

RSLG

Research Support Libraries Group

Final Report

Contents

Executive summary and recommendations		1
Section A	Introduction	5
Section B	What do researchers need?	10
Section C	Library resources for UK researchers	16
Section D	The way forward: tasks	25
Section E	A new body: the Research Libraries Network	48
Annexes		
Annex A	RSLG: terms of reference and membership	57
Annex B	Joint Information Systems Committee Scholarly Communications Group: terms of reference and membership	59
Annex C	RSLG e-Science sub-group: terms of reference, membership and final report	61
Annex D	Bibliography	66
Annex E	Glossary of acronyms	71

© HEFCE 2003

The copyright for this publication is held by the Higher Education Funding Council for England (HEFCE). The material may be copied or reproduced provided that the source is acknowledged and the material, wholly or in part, is not used for commercial gain. Use of the material for commercial gain requires the prior written permission of the HEFCE.

Executive summary and recommendations

1. The Research Support Libraries Group was established by the four UK higher education funding councils, the British Library and the national libraries of Scotland and Wales in 2001 to make recommendations for a UK wide strategic framework and co-ordinated delivery mechanisms for research information provision. Our sponsors are concerned about the long-term viability of the current pattern of provision in the face of growing external pressures, notably the challenge of electronic delivery of material directly to the desk top along with the rising cost and volume of published research material. These changes fundamentally alter how research information will be provided in the future, and our core concern has been to devise a programme for action to ensure that UK professional researchers will continue to have access to the full range of world-class information resources wherever these resources are located. At the heart of our considerations lies cooperation and a vital aspect has been the involvement of the British Library alongside the universities.

2. The keystone of our approach has been that a national strategy for provision should be driven by the needs of researchers. To identify these needs we have consulted widely, including through a call for evidence, a survey of researchers' use of information sources and a series of meetings with researchers, information professionals and others. We have also made a number of overseas visits to observe at first hand international exemplars of research information provision.

3. Our key conclusion is that the UK should create a new body to lead and co-ordinate the provision of research information. Developments now taking place in research methods and information handling, spurred by the growth of electronic tools, represent an opportunity and a challenge to which existing bodies and structures are not well placed to respond. Existing providers of research information work in loosely co-ordinated networks which lack the unified and focussed strategic leadership required to pull together a national framework of interdependent functions and to generate comprehensive and sustainable solutions to the information needs of researchers as a discrete group. Much deeper collaboration between research libraries is required in this electronic era where many functions are better carried out jointly than severally. We consider this task to be of sufficient importance to require a new body with that sole remit. The UK has an excellent record of undertaking research library developments cooperatively, from the document delivery system evolved in the fifties to electronic library developments in the nineties: it is because of these successful ventures that we have confidence in arguing for a new national body.

4. We envisage three distinct roles for a new body, which we have called the Research Libraries Network. First, it will give strategic leadership to the provision of research information in the UK, engaging both providers and users in the formulation and delivery of a comprehensive programme (laid out in detail below) driven by the requirements of researchers in all disciplines and underpinned by increasingly close and effective collaboration between providers. Second, it will have an executive function in ensuring that the programme is funded and implemented. Third, it will act as a high-level advocate for research information, ensuring that researchers' developing needs inform policy making at

the very highest levels of government. In this capacity it will also speak for the UK internationally, giving the UK a powerful and unified voice in international debates on the development of research information technology.

5. We know of no other country that has yet attempted to create a body with the remit we envisage. We now have a unique opportunity to create a body unparalleled among our research competitors. If we fail to take this opportunity, we risk having to make do with a progressively weakening network of research information provision driven largely by outside providers. But if we seize it, UK research information provision could be brought into a position of world leadership, with the quality and impact of UK based research enhanced in an increasingly important global market.

Recommendations

6. We recommend that our sponsors create the Research Libraries Network with a remit to develop, prioritise and lead a UK-wide strategy for research information provision. We believe that this strategy should include the tasks laid out below, which we suggest should be tackled in three stages. It is important to stress at the outset that we do not envisage the RLN itself implementing all of the tasks listed below. In most cases there are existing bodies already working in these areas, and it will be crucial for the success of the RLN that the existing impetus is retained and built upon. The key difference with current arrangements is that *responsibility for the strategic formulation and prioritisation of these tasks will shift to the RLN*. This is discussed in more detail in Section E.

7. It also important to stress those areas where the RLN will require the co-operation of providers outside the immediate orbit of our sponsors. In particular, a number of elements in the programme will require the full co-operation of holding libraries, and we hope that colleagues working in information provision will consider these carefully. RLN for its part will need to consider how best to secure this co-operation and whether specific incentives will need to be provided.

Immediate steps

- a. Set up the new body with suitably high profile membership and leadership.
- b. Establish ongoing dialogue with a wide range of researchers including through existing bodies.
- c. Draw up a structured programme of action based on the areas listed below and agree this with sponsors and other stakeholders.

Work already in hand or a high priority for action

- d. Discovery: expedite a national serials catalogue (SUNCAT) to launch state (i.e. structure, software, sufficiently populated to launch) [paragraph 93a].
- e. Discovery: initiate work to develop a new tool for cross searching of existing online catalogues of print material maintained within higher education and BL/ national libraries (i.e. national catalogue phase 1) [paragraph 93b/c]. Ensure full compatibility with SUNCAT above [paragraphs 98-103]. Ensure that the tool can also handle online materials as metadata become available (see f. below) [paragraph 103].
- f. Discovery: establish and promulgate required metadata and cataloguing standards for online resources [paragraph 97b].
- g. Access: administer the development and implementation from 2004 of a modified access fund for research support libraries [paragraph 125].
- h. Access: pursue licensing of key commercially owned research resources, beginning by investigating and developing new costing and charging models [paragraphs 116-120].
- i. Access: develop common standard authorisation/ authentication, working with content providers [paragraphs 114-5].
- j. Scholarly communication: establish in consultation with universities, researchers, learned societies and their publishing arms a forward programme of action [paragraph 158a].
- k. Retention: commission work on needs and costs in the preservation of digital material [paragraphs 140-1].

Second stage work

- l. Discovery: establish desirable eventual coverage of hard copy material in a national catalogue (including serials), including a national holdings survey and cost benefit analysis [paragraph 93b]. Open negotiations with holders of collections desirably in scope and already catalogued electronically. Identify collections not yet electronically catalogued and discuss ways forward with holders and, if appropriate, potential sponsors.
- m. Discovery/ access: scope and develop the integrated catalogue to include borrowing status information as a basis for interlending [paragraphs 98-103].
- n. Discovery: establish the “virtual catalogue”, pulling together links to online materials building on metadata development at f. above. Work on feasibility of more sophisticated online cataloguing and search tools specifically for researchers. Work

with user community to investigate needs, feasibility and costs for subject-specific tools or portals [paragraphs 98-103].

o. Access: develop common tools and approaches for structuring and handling online materials. Work with content providers to ensure seamless access through the integrated catalogue [paragraphs 111-2].

p. Access: develop common generic platforms for online information sharing/publication, including peer review systems [paragraph 158b].

q. Access: promote and facilitate collaborative collection development for print collections based on the national catalogue [paragraph 128].

r. Retention: undertake cost-benefit study of collaborative retention including managed disposals. Promote and facilitate action as required: this may include working with funders [paragraphs 135-141].

s. Digital preservation: if necessary, establish mechanisms for “last resort” archiving of material not reliably preserved elsewhere [paragraph 141].

t. General: represent, or ensure representation of UK in international forums.

8. We recommend that a formal review of progress should be undertaken three years after launching RLN, so allowing its sponsors to consider how it should develop further.

Further recommendations

9. We recommend that ways should be found to ensure the continuing financial health of the British Library, the National Library of Wales and the National Library of Scotland, to fulfil their roles as guardians of the national collections, including keeping pace with developments in volume and cost in both hard copy and electronic materials [paragraphs 125-131].

10. We recommend that ways should be found to ensure the continuing financial viability of the British Library’s document supply and inter-lending services [paragraphs 132-3].

11. We recommend action by the higher education funding bodies working through RLN:

a. In the short term, to continue to pay the “access fund” grants hitherto made available through RSLP, on broadly the present basis including the link to observed visitor loads and the requirement to admit researchers from any UK university; and

b. As soon as is practicable, to modify the scheme to give priority funding to universities which grant borrowing rights to researchers from other UK universities in line with Research Plus [paragraphs 124-5].

Section A

Introduction

Background to the Group's work

12. The Research Support Libraries Group was established jointly by the four UK higher education funding bodies¹, the British Library and the national libraries of Scotland and Wales in 2001 with the terms of reference and membership set out at Annex A. We were invited to make recommendations for a UK wide strategic framework and mechanisms for promoting collaboration in the development and provision of library collections, their long-term management, and services to support research. Our core concern has been to devise a programme for action to ensure that professional researchers in the UK will continue to have access to the full range of world-class information resources wherever these resources are located.

13. It is widely appreciated, here and overseas, that the current and historic means of providing research information primarily through national and local university libraries has a number of drawbacks as a model for the future; and that it is now timely to consider whether stronger networking mechanisms are required to provide co-operative national solutions for some aspects of this essential component of the national research infrastructure. Two underlying factors are working together here. First, there is evidence that the rising cost and volume of hard copy material are beginning to force UK research libraries to scale back coverage of these resources. Second, the emergence of electronic forms of information sharing offers the major challenge in the coming decades: it has effectively inverted the traditional means of delivering research information and requires innovative response by the library community. New materials, published in new forms, are being added to the continuing flow of printed publications, and new ways of storing and sharing information in all media are being opened up.

14. A most important feature of the group's work has been the active involvement, alongside university research libraries, of the British Library and the national libraries of Wales and Scotland. Their participation creates the opportunity for developing a truly UK-wide strategy for the collection, management and delivery of research resources, and was welcomed in the Fifth Report by the House of Commons Education and Skills Select Committee on Library Resources for Higher Education published in July 2002². It paves the way for collaboration in research information provision reflecting how researchers work across libraries within and outside the higher education sector, drawing together resources funded through a range of government departments and territorial administrations.

¹ The Higher Education Funding Council for England, Scottish Higher Education Funding Council, Higher Education Funding Council for Wales and the Department for Employment and Learning, Northern Ireland.

² House of Commons Education and Skills Select Committee. (2002) Library Resources for Higher Education, Fifth Report of Session 2001-02.

<http://www.publications.parliament.uk/pa/cm200102/cmselect/cmeduski/804/80402.htm>

Our working method

15. We met nine times between July 2001 and November 2002. Our approach and working methods reflected our perception of the complexity of our remit and the range and diversity of research information providers and stakeholders. We have consulted widely, throughout our work, with the research and library communities and many other stakeholders. This included an early call for evidence to a range of bodies (we received over 200 responses); focus group meetings with librarians and researchers; commissioned research studies drawing upon user and stakeholder views and experience; and meetings between the Chairman and Secretariat and interested bodies and individuals. We have kept the library and research communities informed of our thinking through our website, www.rslg.ac.uk, and through presentations to conferences by our Chairman.

16. Detailed work was carried out on our behalf by a sub-group on e-Science and a working group on the British Library Document Supply Centre. We also commissioned a report from a working group on scholarly communications established by the higher education funding bodies' Joint Information Systems Committee (JISC)³. We commissioned three research studies: a study of researchers' use of libraries⁴; a study of international experience in library collaboration⁵; and a short study of research library costs⁶. (The last of these relied upon cost information made available in confidence by individual institutions, and therefore will not be published.) Some of us visited North America and Sweden to observe at first hand international exemplars of research library collaboration. We also drew upon a range of work commissioned by other bodies, including in particular a study of the barriers to resource sharing among higher education libraries conducted for the Research Support Libraries Programme (RSLP)⁷, and feasibility studies on national union catalogues of printed monographs and serials commissioned jointly by the British Library, JISC, RSLP and others⁸. A bibliography appears at Annex D.

Key issues

17. We considered four key questions (or groups of questions) against a ten-year planning horizon:

- What do researchers in the natural sciences, social sciences and the humanities want, in terms of access to library and information resources?

³ JISC Scholarly Communications Group. (2002) Final Report from the JISC Scholarly Communications Group (SCG) to the Research Support Libraries Group (RSLG). <http://www.jisc.ac.uk/jcie/scg/>

⁴ Education for Change Ltd, SIRU University of Brighton & The Research Partnership. (2002) Researchers' Use of Libraries and other Information Sources: current patterns and future trends. <http://www.rslg.ac.uk/research/>

⁵ Information Strategy Research Unit at the University of Brighton. (2002) Collaboration in research library provision: international comparisons. <http://www.rslg.ac.uk/research/>

⁶ JM Consulting Ltd. (2002) Review of Costs of Research Libraries in HE. Unpublished.

⁷ Higher Education Consultancy Group and CHEMS Consulting. (2002) A Report to the RSLP on: Barriers to Resource Sharing Among Higher Education Libraries. <http://www.rslp.ac.uk/circs/2002/barriers1.doc> and <http://www.rslp.ac.uk/circs/2002/barriers2.doc>

⁸ Bull, R. et. al. (2001) Feasibility Study for a National Union Catalogue. <http://www.uknuc.shefc.ac.uk/>

- What is the present state of the UK research-related library and information resource base, and how is this likely to develop on current trends? What is the present position with regard to electronic research resources?
- What overall strategy can best ensure the continuing delivery of world class information resources to UK researchers in view of financial pressures and the shift towards electronic delivery? In particular:
 - What part might be played within such a strategy by increased collaboration in print resources?
 - What might be achieved by expanding the scale and reach of the Information Environment currently being developed by the JISC?
 - What national changes are needed, including changes in the structure and management of scholarly communications, to ensure development of, and access to, significant new research resources?
 - What role do we see for the national libraries working within the new arrangements that we envisage?
- What specific actions need to be taken, and what new structures put in place, to ensure that appropriate action is taken to meet these challenges?

Scope and coverage

18. The following sections of our report consider these questions in turn. But before we do, it is important to discuss scope and coverage. This is a report about the changing information needs of professional researchers, and about the role of research support libraries and some other bodies in meeting these. Five important points about its scope and coverage, and our use of certain words and phrases, should be clarified at the start.

19. First, in this report we refer frequently to research information and research information sources or resources. Unless clearly stated otherwise, we mean by these phrases the full body of information of all kinds that professional researchers use and share (or may in the near future begin to use) ranging from primary sources and datasets to formal and informal publication of findings. As well as printed material, this may include a range of materials in other physical forms capable of reproduction (photographs, sound recordings, archive materials) or in electronic form (journals, datasets, digital images). All are of concern to us.

20. Second, when we refer to “researchers” we mean anyone engaged professionally in research at a high level (primarily academic staff, research staff and postgraduate research students). Clearly this potentially includes all researchers working within and outside higher education, but in view of our origins as a group we have concentrated on the needs of researchers within higher education and the public sector. Nonetheless it is our hope and

intention that our proposals will help to meet the needs of all professional researchers within the UK working at the level we have indicated. We believe that the support of high quality research is essential to future national prosperity and the creation of an inclusive society, and that facilities for research support should be available (on appropriate terms) to all researchers wherever they are based.

21. We also believe that information resources made available to researchers by universities should, as far as possible, be made available to other users too. University libraries generally provide equally for researchers and for students and teachers; and virtually all academic and research libraries are open to some extent to more general readers (quite properly, in our view). Research information tools and resources of the kind discussed in this report should also generally be accessible to all users without unnecessary restrictions, but on the understanding that they are not designed with their needs specifically in mind.

22. Third, we are concerned with research support libraries – that is, any library that provides a significant service to researchers (in our definition above) even if that is not the library's primary or intended client group. Again, we may have thought primarily in terms of the libraries maintained by our sponsors – those in universities and the British Library and other national libraries – but we would hope to see our programme of action carried forward in full collaboration with as many other research library and information providers as possible.

23. Fourth, we are well aware that much of what is said in this report could refer equally to provision to support teaching and learning. The distinction between learning and research often becomes blurred in upper level undergraduate and taught postgraduate courses, and significant elements in the holdings of any university library perform a dual function in learning and research support. There will be overlaps between the provision that we propose for researchers and what will be required to meet the needs of teachers and students, as it would make no sense to ring fence facilities for researchers alone. Common software tools and technical standards, and open access to publicly funded materials, are clearly desirable. At the same time, we were asked to advise on the needs of researchers in particular, and – as we explain in the following section – professional researchers are an important and discrete group having particular needs and carrying substantial responsibility for delivering much of the UK's research capability. In our view this reflects a real qualitative difference between the needs of researchers and other information users which should be taken into account even where there are shared materials and common structures.

24. Finally, the question of our territorial horizon may be raised. Our remit is to consider needs and provision within the UK and this we have done. We are aware that the availability of research resources from other countries is already a matter of concern to some researchers, and can see that the growth in online resources makes traditional geographical boundaries largely redundant. Our view is that the research information needs of the UK need to be met largely through our own actions in order to ensure that UK researchers do continue to get what they need. If this means taking a lead in the development of tools and resources that might in time be produced or adopted elsewhere, we should strive for

common standards, but should not be too ready to cede the lead to organisations in other countries whose needs and priorities may not match our own. Research of international quality is a competitive global business and a leading role in the provision and management of its primary raw material is worth achieving.

Section B

What do researchers need?

25. The keystone of our approach to a national strategy for research information provision is that it should be driven by the manifest needs of researchers. To identify these needs we launched our work with a call for evidence, which sought comments on researchers' requirements from researchers, research support librarians, research managers in universities and from research representative bodies. To take this further, and to provide a more detailed picture of actual practice and researchers' needs for the future, we commissioned a major survey of, "Researchers' Use of Libraries and other Information Sources: current patterns and future trends."⁹

26. The survey findings were based on a sample of 3,390 researchers drawn from the 2001 Research Assessment Exercise (RAE) Census. To ensure a representative sample across the UK and across all levels of research, additional samples were drawn for Wales and Northern Ireland together with a sample of postgraduate researchers from seven universities across the UK. A response rate of 45 per cent was achieved. The survey was backed up by focus group meetings with groups of active researchers during both the survey design and analysis phases of the work.

27. From the outcomes of the call for evidence and the survey, we have identified four key themes in researchers' use of and developing requirements for information resources:

- The "hybrid library"¹⁰: researchers in all disciplines regard both hard copy and electronic material as essential information resources now and for the foreseeable future; but the availability of information from online sources is increasingly important for researchers in all disciplines.
- Researchers need better tools for identifying and locating research information and increasingly expect these to emerge in electronic form.
- Access to external providers of print resources (beyond the "home" library) is important for researchers in all disciplines.
- The overwhelming majority of researchers regard their own university library as essential to their research, and a significant proportion regard the British Library as an essential source for documents not in their home library.

28. In the following paragraphs we summarise the evidence underlying each of these conclusions. Before looking at the evidence in detail however we should like to highlight an important general point arising from our enquiries. It is easy to look at a field in which

⁹ Education for Change Ltd, SIRU University of Brighton & The Research Partnership. (2002) op. cit.

¹⁰ See: Carr, R. (2001) Towards the hybrid library: the national perspective in the UK (Presentation to the MALIBU Conference, 26 March 2001).

<http://www.bodley.ox.ac.uk/librarian/malibu2001/malibu2001.htm>

innovative new tools and techniques are emerging and to pronounce these essential to the future development of research, without clear evidence that researchers will adopt them in practice. The history of the internet is already punctuated by ideas that were warmly applauded at their first appearance but somehow never quite got off the ground. In the present case, we believe that we have assembled convincing evidence that new approaches and techniques are already being embraced by a significant part of the research community, and that the strong positive reaction to these expressed by some researchers reflects a significant body of experience in working with them.

Researchers in all disciplines regard both hard copy and electronic material as essential information resources now and for the foreseeable future

- 60 per cent of medical and biological science researchers and 77 per cent in physical science and engineering regard printed books as essential resources.
- Some 92 per cent of researchers in the arts, humanities and social sciences regard printed books as essential resources.
- 95 per cent of all researchers perceive access to printed refereed journals as essential.
- 75 per cent of researchers in the sciences now view electronic access to e-journals and electronic full text services as essential, compared to 57 per cent in social sciences and 22 per cent in the humanities. However almost 60 per cent of the third group expect their use of electronic journals to increase in the next ten years.

29. These results reinforce our perception that the “hybrid library” of hard copy and electronic resources is already a reality for researchers in all disciplines. In the humanities, where hard copy resources remain the primary source of research information, a significant minority of researchers already regard electronic resources as essential too. Moreover discussion in the focus groups suggested that the current relatively low use of electronic journals in the humanities is largely the result of the lower numbers of relevant journal titles presently available in electronic form. Nonetheless, and even in those disciplines where electronic resources have made a heavy impact, there is no sign of hard copy resources being abandoned.

30. Significant differences persist in patterns of information use among researchers working in different disciplines. For example, research in the medical and biological sciences is focussed heavily on journal literature and primary data and three quarters of this group view electronic access to e-journals and electronic full text services as essential. By contrast, researchers in area studies and languages rely primarily on printed books. Researchers in this group also rely more heavily than any other discipline on non-refereed journals, newspapers, rare books and manuscripts, microfilm, moving images and sound recordings: 61 per cent of researchers in area studies and languages regard access to rare books and manuscripts as essential to their research, compared to 49 per cent in arts and just 3 per cent in medical and biological sciences. Social scientists, on the other hand, generally use both hard copy and electronic resources equally.

31. These differences are important because they demand a subtle and diverse approach to national research information provision. While there is evidence that some issues are of

concern to researchers in all disciplines, such as the need for improved electronic catalogues, there are other issues that clearly apply to discrete sub-groups, such as access to rare books and manuscripts.

Information from online sources is increasingly important for researchers in all disciplines

- 74 per cent of researchers overall anticipate using electronic journals more in the future. Support was highest among medical and biological science researchers (84 per cent), and lowest among researchers in the arts and humanities (57 per cent).
- 56 per cent of researchers overall expect to use electronic pre-print archives more in the future.
- 20 per cent of researchers overall expect to use innovative electronic applications involving sound and moving images more in the future.

32. Respondents were asked to comment freely on the main advantages of using electronic tools to access and share information. Consensus emerged on the following advantages:

- Easier access from any location (54 per cent).
- Faster access to information (50 per cent).
- Easier and/or faster to undertake searches (29 per cent).

33. Respondents were also asked about the overall impact of electronic tools on the quality of research. Overall 54 per cent said that electronic tools improved the quality of research. Only 4 per cent replied that research quality had deteriorated.

34. These results are a clear signpost to growing demand for electronic tools to find and share research information – in other words, while the “hybrid library” may be with us for many years to come, the situation is not stable and the relative importance of electronic information sources is growing steadily. It is particularly significant that in disciplines where current use of electronic resources is comparatively low (such as arts and humanities), researchers are nevertheless very interested in the potential benefits of electronic information resources and overwhelmingly expect them to be more important in the future. Scientists and engineers, on the other hand, already rely heavily on electronic access and expect this reliance to increase even more.

35. However, the increasing importance of electronic tools to find and share research findings is tempered by concerns about discovery, access and provenance. When respondents were asked to comment freely on the disadvantages of using electronic tools, a broad range of comments was received, including:

- Certain material not available on-line (15 per cent).
- Difficulties of finding, sifting and filtering information (13 per cent).
- Volume of information can be overwhelming (12 per cent).
- Subscription costs increasing (9 per cent).

- Lack of standard methods of electronic access (5 per cent).

36. The focus groups, and the call for evidence, revealed a considerable degree of dissatisfaction with commercially available online resources (especially journals). There was concern in particular with the continuing rate of increase in subscription costs, even for online journals, and with the restrictions on access commonly required by the terms of licences.

37. Respondents were asked to compare the ease of finding, accessing and using information electronically with hard copy. It is important to note that across all disciplines, and particularly in area studies and languages and arts and humanities, fewer researchers think it is easier to *access* electronic information than to *find* it, and even fewer think it is easier to *use* electronic information than to *access* it. Then there is the question of the quality and provenance of data available electronically. Across all disciplines, and again particularly in the arts and humanities and area studies and languages, more respondents are inclined to agree than disagree that, “there is less control over the quality and provenance” of electronic material than for print resources.

Researchers need better tools for identifying and locating research information

- “Generic” web search engines are regarded as very important by 49 per cent of area studies and language researchers, 42 per cent of medical and biological science researchers and 45 per cent of researchers overall.
- Bibliographic databases and abstracting and indexing services attract more support among medical and biological science researchers: 60 per cent regard them as very important. But overall only 43 per cent rate them as very important.
- Mediated subject gateways or portals are perceived as very important by 27 per cent of researchers in the social sciences, 21 per cent of arts and humanities researchers and 25 per cent of researchers overall.

38. Why existing electronic discovery tools fail to attract more support was addressed in the focus group sessions. Participants commented that uncertainty about the quality and provenance of information located through generic web search engines was a major drawback. However, almost everyone admitted to making frequent use of them. Awareness of mediated subject gateways was low, particularly in the arts and humanities and area studies. But compared to an evaluation by the JISC in 2000 which showed that just 9 per cent of academic and research staff made regular use of mediated gateways, the results here suggest that the popularity of these tools may be slowly increasing¹¹. This may reveal something about the likely pace of change in researchers’ use of information. Where focus group members confirmed that they did use subject gateways and portals there was some criticism that the boundaries around content or collections were arbitrary and seemed to constrain rather than enhance the discovery of new resources.

¹¹ Rowley, Professor Jennifer. (2000) JISC User Behaviour Monitoring and Evaluation Framework: First Annual Report. http://www.jisc.ac.uk/pub00/m&e_rep1.html Table 4.13

39. Respondents to the call for evidence reiterated the need for better discovery tools for online material, such as “one stop” intelligent search engines, especially in the sciences; and for discovery and abstracting tools linked directly to online materials. They also emphasised the need for better tools to locate print resources, including a national catalogue and standardised approaches to cataloguing “grey” literature.

Access to external information providers beyond the “home” institution is important for researchers in all disciplines and particularly for those in area studies and languages and arts and humanities.

- 72 per cent of area studies and language researchers, 53 per cent of researchers in the arts and humanities, 36 per cent of social scientists and 28 per cent of researchers in the medical and biological sciences regard access to other university libraries beyond the home institution as essential.
- 66 per cent of area studies and language researchers, 51 per cent of researchers in the arts and humanities and 30 per cent of researchers in both medical and biological sciences and physical science and engineering rate access to the British Library as essential.
- 14 per cent of researchers overall perceive access to dedicated research libraries outside higher education as essential.

40. These results underline the importance of enabling researchers to discover and access the collections of external providers efficiently, particularly when we consider the continued value of books and journals evidenced above. This issue is reinforced by the overwhelming support for inter-library loan among researchers in all disciplines: 74 per cent overall regard inter-library loan and document delivery as essential access methods and 31 per cent anticipate using these services more in the future. We draw two conclusions from this:

- First, for all researchers the importance of comprehensive online catalogues of nationally distributed research holdings is paramount, tied to efficient inter-library loan and document delivery services and physical access rights.
- Second, for researchers in the arts and humanities, area studies and languages and the social sciences, those online catalogues should extend as far as possible to resources held beyond the higher education sector.

41. These results were reinforced by a number of respondents to the call for evidence who identified a need for better reciprocal access and borrowing arrangements.

42. It is perhaps worth noting here also one point that was not made. It was evident that researchers whose views we heard largely made no assumptions about where, in geographical terms, materials available online came from. Thus (and unlike the position for hard copy resources) gaining access to materials created in other countries did not emerge as an issue; and nor did the rate at which other countries may be creating online information sources.

The overwhelming majority of researchers regard their own university library as essential to their research

- 83 per cent of researchers perceive their own university as essential to their research. This proportion is higher than for any other information providers named in the survey.
- 50 per cent of researchers think that their own university library meets their research needs fairly well. 24 per cent think that their own university library meets their needs very well.

43. Why researchers rate their home library so highly varies according to subject area. For researchers in the arts and humanities, the home library seems to derive most of its value from physical holdings. Twice as many researchers in these groups consider physical access to libraries and collections to be essential to their research as their colleagues in the social sciences and over three times as many as researchers in the medical, biological and physical sciences. (This also suggests that the physical location of material is becoming a secondary issue to researchers in the third group as a widening range of material becomes available electronically.) However, the great majority of researchers in medical and biological sciences and physical science and engineering (83 per cent and 88 per cent respectively) do consider the key services, as opposed to physical holdings, provided *through* their home institutions as essential. These services include inter-library loan and document delivery (many respondents were unaware of the library's role in licensing electronic journals). Some researchers attending the focus groups also stressed the continuing importance of having access to librarians as a source of professional help in both identifying and locating materials in their field.

44. In the survey and the focus groups, participants were asked to suggest how the provision of the home library might best be improved. Across all subject areas researchers commented on the need for better provision of journals (either electronic or printed) as the primary area for improvement.

Section C

Library resources for UK researchers

45. In the previous section we discussed UK researchers' current requirements for information resources and how they expect these requirements to change in the future. In this section we discuss the present network of research information provision in the UK and consider how well it meets (and can be expected to continue to meet) the requirements we have identified.

46. The research information network in the UK has four components:

- the university libraries (which have a dual function in teaching and research);
- the national libraries (which have roles in research, in public access and in preserving the nation's published output) among which the British Library is by far the largest and most heavily used research library in the UK;
- a host of dedicated research libraries and archives, often embedded within other institutions;
- material available online from a range of sources, including the Information Environment managed by the JISC.

University libraries

47. A brief analysis was undertaken for us by JM Consulting of expenditure in three university libraries in pre-1992 universities, and three in post-1992 universities, using the methodology of the Transparency Review¹². By extrapolating the results across the entire UK higher education sector, we estimate that some 32 per cent or £160 million per annum of university library expenditure is driven by research needs. This comprises £69 million in staff costs, £59 million on materials, £26 million on estates and £6 million of other costs.

48. The proportion of material primarily targeted at research, teaching and learning or other functions varies among different university libraries, mainly reflecting the institution's overall balance of these activities. There are also two legal deposit libraries at the universities of Oxford and Cambridge (which incur significant additional costs from this privilege). Thus it is largely meaningless to generalise about "average" research holdings in the sector. The heaviest collector among university libraries is the Bodleian Library at Oxford, which acquired 171,727 books and pamphlets and 93,193 periodical titles by a combination of purchase and legal deposit in the academic year 2000-01¹³. To give some idea of acquisition in other research-intensive institutions, in the same year the university libraries at Manchester and Southampton acquired 49, 521 and 29,415 books and pamphlets, and 15,409 and 5,616 periodical titles respectively. At the other end of the scale

¹² JM Consulting Ltd. (2002) op. cit.

¹³ Statistics in this paragraph from: SCONUL. (2002) Annual Library Statistics 2000-01.

are a number of small institutions that acquired only a few hundred books and periodicals in this period. However, even the smallest institutions may hold rare and invaluable research collections within certain disciplines.

The national libraries

49. In 2002-03 the British Library received an annual grant of £83 million from the Department of Culture, Media and Sport. In the same period the British Library expects to spend £14 million from its grant on acquisitions, and to receive a further £7 million worth of material through legal deposit. About half of its overall activity is driven by higher education research, both domestic and international (based on transactions in reading rooms and document supply). This represents about 1.5 million documents supplied from the Document Supply Centre at Boston Spa and 2.5 million items consulted in its reading rooms in London per annum. Within a total holding of some 150 million items, the British Library's catalogued book stock is 15 million volumes and it acquires by a combination of legal deposit and purchase an added 112,000 serial titles and 187,000 monographs every year. Thus the British Library is by far the largest and most heavily used research library in the UK.

50. The National Library of Wales holds 3.5 million books and millions of other items including manuscripts, maps and photographs. Over half of the users of the reading rooms are from universities. As well as housing the outstanding collection of material relating to Wales, the Library is a legal deposit library and therefore supports research in all subject areas.

51. The National Library of Scotland is a legal deposit library with a collection of over 7 million printed items, 120,000 volumes of manuscripts and 1.5 million maps. Its services are used by researchers in a wide range of disciplines, and about half of its users are connected with universities. The Library's Inter-library Services Division co-ordinates the Scottish interlending and document supply system and co-operates with the British Library Document Supply Centre.

Specialised research collections

52. We have not undertaken a systematic analysis of the research libraries and archives outside higher education in the UK, but it is clear from the researchers' use survey that material held by museums, public libraries, hospitals, scholarly societies, companies and other institutions outside the education sector are significant resources in many disciplines. The Wellcome Library for the History and Understanding of Medicine, for example, holds one of the largest and most valuable collections of hard copy and electronic material in the world in its field. The library at the Natural History Museum holds 800,000 books and 10,000 current serial titles – more material than many research-intensive universities hold across the entire subject spectrum. The research councils also maintain a number of dedicated libraries in their Institutes. RESCOLINC, the Research Council Libraries & Information Consortium, has 46 member libraries.

Electronic libraries

53. All of the libraries mentioned above now spend a significant proportion of their acquisition budgets on acquiring or accessing electronic material. Among members of the Society of College, National and University Libraries (SCONUL) this proportion is growing significantly: over the last decade it has grown from virtually nil to more than 10 per cent of information provision expenditure¹⁴. In addition, the UK has created the Information Environment. This was developed by the JISC, building upon its responsibility for delivering the national electronic network for higher and further education (SuperJANET) and reflecting a realisation that in many respects the network and the provision of resources across it are intertwined. This relationship received recent endorsement in a review in 2000 of the JISC by Follett¹⁵. Overall the JISC's programmes have been remarkably successful and set a strong precedent of national resources being managed for community-wide benefit. In the words of Bodley's Librarian (a member of our Group but also chair of the JISC's Committee for the Information Environment), commenting on achievements thus far, "...it has shown to the funding agencies, to the institutions, and to the higher education community as a whole, that it was both possible and desirable for a national initiative to take and develop an important concept through to full-scale implementation."¹⁶

Meeting the requirements of researchers

54. If we compare the provision made by the UK research information network against the four key themes of researchers' use identified in Section B, we can see that, working alone and in partnership, the four components of the network currently meet many of these requirements very well. Most researchers can get access to any published source that they need – even if this is not always as easy as they would like – and the amount of material available online, and the coverage of online search and cataloguing tools, is gradually improving. There are however other areas where the network is failing to meet researchers' needs, and perhaps of most importance are the trends in volume and cost of research material, as well as growing demand for electronic resources, which threaten to overwhelm the network in its present form unless actions are taken.

The "hybrid library" of hard copy and electronic resources

55. Over a number of years, research libraries have progressively provided electronic resources alongside traditional hard copy material. Recent developments have started to erode the boundaries between electronic and hard copy resources, moving all libraries towards the vision of integrated provision characterised by Bodley's Librarian as the "hybrid library"¹⁷. This vision gives much more emphasis to how users identify and gain access to

¹⁴ Ibid.

¹⁵ Follett, B.K. (2000) A Review of the Joint Information Systems Committee (JISC). <http://www.jisc.ac.uk/pub01/follett.html>

¹⁶ Carr, R. (2002) Towards the Academic Digital Library in the UK: a National Perspective. In: Global Issues in 21st Century Research Librarianship. Helsinki, Nordinfo, 2002, p.231.

¹⁷ Carr, R. (2001) op. cit.

resources – issues that become more important as the volume of resources shared electronically over the internet grows – and less to the collection and acquisition of those resources; and is reflected in the development of the Information Environment by the JISC. For instance, the JISC has funded five hybrid library projects exploring different aspects of the challenge, including integrated delivery of and access to a range of electronic and hard copy resources. In addition a catalogue of UK serial holdings in both print and electronic form is being commissioned known as the Serials Union Catalogue or SUNCAT¹⁸.

56. The work undertaken so far by the hybrid library projects represents important groundwork for the next stage, but for researchers on the ground there are still only isolated examples of hybrid library developments aiming to provide integrated discovery and access for both hard copy and electronic resources. Elsewhere, researchers must continue to make do with separate mechanisms for finding and accessing hard copy and electronic material: this duality is not only frustrating but also inefficient.

Online sources: the electronic world

57. In the coming decade the UK research information network will face one of its greatest opportunities: the provision of new and greatly expanded electronic resources, such as electronic journals, datasets, pre-prints, audio and moving images. Long-vaunted, their potential is now being realised. In branches of the sciences, for example, innovative new techniques for generating, analysing and sharing electronic experimental data, and linking these data directly to published outputs such as journal articles, have already begun to transform the way researchers conduct and report their research. Respondents to our survey believe that these techniques and approaches will be more widely adopted in the future, and will eventually come in many cases to replace current print materials – although for the immediate future the challenge will be to manage their development alongside existing models that will remain prominent for many years to come.

58. As well as creating new opportunities, the possibility of sharing research information by electronic means calls into question the traditional model of scholarly publishing. Under this model researchers have published carefully considered reports on their work, which have been subject to rigorous scrutiny by their peers, in permanent media of a status that their community recognises; and publication under a particular imprint, and the fact of a work being selected for purchase and retention by academic libraries, indicates to the reader that it has successfully passed through this process. The internet opens up the possibility of sharing interim and provisional findings, of discussion within the community before formal publication, and indeed that even a considered and polished piece of published work might be revised in the light of later findings. Some researchers are beginning to come to grips with this (notably the theoretical physics community), but its full impact has yet to be felt. We return to this point in paragraphs 142 to 158 below, where we discuss possible future models of scholarly communication.

¹⁸ For more information see http://www.jisc.ac.uk/pub02/suncat_itt.html

59. Within the UK the challenge of managing and disseminating “new” electronic resources has so far been taken up from a library perspective mainly by the JISC and the British Library, while the Research Councils are funding a major development in e-Science. At the heart of this is SuperJANET, the network over which information is increasingly disseminated to professional researchers.

60. The JISC is engaged in much important development work related to the provision of electronic content and tools to help users locate and access the material. It is also involved, alongside the RSLP, the British Library, the National Library of Scotland, the National Library of Wales and universities, in providing significant amounts of electronic research material. For example, RSLP projects have produced about 180,000 individual digital objects of various different types, including digitised maps, plans and photographs, while the British Library has undertaken more than forty separate digitisation projects, generating a similar number of objects. Within university libraries and departments, more primary research material is being digitised, including materials which individual researchers, or their home institutions, are willing to share widely. Similar activity is in hand in a number of countries, but really effective arrangements for cataloguing this material, and for bringing it to the attention of others who are likely to be interested, are not yet generally available, although production services (such as the Research Libraries Group’s Cultural Materials Initiative) are beginning to appear¹⁹.

61. The electronic world is still young, and the amount of research-related information available in electronic form is still only a fraction of the total global research information resource. It is also, in the opinion of many observers, only a fraction of what can be – and over the coming years will be – made available. Moreover, much of this will be in new forms and formats which technological change has made possible; but the systems for managing and handling anything on that scale have not yet been fully developed.

62. Electronic resources also demand a fundamentally new approach to retention and preservation. While it is too early to calculate what the costs of adequate and ongoing digital preservation are likely to be, it is evident that the individual components of the UK research information network will not be able to afford them within existing budgets.

Resource discovery tools

63. The foundation stone for discovering hard copy research resources is the Online Public Access Catalogue (OPAC). Almost all research libraries now maintain an OPAC, which usually lists most of the library’s hard copy holdings (including monographs, journals, microfilm, video and sound recordings). An increasing number of OPACs also provide links to the electronic resources provided through the library, such as electronic journals. As yet, electronic records of manuscript and archive holdings are relatively rare.

64. OPACs are often a researcher’s first port of call for resource discovery. This is clear from the researchers’ use survey, which shows that the OPAC is the most popular discovery

¹⁹ See <http://www.rlg.org/culturalres/>

tool for researchers overall. But problems arise when the researcher wants to discover resources that are not recorded or held by, or provided through, the home institution. Then they are forced to look beyond the OPAC and, at least in the UK, need to search a number of other catalogues in parallel, which is time consuming and may lead to important resources being overlooked. There is also a huge volume of hard copy resources – usually old or grey literature and ephemera (as well as most manuscript and archive material) – which remains uncatalogued, or manually catalogued only, rendering it invisible to remote searching by computer. This is seriously problematic for researchers in social sciences, area studies and languages and arts and humanities in particular, who are shown by the survey to regard such material as very important.

65. To address the problem of resource discovery beyond the home institution, library consortia have amalgamated individual OPACs to create union catalogues, or created mechanisms that enable users to search several OPACs simultaneously. An example of the former is the COPAC catalogue of the holdings of the Consortium of University Research Libraries (CURL), while the InforM25 catalogue of the M25 Consortium and the CAIRNS catalogue in Scotland represent the latter. In the United States there are a very large number of union catalogues – such as OCLC's WorldCat and the Research Libraries Group's Union Catalog – containing the machine-readable records of very large numbers of research support libraries, including those in universities and colleges.

66. Where they exist such catalogues are effective and heavily used, but they cover only a proportion of the total research support library holdings. Even for individual classes of resources, such as printed books, there is no complete catalogue of the holdings of major UK providers. Thus UK researchers are less well served than colleagues in other research-intensive countries, such as the USA (see above) and Sweden, where more comprehensive online catalogues of aggregate regional or national holdings are available. Then there is the question of article-level discovery tools for journals. Very few libraries here or abroad provide these tools, perhaps because they are normally available through commercial abstracting and indexing services. Nonetheless it would be a great advantage for UK researchers to be able to search a university's printed journal holdings by article rather than journal title, and we are pleased to note the aspirations of the SUNCAT programme in this regard.

67. Finding online research resources in the UK is also an inefficient process. From the researchers' use survey we can see that "generic" search engines such as Google are the most popular tools to search the online environment. Bearing in mind that most electronic information from academic sources is not searchable in the "open web" environment, conventional internet search engines are not the best kind of tool to be used in professional research, where a complete overview of the relevant literature is critical. Respondents to the survey complain that these tools produce an overwhelming volume of material, and that this material is very difficult to evaluate critically. An alternative route is via one of several subject gateways or portals that provide quality-assured electronic information within particular subject disciplines. We are pleased to note that the JISC is investing heavily in these services to respond to low awareness and criticism from researchers that they present an arbitrary and narrow selection of content. However the results of the researchers' use survey

demonstrate that we are some way off persuading the majority of researchers to embrace these tools.

Access to external information providers

68. The survey of researchers' use demonstrates that access to hard copy resources held outside the researcher's home library – including other university libraries, the national libraries and libraries outside the higher education sector – is essential to a significant proportion of researchers and particularly those in social science, area studies and languages and arts and humanities. Concern was also expressed by some respondents to our call for evidence about the difficulty of gaining access to material not held in the UK.

69. Researchers gain access to external hard copy resources in two ways: remotely via inter-library loan or document supply; and directly by visiting other institutions in person. Inter-library loan and document supply in the UK is deeply entrenched and effective. This is due to the unparalleled holdings of the British Library, which makes 67,000 current journal titles and 65,000 additional books per annum available for inter-library loan or document supply. The resources of the British Library are, we believe, one of the main reasons why UK universities are able to match, and in many cases exceed, the quality and scale of research undertaken within similar sized universities in other parts of the world. Comparisons with North American universities, for example, show that only three UK libraries – the British Library and the university libraries at Oxford and Cambridge – acquire material on a scale comparable with the leading North American private or state universities. A large research-intensive university in the UK typically acquires some 10,000 serials annually along with some 30,000 monographs – respectively about a quarter and a half of what the main Carnegie Research 1 universities in the USA, with which they would wish to be compared in the breadth and quality of their research, acquire. In the context of our later recommendations, where we propose a new national body, we wish to emphasise from the outset our view that the British Library is absolutely integral to the success of UK research. However, the British Library is no better protected from the impact of price inflation than the university sector, and maintaining this level of commitment (which in round figures implies an additional £1 million per annum to keep pace with price inflation) is not sustainable in the longer term without additional resources.

70. The British Library also offers on-site access to its holdings via the reading rooms in London and Boston Spa. In the financial year 2001-02, researchers in higher education consulted 2.5 million items. In addition, substantial numbers of researchers make personal visits to other university libraries. Reference access for these external researchers within higher education is facilitated by a SCONUL scheme and supported by a targeted RSLP Access fund, which compensates heavily used university libraries for the marginal costs of accommodating researchers from other institutions. Several library consortia, including the M25 Consortium and SCONUL, have sought to augment the RSLP scheme by introducing borrowing rights for external researchers too.

71. However, easy access for researchers in higher education to the resources of other universities is far from pervasive. Disincentives to action for institutions include the fear of

“swamping” especially if borrowing rights were extended (which persists despite the experience of existing reciprocal borrowing schemes). Even where access to other collections is possible – for example, under the terms of the RSLP “access” grants – service standards for external users vary significantly among different institutions.

The home university library

72. In Section B we saw that most researchers regard the home university library as the most important source for gaining access to research information. It is interesting to note that researchers across all subject areas commented on the need for better provision of journals (either electronic or printed) as the primary area for improvement. This reflects a key issue in the modern research information arena: the relentless increases in the volume and cost of research material. Between 1990 and 2000, purchasers of research publications in the UK saw the number of journal titles increase by 34 per cent (from 117,000 to 157,000) and the average cost of each title by 210 per cent – six times the increase in the Retail Price Index²⁰. Price rises for monographs have been closer to inflation, but the growth in the number of titles published has made it impossible for providers to maintain historic levels of coverage. Between 1990 and 2000 the number of science, technical and medical monographs published in the UK per annum increased by 43 per cent, from 12,691 to 18,153, and the number of academic and professional titles by 118 per cent, from 19,430 to 42,424 (including reprints and new editions as well as new titles). Information providers have been hit by a double crisis of volume and cost which shows little sign of abating. As a result researchers are having to make do with local access to an alarmingly declining proportion of what is globally available.

73. This trend is mirrored around the world. In the United States, for example, since 1986 the average annual increase in the serial unit cost for a member of the Association of Research Libraries (ARL) has been 8.8 per cent – amounting to a total serial unit cost increase of 226 per cent²¹. The result is that in 1999-2000, ARL libraries spent almost three times as much on serials as they did in 1986 and yet the number of titles acquired was 7 per cent fewer. This seemingly moderate reduction in serial holdings reflects a certain amount of damage control: that is, many libraries have shifted funding from other parts of their budget to lessen the impact on serials. This is affecting monograph purchases – notably in non-science areas – and staffing levels. It also reflects in recent years the increased practice of “bundling” online subscriptions, by which publishers bundle titles into lists or portfolios and sell subscriptions to the entire list. This can lead to the availability of more titles and a small decrease in average unit costs. However the extra titles that come in bundled subscriptions are often not wanted by a particular university but cannot be omitted, leading to higher total spend.

74. The rise in the cost and volume of material means it is not possible for an individual university to maintain library and information resources fully meeting the needs of all its

²⁰ Statistics in this paragraph from: Library and Information Statistics Unit, Loughborough University. (2002) Trends in Scholarly Communication: Output, Access and Use Issues.

<http://www.jisc.ac.uk/icie/scg/>

²¹ Case, M.M. (2001) The Impact of Serial Costs on Library Collections. *ARL Bimonthly Report*, 218. <http://www.arl.org/newsltr/218/costimpact.html>

professional researchers. Beyond that, it is accepted that providing all of the information resources required by UK researchers is beyond the capacity of any single library; and indeed that the aggregated efforts of all UK research libraries are failing to secure a national collection in keeping with researchers' current and emerging needs and demands. Even the British Library has been forced to consider significant scaling down coverage of non-legal deposit material because of the pressures outlined above.

75. One way in which libraries have sought to mitigate these pressures is by collaborating in the acquisition of research resources. In a climate of rising cost and volume, consortia such as the Ohio Library and Information Network (OhioLINK) have recognised a premium in co-ordinated purchasing, and reduced duplication of existing holdings, for the mutual benefit of members. In the UK the national licensing of electronic resources through the successive CHEST, Pilot Site Licence Initiative (PSLI) and National Electronic Site Licensing Initiative (NESLI) have met with some success in leveraging lower prices and reducing the burden on individual university libraries to negotiate licences, though the terms of these licences do not always match researchers' preferred working methods (we return to this issue in paragraphs 117 to 120).

76. Apart from those national initiatives mentioned above, however, collaborative acquisition or rationalisation between individual libraries or within local library consortia is not otherwise apparent within the UK research information network. (There are effective regional purchasing consortia within which certain materials selected by libraries individually are acquired at lower cost). Although the responses to our call for evidence and our focus groups with librarians generally accepted that the resources that are currently devoted to research support could achieve a significantly better aggregated provision and disposition of resources, libraries and universities argue that strong constraints exist upon deeper resource sharing. These include concerns about loss of control by an institution over resources for its own staff and students; and about what would happen if a scheme collapsed or a participating institution changed its policies. It is clear too that deeper collaboration in regard to journal acquisition would have to overcome the twin hurdles of publishers' costing models (fewer copies driving higher prices) and of the structure of currently available online licensing deals, and so should more appropriately be stimulated at a national level.

Section D

The way forward: Tasks

77. In the previous section we compared researchers' needs for information resources against current provision and identified several crucial areas where provision is beginning to fall short of demand or the means of delivery are not keeping pace with what could be done. In this section we set out a programme of work to deliver solutions to the problems we have identified.

78. The most significant element in our work programme, underpinning all others, is early action to provide enhanced strategic leadership to carry the programme forward. We believe that the provision of research information, which is an integral part of the general research infrastructure, requires and deserves ongoing strategic leadership; and that the development of a strong shared strategic framework should be regarded as the primary task for our sponsors and stakeholders, whether or not other specific tasks we have described in this section are pursued. Consequently our principal recommendation, discussed in detail in Section E, is for the creation of a new body to carry this programme of work forward. *Unless otherwise stated the activities we propose and endorse in this section form the work plan of that body, which we have called the Research Libraries Network (RLN).*

79. It is important to stress at this point that the RLN will not necessarily itself *implement* the tasks that we identify. In many cases existing bodies are already active in the field – though we may be proposing some expansion or acceleration of their efforts, and it will be crucial for the success of the RLN that they retain their focus. In other cases we envisage new activities to be led by RLN but which existing bodies may be best placed to carry out. The key difference from current arrangements is that all of these tasks will be planned under the strategic leadership of the RLN. In other words, the RLN will develop and lead an enhanced, focussed and prioritised plan of action, which will continue to be implemented, where appropriate, by a range of existing bodies and agencies.

80. It is also important to highlight those areas where the RLN will require the willing co-operation of individual providers to fulfil important functions. For example, while the RLN may raise the necessary funds for the construction and maintenance of a national catalogue of monographs, success will depend on the co-operation of libraries which will continue to acquire and manage this material. The costs of co-operation will be far outweighed by the benefits of greater coherence and collaboration, which will enable individual providers to fulfil their responsibilities more effectively. In this spirit, we would urge colleagues working within research information providers, and particularly universities, to read closely the proposals made in paragraphs 93, 98-103, 124-6, 127-8, 136-7, and 140-141, and to consider the responsibilities of individual providers carefully.

A programme of action

81. We have identified a number of areas where researchers require improvements in the provision of research information resources, and some where we see scope for new tools and approaches (especially, but not exclusively, based on technological developments) which have the potential to deliver real improvements in information resources for UK researchers. In making proposals for developing those new tools and approaches, we have sought to identify proposed actions which are:

- Evidently required – that is to say, a specific need has been identified by researchers that we consider our proposals for action will help to meet.
- Feasible - they are achievable within a reasonable time at a cost that might be broadly affordable within current funding systems. Although inevitably some are more challenging than others, we believe all to be achievable with currently available technology and working with existing systems and structures.
- Forward looking – at the same time our programme reflects and builds upon our perception of a changing research information landscape and includes proposals to harness available technology to prepare for the demands of the future.

82. We hope that two common threads will be discernible running through our proposals. The first of these is *efficiency and the better management of resources*. As we have indicated, we believe that the present, highly dispersed system of library provision in the UK has served researchers well; but we also believe that the strains within the system are becoming increasingly apparent and now need to be tackled. Maintaining the service that researchers have come to expect will require concerted and collaborative action to improve the resource efficiency of the system, and a number of our proposals below will contribute to that end.

83. *We strongly urge therefore a concerted shift from the comparatively loose network of providers, each serving its own user group, to a more coherently managed network in which providers work together to develop and deliver an agreed national agenda.* We do not however propose radical change in the pattern of provision and the responsibilities of the providers.

84. The second common thread is *managed innovation meeting researchers' needs*. The development of the hybrid library reflects a growing appreciation within the academic community of the potential of the internet as a resource for information sharing to support both teaching and research. This has been made possible by a combination of factors including, importantly, the work of the JISC to develop the Information Environment as a tool for the academic community. The speed and extent of take-up has however been governed largely by researchers' perception of its relevance to their work and their needs – which, although comparable to other countries, in our view remains patchy at best, and may be constrained by an accompanying perception by some that online tools and resources are the concern of a limited group of the technically illuminated. There is a crucial cultural change

needed here that must be driven by more sophisticated and user-focussed electronic tools and content.

85. Our vision for the future reflects this. *We consider that the development of electronic tools and the use of the internet as a research resource is of such significance that its future direction should not be left to chance – we must have an effective and managed national strategy to steer developments in the direction most helpful to our national research effort, and to ensure that the UK retains its position as a leader rather than a follower of innovation.*

86. This must be handled in a way which takes full account of the actual needs and priorities of the research community, and which involves researchers in managing and implementing action, so that they have a stake in the development of new tools and approaches relevant to their needs and understand clearly what these tools and approaches can do to support their research. This concern informs our proposals in this section for work to be done, and in particular in the next section for means of carrying the work forward.

87. We consider first what activity may be required in relation to three key functional aspects of research information provision:

- means of improving discovery of materials (identifying and locating);
- means of easing researchers' access to these, including content building and the collaborative management of collections;
- strategies and actions to ensure the retention and preservation of materials.

88. Finally, we turn our attention to an issue that cuts across all of these: possible developments in scholarly publishing to meet researchers' needs especially through managed exploitation of technical developments in IT.

Discovery tools

89. A number of respondents to our call for evidence, and participants in the researchers' use survey, stressed the importance of tools for researchers to identify and track down materials relevant to their work. There was agreement that more needs to be done in this area in relation to locating both printed and non-printed hard copy materials held outside the home institution and electronic resources.

90. Researchers require tools that make it easier to find or discover the information they want, from raw data to full peer-reviewed reports of research findings, regardless of format. This includes tools for finding known items; for keeping abreast of new material; and for sorting the body of possibly relevant material which the user has not yet explored. A number of researchers have stressed the particular importance of being able to distinguish material which is likely to be of interest to them from the often much larger body of available material of no particular significance to their research. As we observed in Sections B and C, the relative inability of "generic" web search engines to harvest material from the "deep web" or to filter search results is perceived by researchers as a major shortcoming of these services.

Discovery of hard copy materials

91. As we have observed above, current arrangements for the discovery of printed materials are inadequate (and more so for other physical resources). Even for individual classes of resource there is no complete catalogue of the holdings of the major UK providers. There is a considerable volume of hard copy resources which remains uncatalogued, or catalogued only in manual form, rendering this material invisible to searching by computer.
92. This situation causes us concern for two main reasons. First, it is clear to us from our survey of researchers that materials in hard copy will form an important part of the information resource for most researchers for many years to come (and the importance of other physical resources to certain disciplines may still be growing); and it is not satisfactory that researchers should find it so difficult to identify what is available and where this is located. Second, full and accessible catalogues are essential for improved access and as a basis for collaboration – on which we make a number of proposals in paragraphs 122 to 126 below.
93. Action to remedy this situation is beyond the capacity of individual libraries working in isolation; it requires collaboration and leadership on a national scale. (We return to this point in the following section where we set out our views on future needs for collaboration – paragraphs 127 and 128). As a first step towards this we endorse:
- a. Pressing ahead with action to develop the SUNCAT – a comprehensive and detailed national catalogue of serials holdings. While there are excellent arrangements in place for researchers to obtain copies of journal articles through the Document Supply Centre, it is clear to us that holdings of serials in individual libraries are both under-exploited – because researchers cannot establish with sufficient certainty what is available in libraries to which they have access – and in need of rationalisation. The issue of improving efficiency in serials purchases can be tackled once the catalogue is available to be used in mapping exercises. A related issue is the established practice of many academic libraries to hold extensive and rarely used back runs of serials. This has persisted partly because no satisfactory alternative arrangement exists to ensure that these are readily available from other sources when required, and the development of a national catalogue is the first stage in remedying this. Work has started on the SUNCAT project with funding from the JISC and RSLP; we welcome this and would wish to see it brought to a speedy conclusion.
 - b. Further work on collection mapping and collection assessment. There should be support to continue and extend work carried out under RSLP and other initiatives to map and describe on a subject or thematic basis (using the RSLP collection description schema) collections of research material held in universities and other institutions. This work seeks to provide researchers with tools to identify, locate and navigate specialist collections held on a distributed basis, and collection managers with the ability to identify the key institutions collecting in a given field as a basis for the exploration of potential collaboration. Where automated records exist, the scope

for collaboration in collecting may be identified in detail by the use of collection assessment tools. These tools can analyse and quantify the respective strengths of collections by counting the number and date range of individual items held in a collection by subject classification number or subject headings.

c. Early action to develop a national catalogue of all other printed resources. Evidence from the researcher community suggests that this should be a priority for action whatever the broader outcome of our work. We recognise that there are limits to how comprehensive such a catalogue can be without incurring disproportionate costs. Further work will be needed to identify an appropriate technical structure for this catalogue, to establish what collections it should most cost-effectively cover, and to develop an incremental strategy for bringing different bodies of material within its coverage from a range of institutions both inside and outside UK higher education. In addition, in order to deliver the breadth of resources that researchers require, we endorse the work of the Full Disclosure initiative to ensure the prioritisation and subsequent cataloguing of key resources which are currently without electronic records. There will also be a need to secure informed agreement within the library community on the format, amount of detail and technical standards. As with the serials catalogue, the national catalogue will serve as a major tool in its own right – helping researchers to identify and locate materials they need – and also as an essential foundation for a range of collection sharing and management initiatives sketched out below; and will need to be developed with an eye to these possible later roles.

d. Action to improve the discovery of non-print physical resources (for example archives, maps, and moving images) and of grey literature. This may include establishing sound standards and funding incentives for the description and cataloguing of such material. The JISC-funded UK higher education Archives Hub, managed by CURL, but including collection- and item-level descriptions of the archive material of a wide range of CURL and non-CURL institutions, is a prime example of what we have in mind.

Discovery of electronic resources

94. Currently available discovery tools for electronic resources are unsatisfactory. Generic web search engines are the most popular means among UK researchers to find electronic resources, but these are generally inconsistent and often ineffective. There has been some progress in developing mediated subject gateways or portals, but these require further development and much better publicity if they are to have real impact.

95. As we noted above, a number of researchers responding to our call for evidence and in the focus groups have indicated that they found particular difficulty in dealing with the sheer volume of references that conventional internet search engines (and, for that matter, subject-related “alerting services” where these are available) can provide. This suggests that there would be strong support for the development of tools to help them to sift these references, with emphasis both on narrowing the subject coverage and on quickly sorting out

items produced and published to conventional research standards (including peer-reviewed material) from those that are not.

96. The way forward here is less clear-cut. There is scope for radical developments, but at the same time a more gradual approach may be most effective. This should be taken forward by professionals with appropriate subject and information handling expertise including in abstracting services. As a minimum, as more research resources become openly available on the internet, matching arrangements should be developed for researchers to discover and locate these (and, for resources produced commercially and licensed to limited groups, to discover what is on offer). These arrangements should be devised with the clear aim of integrating the discovery arrangements for print and online materials – see below.

97. In particular we endorse:

a. Early concerted action to establish common standards so that online materials can be discovered, and metadata can be accessed, confidently by the wider research community. Materials made available now with inadequate metadata represent a missed opportunity and may require potentially costly modification later to have a lasting impact. We return to the issue of common standards for structuring and accessing online material at paragraphs 111 and 112 below.

b. That researchers, institutions and publishers posting research outputs on the internet (both considered findings and raw data) should accept some responsibility, as members of the research community, for ensuring that these are suitably formatted and presented and easy to find. This means providing metadata in a form that emerging specialised search engines can handle and in sufficient detail to enable potential users, on first locating the item, to establish quickly its key features as research material (including for example when produced and by whom but also perhaps whether and how subject to peer review).

Integrated discovery tools

98. Work to implement the tasks related to discovery above should be undertaken with the clear aim of moving as quickly as possible to integrated resource discovery arrangements that fully harness the potential of the internet to identify, list and describe materials in a range of formats in an online catalogue accessible through a single user interface. Work underway led by the JISC, within many individual institutions, and for a number of commercial products such as the MetaLib package, shows that it should soon be technically possible to develop comprehensive discovery tools to enable researchers to make optimum use of the research resources, *in all formats*. We view this approach as extremely important.

99. A project to develop such a tool should build upon and pool existing initiatives to deliver integrated discovery in the UK, including the Information Environment and SUNCAT, and add these to new catalogues for print monographs, for manuscripts and archives and for new electronic material. The catalogue should also be linked to discovery tools for the vast

resources held outside the UK, including those being developed for the e-Science community. In time it should develop additional value-added services which meet the specific discovery needs of researchers, particularly tools to establish the provenance of individual items.

100. The system would need to be designed to handle a very wide range of materials. In time we would envisage it offering access not only to printed and digital versions of current text-based publications, but to:

- material in a much wider range of formats – including datasets, digitised images, and sound recordings.
- material in a range of publication states – including work in progress exposed for debate within a particular community, and datasets in real time or otherwise subject to change.

101. In time the technology could also provide researchers with valuable additional information, for example on the quality assurance and formal publication status of an item, as suggested above. This could also facilitate the regrouping of materials once fully catalogued for access through subject portals and similar devices. We recognise that this is a complex task and may not be possible when the system is first launched.

102. The development of an integrated discovery tool has one further advantage over persevering with separate catalogues. For hard copy and electronic resources alike, the ability to observe the aggregate UK research collection – to recognise and verify gaps and overlaps in coverage among information providers both within and outside higher education – will provide a platform for closer collaboration in the management and co-ordinated development of these resources.

103. We therefore advocate that action to develop discovery tools for research materials in printed and in electronic form, as we have proposed above, be carried forward with the clear aim of creating in due course an integrated resource-finding tool covering materials in all forms.

Access to research information resources

104. Our evidence from researchers suggests that they regard access to both hard copy and electronic resources held outside the home institution as essential to their research. However, as we have seen in Section C, the arrangements currently in place to facilitate access to these resources are neither robust nor pervasive. Too often researchers find undue difficulty not only in identifying and locating resources but also in gaining access to these once identified.

105. Behind the scenes, the management of hard copy and electronic material begins to diverge at the point of access - and the issues to be resolved are very different between the two types of media - so we shall discuss them separately.

Access to electronic materials

106. The following paragraphs are concerned with easing researchers' access to all kinds of information in electronic form, from any source. This will include:

- Electronic material owned by universities, the British Library and the national libraries of Scotland and Wales, specialist libraries, museums, research councils and their institutes; higher education and local authority archives; and other institutions in the UK. These could be in the form of maps, government publications, grey literature, electronic journals, e-theses, datasets, e-prints, pre-prints, sound recordings, pictures or moving images. Access to e-Science datasets will be via linked GRID services.
- Electronic resources produced outside the UK. This covers a range of material that UK researchers may need but which is neither published commercially nor will ever be covered by UK legal deposit legislation. The model of the UK Resource Discovery Network, which has begun to build databases of quality-assured internet resources in several research disciplines, could be scaled up to address this issue. Again access to e-Science datasets held outside the UK will be via GRID services.
- Resources owned by commercial publishers. Electronic journals in particular are an increasingly important part of the research information environment and researchers must be able to find them efficiently and to take advantage of the flexibility of handling inherent in the electronic format.

107. Managing this body of material for research use represents an exceptional challenge because of its breadth and variety and the flexible nature of the medium. It is possible simply to use the internet as no more than a direct substitute for hard copy publication (as happens for example when established academic journals are published online). This already raises new questions about payment and access rights and, crucially, about how continuing access to the materials, in the exact form in which they were first published, is to be secured. Printed copies may be kept in secure bookstacks, but online text can in principle be altered or deleted at any time and websites come and go. As the full potential of the medium is exploited – with materials being made available by a wide range of providers, in a variety of formats, and in some cases intrinsically subject to revision after their first posting – these issues rapidly become more complex. We make proposals above for ensuring that researchers can find this material, but ensuring present and continuing access to it throws up further challenges.

108. It is clear from the survey that researchers value highly the convenience of access that electronic resources can offer, as well as their potential for handling information in new ways. Researchers who have some experience of using these resources generally appreciate the technical possibility of providing seamless and reliable access, direct to the desktop, to a wide range of material irrespective of where or by whom this was first made available. Consequently they also tend to be impatient of the need to work through a number of access mechanisms of varying efficiency and relevance to their particular needs.

109. The ideal state of affairs is that individual researchers (and indeed the general user) have immediate access, through an effectively seamless and transparent user interface, to all and any research material available online relevant to their work; and that, as far as the content permits, they find no practical difference in handling and using material from different original sources. This would build upon our proposal above for an integrated discovery tool that combines the functions of discovery and access in a single operation conducted through a single user interface. Although almost technically possible already, we recognise that this is perhaps a vision for the longer term; but it should certainly inform the development of online resources now.

110. A helpful exemplar for the way forward may be provided by the current developments in e-Science. We were advised on this field by a specialist sub-group whose report, including recommendations that we endorse, is at Annex C. e-Science is characterised by the creation of very large datasets, including some in real time, which are shared by their originators with researchers around the world. In this process the research community is having to find solutions to problems of common technical standards – for structuring and presenting material as well as for metadata to describe and catalogue it, for security and access control, and for updating and preserving data – similar in kind to those facing any one wishing to share and use research information through the internet.

111. We endorse concerted action, by and on behalf of the broad research community, to tackle in particular the accelerated development of the common technical standards required for online research materials. Researchers using these should not have to grapple with a bewildering variety of technical and formatting standards, and all material should be accessible through a limited range of shared software tools. Common standards should apply also to the way in which materials may be manipulated (for example, so that text documents are searchable in the same way and datasets may be manipulated using the same software). As far as possible the common standards should be shared with other users. It may well be possible for researchers and other groups (including teachers, learners and the general user) all to use the same tools for their own ends, and we would deprecate parallel separate development activities leading to unhelpful duplication and incompatible multiple standards. However, we are aware of a strong feeling among some researchers that tools and systems offered for their use must have been developed to meet, and rigorously tested against, their particular needs as a user group.

112. As with the parallel issue of common metadata, this will eventually require to be resolved at international level, but there is much useful work to be done now in establishing and promoting common standards across the UK and, wherever possible, internationally. We consider that the UK, as one of the leading technologically developed research communities, can and should play a leading role in developing these standards: there are clear benefits in being a leader rather than having to work within standards defined by other players who may have different priorities.

113. Our vision of seamless access raises two immediate (and inter-related) practical concerns. There will be cases where there are sound reasons to restrict access to particular materials and data – for example, where researchers feel comfortable in sharing emerging

findings only with colleagues working in their field, or where the Data Protection Act requires access to data to be restricted. More broadly, it is possible (though far from desirable) that researchers sharing some types of material will feel a need to limit access to reduce the danger of unauthorised misuse of, or even of attempts to tamper with, the data. There is a particular issue in relation to material published online on a commercial basis, where access must be demonstrably limited to the licensed user group.

114. The sharing of sensitive or legitimately restricted data, and of materials licensed to a limited user group, demands sophisticated access management technology for the authorisation and authentication of users. Since the information will be distributed, there will be significant issues of legal, technical and financial management that will need to be addressed by the systems and libraries hosting the content. Work is already in hand on authentication technologies through the JISC and this should be continued in consultation with a broad range of information providers. It will be particularly important to engage with commercial publishers, and the early signs from dialogue between the publishers and the JISC on this subject are encouraging.

115. We endorse further work to develop an access management framework (including authorisation and authentication systems) that meets the needs of researchers and content providers while introducing no more than the necessary minimum barriers to common free access.

Content building

116. There is a need for action, on a transitional basis, to encourage and promote the sharing in electronic form of materials that researchers could use if they were made available online. We anticipate that the main need for structured intervention here will be in developing tools to help researchers find and use materials that are already available (in many cases quite freely available) if they knew where to look. Other elements include sustaining the content building work currently being undertaken by the JISC, and promoting and co-ordinating the digitisation of appropriate hard copy material where funds for this are available. This relates to our proposals for scholarly publishing below.

117. This raises the issue of the licensing of electronic resources owned by commercial publishers. Currently research libraries secure access to most commercially owned electronic resources by purchasing licences for a limited period. The terms of these licences are negotiated between publishers and individual libraries or bodies acting on behalf of a group of libraries. Here and in a number of other countries, joint negotiating has yielded benefits in terms of prices from publishers and economies of scale, savings not available to libraries negotiating individually. However, a number of issues remain requiring further action at national level:

- a. Existing deals are often quite restrictive in terms of the authorised user group. Deals restricted to researchers (or other staff) employed by a named university create an unhelpful divide between these people and other professional research users, such as NHS clinicians, researchers in associated publicly funded centres, retired staff and

those from other universities. They can create situations where libraries hold a resource that is not available to all of their users, and even where researchers can only access materials from a limited number of designated terminals.

b. A number of current deals, including some brokered through NESLI, work on the basis that a common price (or price structure) is agreed at which individual libraries may elect to “opt in”. Some researchers and librarians have reservations about this as a model; and we find it worrying that it is based on the assumption that the exclusion of some libraries and researchers is acceptable. The aim should be to provide as much material as possible on the same basis of unrestricted national access as for printed material in libraries.

118. More broadly, we have concerns about the impact of consortial licensing in the scholarly communications arena. Although consortial licensing has led in many cases to a reduction in the average price of journal titles, it has had other effects that we regard as undesirable. Within the OhioLINK consortium in the United States, for example, state-wide licensing of electronic journals from only one publisher has significantly raised the proportion of the titles downloaded from the OhioLINK Electronic Journals Center provided by that publisher. Over time such a phenomenon could influence citation indexes and the relative esteem of competing journals in favour of publishers with national licenses.

119. National licensing of large numbers of titles from an individual publisher also raises the related issue of “bundling”. Publishers are increasingly bundling electronic journal titles into lists or portfolios and selling subscriptions to the entire list. As John Houghton observes, “This not only ensures payment in advance and revenue maximisation... it also secures payment for marginal and low use journal titles which the subscribing institution might otherwise cancel – thus perpetrating the production of what might otherwise be non-viable titles...”²² This has led several university libraries and library consortia in North America and Europe to consider dropping or re-negotiating bundled deals²³.

120. Consequently we endorse further work to take forward negotiations for the licensing of commercially produced materials in electronic form to secure the best deals for the entire UK research community. Given the concerns surrounding national licensing outlined above, and in the context of our later discussion on scholarly communications (see paragraphs 142 to 158), a primary aim should be to maximise access and to reflect the relative importance of titles to reader markets. Negotiations must be conducted on behalf of the users by experienced professional colleagues who understand their needs.

121. Alongside this, we see a need to provide support for researchers and institutions wishing to publish and share information online. For example, the Research GRID developed by the UK e-Science communities, as well as a number of scientific periodicals, already link research papers directly to data and applications; and as the software available to the

²² Houghton, J. (2002) *The Crisis in Scholarly Communications: an Economic Analysis*. <http://www.vala.org.au/vala2002/2002pdf/16Houton.pdf>

²³ Foster, A. L. (2002) Second Thoughts on “Bundled” E-Journals. *The Chronicle of Higher Education*, **49** (4), p. A31. <http://chronicle.com/free/v49/i04/04a03101.htm>

general user becomes more robust and sophisticated this will bring within their grasp wholly new ways of presenting and sharing research information. The scope also exists for the development of new modes of, and tools for, academic discourse – developed, naturally, in concert with researchers and in response to their expressed needs; and we return to this issue in paragraphs 156 to 158 below.

Access to hard copy resources

122. We have made clear our belief that materials in hard copy formats will continue to form an important part of the research information landscape for the foreseeable future. Beyond this, our proposal for an integrated discovery tool for hard copy materials has the potential to enhance considerably the visibility of the aggregated national hard copy collection; and it is to be expected that this will if anything lead to increased demand from researchers for easy access to the materials wherever these may be held.

123. As we have seen in Section C, at present researchers gain access to hard copy materials held outside their home institution either remotely by inter-library loan or document supply (mainly from the Document Supply Centre), or by paying a personal visit to another library. We see considerable scope for improving the information available to researchers about where copies of texts and other materials they wish to read and use (or would if they knew of their existence) are located as well as for improving their access to these materials once these are located. Our proposals are for incremental development of the existing system rather than for radical change. At the same time they do embody a clear view of a body of printed materials being managed as a dispersed national resource with increasingly close and systematic collaboration between all of the bodies involved. The key elements in our proposals are:

- universal access and borrowing schemes;
- collaboration between providers in collection management - acquisition, cataloguing, retention and disposal;
- maintaining a national reference collection;
- strong national document supply and inter-library loan arrangements;
- arrangements to ensure long-term retention and preservation.

Access and borrowing

124. We are in no doubt that much increased collaboration between providers, especially within the higher education system, is both feasible and necessary to provide the best possible service to researchers within the resources available. Free access for researchers to any library within higher education, and more liberal borrowing rights, should be introduced as rapidly as is feasible underpinned by the action on discovery proposed above. In this regard we are pleased to note the development by SCONUL of the Research Plus scheme, which enables external researchers to borrow resources from participating libraries. We hope this scheme will eventually lead to a system like that operating among a group of powerful research libraries in the north eastern United States, offering on-line information

about the holdings of several major university collections extending to the availability of items for loan within a reciprocal borrowing scheme.

125. We therefore recommend action by the higher education funding bodies:

- a. In the short term, to continue to pay the “access fund” grants hitherto made available through RSLP, on broadly the present basis including the link to observed visitor loads and the requirement to admit researchers from any UK university; and
- b. As soon as is practicable, to modify the scheme to give priority funding to universities which grant borrowing rights to researchers from other UK universities in line with Research Plus.

126. The details of the scheme will require to be worked through – in particular, how it applies to universities maintaining legal deposit collections or where there are specialist resources within a university’s collection where borrowing rights would clearly be inappropriate - but we can see no insuperable objections in principle.

Collaboration in collection management

127. Access and borrowing schemes should be seen as only one element in the development of closer and more effective collaboration between providers in collection management – including decisions on what materials a particular provider will acquire or retain. From the barriers to resource sharing study commissioned by the RSLP and others, we recognise the reasons why providers in the UK are quite cautious about extending collaboration, and the work needing to be done to counter this before any more radical scheme can succeed. A more comprehensive national online catalogue, as proposed above, will be a pre-requisite; and developed proposals for rationalising existing holdings would need to be underpinned by a better understanding of life cycle costs.

128. Nonetheless we have found no convincing argument against the proposition that a better co-ordinated overall national collection could make significantly better use of the resources currently devoted to research support libraries, giving researchers improved access to the same or a better aggregated collection, reducing duplication, and releasing some resources that could be better used in developing access to materials in electronic form as proposed above. We therefore attach great importance to continuing efforts by all concerned with the provision of hard copy resources, working in increasingly close collaboration, to identify and implement schemes to improve efficiency through resource sharing wherever a case for this can be made. This is desirable both in its own right and as a pre-requisite for making the case for additional funding to meet the challenge of electronic resource delivery. It will be best managed from within the research and library communities and we endorse early concerted action to carry this forward including accelerating existing collaborative initiatives and using modern mapping software to understand precisely where serials and monographs are located and the current extent of multiple purchasing. In this connection, we commend the approach being taken by CURL in its Collaborative Collection Management Implementation Project (CCM-IP). Building on the successful RSLP collection

management project for Russian and East European Studies, the project has two components: one dealing with the implementation of CCM procedures and agreements in the areas of acquisition, retention and access; the other in the area of serials de-duplication.

National reference collection

129. The British Library plays a pivotal role in the UK research information infrastructure, and in our view is well placed to continue to do so for the foreseeable future. Within the terms of our vision we see a clear continuing need for a national reference collection for on-site and remote use with the greatest attainable breadth and depth of coverage, managed and delivered as a single coherent system; and for the retention and strengthening of the comprehensive national document supply and loan collections that the library also provides. The British Library must therefore be enabled to continue to discharge its role in acquiring and managing core research resources. This might include elements of collaborative provision. There is considerable scope for collaborative arrangements to extend the national aggregate research collection of specialist and foreign language material in particular, following the bilateral model of agreements between the British Library and several partners in London. These agreements should be based on existing collection strengths and specialisms on a discipline and sub-discipline basis, related to current expenditure and the research strengths of the institutions concerned, and building on a clear commitment to maintaining their support in the longer term.

130. The continuing provision of a very wide range of materials in a single national reference collection is an essential element in our vision. Consequently:

- a. The British Library must continue to be funded adequately to fulfil this role, including keeping pace with developments in volume and cost in both hard copy and electronic materials. We wish to add our voice to the concerns raised by the House of Commons Education and Skills Select Committee that the current funding regime is making it difficult for the British Library to discharge its responsibilities to researchers²⁴. In this regard we welcome recommendation A57 of the Government's recent Cross Cutting Review of Science, which states that, "...the three departments which have a direct interest in the work of the British Library should discuss with each other and the Treasury how they might better contribute to its work."²⁵ We also welcome the Government's new strategy for science and technology research and innovation, entitled "Investing in Innovation", which recognises the pivotal role of the British Library and states that, in the light of the value placed on it, "...the Government will be reviewing the Library's resource plans for the coming years."²⁶
- b. The British Library for its part will need to work closely with other research libraries, in helping to develop a co-ordinated national provision of loan and reference materials underpinned by an effective single catalogue. It will also have an important

²⁴ House of Commons Education and Skills Select Committee. (2002) op. cit.

²⁵ HM Treasury. (2002) Cross-Cutting Review of Science and Research: Final Report. http://www.hm-treasury.gov.uk/Spending_Review/spend_ccr/spend_ccr_science.cfm

²⁶ HM Treasury. (2002) Investing in Innovation. http://www.ost.gov.uk/science_strategy.pdf

part to play, as a leading research library provider and as an exceptional concentration of professional expertise, in delivering many of our other proposals – see the following section.

c. We fully endorse the proposals being developed by the British Library, in concert with the other legal deposit libraries, for the legal deposit of copyright material in electronic form (see paragraph 139 below).

d. We discuss the continuing role of the national collections in document supply and loan arrangements below.

131. The National Libraries in Scotland and Wales are evolving in the light of territorial devolution. A particularly high priority is being given to their functions within the two countries but in both cases their research collections continue to be of great importance across the UK and overseas, and they are also UK copyright libraries, and, in our view, need to be resourced appropriately for these tasks.

Document supply and inter-library loan

132. The facilities for researchers to obtain copies of relatively short items (especially journal articles), and to borrow monographs and other printed materials not held in their “home” library, are a very significant part of the research information landscape. We believe these facilities (particularly document supply) have been an important element in achieving the UK’s high international standing in research excellence based on a comparatively modest research infrastructure. They will be essential elements in the future pattern of provision that we envisage; we recognise that the volume and pattern of demand for such services is likely to change, but as means of assuring access for all researchers to the largest number and broadest range of resources we can conceive of no better arrangement.

133. In relation to inter-library loan, our proposals (in particular, for enhanced reciprocal borrowing and the development of more comprehensive on-line catalogues) may lead to changes in the pattern of borrowing as researchers obtain more material themselves, including through reciprocal loan schemes, and possibly fewer requests for loans and document supply reaching the British Library. However the British Library remains the largest UK collector of research resources, in particular of foreign material, and is likely to retain an important role as a service of last resort. The economic relationship between the costs of providing this service and any reduction in demand will therefore need to be kept under review. We are pleased to note in this regard that the British Library and CURL have recently agreed, within the framework of the British Library’s Co-operation and Partnership Programme, to commission a feasibility study for monograph interlending. Fifteen CURL member libraries, including the two legal deposit libraries in UK higher education and the three national libraries, are taking part in the study, which it is hoped will point the way forward in this important area of nationally managed provision.

134. We recommend:

- a. that ways should be found to ensure the continuing financial health of the British Library, the National Library of Wales and the National Library of Scotland, to fulfil their roles as guardians of the national collections, including keeping pace with developments in volume and cost in both hard copy and electronic materials.
- b. that ways should be found to ensure the continuing financial viability of the British Library's document supply and inter-lending services.

Retention and preservation

135. Retention and preservation of research materials are particular aspects of resource management which were highlighted so frequently in evidence from researchers and librarians that we feel they merit separate discussion. By "retention" we mean ensuring that an information resource, once made available, continues to be accessible as a working resource for a considerable length of time; and by "preservation", ensuring that at least a single reference copy is available for as long as there is any chance that it may be required (in some cases, in perpetuity). These overlapping issues are brought to the fore by our proposals for more collaboration in library provision and by the growing concern among researchers about the continuing availability of material circulated through the internet. They require to be tackled in the context of our proposals in the next section.

136. For hard copy material, we see cause for concern at present in over-retention rather than under-retention. We hope that the creation of catalogues of as much hard copy material as possible in the country – endorsed at paragraph 93 above – will provide the tools not only to rationalise current acquisition of hard copy material but also to enable the planned de-accessioning of existing holdings in the future. We recognise that the high storage costs of long back-runs of journals in particular are wasteful for many university libraries when the low use of these back-runs and overlaps with other institutions are considered. We have been advised that the cost of relegating or disposing of selected hard copy resources may be so high that a national retrospective approach to rationalising hard copy collections would not be cost effective. We have however noted the absence of reliable evidence to support that assumption, and believe that more work is needed to resolve this issue. We have noted too that in various parts of the USA long-term storage facilities are being developed by groups of universities and public libraries indicating that many of the issues around de-accessioning can be resolved where there is the will to do so. There is also a feasibility study for collaborative storage underway in Scotland.

137. We endorse action to improve understanding of the economics of retention and disposal of rarely used printed material; and further collaborative action, based on that, to rationalise holdings where this is found to be justified.

138. The internet as a medium for disseminating research resources will be undermined if high-quality retention of electronic materials is not also delivered. If we are to persuade researchers that the Information Environment is sufficiently mature that they may safely

adopt it as the sole medium for some material (and indeed to persuade institutions to de-accession old hard copy materials available online), it will be essential that we can demonstrate access and preservation arrangements for electronic material at least as reliable as we already have for hard copy material. A particular cause for concern is the structure of much commercial electronic publishing, with libraries effectively only “renting” resources to which their long term access is not guaranteed and which they cannot be certain will be properly archived for permanent preservation once their income-generating value has declined. Researchers have also expressed concern about the way in which individual websites hosting material of research significance can cease to be maintained, making the material impossible to track down once the link is lost even if actually retained elsewhere. If our vision of extensive sharing of research findings and data over the internet is realised, there will be a considerable body of material available only from inherently unstable sources until and unless a trusted regime for retention and preservation can be established.

139. The option of “last resort” access through legal deposit libraries, available for printed publications, does not yet apply in the electronic environment. The question of retaining and preserving digital material is however actively under discussion in several contexts and we are pleased to note:

- a. The aspirations of the British Library and the other legal deposit libraries to secure the early introduction of the legislation required to establish legal deposit of UK copyright material published in electronic form. This will however leave open the issue of preserving the (admittedly more manageable) body of research relevant material not collected by the British Library and other UK legal deposit libraries.
- b. The development of e-Science GRID services. With the development of GRID Data Centres, the primary datasets which are increasingly linked to publications could be archived and accessed through the GRID. Further work on the linking and integration of distributed archives of such publications will be required.
- c. The proposal by the JISC to establish a Digital Curation Centre as a central repository of file formats, preservation software and tools and to act as a catalyst for further research and development in digital preservation.
- d. The work of the Digital Preservation Coalition in fostering collaboration and developing preservation strategies and tools.
- e. Increasing examples of collaboration between publishers and libraries to facilitate long-term archiving of and access to electronic journals.
- f. Proposals to establish archiving services internationally by bodies such as JSTOR and the Online Computer Library Center (OCLC), which may provide powerful opportunities for collaboration.

140. Nonetheless the question remains how retention and preservation are to be funded. Early efforts to discern the costs of digital preservation suggest that some cost elements

might be initially high but achieve economies of scale later, some may well increase, and others are likely to decline with the development of common standards and tools and effective collaboration (particularly with creators). It should also be considered that in a hard copy environment preservation and access costs are distributed across the library system. In the electronic environment these costs may be aggregated over time in a smaller number of repositories servicing others and sharing preservation tools, thus delivering economies of scale but potentially requiring a large spend by a few providers.

141. We therefore endorse concerted action to investigate, and develop approaches to providing, means of supporting the retention and preservation of electronic material published or circulated through the internet, especially where this issues from less stable sources or falls outside the possible scope of legal deposit arrangements.

Scholarly communications

142. Our starting-point for discussion of researchers' future needs for information, and how these needs might best be met, was the existing pattern of scholarly communications – in terms of the types of information and findings that researchers wish to share and disseminate and the media through which this is done. In the course of our work it became clear to us that new trends are now developing in this field which our programme for action set out above must respond to and indeed has the opportunity to help to shape.

143. The publication of research and scholarship lies at the very heart of the non-commercial research enterprise, and without it research would not continue to be either effective or trusted by the general public and politicians. This process remains as important now as it has ever been. Its bedrock is the scholarly monograph – particularly in the humanities and social sciences; and the journal article – particularly in the sciences. It has traditionally served a number of inter-related functions:

- Communication: ensuring research findings are communicated in good time to the research community, to be considered, used and possibly challenged by colleagues.
- Quality assurance: to confirm that the conclusions offered in a publication are the outcome of a thorough and rigorous process of enquiry, and to provide the basis for confidence by society at large as well as among colleagues wishing to build further work upon these conclusions.
- Retention: building a body of recognised previous findings within a subject discipline.
- Underpinning peer esteem and career progression for active researchers (and in the UK, through the Research Assessment Exercise, informing the funding of universities).

144. The publication of peer-reviewed material, and in particular scholarly journals, is a lucrative business. Financial analyses show that several large publishers with interests in scholarly publishing are among the most profitable businesses in any sector, and within these companies the arms that publish scholarly journals realise higher returns than those

focussed on other consumer groups²⁷. This is reflected in the increasing cost of scholarly journals – in the UK six times more than the rise in the Retail Price Index over the last decade²⁸. Added to the growth in the number of journals, this is now bringing UK research libraries to the point where they cannot maintain historic levels of coverage. It has also become all too evident that developments in electronic information handling will not alleviate these pressures in the short to medium term, at least while journals are offered in both electronic and paper formats.

145. We considered this so significant that we agreed to take a fundamental look at trends and possibilities in scholarly communications, in order to establish whether there was scope for developing other models that might meet researchers' needs more effectively at lower cost. In the summer of 2001, we asked the JISC Scholarly Communications Group (SCG) for advice on trends in scholarly communication, the implications of observed trends for information providers and the case, if any, for encouraging developments which might lead to changes in the research process or in the cost of accessing information sources. (The group's full remit and membership are set out at Annex B). The group provided a report to RSLG in May 2002 which is available on the JISC website²⁹. Our observations and proposals in the following paragraphs build upon that report.

Current trends

146. The way in which journal prices in particular have increased steadily at a rate well above general price inflation reflects the interplay between strong demand and controlled supply. Demand among authors is strong because formal publication is the essential final stage in any piece of research and at a more prosaic level is linked to promotion, tenure and funding allocations. Journals have for many disciplines become the primary forum for the disclosure and discussion of leading-edge research and scholarship, which in turn fuels strong demand among readers. In other words, once a journal is established as a leading title in its field, researchers will regard access to it as essential; and because researchers rarely pay for subscriptions to journals themselves, but will press their home library to maintain subscriptions, there is little elasticity in demand when prices rise.

147. Equally, once a journal has established a leading position researchers will see advantage in contributing the "raw materials" of scholarly publishing – the content – and peer review services often free of charge, and will be reluctant to embrace alternative titles or modes of publication that do not have the same established status. This puts the suppliers of leading journals in a very strong position because their products cannot be readily substituted.

148. The advent of online publication has so far enabled publishers to tighten their grip on the market. They can insist that online subscriptions be taken on terms which limit who may have access and as an add-on at extra cost to hard copy; and they can choose to offer

²⁷ Wyly, B. J. (1998) Competition in Scholarly Publishing? What Publishers Profits Reveal. *ARL Newsletter*, 200. <http://www.arl.org/newsltr/200/wyly.html>. Houghton, J. (2002) op. cit.

²⁸ Library and Information Statistic Unit, Loughborough University. (2002) op. cit.

²⁹ JISC Scholarly Communications Group. (2002) op. cit.

online subscriptions only in the form of “bundles” of titles which may include titles peripheral to the interests of a particular purchaser. The pricing of online publications in the UK is also distorted by the fact that VAT is charged at the full rate on electronic publications but zero-rated on print material.

149. These events have now led to a paradox at the heart of the scholarly communications market. As prices rise and research providers are forced to cut subscriptions and thus reduce access, scholarly discourse and the wide communication of research, on the one hand, and formal publication in media of recognised status on the other, have become increasingly divergent goals. The interests of authors and readers, who are often effectively the same people, are not aligned.

Responses

150. As we have noted, academic libraries have to date generally responded by increasing their serials acquisitions budgets or by cutting other spending (such as monograph acquisition) to afford higher journal prices; the number of copies or licences sold has not declined significantly. However, the signs of serious strain on the system are increasingly apparent. Interest is growing in the possibility of developing alternative models of publication and of action to reduce the cost burden imposed by established journals. We note in particular:

- a. The recent statement of the Office of Fair Trading, which concludes that the market is not at present working well, though it also says that this is not at present “a matter warranting further investigation” – unless “competition fails to improve.”³⁰
- b. Increasing support for the development of “open access” publication and new pricing models – notably the Budapest Open Access Initiative³¹ and the new titles set up with the support of the Scholarly Publication and Academic Resources Coalition (SPARC).
- c. Increased debate within the academic community on the management of intellectual property rights, leading to calls for authors not to assign exclusive copyright to commercial publishers³².
- d. Development of new modes of sharing research content outside the traditional channels of scholarly communication, including self-archiving, pre-prints and e-prints, and technology to support these vehicles, such as the Open Archives Initiative³³. A number of models exist for pre-print servers, including most famously the Los Alamos server for particle physics (essentially a medium in which findings may be discussed

³⁰ Office of Fair Trading. (2002) The market for scientific, technical and medical journals. <http://www.of.t.gov.uk/News/Press+releases/2002/PN+55-02+Can+the+scientific+journals+market+work+better.htm>

³¹ See <http://www.soros.org/openaccess/>

³² See, for example, “Principles for Emerging Systems of Scholarly Publishing”, <http://www.arl.org/scomm/tempe.html>

³³ See <http://www.openarchives.org/>

and refined before formal publication), as well as the less radical option of launching papers on the server as soon as they are accepted for publication. In the UK, the JISC and CURL are jointly funding the development of a network of institutionally based e-print repositories (the SHERPA project) which aims to explore new ways of enhancing access to the UK's research output. If successful, this initiative may not only help to reduce the research community's dependence on the dominant academic publishers, but also contribute to the all-important resolution of some of the issues surrounding the digital archiving of key electronic materials (discussed in paragraphs 135 to 141 above).

e. Efforts to seek better value from the existing structure, including by acting collectively through consortia such as NESLI; and a growing willingness by some publishers (notably the smaller specialist publishers represented by The Association of Learned and Professional Society Publishers) to engage in active debate on the way forward.

151. At the same time there is increasing evidence that researchers are beginning to explore wholly new modes of academic communication opened up by electronic processing of information and the internet. Significantly, some of these are beginning to decouple the multiple purposes of publication that we noted above, separating out the initial communication of research findings from the subsequent endorsement of their value by the research community and their eventual formal publication as permanent, peer-reviewed contributions to the research literature. Prominent and well-developed examples are to be found in the e-Science field (see the report of our subgroup on that topic at Annex C); in the publication of working papers in economics and in business studies; and in the growth of indexing, abstracting and "alerting" services provided online, often within particular subject communities.

152. There is also a groundswell of increased activity using the internet to share informal findings, data and research material (including sound and still and moving images). More formal models of publishing are beginning to move in this direction too, through initiatives including the digitisation of key resources (such as the Research Libraries Group's Cultural Materials Initiative) and the publication of journal articles directly linked to an underpinning database.

153. Nonetheless some barriers to the shift from print to electronic publication remain, and none of the foregoing leads us to reconsider our view that most researchers will be working with a mixture of print and electronic resources, for many years to come. As we have noted, particular issues remain in relation to the relative convenience and durability of electronic publication – the discovery of electronic material and its retention and preservation; and to quality assurance.

154. Maintaining the quality of academic publication is essential. We cannot expect researchers, as authors or consumers of research content, wholeheartedly to embrace new forms of electronic communication until these exhibit the same standards of accuracy and academic rigour as hard copy publication. Traditionally this quality has been achieved by

peer review, but this crucial step is a lengthy and time-consuming process, and sits uncomfortably with the speed of the internet.

155. At the same time we see the force of the argument, advanced strongly by some researchers here and in other countries, that the outputs from publicly funded research should be made freely available. We can see clear potential for the better communication of research findings in ways which need not jeopardise the retention of effective mechanisms for quality assurance and for peer review.

The way forward

156. We draw a number of conclusions from our discussions and the findings of the SCG report. First and in general terms, the traditional pattern of scholarly communications is under strain due to both internal and external factors and we believe that significant change is now desirable. We do not expect that to happen quickly: discourse and publication through established and regulated shared channels are absolutely integral to the research process and to researchers' collective perception of themselves as a working community with its own norms and forums. We recognise that academic publishing is an international business, and that the UK is a small part of the overall market - though we are a significant producer of high quality published output, and should certainly use the influence this gives us to help to lead change which can benefit the research community, including supporting initiatives taken in other countries. If our interpretation of underlying trends is correct, there is a very significant opportunity to take a lead in developing communication models that could be widely adopted in the future.

157. The point has now been reached where electronic media are sophisticated enough to do reliably most of what print media can, and more. Researchers now have an expanded choice of modes of publication and information sharing. Subject communities at the leading edge have shown convincingly how the internet can facilitate "pre publication" of findings for debate before these are recorded in permanent form. Any group of researchers could now feasibly produce and publish their own peer-reviewed journal, and the development of the tools for discovery and access that we propose above would ease their path in ensuring that potential readers knew of this and could find it.

158. We therefore endorse:

- a. Active support for the development of new approaches to publishing and especially to online publishing. This should include working with the research community to develop and make freely available generic platforms for electronic publication, and the finding, sharing and retention of data and interim findings, which safeguard both the need of authors for recognition (currently by publication and citation), and of readers for quality control (peer-review).
- b. Early and full debate seeking consensus on future options for the formal publication of research outcomes, currently focussed on a limited group of established academic journals. This should address the questions what forms of peer review and

peer recognition are appropriate within the more open and flexible communication environment that is now emerging, and how these can be aligned with a precedent requirement to improve the free flow of academic debate in the interests of authors and readers. It must be approached in partnership by a wide range of stakeholders including researchers and learned societies as well as research councils, the four UK higher education funding councils and the university Vice Chancellors. The funding councils' review of research assessment represents a crucial and early opportunity to initiate this debate.

c. The higher education funding bodies and the national libraries should support national and European efforts to apply the same VAT rules for electronic material as for printed material.

Section E

A new body: the Research Libraries Network

159. In the previous section we set out proposals for a programme of action arising from our discussions and reflecting our survey of researchers and the views of stakeholders. In this final section we seek to pull these proposals together into a coherent and effective overall national strategy, and make proposals for how that might best be implemented.

160. At the core of this is our vision for a single integrated national strategy led by a single overarching body. Our programme requires bodies within the current research information system to respond more quickly and effectively to the changing needs of researchers. This can only be achieved with greater co-ordination of their activities and the provision of unified and focussed strategic leadership.

161. We have identified an integrated programme of action on a number of fronts:

- Strategic leadership: to ensure that the provision of research information moves forward within a strong shared strategic framework.
- Discovery: better arrangements for researchers to find out what information sources relevant to their work are available, where these are and how they may have access to them. It is now both possible and desirable for these arrangements to cover, seamlessly, both hard copy and electronic material.
- Access to hard copy materials: the aggregate UK collection of primary and printed research materials is at present among the best in the world in its coverage. Concerted action and national leadership are required to sustain this, to improve the efficiency with which the collection is managed, and to make it easier for all researchers to have effective access to all of the material that it contains.
- Access to electronic materials: there is a need for managed early action to ensure that UK researchers get the information services that they need, and that we retain our place at the leading edge of international development in this field. Some action to manage the creation and supply of online published materials is required, but the main emphasis should be on ensuring that the full range of outputs and data that researchers will continue to produce are shared and retained in the most effective way.
- Sustainability: action to ensure that we build a national research information resource that is sustainable, and secures researchers' continuing access to materials, over the long term.
- Meeting researchers' needs: the national research effort is an essential engine for economic growth and social cohesion. In the present context, researchers are properly treated as a distinct group with particular shared needs. We propose a programme of action which is planned in collaboration with the research community, and tailored to

their needs, but which also interacts at all points with parallel activity on a broader stage to meet the full information needs of the wider community.

- Technical support: achieving our strategy will rely absolutely on the continuing availability of sound technical support building upon existing work – and especially on support through the JISC.
- Scholarly communications: supporting the development of new platforms and promoting debate within the academic community on the implications of electronic tools and the internet for the communication and formal publication of research outcomes and for peer review and recognition systems.

The Research Libraries Network

162. Based on the broad and detailed evidence we have gathered, we believe that the programme of action outlined above is fundamental to the future success of UK researchers. Implementing this programme will require vigorous leadership, unprecedented collaboration and the adoption of a clearly delineated shared strategic framework. Although current providers are already doing high quality work in many of the areas we have identified, it is not desirable that this work should continue to be carried out largely in mutual isolation. World-class research information provision depends on a framework of *interdependent* functions. In the absence of a shared framework (which existing providers were not set up to develop), the benefits of current provision will always be restricted, and vital new work may be completely shut off.

163. This in our view necessitates the creation of a new body to lead the provision of research information in the UK. This body, which we have called the Research Libraries Network (RLN), should have a remit both to combine and scale up existing provision in all those areas discussed above, and to drive forward strong collaborative solutions to problems which all providers share yet none can solve individually. By doing so, it will help libraries which are struggling to cope with the pressures we have identified to strengthen their role at the heart of research information provision and fulfil their obligations to researchers more effectively. Furthermore, the RLN should be charged with raising the profile of research information provision within the UK as a whole, lending this crucial component of the research infrastructure a clear and single voice at the very highest levels of policy making.

164. The creation of the RLN with the remit we envisage would be a development unparalleled among our competitors. Although several other research-intensive countries, including the Netherlands and Finland, are pursuing national solutions to some of the problems we have identified, no other country has attempted to combine all aspects of provision in the same way as the RLN. This is therefore a unique opportunity to propel UK research information provision into a position of world prominence and leadership; and thus to enhance the quality and quantity of UK based research in an increasingly lucrative global market.

165. Taking a national approach meshes with the government's broader priorities to improve UK research and to maximise access. The Government's new strategy for research and innovation, "Investing in Innovation", emphasises the need for strategic leadership and some targeting of funding at a national level to improve the UK research infrastructure³⁴. In our view this must include research information. The fact that the RLN will benefit all professional researchers (and indeed other groups of users on the understanding that it is not designed with their needs specifically in mind) will maximise access to world-class information resources among the whole research community.

166. We have shared our views, as these developed, with the library and research communities here and overseas. A number of forward-thinking librarians, including representatives of CURL, as well as senior people involved in Universities UK, have agreed that our proposals very much reflect what will have to be done to ensure that the national research information resource keeps pace with change as it happens. Some have suggested that the most serious risk we now face is of not moving quickly enough and thus ending up with sub-optimal solutions on the basis that these were the first to become available.

167. We recommend that our sponsors (the higher education funding councils, the British Library and the national libraries of Wales and Scotland) establish the Research Libraries Network. We envisage that the RLN should begin under the close control of our sponsors, on a scale that will address researchers' most immediate concerns; but that it must, in time, seek to establish a broad base of partners, including the universities, the Research Councils, major private charities and other stakeholders. It should have a threefold role:

- Strategy: to develop, with the active involvement of all stakeholders, a national strategy to maintain and improve the UK research information infrastructure responding to the needs and challenges we have identified.
- Executive: As well as being a means to generate and support joint collaborative action among its stakeholders, RLN should be empowered to take action (and to spend money) on their behalf wherever it is clear that collaborative action on behalf of the research community is the most effective course of action. This should include commissioning work as necessary from existing national and specialist agencies. The RLN should be funded to enable it to provide the leadership to ensure that this infrastructure develops properly and evolves to match the overall requirements of UK public research and development.
- Advocacy: to act as an advocate for research information provision at the very highest levels of policy making. One of the fundamental weaknesses of the UK research information infrastructure hitherto has been its inability to wield influence in government. As a crucial component of the overall research infrastructure, we believe high level influence is most appropriate. The RLN should also give the UK, for the first time, a strong and clear voice in crucial international debates on the development of research information provision. With the advent of the internet, decisions about the development

³⁴ HM Treasury. (2002) Investing in Innovation. op. cit.

of research information technology in particular are increasingly being made at international level. It is in the vital interests of UK researchers that we play a prominent role in these discussions.

Relationships with current providers

168. The core concern of the RLN will be to lead the development of a hybrid and distributed national research collection available to as many professional researchers as possible. To this end it should generally work with and through existing providers – in most cases the RLN will not carry out tasks itself. There are existing bodies already involved in implementation, and it will be crucial for the success of the RLN and the future provision of world-class research information in the UK that they retain this focus. The key difference with current arrangements is that responsibility for the strategic formulation and prioritisation of these tasks will be assumed by the RLN. In other words, the RLN will develop and lead a plan of action, which will be implemented by a range of existing bodies and agencies.

169. Clearly then the RLN's relationships with its partners will be very important, and we hope that the RLN will, in time, convince as many agencies as possible to participate. We recognise that all partners may have to make certain concessions to the RLN, in terms of their current individual autonomy, to secure enhanced outcomes from collaborative action. Furthermore, it is possible that as the RLN becomes more efficient and seamless in the minds of users, the constituent partners will lose visibility as discrete parts of the information network. However, we believe that these minor drawbacks are far outweighed by the overall benefits to the UK research information infrastructure afforded by greater collaboration and coherence which, along with the raised profile of provision within the country, will enable individual providers to fulfil their obligations to researchers more effectively.

170. The relationship between the RLN and the JISC merits further discussion. We would not wish to be misinterpreted in our views on the relationship between these two bodies. There is absolutely no doubt that the move towards national solutions, particularly in the area of electronic resources, is largely a result of the JISC's success with the successive eLib, DNER and Information Environment programmes, and that we are indebted to JISC and to the many individuals involved in these developments. The RSLG was established, in effect, to advise on whether this work required expansion and, if so, how this could best be accomplished. Our conclusion is that we should seize this unique opportunity to establish a research focussed body, with the widest possible base of sponsors, that will not only offer national strategic leadership in the area of electronic resources but also encourage much greater collaboration.

171. We do not envisage the RLN as advisory. We do not imagine that our sponsors would wish to see duplication of effort. This leads us to the view that RLN should take responsibility for much of the strategic decision making that is currently undertaken by the JISC and its committees in the area of research resources. The delivery of many of the RLN's functions will of course continue to depend critically on the network, middleware and software provided by the JISC. It is the precise balance between these responsibilities that must be decided if and when our sponsors decide to create the RLN. These arguments apply equally to the

management of certain funds currently flowing from some of our sponsors to the JISC in support of research information resources and their delivery.

172. The case for a distinctive research-focussed body at present strikes us as very strong: researchers have particular needs, in terms of the types of information that they need to share and use and the ways in which this is stored and handled, that differ significantly from those of other user groups. At the same time, much of the strength of the internet and the Information Environment derives from their universality – precisely from their capacity to meet the needs of many user groups; and we do not propose the establishment of a wholly separate structure for research. We are sharply aware that much of the material that researchers are interested in, and the tools they will require to handle this material, have value for other users too – there will be much overlap with the needs of teachers and learners (in and beyond higher education) and of the general user and lifelong learner. The RLN must develop its specifications for specialist services to researchers with an eye to the overlapping needs and parallel development activities of other user groups.

Setting up the RLN

173. The RLN must be set up on a basis that confers upon it the degree of responsibility and authority, and at the same time of active support from its user community, that its role requires. This points to the establishment of a body which is controlled initially by the sponsors of the RSLG; but in the long term it will need to be supported collectively by a widening range of key players in the funding of research and of libraries, including the research councils, the universities and major research charities, and by the user group collectively. It should:

- Be led and chaired at a level compatible with securing collaboration at a senior level in its stakeholder bodies and with influencing national funding and policy bodies in the research arena.
- Take its broad remit from its sponsors (including on the basis of their response to its advice on strategy), but have a considerable degree of freedom both to establish its own detailed work plan and to develop its own lines of communication with the user community.
- Be structured accordingly – with a Steering Committee of senior figures from the academic and research communities and an Operational Committee reporting to this and made up of experts from the library and information communities including the JISC. The Operational Committee will develop practical proposals under the strategic guidance of the Steering Committee. Where another body is deemed to be the best vehicle for delivery, the Operational Committee will act as the interface. In those other areas where the RLN is responsible for delivery, such as the enhancement of access to hard copy resources, the Operational Committee will oversee the activities of the RLN office.

- Build close and effective relationships with groups representing researchers, including learned societies and subject associations and through its own subject advisory groups. These groups will interact closely with the Steering and Operational Committees.
- Have a small core staff of high quality with appropriate expertise and professional experience.
- Have the authority to engage effectively with major providers of research information, including both engaging as necessary in negotiation with providers of content or technical services, and representing the UK in international forums including the European Union.

174. We envisage that the RLN should begin as a body controlled by our sponsors, with a remit reflecting their expectation that its role and field of activity will grow and develop over time. Right from the outset it must carry sufficient authority and independence to drive forward change, and be equipped to secure “proof of concept” in terms of some early positive outcomes that will demonstrate convincingly what could be achieved by the more broadly constituted and supported body that we hope it would later become.

175. Against this background we have set out a suggested five-year work plan for the new body beginning in 2003-04, which would eventually deliver our full programme of work (excepting the few items for which we have clearly identified an alternative leader); and which recognises that, while some actions can and should be started immediately, some will require sustained investment over a period of time or can only be done after other elements are in place. We suggest that RLN might tackle its programme in three stages, each with some internal phasing: immediate steps to get the body started; work which is already in hand and requires a stronger lead, or which is a high priority for action; and then work which is not of the first priority or which can only be started once other things have been done. We further recommend that a formal review of progress should be undertaken three years after launching RLN, so allowing its sponsors to consider how it should develop further.

176. A number of elements in the programme will require the full co-operation of holding libraries. RLN will need to consider how best to secure this co-operation and whether specific incentives will need to be provided.

Immediate steps

- a. Set up a new body with suitably high profile membership and leadership
- b. Establish ongoing dialogue with a wide range of researchers including through existing bodies.
- c. Draw up a structured programme of action based on the areas listed below and agree this with sponsors and other stakeholders.

Work already in hand or high priority for action

- d. Discovery: expedite SUNCAT to launch state (i.e. structure, software, sufficiently populated to launch) [paragraph 93a].
- e. Discovery: initiate work to develop new tool for cross searching of existing online catalogues of print material maintained within higher education and BL/ national libraries (i.e. national catalogue phase 1) [paragraph 93b/c]. Ensure full compatibility with SUNCAT above [paragraphs 98-103]. Ensure that the tool can also handle online materials as metadata become available (see f. below) [paragraph 90].
- f. Discovery: establish and promulgate required metadata and cataloguing standards for online resources [paragraph 97b].
- g. Access: administer the development and implementation from 2004 of a modified access fund for research support libraries [paragraph 125].
- h. Access: Pursue licensing of key commercially owned research resources, beginning by investigating and developing new costing and charging models [paragraphs 116-120].
- i. Access: develop common standard authorisation/ authentication working with content providers [paragraphs 114-5].
- j. Scholarly communication: establish in consultation with researchers and learned societies a forward programme of action [paragraph 158a].
- k. Retention: commission work on needs and costs in the preservation of digital material [paragraphs 140-141].

Second stage work

- l. Discovery: establish desirable eventual coverage of hard copy material in a national catalogue (including serials), including a national holdings survey and cost benefit analysis [paragraph 92b]. Open negotiations with holders of collections desirably in scope and already catalogued electronically. Identify collections not yet electronically catalogued and discuss ways forward with holders and, if appropriate, potential sponsors.
- m. Discovery/ access: scope and develop the integrated catalogue to include borrowing status information as a basis for interlending [paragraphs 98-103].
- n. Discovery: establish the “virtual catalogue” pulling together links to online materials building on metadata development at e. above. Work on feasibility of more sophisticated online cataloguing and search tools specifically for researchers. Work with user community to investigate needs, feasibility and costs for subject-specific tools or portals [paragraphs 98-103].

- o. Access: develop common tools and approaches for structuring and handling online materials. Work with content providers to ensure seamless access through the integrated catalogue [paragraphs 111-2].
- p. Access: develop common generic platforms for online information sharing/publication, including peer review systems [paragraph 158b].
- q. Access: promote and facilitate collaborative collection development for print collections based on the national catalogue [paragraph 128].
- r. Retention: undertake cost-benefit study of collaborative retention including managed disposals. Promote and facilitate action as required: this may include working with funders [paragraphs 135-141].
- s. Digital preservation: if necessary, establish mechanisms for “last resort” archiving of material not reliably preserved elsewhere [paragraph 141].
- t. General: represent, or ensure representation of UK in international forums.

Costs

177. Inevitably, further work will be required to establish the costs of establishing RLN, and of this programme of work, including balancing priorities against the funding that can be made available and carrying out more detailed work on feasibility and scope in several key areas. For a number of items in our workplan, the eventual cost and the timing of expenditure will depend on decisions, that would best be taken on advice from RLN, about the scale and pace of activity. However, we have a clear view on other aspects of this question.

178. Some new activity, and significant extension of the scope of existing work, will be required. We estimate that the establishment of the RLN, with the workplan that we propose, would require the allocation of new funding of the order of £7 million in 2003-04, rising to £22 million by 2007-08. This includes £5 million in each year for extending the “access fund” grants to heavily visited libraries. Most of the budget would be spent on commissioning new activity to deliver the workplan; given a strong and representative steering committee, we could envisage the RLN starting its work with an establishment of perhaps four staff.

179. In addition, the JISC is already allocating significant funds to research support activities (other than support for the network itself, and including middleware development and content acquisition specifically related to research). We envisage that this expenditure would continue, but would be managed within the overall RLN strategy and might therefore be re-focussed to some extent.

180. There are two significant possible work packages to which we have not felt able to attach a cost estimate:

a. Further licensing of commercially owned electronic resources. As we set out in g. above, the first task of the RLN in licensing would be to commission an evaluation of business models in this area as a basis for determining a national policy. Should the RLN decide to start licensing content it would probably do so from 2004-05 at the earliest. It should be stressed that there is a wide range of models that RLN could adopt, at an equally wide range of costs, and that nothing is ruled out at this stage.

b. Retention of electronic resources. As we note in paragraphs 125 to 128, the overarching question of how this activity should be funded will remain unanswered while issues of cost, responsibility and legal deposit are also unresolved. Again the RLN's first task will be to undertake further investigative work in concert with other stakeholders.

181. Beyond 2007-08, any further increases in funding will depend on the RLN continuing to demonstrate its value to its sponsors and to UK researchers. We would hope it would by then be possible to make a strong case for additional funding from government as the national strategy for research information provision is further developed and implemented under its leadership.