eResearch and the future of research libraries

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Some opening questions

• What is the role of the library in supporting eResearch?
• What should the role be?
• What does Philip Bourne’s vision of joined-up data and research outputs mean for libraries?
• What issues are attached to long-term funding and sustainability of current efforts?
• What are the future skill requirements of librarians in this environment? Who is providing the education and training?
• What are the future skill requirements of scientists? Who is training them?
• What are the risks of making substantial investment in this area? And not?
Fussy old woman of either sex, myopic and repressed, brandishing or perhaps cowering behind a date stamp

Crowell, 1980

Old maid, shrivelled prune, loveless frump

Adams, 2000
The research library is becoming a learning space

What does this mean for the researcher?
Researchers’ Use of Academic Libraries and their Services

- Commissioned jointly between RIN and CURL
- Evidence base for development of policy and strategy
  - What are academic libraries for in a changing world?
  - How are they developing their services and strategies for supporting researchers?
  - How are researchers making use of those services?
  - How might libraries and their services change for the future?

Weekly visits to the library

![Weekly visits to the library chart]

- Overall
- Arts & Humanities
- Social Sciences
- Physical Sciences
- Life Sciences
Usefulness of print resources

- Current issues of journals
- Back issues of journals
- Non peer reviewed items
- Special collections
- Short loan
- Reference-only items
- Archives

Digital finding aids

- Library catalogues
- Citation databases
- Cross-institutional catalogues
- Subject-specific A&I db
- General A&I databases
- Subject-specific portals
- Library web site/general portal
Changing user demands

<table>
<thead>
<tr>
<th>1992</th>
<th>2002</th>
<th>2005</th>
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<tbody>
<tr>
<td>End-user searching of CD-ROM databases</td>
<td>Demand for electronic rather than print (new issues)</td>
<td>Demand for electronic rather than print (complete backfiles)</td>
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</tbody>
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1997
Early development of online journals

2004
Institutional repositories
Electronic document delivery

2007-08
One login for everything
Everything electronic
Seamless interface

The Library is dead
What does this mean for the researcher?

Let’s not forget that research is changing
Shifts in knowledge production

• Mode 1 and Mode 2
• “Traditional science” and reflexive research
• Triple helix of overlapping interests (university, government and industry)

Funding structures and requirements 1

• External funding
• Diverse source of funding
  – Government
  – Not-for-profit
  – Industry
• Economic outcomes
  – increase wealth creation & prosperity
  – improve nation’s health, environment & quality of life
• Innovation
• Improved competitiveness
• “Commercialisation” of research
• Less “curiosity driven” activity
Funding structures and requirements 2

- Evaluation, evaluation, evaluation...
  - intellectual merit
  - cost effectiveness or “value for money”
  - economic and social relevance

- Requirements of research assessment
  - increased quantity of published outputs
  - increased “quality” of outputs

- Compliance requirements
  - published outputs in open access
  - storage and re-use of data sets

Emerging practice

- Diverse location of research (university, hospital, industry, research institutes)
- Collaboration amongst teams
- Interdisciplinarity and transdisciplinarity
- Focus on problems rather than techniques
- Changing modes of communication (more informal and ICT based)
- Guarding of intellectual property
Implications for libraries

• Broad-based collections
• Greater need for information specialist
• Information skills training in disciplinary landscapes
• Remote access – sometimes overseas
• Licence issues for collaborators

Research assessment exercises

• UK Research Assessment Exercise (1980s)
• New Zealand Performance Based Research Fund (2003/2006)
• Australia Research Quality Framework (2008)
• Portfolio of evidence; metrics
Implications for libraries

- Institutional focus on research may reduce funding to support teaching
- Pressure on researchers may require libraries to become more student focussed
- Emergence of e-learning
- Greater demand for research collections
- Focus on collections for immediate use rather than “just-in-case”
- Licence issues for overseas collaboration

Players in the formal scholarly communication process

- **Funders**
  - establish research priorities
  - provide resources,

- **Scholars**
  - do research
  - write articles and
  - provide quality assurance through peer review,

- **Publishers and learned societies**
  - accumulate
  - copy-edit
  - provide quality assurance through peer review
  - produce
  - market
  - distribute,

- **Academic libraries**
  - buy
  - archive
  - provide access.
ICT and e-research

- Democratisation of informal networks
- “De-formalisation” of formal networks
  - open publishing and self-archiving
  - open peer review
  - blogs and discussion boards
- Pervasiveness
  - Inter- and multi-disciplinary
  - Mainstream

Implications for libraries

- Changing pattern of use – what future the physical library?
- Need for broad ICT infrastructure
- Never-ending demand for e-content
- Never-ending supply of e-content
- Data curation and repositories
- Information literacy
- Budget pressures
Crisis in scholarly publishing system (1)

- Numbers of titles are soaring
  - tenure
  - research assessment
- Death of scholarly monograph?
  - new breed of journals
  - e‐publishing only
  - universities/funders subsidise costs for some titles
- Inflation rates for books and journal are soaring
- Libraries cannot keep up

Decrease in purchasing power (1)
Crisis in scholarly publishing system (2)

- Scholars have lost control of the formal communication system
  - learned societies sell off titles
  - peer review process secretive and biased; unable to detect fraud
- Commercial publishers have taken over
  - scholarly information as commodity
  - scholars freely giving away their research outputs; libraries buying it from publishers; funders pay twice
Crisis in scholarly publishing system (3)

Problems with publishing in a traditional model

- space constraints and high rejection rates from premium journals
- slow to produce
- fewer monographs published
- no money to pay page charges
- no appropriate outlet for multidisciplinary research

Crisis in scholarly publishing system (4)

- Electronic publications
  - Faster turn-around of submission/revision/publication
- Models
  - As a supplement to traditional print journal (with full content or part content in e-format); subscription based (majority of commercial publications)
  - Electronic only publication; subscription based
  - Open access
    - Digital versions of print journals “free to air” (e.g. BMJ)
    - Open access e-only journals (PubMedCentral)
    - Who pays?
  - Self-archiving
    - institutional or subject repositories
    - pre-print archives
    - poor knowledge of copyright
    - slow uptake by researchers
Implications for libraries

• Budget pressures
• Balance between print and electronic
• Balance between journal and book
• Promotion of open access
• Future sustainability of open access

What do academics want?

• More electronic content from desktop
• Continuing/long-term access
• Maintaining authenticity and integrity of e-resources
• Electronic access to primary materials
• More backfiles (e.g. popularity of JSTOR)
• Customisation
• “In-time” service
Implications for libraries

• Liaison
• Publishers of content

• Support for Cyberinfrastructure
  – Online access to complete back-archives of literature.
  – Stewardship and curation services for enormous collections of scientific data.
  – Digital repositories for diverse digital objects as instructional material and works in progress.
  – Digitized special collections.
  – More continuous (vs. batch) and open forms of scholarly communication.
  – Individual and community customization information services.

• Licensing and access

... or is it?
Informal communication networks

• Libraries cannot (and should not) ignore
• What is our role?
• Blogs, wikis, email
• Web 2.0 and social networking

A pathway for the future

• Understand the researchers’ experiences
• Integrate with their workflow – using the Web 2.0 mentality
• Play to our core strengths

http://www.flickr.com/photos/thevoyagers/398768220/
Information needs and behaviour

Series of major studies
• RIN (2006, 2007)
• JISC (2006)
• British Academy (2005)
• RSLG (2002/3)
• CLIR (2003)
• DLF (2002)

Researchers’ comments

• The general position of the older generation active scholar whose experience has not prepared them for the computer age deserves a little attention
• While there are excellent e-resources available, it depends completely on one’s home institution as to whether you have access to them
• As an independent scholar I am concerned that I do not have the equal access to electronic resources which I do to print and manuscript material
Do they find what they want?

• Not at all expert:
  – Use what they’ve always used
  – Use Google – a lot
  – ‘Good enough’ tendency
• Contrary: ask for FT d/bs and then say WoS is enough
• Easily deterred:
  – Remote holdings
  – Locally held microform, microfilm
  – Locally-held print

Ease of access of electronic materials

• 54% could access e-resources easily
• Barriers included:
• Lack of institutional subscription due to cost or limited demand
• Access restricted or inconvenient – institutional members only or in-library only
• Difficulty in discovering what’s available
• Difficulties in using – e.g. gateways to full-text content
• Online versions incomplete or poor quality – e.g. images of art works
We’re sharing data
We’re creating community

We’re collaborating
We’re sharing our thoughts

Differences in Newspaper Styles

On a more journalistic theme, I had the opportunity to read the Australian military newspaper today. It was a good way to pass time while I waited for my friend. While they used the same attention grabbing intro that we’ve been discussing, the flavour of the stories was complete different.

The daily newspapers tend to have a very pessimistic tone; the army publication had a very positive, uplifting feel. Stories reflected achievements for days of fight without incident, baptisms, recollections, and general information. The stories were clearly designed to boost moral and reassure people about the army’s role in its deployments and that it is taking care of its soldiers. It definitely succeeded, I walked away with a warm fuzzy feeling.

We’re sharing our expertise
Simple search box
Popular/relevant results

IMDb Title Search

A search for "American" found the following results:

Popular Results

Popular Titles (Displaying 10 Results)
1. Citizen Kane (1941)
   aka "American" - USA (working title)
   aka "American Idol" - USA (series title)
   aka "American Idol: Season 2" - USA (seasonal title)
6. American Pie II (2001)
   aka "American Pie: The Second Coming" - USA (working title)
    aka "American Pie: The Naked Mile" - USA (working title)
    aka "American Pie: The Naked Mile" - Germany
    aka "American Pie: The Naked Mile" - USA (working title)
    aka "American Pie: The Naked Mile" - UK
Narrowing of results
Use of tags
Encore
Search: sustainable energy

SPOTLIGHT ON SUSTAINABILITY.

LIFE IN THE DESERT.

Huron's Magnum plant: a step towards sustainability.

Canadian Institutes Get Windfall Without the Bother of Competition.

CLEAN ENERGY

U.S. CHINA RELATIONSHIP

Refined to Resource: Master File Premier (3)
Convenience trumps quality every time.
It is our job to make quality convenient.

OK, so we can mature our traditional business in eResearch friendly ways
What more is there?

Australian researchers will enhance their contribution to world-class research endeavours and outcomes, through the use of advanced and innovative information and communications technologies.
Australian researchers will have the necessary education, training and support from ICT and information management specialists, empowering them to use advanced ICT efficiently and effectively.

More data will be created in the next five years than has been collected in the whole of human history. Properly managed, this data will form a major resource for Australian researchers.
It is envisaged that the sharing of primary data would prevent unnecessary repetition of experiments and enable scientists to build directly on each others’ work, creating greater efficiencies and productivity in the research process.

Research “stuff”

• Research activity in universities is generating vast quantities of material, almost entirely in digital form
  – Research outputs (publications, pre-prints, theses etc)
  – Research data (forecast of nPB/annum)
  – Research material repurposed as learning objects
  – Research office data – HERDC, RQF, grants management etc
• We also buy/access vast quantities of external content to support research
Management implications

• We need to manage these effectively
  – To maximise research impact
  – Enable sharing and repurposing
  – Compliance
    • Legislative
    • Funding
    • Open access mandates
  – Agility
  – Value for money
I am not anti-library. I just feel that there are some technological trends that are inevitable. Putting one’s head in the sand is no way to approach them.

Tony Hey, 2004
Researchers and discovery services

Behaviour, perceptions and needs

A study commissioned by the Research Information Network

November 2006

“...contact with librarians and information professionals is rare”

“...researchers are generally confident in their [self-taught] abilities, librarians see them as...relatively unsophisticated”

“...librarians see it as a problem that they are not reaching all researchers with formal training, whereas most researchers don’t think they need it”

• The part that academic librarians should play remains unclear
• Raise awareness of eResearch amongst library staff
• Provide advice on data management to eResearchers
• Data curation is vast, complex and requires subject input
Overseas activities

Support for e-Research: Filling the Library Skills Gap
14 June, 07 11:30 AM - 15 June, 07 01:15 PM
e-Science Institute, 15 South College Street, Edinburgh
Organiser: Jane Sánchez

The development of e-Research is changing the ways in which researchers locate, analyse, simulate, visualise, manage, retain, share, preserve and re-purpose data. Whether gathered, generated or in the course of individual or collaborative research. Do library staff understand enough about these changes to advise and assist researchers? How can library support and services be re-engineered to interface seamlessly with researchers’ changing working practices? How can libraries assist the development of support for the use of distributed networks and access, management and preservation of data generated by e-research activity in their institutions?

The CURL/SCONUL Task Force has organised a workshop to develop knowledge and skills in relation to this rapidly evolving area. This will provide opportunities for librarians and information professionals to hear about developments in e-research and the developing infrastructure of support from expert practitioners. It will include opportunities for discussion about the emerging information related roles associated with e-research.

Target Audience
This workshop is intended for information professionals.

Programme
This event is provisionally scheduled to start at 11:30 Thursday 14 June 2007 and close at 13:15 on Friday 15 June 2007.
A programme is available at [http://www.nesc.ac.uk/units/events770/programme.cfm](http://www.nesc.ac.uk/units/events770/programme.cfm)
Scientist operated libraries

Librarian managed libraries

Scientist managed data stores

???
Long live the Library

Acknowledgements

• Andrew Bennett
• Carolyn Jones
• Liz Jordan
• Chris Taylor
• Dr Berenika Webster

• Studies and surveys from
  – www.rin.ac.uk
  – www.lib.umn.edu/about/mellon/
  – www.britac.ac.uk
  – jiscstore.jot.com