Academic and Student Mobility Models after Brexit

John Wood

The Association of Commonwealth Universities

What is the ACU and does Brexit make any difference?

- A membership organisation bringing together universities from most of the 53 members of the Commonwealth
- Set up in 1913 it is 103 years old. University of Malta a founder member
- About 540 members and growing especially in Africa and the Indian sub-continent
- Independent of governments or other international institutions.
- After a decline in UK membership seeing a number of UK universities returning after Brexit vote
- Administers three major UK Government's scholarship schemes for overseas students and fellows

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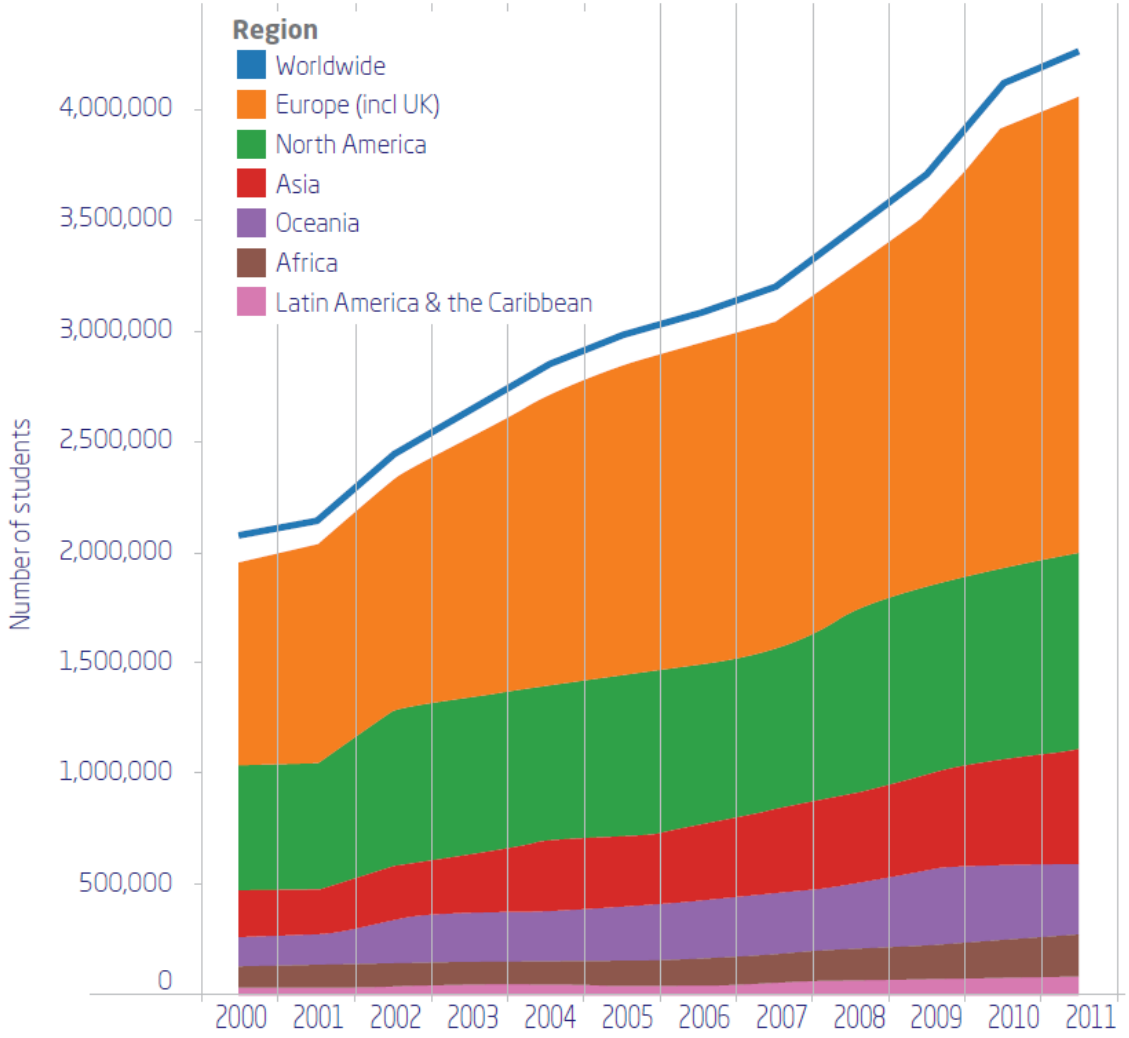
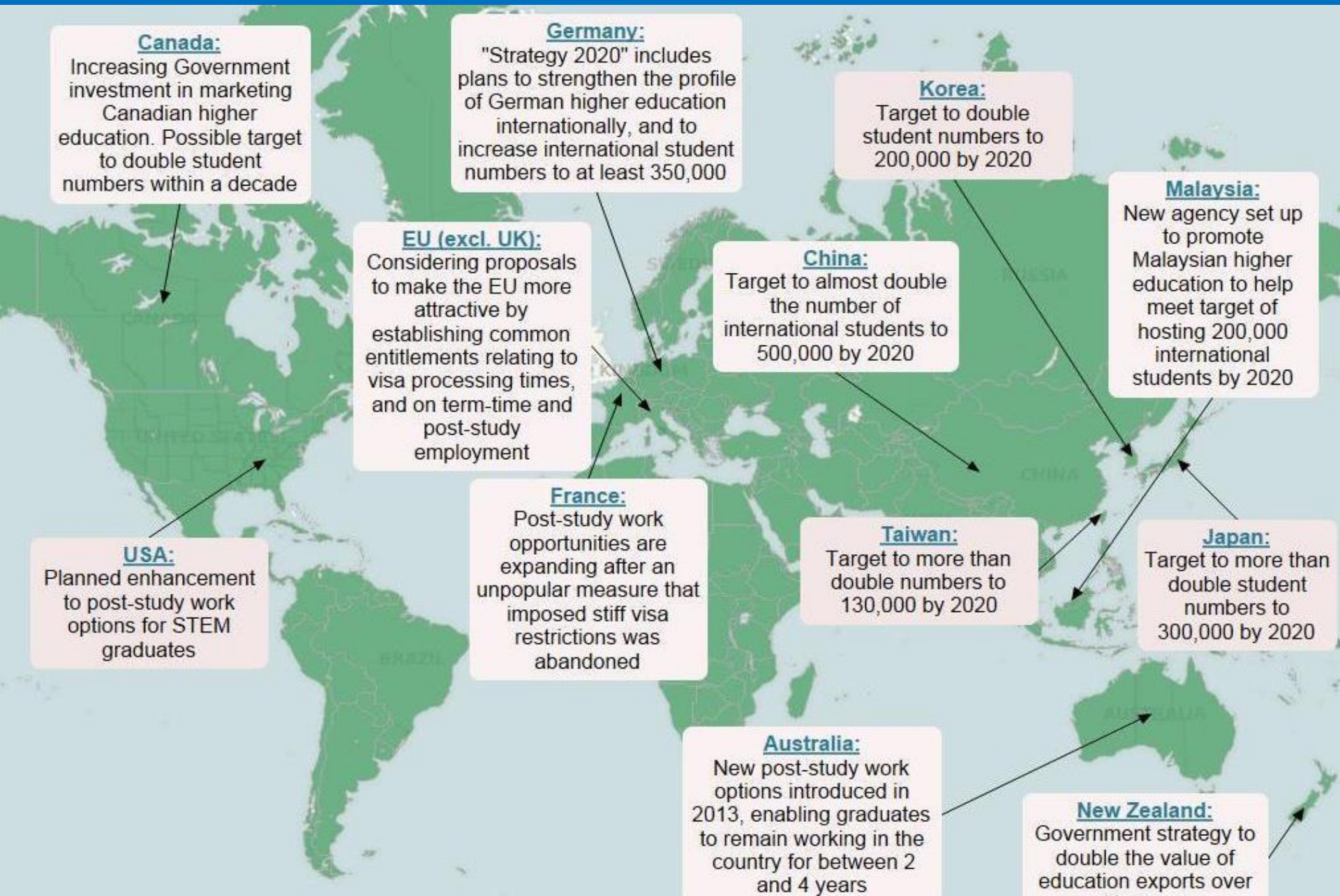
Direction of travel is worldwide

Mobile students by region of destination, 2000 – 2011 (OECD, 2013)



	2000	2011
Worldwide	2,071,963	4,265,579
Europe (incl UK)	920,140	2,033,082
North America	569,640	913,464
Asia	214,744	500,947
Oceania	118,646	343,298
Africa	99,117	176,990
Latin America & the Caribbean	31,058	78,760

New Markets, New Flows



Student mobility in figures in 2013-2014

	Type of student mobility		Total
	Studies	Work placements (traineeships)	Student mobility
Total number of Erasmus students	212 208	60 289	272 497
Average EU monthly grant (€)	255	367	274
Average duration (months)	6.2	4.4	5.8
Number of grants for special needs students	331	70	401
Top sending countries (absolute numbers)	ES, DE, FR, IT, TR	FR, ES, DE, UK, IT	ES, FR, DE, IT, UK
Top sending countries (% share of the student population)	LU, LI, ES, LT, CZ	LV, LT, MT, LI, SI	LU, LI, LV, LT, ES
Top receiving countries	ES, FR, DE, UK, IT	UK, ES, DE, FR, IT	ES, DE, FR, UK, IT
Level of studies (% share)	Bachelor 70 % Master 28 % Doctorate 1 % Short-cycle 1 %	Bachelor 56 % Master 31 % Doctorate 3 % Short-cycle 11 %	Bachelor 67 % Master 29 % Doctorate 1 % Short-cycle 3 %
Average age of students (years)	23.4	23.9	23.5
Number of higher education institutions sending students	2 407	2 829	3 456
Gender balance (% of women)	60.2 %	61.6 %	60.5 %

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A time for new ideas for branching out – new ways of collaborative teaching and research

JOHN BELL

Director of Bioeconomy, in Directorate-General Research and Innovation, European Commission

John Bell is Director for BioEconomy, DG Research & Innovation. This includes Horizon 2020, the BioEconomy strategy, the Bio Based Industries Joint Undertaking, Blue Growth, Food and Nutrition Security research and innovation for a total budget of 3.7 billion.

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Some Assumptions (hopeful) and new thinking

- UK buys into existing schemes of student mobility and research (H2020, FP9, Erasmus, ERC, Marie Skłodowska-Curie Fellowships)
- Existing individual UK fellowship schemes continue (Academies, RCUK, Foundations, 1851 etc).

- Focus on working together on the Sustainable Development Goals and the Belmont Forum, RCUK Global Challenges fund are available. FP9 likely to support more
- Exploit the concepts of Open Innovation and co-located university campuses
- European Research Infrastructures (not part of EC)
- Exploit the 3 Os of Moedas including the potential for Data science. (Moedas Book to highlight for FP9). Implications of the European Open Science Cloud

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An ERA driven by societal needs to address the 'Grand Challenges'

The ERA Milestones

We will know the ERA is driven by societal problems in 2030 when we see:

- A third of public, non-military research is geared to grand societal challenges, with a multi-disciplinary approach.
- 30% of all scientists, including humanities and social sciences, are trained in research fields relevant to the Grand Challenges.
- Multi-disciplinary academic training is generalized to educate our research community into the complexity of the Grand Challenges, without diminishing the importance of discipline-based expertise.
- The tools of 'e-science' are deployed throughout the ERA, permitting international collaboration so that all researchers will see themselves as part of the global research system.

BELMONT FORUM

The Belmont Forum is a group of the world's major and emerging funders of global environmental change research. It aims to accelerate delivery of the environmental research needed to remove critical barriers to sustainability by aligning and mobilizing international resources. It pursues the goals set in the Belmont Challenge by adding value to existing national investments and supporting international partnerships in interdisciplinary and transdisciplinary scientific endeavors

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From the 2014 Yearbook on Open Innovation

Open Innovation 2.0

- Open Innovation 2.0 (OI2) is a new paradigm based on a **Quadruple Helix Model** where government, industry, academia and civil participants work together to co-create the future and drive structural changes far beyond the scope of what any one organization or person could do alone

- We talk about principles of integrated collaboration, co-created shared value, cultivated innovation ecosystems, unleashed exponential technologies, and extraordinarily rapid adoption. We believe that innovation can be a discipline practiced by many, rather than an art mastered by few.

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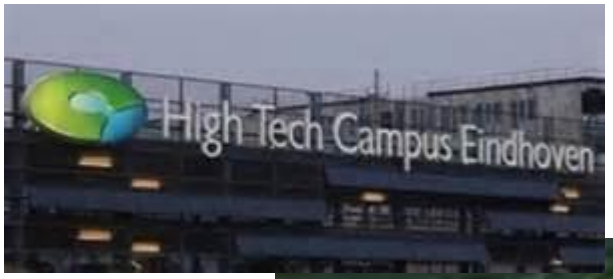
Philips Eindhoven Innovation Campus – Is there a model here for UK –EC university partnerships



Philips' Eindhoven Campus

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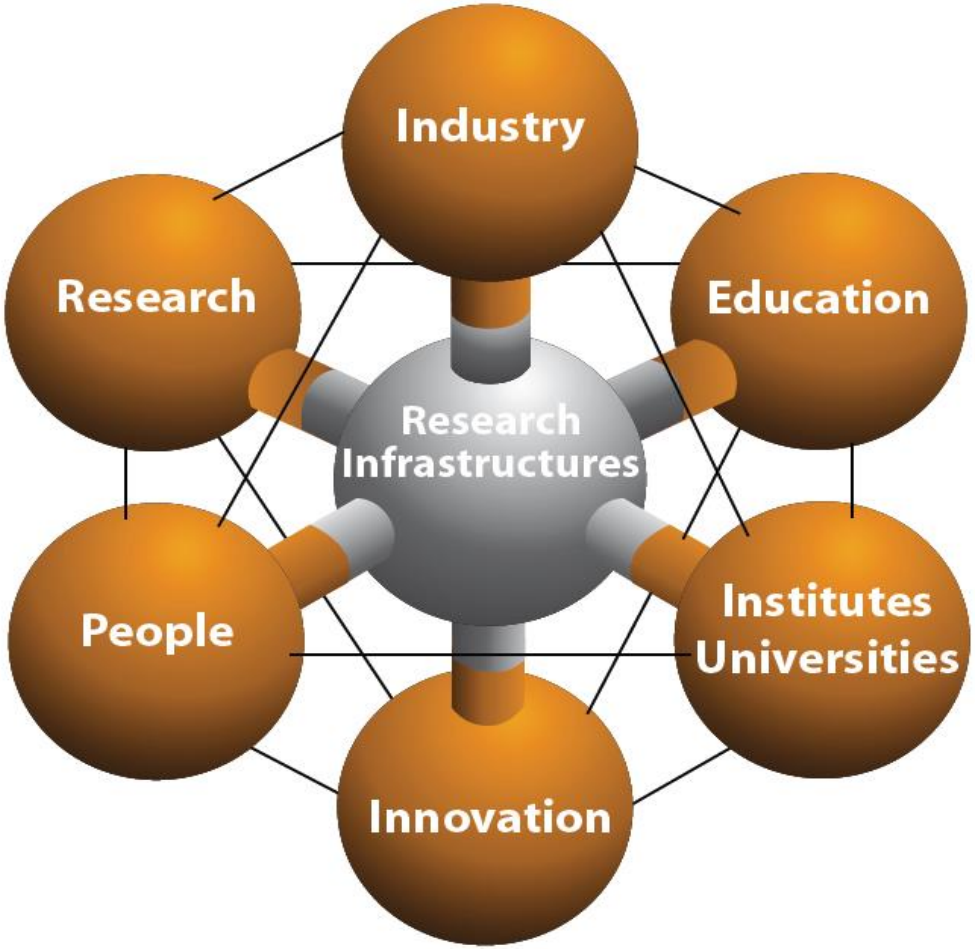
The Centrality of International Research Infrastructures for Innovation



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European Strategy Forum
on Research Infrastructures
ESFRI
STRATEGY REPORT
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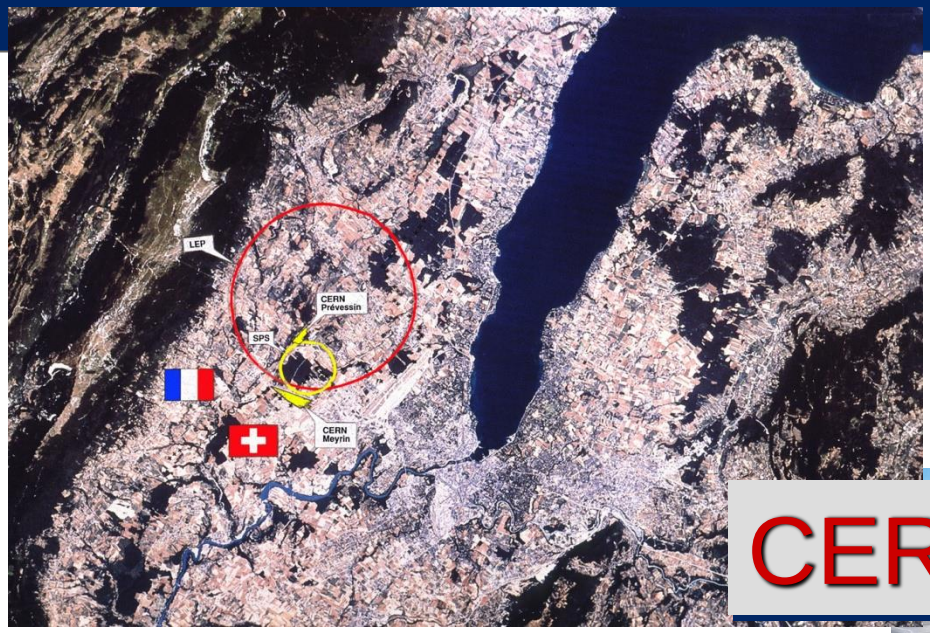
"Conseil Européen pour la Recherche Nucléaire"
"European Organisation for Particle Physics"



www.cern.ch

Basic Research Laboratory

World's largest particle physics centre

Founded in 1954

CERN

Located on top of the French-Swiss border in Geneva (Switzerland)

2600 Staff members and Fellows plus 6800 visitors on-site

1100 MCHF (730 million Euro) Annual Budget

Universities

MSc-Student Projects in Innovation IdeaSquare

Benefiting from the technical knowledge of the researchers and engineers working in experiments and in other parts of CERN, a dedicated MSc-level program has been started in **IdeaSquare** targeted to multidisciplinary student teams, complementary to the domain of physics.

This program is called **Challenge Based Innovation (CBI),** and it is organized and coordinated in collaboration with universities and business schools. *working together* in IdeaSquare - and remotely from their home institutions - on concrete prototypes addressing challenges faced by society.

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IdeaSquare

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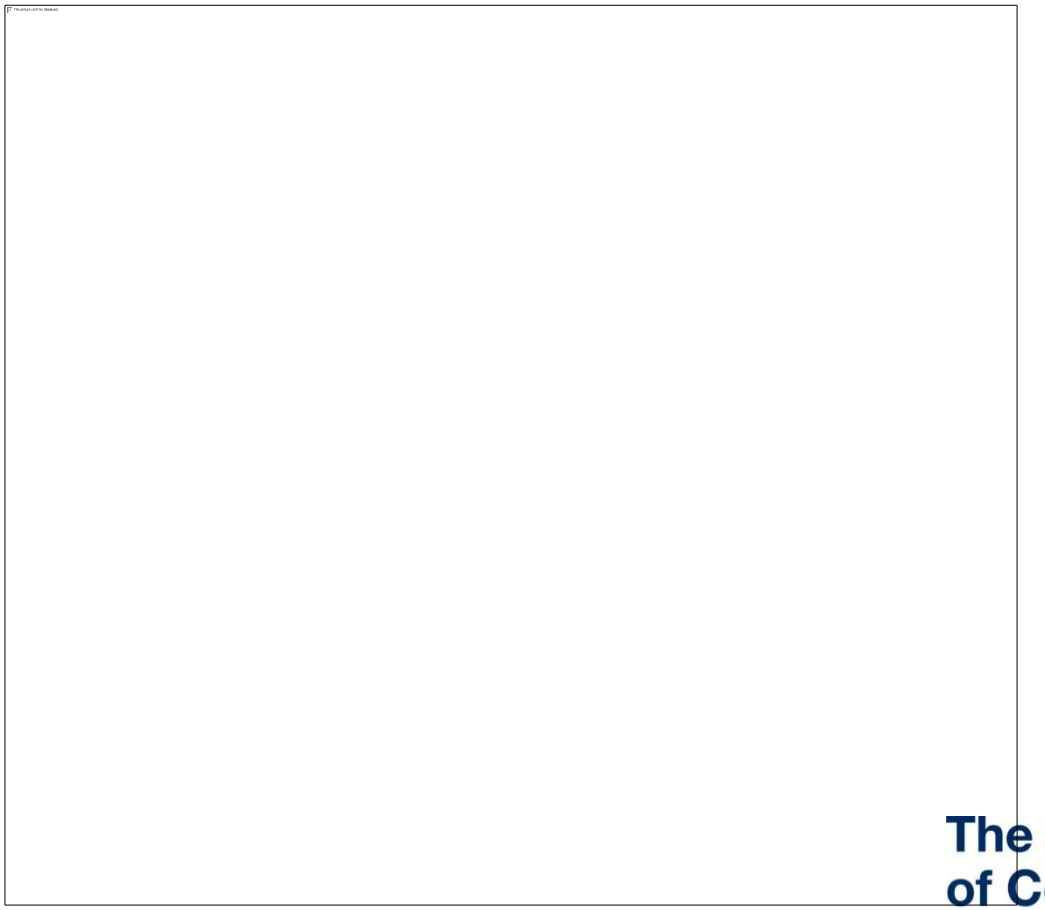
Challenge based innovation



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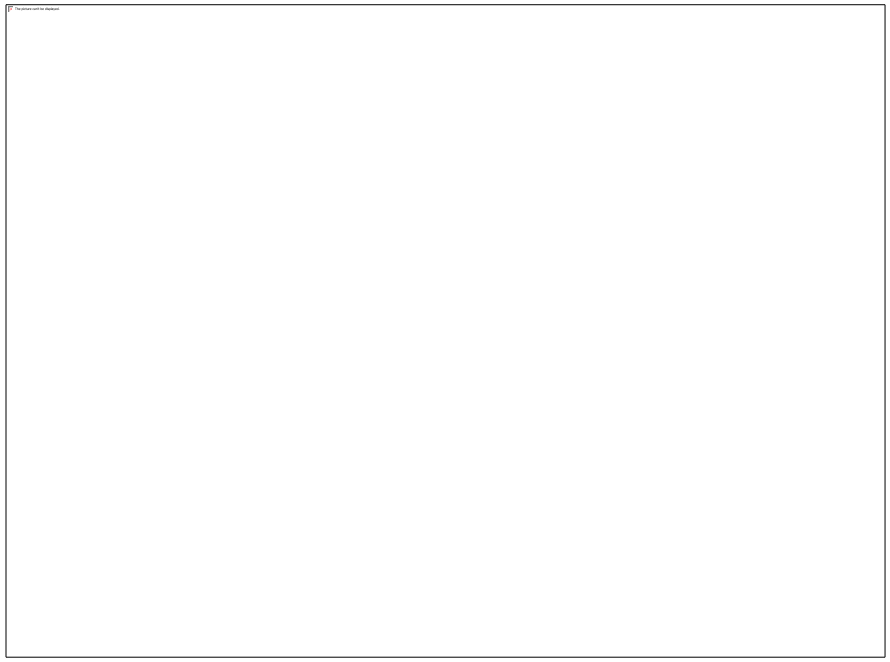
Goal – move from open science to open innovation

Initially the ATTRACT story: 6 of Europe's top public labs + 2 leading universities join forces



- CERN – the Higgs Boson
- European Molecular Biology Lab
- European Southern Observatory
- European Synchrotron Radiation Facility
- European XFEL (X-Ray Field Effect Laser)
- Institut Laue-Langevin (neutron science)
- Aalto University, Helsinki
- ESADE Business School, Barcelona
- European Industrial Research Management Association

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Common Language Resources and technology Initiative - CLARIN

- Common Language Resources and Technology Infrastructure (http://www.clarin.eu)
- Basic idea:
  - federation of digital archives with language data and tools (text, speech, multimodal, gesture …)
  - target audience humanities and social sciences scholars
  - with uniform single sign-on access to the archives
  - with access to language and speech technology tools to retrieve, manipulate, enhance, explore and exploit data
  - all languages are equally important

DARIAH in a Nutshell: By Researchers for Researchers
What is DARIAH?
DARIAH is a pan-european infrastructure for arts and humanities scholars working with computational methods. It supports digital research as well as the teaching of digital research methods.

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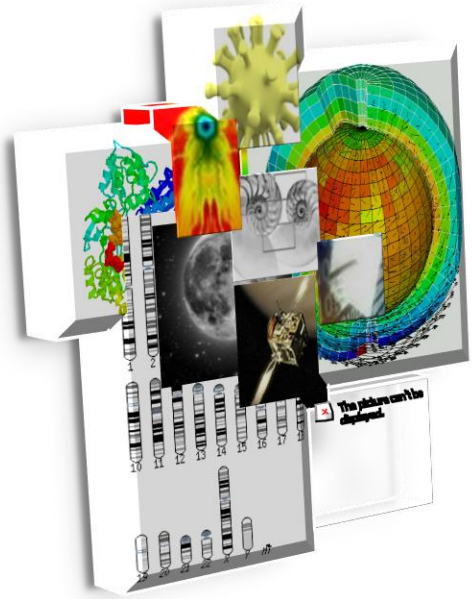
Open Science and Global collaboratories



- They can engage in whole new forms of scientific inquiry and treat information at a scale we are only beginning to see.
- … and help us solving today's Grand Challenges such as climate change and energy supply.

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RDA Interest (IG) and Working Groups (WG) by Focus 1

Domain Science - focused

- Toxicogenomics Interoperability IG
- Structural Biology IG
- Biodiversity Data Integration IG
- Agricultural Data Interoperability IG
- **Wheat Data Interoperability WG**
- Digital Practices in History and Ethnography IG
- Geospatial IG
- **Marine Data Harmonization IG**
- Metabolomics IG
- RDA/CODATA Materials Data Infrastructure and Interoperability IG
- Research Data Needs of the Photon and Neutron Science Community IG
- Defining Urban Data Exchange for Science IG
- The BioSharing Registry: Connecting data policies, standards and databases in the life sciences WG
- **Urban Quality of Life Indicators IG**

Community Needs - focused

- Community Capability Model IG
- Engagement IG
- RDA/CODATA Summer Schools in Data Science and Cloud Computing in the Developing World IG
- Development of Cloud Computing Capacity and Education in Developing World Research IG
- Data for Development IG
- Education and Training on handling of research data IG

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Scenario IV: Science and the student

Roger is working on an international PhD. It's a relatively new programme, in which a student applies to become a member of an international team working on a big problem that affects all people. His group is comparing many forms of non-verbal communications between cultures. It has several hundred members and his university tutor is one of the nodal points contributing expertise in 'synergistic communication between biological components.' Others in the network are using archaeological evidence to study communications between ancient Mesopotamian and Hellenic cultures; some are studying computer-computer interactions between different systems; yet more are studying communications in refugee camps. Each node contributes to the whole. Results are communicated as they happen, and there are daily, virtual-presence planning sessions. Roger had to sign a contract not to misuse data or contribute anything that is not for the common good – such as externally sourced information that he has not thoroughly checked for provenance.