Quo basis? The changing landscape of scholarly communication

23 February 2015

Keith Webster
Dean of University Libraries

@cmkeithw
TODAY’s WORLD
Students crowd libraries - without using libraries
Open Science
The success of e-journals has driven the researcher from the library.
Growth of web-based knowledge and research tools - often outside the institution
Open access has shaped policy agenda
Library budgets under pressure

Challenges for academic libraries in difficult economic times
A guide for senior institutional managers and policy makers
March 2010

JISC
Assessing the Impact of the Economic Downturn
On university library and IT services
September 2009

Methodology
A total of 60 in-depth interviews were conducted in 36 Higher Education Institutions (HEIs) across the United Kingdom. All were conducted with head librarians and directors of IT services or their equivalent. In institutions where the two services are converged, a director of Information Services was interviewed.

<table>
<thead>
<tr>
<th>Group</th>
<th>Library</th>
<th>IT</th>
<th>Converged</th>
<th>Total</th>
</tr>
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<td>3</td>
<td>6</td>
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<tr>
<td>Million+</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>6</td>
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<tr>
<td>Russell Group</td>
<td>5</td>
<td>4</td>
<td>9</td>
<td>9</td>
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<tr>
<td>Unclassified</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>13</td>
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<tr>
<td>Total</td>
<td>19</td>
<td>12</td>
<td>9</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 1: Number of interviews achieved

ACRL 2009 Strategic Thinking Guide for Academic Librarians in the New Economy

Association of Research Libraries
ARI Statement to Scholarly Publishers on the Global Economic Crisis
February 19, 2009
Shareholders and VCs expect ROI
Customer pressure

Investor pressure
What is happening in the world is bypassing university libraries

Peter Murray-Rust
The scientist’s view
JISC Libraries of the future debate, April 2009
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”
Where do library clients go?

Where do student start a search?

- Search engine: 83
- Wikipedia: 7
- SNS: 2
- Email: 1
- Online database: 1
- Virtual reference: 0
- Library website: 0

Where do academics begin research?

- Specific e-resource: 47 (37 in 2003)
- General search engine: 38 (21 in 2003)
- Library building: 13 (1 in 2003)

Perceptions of libraries 2010, OCLC
Faculty study 2012: key insights for libraries and publishers, Ithaka
Percent of respondents agreeing strongly with each statement, over time.

Because faculty have easy access to academic content online, the role librarians play at this institution is becoming much less important.

Because scholarly material is available electronically, colleges and universities should redirect the money spent on library buildings and staff to other needs.

2006  2009  2012

Faculty study 2012: key insights for libraries and publishers, Ithaka
Libraries Make a Difference: Change the Headlines

THE BIG NEWS

OUR LIBRARY ECOSYSTEM
IS UNDER THREAT

DISRUPTING TRENDS ELIMINATING LIBRARY RESOURCES

http://mystery.gale.com/watch/
WHERE HAVE WE COME FROM?
I - The Library
Collection-centric - 1st generation
Client-focused - 2nd generation
Experience-centered - 3rd generation
Connected Learning Experiences - 4th generation
Collaborative knowledge, media and fabrication facilities - 5th generation
In-library expert - 1st generation
Library instruction - 2nd generation
Information specialist - 3rd generation

Never underestimate the importance of a librarian.

Okay, chances are you won’t actually find a librarian in the operating room. But librarians do play a vital role on any surgical team enabling research breakthroughs and point-of-care solutions. Whether you’re choosing information for specific research communities or decision-support for professionals, Elsevier offers access to a world of information that knows no boundaries. Select from a wide range of scientific, technical and health information available in multiple media, including innovative electronic products like ScienceDirect® and MD Consult. After all, getting the right information into the right hands is critical to the success of any operation. BUILDING INSIGHTS. BREAKING BOUNDARIES®
Library technology - 1st generation
Library technology - 2nd generation
Library technology - 3rd generation
Library technology - 4th generation
Library technology - 5th generation
• Each of those is additive, not a substitute

• As libraries have added new formats, these have not led to disposal of old materials

• Libraries are increasingly pursuing important - but niche - technology projects
2. The scholarly journal
Philosophical Transactions giving some Account of the Present Undertakings, Studies, and Libraries of the Ingenious in Many Considerable Parts of the World.

For Anna 1665, 1666.

Printed by T.N. for John Murray at the Bell, a little without Temple Bar in Fleet-Lane, Pners to the Royal Society.
Table of Contents


28 March 2015; volume 373, issue 2038

INTRODUCTION

Introduction: Fracturing across the multi-scales of diverse materials
Phil. Trans. R. Soc. A: 2015 373 20140474; DOI: 10.1098/rsta.2014.0474. Published 23 February 2015

ARTICLES

Research article: The mechanics and physics of fracturing: application to thermal aspects of crack propagation and to fracking
Genady P. Cherepanov
Phil. Trans. R. Soc. A: 2015 373 20140119; DOI: 10.1098/rsta.2014.0119. Published 23 February 2015

Research article: Couple stresses and the fracture of rock
Colin Atkinson, Ciprian D. Coman, Javier Aldazabal
Phil. Trans. R. Soc. A: 2015 373 20140120; DOI: 10.1098/rsta.2014.0120. Published 23 February 2015

Research article: On localization and void coalescence as a precursor to ductile fracture
C. Tekoğlu, J. W. Hutchinson, T. Pardoén
Phil. Trans. R. Soc. A: 2015 373 20140121; DOI: 10.1098/rsta.2014.0121. Published 23 February 2015
The growth of global scientific output in the last 30 years

Thomson Reuters, *Journal Citation Reports*
Evaluating big deal journal bundles

Theodore C. Bergstrom\textsuperscript{a,1}, Paul N. Courant\textsuperscript{b}, R. Preston McAfee\textsuperscript{c}, and Michael A. Williams\textsuperscript{d}

Author Affiliations

Edited by Jose A. Scheinkman, Columbia University, New York, NY, and approved May 21, 2014 (received for review February 19, 2014)

Significance

Little is known about the prices that universities pay for bundled access to the journals published by large commercial publishers. Publishers have insisted that libraries sign confidentiality clauses that keep these prices secret. We used Freedom of Information Act requests to obtain copies of the contracts signed by a large number of institutions. We report the results of this investigation and compare the bundled subscription prices charged by for-profit and nonprofit publishers.
The big deal

• Access to vast quantities of content for researchers
• Bundles bought on basis of package rather than titles
• Difficult to select/remove individual titles
• Pricing structures change
• Incentives to launch new titles? Incentives to use M&A?
• Majority of bundle use is by top 10% of titles - a lifeline for lesser-used titles
• Citations were currency of print world - usage is today’s measure
3. Media consumption
CHAPTER ONE

A Secret Origin Story

Eisman entered finance about the time I exited it. He’d grown up in New York City, gone to yeshiva schools, graduated from the University of Pennsylvania magna cum laude, and then with honors from Harvard Law School. In 1991 he was a thirty-year-old corporate lawyer wondering why he ever thought he’d enjoy being a lawyer. “I hated it,” he says. “I hated being a lawyer. My parents worked as brokers at Oppenheimer securities. They managed to finagle me a job. It’s not pretty but that’s what happened.”

Oppenheimer was among the last of the old-fashioned Wall Street partnerships and survived on the scraps left behind by Goldman Sachs and Morgan Stanley. It felt less like a corporation than a family business. Lillian and Elliot Eisman had been giving financial advice to individual investors on behalf of Oppenheimer since the early 1960s. Lillian had created their brokerage business inside of
hand, valuable and often decisive information is obtained from routine agglutination tests with sera of patients suffering from obscure and periodic fevers, rheumatism, intestinal and abdominal disorders, and suspected tuberculosis and typhoid fever—S. Bayly.

3603. BICKERT, FRIEDRICH-WILHELM. Untersuchungen über den Einfluss gewisser Gifte auf die Immunitätsbildung. 1. Biel. Arch. Hyg. u. Imp. 169 (4), 231-239. 1913. Workers in metal industries usually recover from wounds faster than workers in other industries. This result of the study of antibody production in rabbits treated orally and subcutaneously with various Pb compounds. Formation of hemolytic, granular, and discoidal antigen in treated rabbits was retarded, but the maximum titers exceeded those of controls. A stimulating effect of Pb was observed. Precipitin formation was delayed and its titer fell below that of controls. 56 K. Berg.

3604. BOCCIA, DONATO. La reacción hemolítica d’Amato en la niñez. [The hemolytic reaction of Amato in childhood.] Rev. Sud-Am. Endocrino. Med. y Quimioter. 12 (16): 670-672. 1929. The Amato hemolytic reaction was found to be non-specific, 17 non-hemolytic persons there were 25% positive reactions and in 15 hemolytic, 8.5% negative. Zonno.

3605. BRAHN, B. K., and F. SCHIFF. Zur Kenntnis des Shiga-Kreuz-Bazillus und seines heterogenen Antigens. Deutsche Med. Wochenschr. 56 (19), 536-537. 1930. Cultures of Shiga-Kreuz bacillus were obtained from human patients with hemorrhagic fever, showing that they contained the hemolytic antigen; 5 gave negative results. 97 other bacterial cultures, including pathogenic and non-pathogenic bacteria and cocci, were tested. This study seems to be a specific characteristic of the Shiga-reaction. 9 of the positive cultures gave a positive reaction of Feldberg’s solution after hydrolysis with the 5 negative cultures gave no such reduction. There seems to be some carbohydrate difference between positive and negative cultures. They also found in the negative more substances in equal concentration. All bacteria were tested with specific antigen preparations. The findings show that the antigen is not certain, but a finding in the same species, the same strain, or the same organism in different species, and the same antigen in different species, may be of importance in the diagnosis of certain pathological conditions, such as aseptic meningitis, meningitis, etc. E. C. L. Moller.

3606. BUCKY, EARL L., and ALAN C. WOODS. Strain extracts, its preparation and clinical use. Arch. Intern. Med. 46 (4): 546-552. 1930. Infections of the alimentary tract, the food- or polio-allergy type, and those with bacterial invasion, and the tubercular type, appearing most often in the phaco-aesthiepus endoplasmic tissue. No patients who were positive in 70 normal controls. 11 of 100 patients were positive after, and some patients were all 100, in the control. In some patients, a strain preparation or extract, although insignificant, may be of importance in the diagnosis of certain pathological conditions. E. C. L. Moller.

3607. CANNON, PAUL E. L. EULLTTA. The formation of fibrinogen by hyaline bodies. J. Exp. Med. 51 (1): 121-127, 2 pl. 1930. Fibrinogen and normal rabbits of approximately the same age were given intravenously in intraperitoneal doses equal to 0.1 cc. per kg. The fibrinogen was found to be made up of fibrinogen, which was found in the liver and spleen. The result was a marked concentration within the blood of the immune animals. There were evidence of an inflammatory reaction in the body, but no unusual change in the blood stream. 2. C. L. Moller.
W(h)ither the Library?

Local distribution 1990s
- BORDERS
- BLOCKBUSTER
- HMV

Global digital 2000s
- Amazon.com
- Netflix
- Music
- Google

Cloud-based models 2010s

Convergent media services

4. Researchers & communication
The University of Sydney's Simon Chapman is finding a bigger audience for his research papers through social media

Twitterati flocks to researcher's posts

JULIE HARE

"I just can't see the point of doing research if no one is going to read it," says Simon Chapman, professor of public health and director of research at the University of Sydney.

A prolific researcher and writer — Chapman has published 406 articles in peer-reviewed journals and 17 books and key reports during his career — he has become something of a chart topper on the university's research repository, with three items in the most recent list.

And the reason for Chapman's newfound popularity? He has joined the world's 200 million strong army of twittersers.

"What's the point of research if no one reads it? So it's sensible to do what you can to let people know about it," he says.

Chapman first signed up to a Twitter account about a year ago and managed only five tweets, or messages, in the first nine months. But following conversations with journalist friends who regaled him with tales of their stories receiving enormous spikes in online hits if the link had been tweeted, he decided to embrace the new social media in his work.

Chapman chose three items to push through Twitter: a downloadable book on screening for prostate cancer (don't do it); a paper on how many times researchers refused offers to peer review (one in three); and a third survey on university policies and practices towards staff working in consultancies and positions outside the university (if they even exist, variable).

"There are over 6000 items on the repository and for quite a while my book on prostate cancer was the No 1 item downloaded on the list.

"When I started tweeting the other position there also did quite well. All three have been in the top 10 since," he says.

Since it was released last October, Let Sleeping Dogs Lie? What Men Should Know Before Getting Tested for Prostate Cancer has sold 200 hard copies, but been downloaded 7000 times. And while Chapman doesn't ascribe all that success to Twitter, he says it undoubtedly played a role.

"There is a certain reserve among academics who see doing things like Twitter as pushy and self-promoting," he says.

"But what is the point of doing research if no one is going to read it? I'm in a middle-sized department of 50 people and I'm not aware of anyone else using Twitter. Academics have been slow coming to it, but having been a journal editor for 17 years I have long been appreciative of the relationship between publicity and interest.

"Every time we would put out a press release promoting a certain paper, hits would spike. The same is true on Twitter."

Of the 5999 other items in the repository Chapman says it appears most researchers simply put their work in and wait for people to find it on Google.

Simon Chapman's Twitter name is @ChapmanS.
Ever talk with citizens about science, research

Ever talk with reporters about research findings

Ever use social media to discuss or follow science

Ever blog about science and research

% of AAAS scientists who ever do each of the activities

How scientists engage the public

http://www.pewinternet.org/files/2015/02/PI_PublicEngagementbyScientists_021515.pdf
http://archive.sciencewatch.com/newsletter/2012/201207/multiauthor_papers/
Overview:
The assessment framework

Overall quality

Outputs
Impact
Environment

Maximum of 4 outputs per researcher
Impact template and case studies
Environment data and template

65%
20%
15%

REF2014

ERA 2015 Excellence in Research for Australia
5. The learned society
• In-house journals ‘sold off’
• GMIs have brought essential revenue
• Open access financially challenging
• Newer generations of researchers less interested in membership
• Conferences under threat?
RESEARCHER WORKFLOWS
101 Innovative tools and sites in 6 research workflow phases
(< 2000 - 2015)
Traditional workflow

All of these tools licensed by institution

http://figshare.com/articles/101_Innovations_in_Scholarly_Communication_the_Changing_Research_Workflow/1286826
Open Science

All of these tools accessible by researcher

http://figshare.com/articles/101_Innovations_in_Scholarly_Communication_the_Changing_Research_Workflow/1286826
Going ‘all in’ for science

President Obama is making the biggest bet on science and technology in history. We look at the colossal numbers.

Never has so much money been pumped into science so quickly and with so much hanging on a successful outcome. The full scope of President Barack Obama’s agenda to revitalise the ailing US economy has now been revealed, and it is arguably the biggest bet on science and technology in history.

Source: The New Scientist, Volume 201, Issue 2698, 4 March 2009, Pages 8-9
Library Expenditure as % of Total University Expenditure (Average of 40 US Institutions Reporting Since 1982)
THE LIBRARY
Size doesn’t matter any more

Traditional library metrics

• Number of volumes
• Number of serials subscriptions
• Reference requests
• Gate count
• Number of issues
• Anything else that moves and is easy to count

Evolving library metrics

• Impact on student recruitment and retention
• Impact on student learning outcomes
• Contribution to research excellence
• Impact on broader economic, social and health outcomes
• Return on investment
The need to understand

- Dubious about some studies which make claims about the value of libraries
- Commissioned a study to assess the value library-provided information resources deliver to their research communities
### Personal expenditure on information resources

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<th>Category</th>
<th>Percentage</th>
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<td>$1-250</td>
<td>33.4</td>
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<td>$1251-1500</td>
<td>1.7</td>
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<td>Over $1500</td>
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**Where else would you go for stuff?**

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<th>Source of Material</th>
<th>Frequency</th>
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<tr>
<td>Obtain from colleagues/authors</td>
<td>183</td>
</tr>
<tr>
<td>Other universities to which I have no affiliation</td>
<td>173</td>
</tr>
<tr>
<td>Purchase from publishers or document delivery intermediaries</td>
<td>172</td>
</tr>
<tr>
<td>Institutional and open access repositories</td>
<td>160</td>
</tr>
<tr>
<td>State libraries</td>
<td>149</td>
</tr>
<tr>
<td>National Library of Australia</td>
<td>113</td>
</tr>
<tr>
<td>Another university to which I am also affiliated</td>
<td>106</td>
</tr>
<tr>
<td>Overseas universities</td>
<td>97</td>
</tr>
<tr>
<td>Specialist subject-focused research institutions</td>
<td>73</td>
</tr>
<tr>
<td>Other public libraries</td>
<td>58</td>
</tr>
<tr>
<td>Learned Societies</td>
<td>36</td>
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<tr>
<td>Other</td>
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## Medium-long term effect on research

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<th>Volume of research outputs</th>
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<td>Volume will increase</td>
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<tr>
<td>Volume will remain unchanged</td>
<td>37</td>
</tr>
<tr>
<td>Volume will decrease</td>
<td>326</td>
</tr>
<tr>
<td><strong>Total responses:</strong></td>
<td><strong>379</strong></td>
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</table>

<table>
<thead>
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<th>Quality of research</th>
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<tbody>
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<td>Quality will increase</td>
<td>15</td>
</tr>
<tr>
<td>Quality will remain unchanged</td>
<td>62</td>
</tr>
<tr>
<td>Quality will decrease</td>
<td>302</td>
</tr>
<tr>
<td><strong>Total responses:</strong></td>
<td><strong>379</strong></td>
</tr>
</tbody>
</table>

- The volume of research outputs will increase by 16 responses.
- The volume of research outputs will remain unchanged by 37 responses.
- The volume of research outputs will decrease by 326 responses.
- The total number of responses is 379.

- The quality of research will increase by 15 responses.
- The quality of research will remain unchanged by 62 responses.
- The quality of research will decrease by 302 responses.
- The total number of responses is 379.
Funding scenarios

- Current spent on information resources across the three sites is $2,496 per capita
- Respondents were asked to recommend a budget for the purchase of single-user access to the resources they need - average $3,511 per capita
- Respondents were also asked to estimate the costs if they had to be self-sufficient (purchases, travel to libraries etc) - average $5,894 per capita
Summary finding

• The final scenario would result in total costs to the institution of $81.4m compared to actual spend of $34.5m - a financial return of 136 percent
OPEN ACCESS

- More exposure for your work
- Practitioners can apply your findings
- Higher citation rates
- Taxpayers get value for money
- Compliant with grant rules
- Your research can influence policy
- The public can access your findings

CC-BY Danny Kingsley & Sarah Brown
RESEARCH
Access for all, research participation based on merit, not means.

**Potential benefits:**
- Speeding up discovery.
- Reduction of duplicative research.
- Fewer blind alleys.
- New research possibilities.
- Better educational outcomes & enhanced research capabilities.

SOCIETY
Access as needed, informed consumers (e.g. health and education).

**Potential benefits:**
- Contribution to the 'informed citizen' and 'informed consumer', with implications for better use of health and education services, better consumption choices, etc. leading to greater welfare benefits, which in turn may lead to productivity improvements.

SUBSCRIPTION PUBLISHING
Current reach

OPEN ACCESS
Potentially serves all

INDUSTRY
Part served, but not all

**Potential benefits:**
- Accelerate and widen opportunities for collaboration, commercialisation & adoption.
- The potential for much wider access for GPs/nurses, teachers/students, and small firms in consulting, engineering, ICT, nanotechnology, biotechnology, etc.

INDUSTRY
(1) Access as needed, more informed producers & policy.
(2) New businesses add value to content (e.g. Weather Derivatives).

**Potential benefits:**
- The potential for the emergence of new industries based upon the open access content.
To achieve the Administration’s commitment to increase access to federally funded published research and digital scientific data, Federal agencies investing in research and development must have clear and coordinated policies for increasing such access.
RCUK announces block grants for universities to aid drives to open access to research outputs

<table>
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<tr>
<th></th>
<th>Year-1</th>
<th>Year-2</th>
<th>Year-3</th>
<th>Year-4</th>
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<tr>
<td>RCUK APC fund</td>
<td>£17m</td>
<td>£20m</td>
<td>To be determined</td>
<td>To be determined</td>
<td>To be determined</td>
</tr>
<tr>
<td>Expected % of papers in Gold OA</td>
<td>45%</td>
<td>53%</td>
<td>60%</td>
<td>67%</td>
<td>75%</td>
</tr>
</tbody>
</table>
http://eprints.whiterose.ac.uk/81227/
Compliance Cost of the RCUK Open Access Policy

A Snapshot of Costs to UK Research Organisations in 2013/14

- Other support and advocacy: £0.4m
- Systems and software: £1.3m
- Green route: £0.1m
- Gold route: £0.8m
- Overheads: £2.2m
- Academic managers: £1.2m
- Administrators: £3.2m

Total: £9.2 million

www.researchconsulting.co.uk

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Useful knowledge

Sharable knowledge
radical changes in their business models and practices as a direct result of new technologies, higher education has so far resisted the wholesale changes we have seen elsewhere. However, a gradual and fundamental shift in the practice of academics is taking place. Every aspect of scholarly practice is seeing changes affected by the adoption and possibilities of new technologies. This brings forth these changes, their implications for higher education, the possibilities for new forms of scholarly practice and what lessons can be drawn from other sectors.

Table of Contents
Acknowledgements

**Digital, Networked and Open**

Is the Revolution Justified?
Lessons from Other Sectors
The Nature of Scholarship
Researchers and New Technology
Interdisciplinarity and Permeable Boundaries
Public Engagement as Collateral Damage
A Pedagogy of Abundance
Openness in Education
Network Weather
Reward and Tenure
WHERE ARE WE GOING?
THE LIBRARY
Current directions in academic libraries

1. Continue the migration from print to electronic and realign service operations
2. Review location of lesser-used collections
3. Continue to repurpose library as primary learning space
4. Reposition library expertise and resources to be more closely embedded in research and teaching enterprise outside library
5. Extend focus of collection development from external purchase to local curation
The role of librarians

**Current state**

Many libraries retain large numbers of librarians to catalogue and count.

Even more librarians wait at service desks ‘just in case’.

Few librarians leave the library building.

**Future state**

Librarians embedded in research and teaching activities.

Librarians become campus specialists in areas such as e-science, academic technology and research evaluation.

Librarians have meaningful impact.

**Current barriers**

Many librarians lack skills and useful qualifications.

Many librarians are resistant to change.

Academics do not believe librarians are useful or credible partners.
CONCEPTUAL STRUCTURES

KNOWLEDGE

INFORMATION

USER/CLIENT

DOCUMENTATION

COLLECTION/INFO RESOURCE

Recording/Publishing

Operations on content

Curation/Info resource management

Personal/collective memory

Info Need

User behaviour

Info service provision

cilip.org.uk
Collections Grid
A Framework for Representing Content

Published Content
- Books
- Journals
- Newspapers
- Government Docs
- CD, DVD
- Maps
- Scores

Special Collections
- Rare Books
- Local/Historical Newspapers
- Local History Materials
- Photographs
- Archives & Manuscripts
- Theses & Dissertations

Open Web Content
- Freely-accessible Web Resources
- Open Source Software
- Newsgroup Archives
- Images

Institutional Content
- ePrints/Tech Reports
- Learning Objects
- Courseware
- Local Government Reports
- Training Manuals
- Research Data

Source: OCLC Research, 2003
The End of The Paper

The turn of the new millennium also saw a computational turn in research and the rise of “digital scholarship”. Where research once involved a few people and a few computers, now it involved “big” and real time data and huge social networks. The world’s grand challenges demanded large, distributed, multidisciplinary teams and long-running experiments. Human triage and analysis of growing dataflows were increasingly assisted by automation through software and “cyberinfrastructure”. The days of the paper, like its pages, were numbered.

The demise of the paper around 2030 can be attributed to several factors:

1. It was no longer possible to include the evidence in the paper.
2. It was no longer possible to reconstruct a scientific experiment based on a paper alone.
3. Writing for increasingly specialist audiences restricted essential multidisciplinary re-use.
4. Research records needed to be readable by computer to support automation and curation.
5. Single authorship gave way to casts of thousands of collaborators and citizen scientists, leading to failure of the authorship and incentive model.
6. Quality control models scaled poorly with the increasing volume and “open access” movement, obscuring innovation.
7. Alternative reporting was found necessary for compliance with increasingly stringent scientific and industrial regulations.
8. Frustrated by inefficiencies in scholarly communication that stifled progress, research funders demanded change.
UNIVERSITY FUNDING
IS COLLEGE WORTH THE COST?

“ENDLESSLY STIMULATING AND PROVOKING.”
—TODD MCCARTER, THE HOLLYWOOD REPORTER

“HARRIVING, YET HOPEFUL.”
—BECKTON MARRS, FILMMAKER MAGAZINE

“A SEARING TAKEDOWN...
NO PUNCHES PULLED... A MUST.”
—TOM HALL, BACKROWMAPFEST.COM

IVORY TOWER
What Obama's 2016 Budget Means for Higher Ed

By Paul Basken, Brock Read, Madeline Will, and Brad Wolverton
Washington

In the weeks leading up to the release of his 2016 budget, on Monday, President Obama had already previewed many of its key elements—including proposals to make community college free and streamline higher-education tax credits. But a few surprising details still emerged on Monday. For more on those developments, and on the uphill battle the president's plan faces in Congress, see an analysis by The Chronicle's Kelly Field.
Illinois Governor Seeking To Raid Higher Education Budget A Month After Being Sworn In

Scott Walker To Cut $300 Million From Universities, Spend $500 Million On A Pro Basketball Stadium

Bobby Jindal Says America Needs Educated Population, Slashes Education Budget
Science funding

• Ever-increasing expenditure on healthcare in most nations will support continued expansion of the medical subsegment of the STM market

• Publishers will look to offset the decline in print revenues through new solutions - eg workflow, performance measurement and cool ‘toys’

• R&D growth in Asia and the US will continue to underpin the STM market
Reed Elsevier

Report

Changes Rating TP EPS 12e EPS 13e
Reed Elsevier NV 15% 6% 7%
Reed Elsevier PLC 10% 4% 4%

Reed Elsevier NV (+)
Professional Publishing  Netherlands
Price*: EUR8.8  * TP: EUR11.5  * Upside: 31%
Market cap: EUR12.4bn

12/10 12/11e 12/12e 12/13e
Adjusted EPS (EUR) 0.76 0.81 0.91 0.98
P/E (x) 11.9 11.1 9.6 9.0
P/BV (x) 11.6 10.1 8.5 7.5
Net yield (%) 4.4 4.8 5.5 5.9
FCF yield (%) 9.8 8.8 11.4 12.2
EV/Sales (x) 2.4 2.4 2.1 2.0
EVEBITDA (x) 8.2 7.6 6.3 5.8
EVEBITA (x) 9.4 9.1 7.8 7.0
Adj. net debt / EBITDA (x) 1.9 1.8 1.3 1.0

Reed Elsevier PLC (+)

On its own merits

- Elsevier: an underrated asset with best-in-class
History shows that research libraries tend to adjust to staff costs to maintain spending on critical content. Оff deals, covering c.50% of Elsevier's European institute a solid outlook for 2012 despite funding issues. This growth potential (currently c.20% of journal revenue) organic growth for Elsevier (46% of group EBITA), raising EBIT margin to grow 100bp in FY12e to 38%, helped

Nomura | Reed Elsevier plc

Scientific publishing: A business model with growth dynamics and high margins
Science is the company's most important single business, generating close to 20% of sales and over one quarter of its EBITA. The business model relies on authors exchanging their content for publication in a specialised journal in which the content is quality checked and peer reviewed. This gives the author the opportunity to acquire further funding for research, especially if the work is widely cited by others in the field. The research is disseminated primarily on a paid subscription basis.

The global STM market
The global (Scientific and Medical) STM market is worth c. USD 19bn (based on data from STM companies and our own estimates) with the S&T market specifically worth c. USD 13bn. This value for STM compares with a value given by Elsevier in 2005 of USD 15bn for the English-language STM market, which suggests 5-6% growth pa. The overall market includes science and medical journals, databases and software, print books, clinical reference, nursing and pharma promotion.

Fig. 1: Global STM market (USD bn)
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