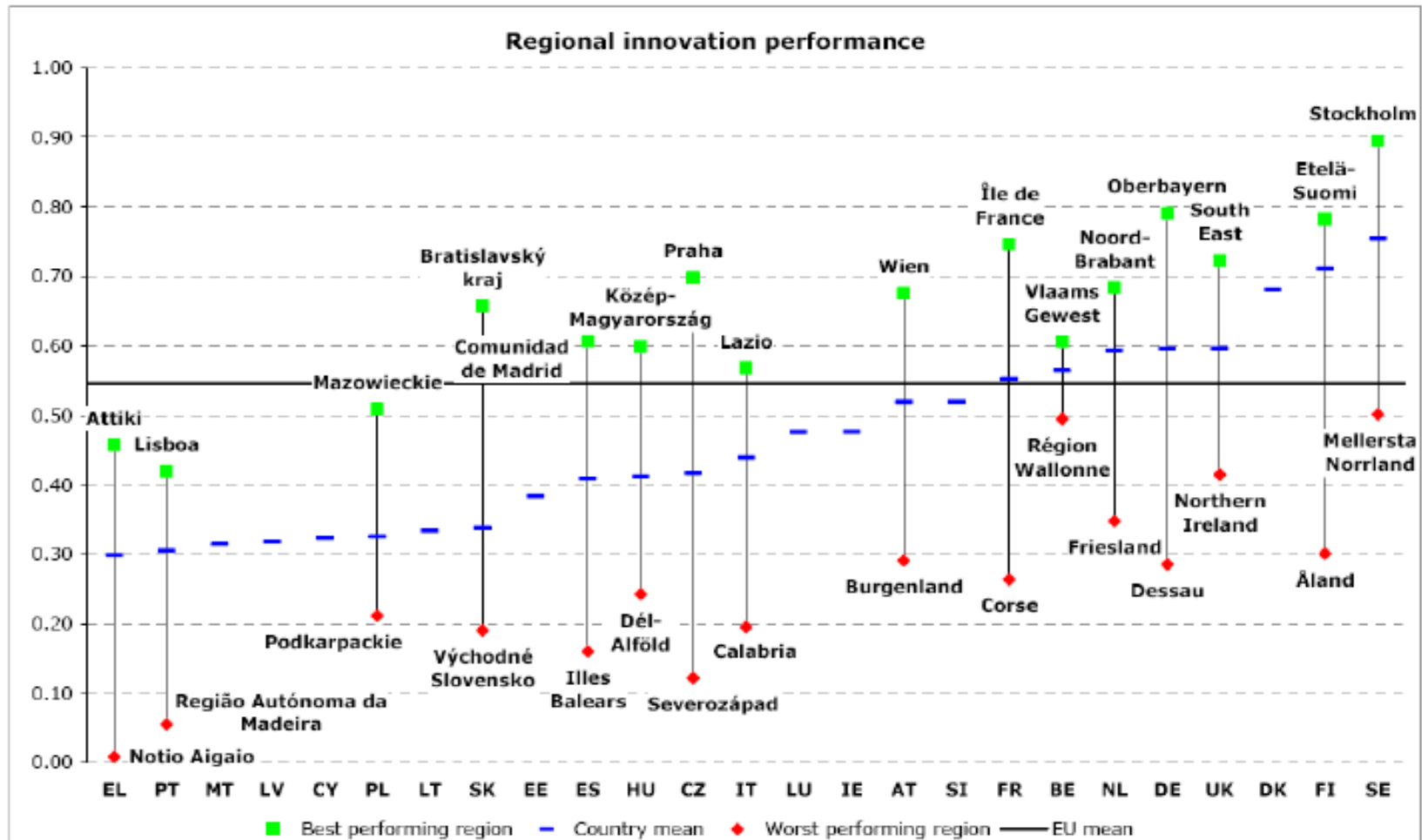
wider scan of technology
areas

more focus and resources
for core competences

Faster and more value creation

Innovative regions throughout EU

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Source: UNU-MERIT

Research Infrastructures and regions

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- Physical infrastructures will play increasing role in strengthening regional 'clusters': example Grenoble: CEA-Leti, CNRS, ILL, ESRF, STMicroelectronics, NXP (former Philips), Minatec
- For first time regional development key argument in case of all 3 site contenders for European Spallation Source (Bilbao, Debrecen, Lund)
 - Not: local expenses during construction and operations
 - Not: medium- and long-term impact through technologies based on scientific output
 - ***But: cluster/network/agglomeration/spill-over***

What about distributed RI, e.g. Data Infrastructure

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Key: look for specialisation and combinations

Examples

- Amsterdam: major computer science centre (CWI); strong computer science departments at two universities; Amsterdam Internet Exchange (world's largest); Supercomputer Centre; very modern CAVE (Virtual Reality Environment); one of LHC key data centres; strong focus (also in research) on media, networking, creative industry, ICT companies (hardware, software, content)
- Why not Frascati? With Earth Observation data as starting point
- Research and Business Campus Geleen (Netherlands) built around DSM's performance materials (incl biomaterials). Offer SMEs on-site access to and support for very wide gamut of state-of-art, expensive, remote imaging and analytical equipment