

# JISC

JISC: Supporting e-infrastructure for research in the UK

Dr Malcolm Read OBE, JISC Executive Secretary



## UK Higher Education and Research structure

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Department for Business, Innovation & Skills (BIS)



- 7 UK Research Councils  
(£3.2 billion) in 2009-10:
- AHRC (104m)
  - BBSRC £453m)
  - ESRC (£171m)
  - EPSRC (£815m)
  - MRC (£658m)
  - NERC £408m)
  - STFC (£630m)



- 4 UK Funding Councils:
- HEFCE (£1.6bn)
  - HEFCW (£99.8m)
  - SFC (£29.4m)
  - DELNI (£47m)



- Other:
- National Academies (£83m)
  - Capital funding (£397m)
  - Knowledge transfer (£112m)
  - Science and Society (£27m)

## The UK Higher Education Sector

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- 132 institutions in England (88 universities; 44 specialist institutions & general colleges)
- 143 directly funded English FE colleges providing HE courses
- Total HEFCE funding: £7.1 billion
- 992,000\* full time students (1 in 7 from overseas)
- Overseas student fees income: £1.3 billion
- England the favourite destination of international students after the US university system\*\*
- UK HE sector a substantial industry (£45.1bn total output 2003/04)
- Income (earned revenue) of UK HEIs is £16.87 billion (2003/04)
- Average annual turnover of individual universities is £100 million
- Research productivity: UK academics produce 16 citations per US dollar (compared with 10 in US, and 4 in Japan)\*\*\*
- Open University: 161,000 part-time distance learners

\* Full-time equivalent HEFCE-funded home and EC students 2007/08

\*\* Student Pulse: i-graduate, Jan 08

\*\*\* Science & Innovation Framework 2004-2014 Progress against indicators, Jul 06

- UK research remains the most productive and efficient in the G8
- UK ranks second only in the world to the USA on leading scientific indicators
- UK ranks first among the G8 nations on the number of citations in relation to public R&D spend
- UK 2.26 papers per researcher per year (1.38 in Germany; 1.34 in France; 1.06 in USA)

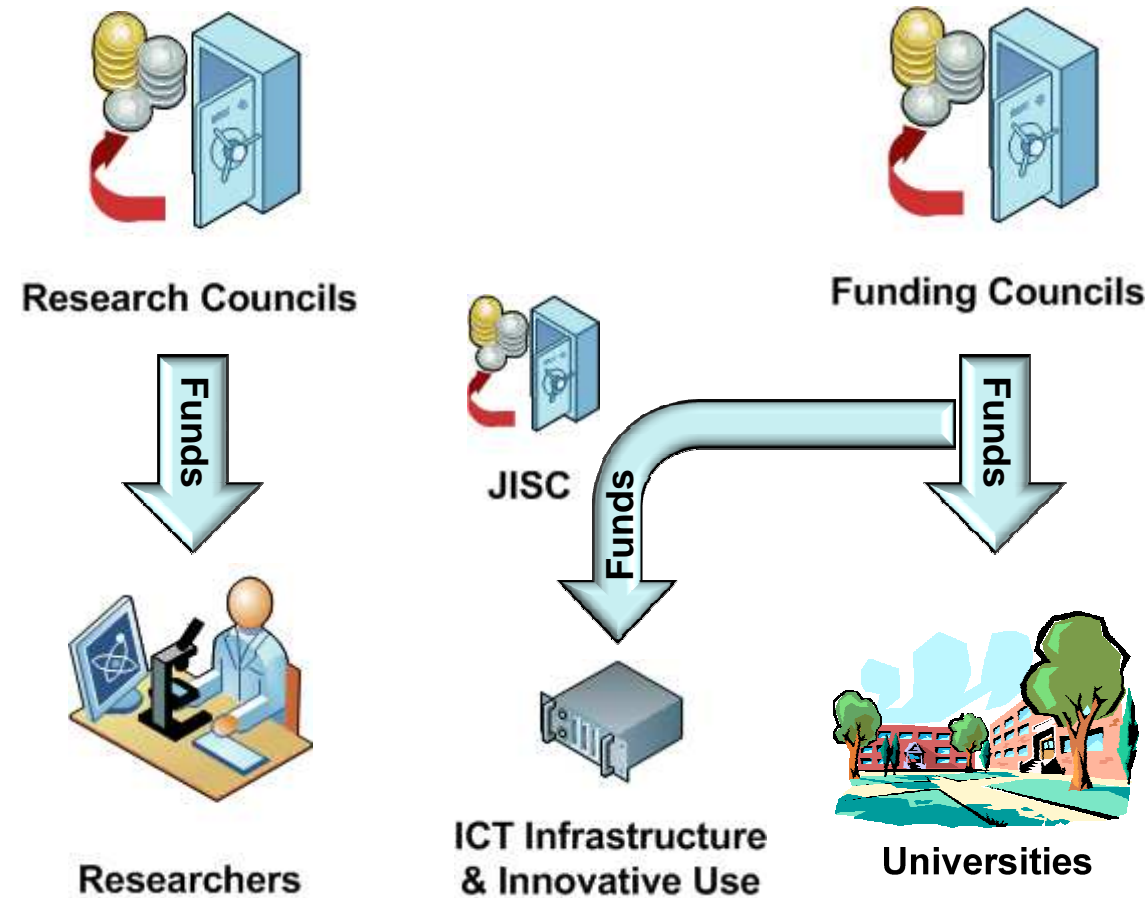
Source: BIS Report on International Comparative Performance of UK Research Base, Sept 2009

[http://www.dius.gov.uk/science/science\\_funding/science\\_budget/~-/media/publications/I/ICP\\_RUK09v1\\_4](http://www.dius.gov.uk/science/science_funding/science_budget/~-/media/publications/I/ICP_RUK09v1_4)

## UK Dual Support system

- UK Research Councils: funding for specific projects and programmes

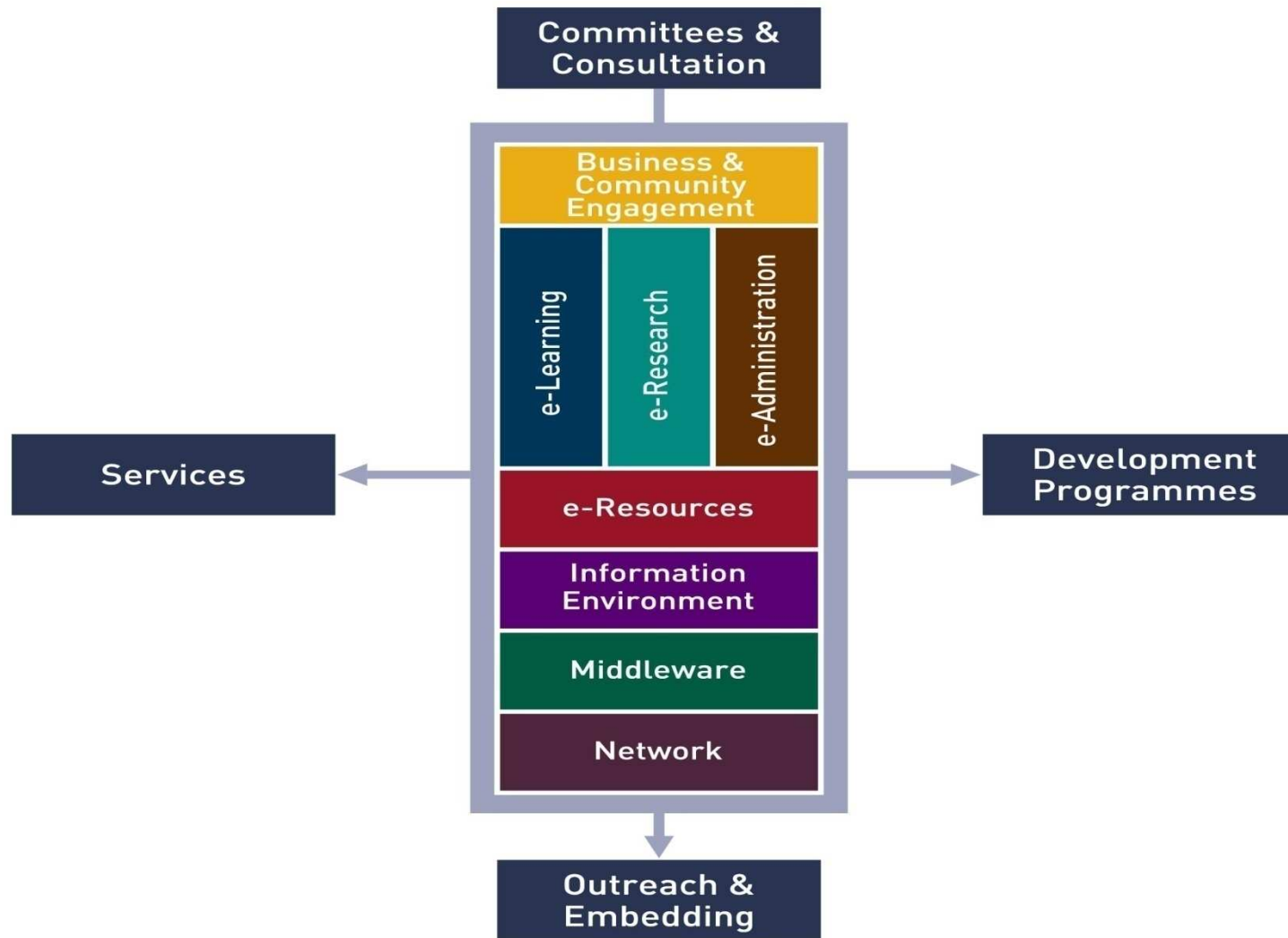
- UK funding councils: funding for research infrastructure and to enable ground-breaking research



- Standing committee of the UK higher and further education funding councils
- Strategic mission for 2010-2012: “To provide world-class leadership in the innovative use of ICT to support education, research and institutional effectiveness”
- JISC provides:
  - A world-class network (JANET)
  - Access to electronic resources
  - New environments for learning, teaching and research
  - Guidance on institutional change
  - Advisory and consultancy services
  - Regional support

[www.jisc.ac.uk](http://www.jisc.ac.uk)

## Primary JISC Activities



### ■ JISC Infrastructure Services

- JANET
- EDINA
- Mimas
- JISC Collections
- BUFVC
- ESDS

### ■ JISC Advisory Services

#### – JISC Advance

- JISC Digital Media
- JISC infoNet
- JISC Legal
- JISCMail
- JISC Netskills
- JISC Procureweb
- JISC RSC UK
- JISC TechDis

## Online content in support of e-infrastructure

- JISC Digitisation Programme 2004-2009
  - c.60 projects, at around £235m
  - Variety of sustainability models, but all freely available to UK universities and colleges
  - Highlights include (all open access)
    - **National Archives Cabinet Papers, 1915-1978**
    - **Scott Polar Institute images – Freeze Frame**
    - **First World War Poetry Archive**
  - Provide for new areas of research and different pedagogies for teaching



<http://www.jisc.ac.uk/whatwedo/programmes/digitisation/projects.aspx>

## Super computing (High Performance Computing (HPC))

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- HPC in the UK is led by research councils (EPSRC and STFC)
- Main UK facility is HECToR (High-End Computing Terascale Resource): <http://www.hector.ac.uk/>
- HECToR will be UK's contribution to PRACE (Partnership for Advanced Computing in Europe) which aims to provide a persistent pan-European HPC service and infrastructure
- JISC co-funds the National Grid Service (NGS) with EPSRC which aims to support users of mid-range systems: <http://www.ngs.ac.uk/>
- The NGS will form the UK's participation in the European Grid Initiative proposals
- HPC often now called HEC (High End Computing) - JISC represented on HEC Strategy Group convened by EPSRC

## The PRACE Programme

- Partnership for Advanced Computing in Europe. Will be part of European Research Area = huge EU investment
  - Principal partners: France (GENCI), Germany (GCS), Italy (CINECA), The Netherlands (NCF), Spain (BSC) and the UK (EPSRC)
  - Building a world-class pan-European High Performance Computing Service – distributed Research Infrastructure complemented by network and grid access, and services needed to enable applications
  - Aiming for implementation in early 2010 - will be open to European researchers and industrial users
- <http://www.prace-project.eu/>
- Is there a level of functionality needed below this for everyday users?



### ■ Supports innovation in the sector

- Digitisation of content
- Institutional repositories
- E-infrastructure
- E-learning
- Institutional support



### ■ Supports the “open” agenda

Open Source, Open Standards, Open Access,  
Open Data, Open Educational Resources,  
Open Science

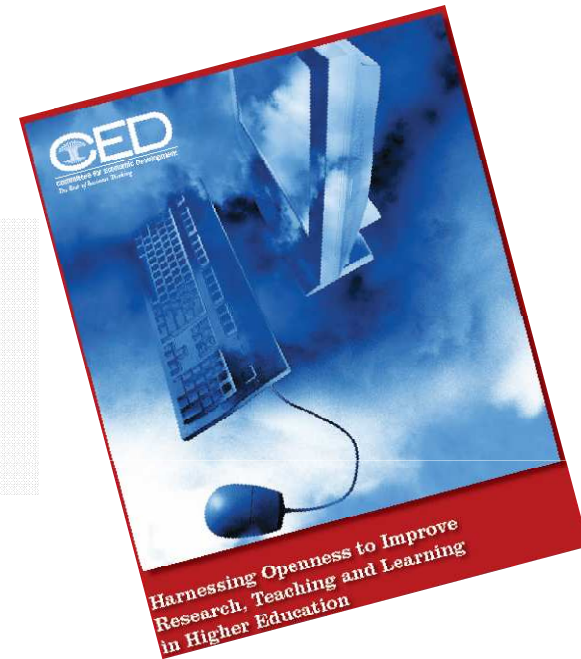


## Why we support an open agenda

*The internet is changing the nature of information, processes and institutions*

Higher education is **rooted in information**

- its creation, analysis, and transmission
- the development of the skills required to utilize it for the benefit of individuals and society.



**Why open? For example...**

- Research papers: UK estimates £116m p.a. savings in a move to 'green' Open Access plus £172m in increased returns in R&D investment
- Data: UK Climate Research Unit - data initially not shared, leading to attempts to discredit research

- Research “conducted in the spirit of free and open source software”
- Methodology, data and results freely online, enabling massively distributed collaboration
- but recognising the economics of science - “collaborate to compete”

### Emerging themes:

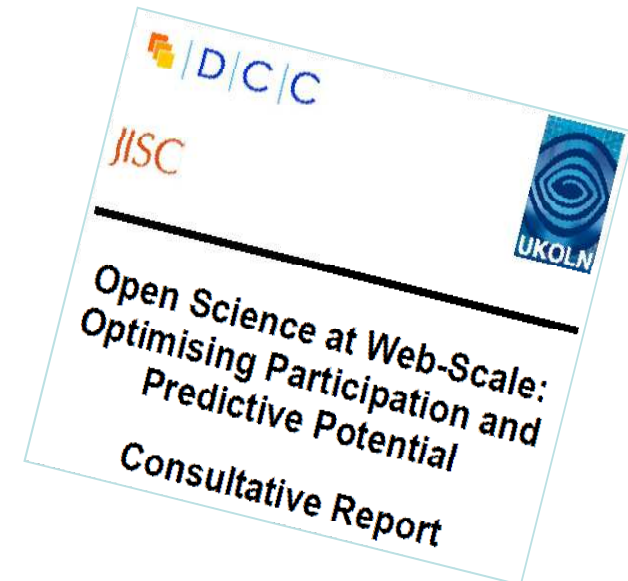
- Scale, complexity and predictive potential
- Continuum of openness
- Citizen science

### Have implications for:

- Credentials, incentives and rewards
- Institutional readiness and response
- Data informatics capacity and capability

<http://www.jisc.ac.uk/news/stories/2009/11/openscience.aspx>

*“complete and persistent access to the original data from which knowledge and conclusions have been extracted” (Frank Gibson)*



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# Questions