

RSLG terms of reference

To make recommendations to the HE Funding Bodies*, the British Library and the National libraries of Scotland and Wales on a national strategic framework and mechanisms for promoting collaboration in, and integration of the development and provision of library collections, their long-term management, and services to support research.

This should include the following:

- a. Further development of the distributed national research collections through stronger collaborative arrangements between universities, the national libraries and other research collections of national significance.
- b. Within this context to receive relevant reports on library and information matters referred by the HE funding bodies, and recommend action. In addition to provide a focus for building on studies already commissioned by the BL/HEFCE Task Force and relevant RSLP supporting actions.
- c. To recommend options for long-term scheme to support integrated access to resources of national importance in the light of experience with the RSLP access model.
- d. To review ways of taking forward, scaling up and deepening the impact of the access and collection co-ordination strands of the RSLP initiative in a UK-wide, co-ordinated way.
- e. Further development of a co-ordinated strategy for and provision of materials in printed, electronic and digitised form.
- f. To assess and make recommendations on how best to use the resources of JISC and the DNER team to facilitate this strategy.
- g. The development of a strategy for improving the availability of information about research materials and their description, building on Full Disclosure.
- h. The development of a UK-wide strategy for preservation, including digital preservation to support research and scholarship alongside the preservation of printed materials, and the requirements for technical capacity.
- i. Commissioning of specialist studies in support of this agenda.

*The Higher Education Funding Council for England, Scottish Higher Education Funding Council, Higher Education Funding Council for Wales and the Department of Higher and Further Education, Training and Employment (Northern Ireland).

RSLG membership

Sir Brian Follett (Chairman)	Chairman, Arts & Humanities Research Board
Professor Michael Anderson	Senior Vice-Principal, University of Edinburgh
Mr Bahram Bekhradnia	Director of Policy, HEFCE
Ms Lynne Brindley	Chief Executive, The British Library
Professor Robert Burgess	Vice-Chancellor, University of Leicester
Dr Reg Carr	Director of University Library Services and Bodley's Librarian, The University of Oxford
Professor David Eastwood	Chief Executive, The Arts and Humanities Research Board
Mr Andrew Green	Librarian, National Library of Wales
Professor Ian Halliday	Chief Executive, Particle Physics and Astronomy Research Council
Ms Mary Heaney	Director of Learning Resources, University of Wolverhampton
Professor Arthur Lucas	Principal, King's College London
Ms Karen Stanton	Director of Information Services, University of Nottingham

RSLG secretariat

Ms Vanessa Conte	Policy Officer, HEFCE
Mr Mike Crump	Head of Collection Development, The British Library
Mr Paul Hubbard	Head of Strategic Projects and RSLG secretary, HEFCE
Mr Will Naylor	Policy Officer, HEFCE

Scholarly publishing: remit to JISC group

Having regard to the terms of RSLG's remit, to advise the Group on:

1. Trends in scholarly publishing observable now and how these will affect patterns of publication, and researchers' use of publications, in the future. This should include
 - a. Trends in volume and preferred format of published output (e.g. are journals becoming more numerous and diverse? What is the medium term outlook for the monograph?)
 - b. The pace and focus of the switch to electronic publishing, including both "traditional" outputs in electronic form (e.g. conventional journals going online) and the development of new formats specifically exploiting the electronic medium (preprints; text outputs linked to datasets that are only available online; others?)
 - c. The case (if any) for pro-actively encouraging any particular actual or possible development (are there potential developments which might if encouraged lead to significant change in the research process or in the cost of accessing information sources?)
2. Implications of the observed trends, including:
 - a. The implications of a shift from print to electronic publishing:
 - peer review processes, copyright and ownership of material
 - the significance of journal titles as indicators of quality and peer esteem
 - the effects of change on learned societies whose journal is their main income source
 - the dynamics of commercial journal publishing
 - b. The implications for researchers' publication behaviour more broadly: are changes likely in the preferred mode and format of publication and in perceived hierarchies of publication type?
 - c. Managing access to online material – including licensing, cataloguing, and search engines.
 - d. The implications for the presentation and submission requirements of theses and for access to these.

JISC Scholarly Communications Group membership

Dr Reg Carr (Chair)	Director of University Library Services and Bodley's Librarian, The University of Oxford
Ms Lynne Brindley	Chief Executive, British Library
Dr Tony Bruce	Director of Policy Development, Universities UK
Dr Ken Edwards	Conference of European Rectors
Mr Allan Foster	Director of Information Services, Keele University
Mr Fred Friend	Director of Scholarly Communications, University College London
Dr Tom Graham	University Librarian, University of Newcastle
Mr Keith Jeffrey	Director of IT, Rutherford Appleton Laboratory
Ms Clare Jenkins	Director of Library Services, Imperial College
Professor Arthur Lucas	Principal, King's College London
Professor Charles Oppenheim	Head of the Library Information and Statistics Unit, Loughborough University
Mr John Rogers	RAE Manager, HEFCE
Professor Peter Scott	Vice-Chancellor, Kingston University
Dr Alicia Wise	DNER Assistant Director, JISC

e-science subgroup**Terms of Reference**

To advise the RSLG on issues requiring consideration within its remit in relation to e-science, including in particular the generation and sharing of very large datasets.

1. To identify and consider the options for developing an over-arching strategy for storing and sharing research information by electronic means, having regard to the following issues:
 - a. The nature and volume of such material and likely future trends in this, at international as well as national level.
 - b. Technical requirements for storing, accessing and manipulating the data and how these interact with the requirements for other research information sources.
 - c. The requirements for curation, including structuring the datasets, quality control, security measures to prevent unauthorised manipulation, preservation and archiving, and making known what is available.

e-science sub-group membership

Professor Ian Halliday (Chair)	Chief Executive, Particle Physics and Astronomy Research Council (PPARC)
Neil Beagrie	Assistant Director, Preservation, JISC
Peter Burnhill	Head of the Edinburgh University Data Library
Richard Durbin	Head of Informatics Division, Sanger Institute
Professor Tony Hey	Director of the e-Science Core Programme, Engineering and Physical Sciences Research Council (EPSRC)
Karen Stanton	Director of Information Services, University of Nottingham

Final report of the RSLG e-science sub-group

What is e-science?

1. The label e-science is used to describe a new kind of scientific research, characterised by the generation of very large datasets and the development of infrastructure to analyse and share them among researchers in separate locations. Its impact, although unpredictable, will be revolutionary – offering scientists in every discipline a completely new way to conduct their research.

Why have a UK e-science policy?

2. There is enormous intellectual and commercial capital in the UK adopting a national e-science policy. Where possible, the UK should develop into a world hub for e-science – generating and retaining the datasets and creating the tools to analyse and share them. Where this is not possible, the UK should at least secure access for its researchers to those resources generated outside the country by developing and maintaining first-class access infrastructure. Relying on other countries for these services is a great risk.

Recommendations

Investment

3. The UK has benefited enormously from a huge investment in e-science (£100 million from the Office of Science and Technology). Alongside this there are major investments in computational infrastructure to support particular areas including £65 million at the Sanger Institute from the Wellcome Trust and £x million for a new supercomputing centre from the EPSRC. Without sustained investment, however, we will quickly be overtaken by our competitors. Sustained funding for e-science is of paramount importance.

Infrastructure

4. We are already witnessing an unprecedented increase in the amount of scientific data produced. Experiments are already underway which will produce within the next ten years more data than has previously been created in the entire course of history. This demands new infrastructure capable of recording, storing and sharing this data in a secure manner.

5. Under existing arrangements, separate agencies share responsibility for transporting data. In particle physics, for example, the EU pays to connect European experiments to the UK, while JISC has responsibility for the network which connects this data to individual institutions. After that, PPARC and the institutions themselves contribute towards the infrastructure which makes this data available to individual researchers. Clearly this fragmentation is sub-optimal in terms of planning. It is also vulnerable to the vacillations of individual players and there is nervousness in the sector about its sustainability. The group recommends that all of the agencies involved should take their responsibilities in this regard very seriously and maintain a formal dialogue among themselves.

6. Physical memory is cheaper to buy than communications bandwidth. Thus it is more cost-effective to invest in distributed storage rather than pay for a network which can deliver massive amounts of data from a single source on demand. Distributed storage may also be safer than a centralised approach. The Group recommends that a distributed approach to storage be considered as a means to reduce costs, promote security and optimise efficiency for the end user.

7. The group also recommends that market management of SuperJANET should prevail to ensure that adequate capacity is available for e-science traffic.

Discovery

8. As the number of datasets escalates, researchers need more sophisticated tools to navigate the e-science environment. These tools depend on the existence of high-quality metadata (or data about data) which is consistent with other metadata within the same discipline. Fortunately within each discipline there is emerging agreement about metadata standards, but the pursuit of consensus remains a high priority. In general metadata production should be the responsibility of the creators of the underlying data and this should be explicit in funding, although regional, national or international centres may be better placed to take advantage of economies of scale and centralise production.

Access

9. Among the separate disciplines different attitudes to access are apparent. In some cases, a culture of open access characterised by incentives to publish quickly and without restriction prevails. In others, it is agreed that researchers should enjoy proprietary ownership of the data for a fixed period. Notwithstanding these distinctions, which are best addressed within the disciplines, the group recommends in principle that all publicly funded datasets should be freely accessible at the point of use. Indeed, open access for all datasets is desirable, although the group accepts that private funding and patient confidentiality among other factors impinge on certain disciplines to different degrees.

Analysis

10. Once datasets are found and accessed, researchers then require tools to manage, transform, visualise and otherwise interpret them. These functions are just as important as the discovery process and should be given equal priority. Again quality and consistency are vital and the individual disciplines each need to reach consensus on these issues. Individual disciplines are best placed to assume responsibility for the creation and maintenance of these tools and this should be made explicit in funding, although regional, national or international centres may be better placed to undertake this work.

Middleware

11. The development of new middleware for authentication, authorisation and accounting (the so-called “AAA” issues) is a priority. Clearly there will be many commonalities among the separate disciplines here which should be addressed centrally.

Retention: Which data should be retained?

12. Retention means:

- a. Maintaining datasets for re-use by researchers; and,
- b. Long-term archiving bearing in mind the possibility of a “second life” for the data, e.g. the history of science.

13. In some disciplines the useful life of much experimental data is limited to 10 years or even less. In others, there is data which will be needed in perpetuity. Hence it is the responsibility of the individual disciplines to decide which data should be retained and for how long, based on an appraisal of the cost of generating the data; the estimated cost of repeating the experiment; the value of the data; its use by researchers; and the cost of storage. Given that the cost of storage is fast diminishing, these decisions should generally err on the side of caution. In practice, the research councils may be best placed to appraise the data and help fund retention activity, although in some cases individual HEIs and departments should be involved.

14. The priority here is the retention of the datasets alongside associated metadata which provides key contextual information. Without this metadata it is almost impossible to interpret the datasets, rendering them useless. Links among separate datasets are also important – a great number of resources employ linked data as corroborating evidence or context, and these links could easily be lost as data migrates among different hosts and existing standards become obsolete. Other media including video and audio will increasingly be regarded as data and the retention of these in conjunction with accompanying structure and other identifiers should be addressed.

15. In some fields curated secondary databases are generated which capture long term value in the primary data. These typically support classification and indexing of information presented less explicitly in the primary data, in addition to providing a valuable standardisation and quality control of data. They require management of, and middleware support for, versioning of data. Such databases are naturally global in view so should either be internationally unique or part of an international federation. In disciplines where such resources exist, UK data centres should co-ordinate with them. In cases where we have or can establish international leadership there is a strong national interest in supporting the development and sustained management of the resource. Maintenance of the primary resource is almost always associated with centre of excellence in the use of the data.

Who should be responsible for retention?

16. The common denominator should be that the funding model incorporates provision for retention. In practice this probably means sharing the bill among the research councils and other sponsors. The balance will depend on the discipline, but again agreement should be made explicit. Deciding who is best placed to undertake the work itself is best also left to the disciplines, although responsibility must be made clear.

17. HEIs should play a supporting role by retaining datasets produced by faculty (although the group accepts this is not feasible in some disciplines).

18. National e-theses standards and central indexing which both takes advantage of the economies of scale in retaining data from postgraduate research and ensures open access is desirable. The Group believes this is a powerful lever in the development of co-ordinated planning and standards and open access among all UK researchers.

19. Given the high importance of retention and its inherent technical challenges, consideration should also be given to the creation of a new national focus for research into retention. This requires input from every discipline.

Disaster recovery plan

20. Finally, the sub-group recommends that a disaster recovery plan to mitigate against the loss of data and services should be required for any UK e-science centre.

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Glossary of acronyms

ALPSP	Association of Learned and Professional Society Publishers
ARL	Association of Research Libraries
CAIRNS	Co-operative Academic Retrieval Network for Scotland
CURL	Consortium of University Research Libraries
eLib	UK Electronic Libraries Programme (JISC)
HEFCE	Higher Education Funding Council for England
JISC	Joint Information Systems Committee
NESLI	National Electronic Site Licensing Initiative
OCLC	Online Computer Library Center
OhioLINK	Ohio Library and Information Network
OPAC	Online Public Access Catalogue
RAE	Research Assessment Exercise
RESCOLINC	Research Council Libraries & Information Consortium
RLG	Research Libraries Group (USA)
RLN	Research Libraries Network
RSLG	Research Support Libraries Group
RSLP	Research Support Libraries Programme
SCG	JISC Scholarly Communications Group
SCONUL	Society of College, National and University Libraries
SPARC	Scholarly Publication and Academic Resources Coalition
SUNCAT	Serials Union Catalogue
SuperJANET	Super Joint Academic Network