

E-journals: their use, value and impact

A Research Information Network report

April 2009





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The study was overseen by a Steering Group: Michael Jubb (Research Information Network), Richard Gedye (Oxford University Press), Barrie Gunter (University of Leicester), Graham Taylor (Publishers Association), Jan Wilkinson (University of Manchester) and Hazel Woodward (Cranfield University).

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This report is based on work undertaken by CIBER at University College London and commissioned by the Research Information Network. It represents the first phase of a study, and raises questions which will be studied further in phase two.

The CIBER team is: David Nicholas, Ian Rowlands, Paul Huntington, David Clark and Hamid Jamali.

Key findings



Key findings

E-journals are a big deal

E-journals are the life-blood of UK research institutions

In the space of just four months, users at ten UK research institutions visited nearly 1,400 ScienceDirect journals (covering life sciences, economics, earth and environmental sciences, physics, and chemistry), half a million times and viewed a million and a half pages;

The picture is equally impressive for Oxford Journals, where over a period of twelve months, users at the same ten institutions visited just 61 journals (covering life sciences, economics and history) a quarter of a million times, and viewed two-thirds of a million pages.

Nearly everything made available is used

Ninety-eight percent of the 1,400 ScienceDirect journal titles were used over just four months.

Information seeking is fast and direct

A high proportion of researchers enter ScienceDirect via a third-party site, such as PubMed, staying just long enough to pick up the full-text. This is especially true in the life sciences and in the highest-ranked research institutions.

Most users visit ScienceDirect for only a few minutes, and view only a couple of pages.

Key findings

Researchers are different...

Researchers seek for and use information in very different ways

Users in research-intensive universities behave differently from those in less intensive ones:

- per capita use is highest in the most research-intensive institutions
- users spend much less time on each visit
- they forsake many of the online facilities provided on the publishers' platform
- they are much more likely to enter via gateway sites

There are also marked differences between subject and between type of institution:

- users' behaviour varies markedly by subject: for example, life scientists are much more likely to enter publishers' sites via a gateway service than economists, and
- users in government laboratories and universities, even within the same subject, exhibit very different information behaviour.

Users are by-passing carefully-crafted discovery systems. Just four months after ScienceDirect content was opened to Google, a third of traffic to Science Direct's physics journals came via that route. This effect is particularly notable since physics is richly endowed with information systems and services.

Although Google searching is hugely popular, once users enter a site they browse rather than search again using the internal search engine. The advanced search function is used rarely, and hardly at all by users in the most highly-rated research institutions.

...once users enter a site they browse rather than search again using the internal search engine.

Readers use e-journals well into the night and over the weekend

Nearly a quarter of ScienceDirect use occurs outside the traditional 9-5 working day.

Weekends account for around 15 per cent of ScienceDirect use.

Key findings

Does more spending on e-journals mean more use and better research?

E-journals represent good value for money

UK universities and colleges spent £79.8m on licenses for e-journals in 2006/07 (out of a total serials expenditure of £112.7m).

We estimate that researchers and students in higher education downloaded 102 million full text articles in 2006/07, at average cost (excluding overheads, time and other indirect costs) of £0.80.

On average, every registered FTE library user downloads 47 articles a year.

Journal expenditure correlates with use

There is a strong and positive correlation between universities' expenditure on electronic journals and the volume of downloads of articles per capita.

Journal use and expenditure correlate with research outcomes

Per capita expenditure and use of e-journals is strongly and positively correlated with papers published, numbers of PhD awards, and research grants and contracts income.

These correlations are independent of institutional size.

Per capita use of e-journals is nearly three times as high in Russell Group universities as it is in the new universities, although there is no significant difference in cost per download.

Setting the scene



Setting the scene

Why this report is important

Publishers began to provide access to full-text articles in scholarly journals about ten years ago. This has led to a revolution in the scholarly communications landscape. But we know little about precisely how it has changed the behaviour of researchers in the UK. Hence it is timely to investigate:

- How have researchers responded to the unprecedented levels and convenience of access to scholarly journals?
- Has enhanced access to the literature led to greater productivity, research quality and other outcomes?

Numerous user surveys have indicated how much researchers welcome enhanced (24/7) and easy online access to unprecedented numbers of journals. Publishers and librarians too have welcomed these findings, but the surveys show what users think, not how they actually behave.

Until now, there has been no joined-up, evidence-based, study that provides a detailed portrait of the information-seeking behaviour of UK researchers, of how they make use of online journals, and of the benefits that flow from that use.

The report will be of significant interest to:

- scholarly publishers: in offering fresh insights into the behaviour of their users and the relevance and usability of their services
- university librarians: in providing them with the evidence to help them understand more about the use and the value of the online journals they provide
- higher education policy makers: in helping them better to understand the linkages between expenditure on journals and 'downstream' research outputs and outcomes, and
- researchers themselves: in providing them with an opportunity to reflect on and benchmark their own behaviour.

Setting the scene

Study aims and objectives: sparking the debate

The aim of the first phase of this study is to provide a detailed analysis of how academic researchers in the UK have responded to the provision of scholarly journals in digital form, and how this has shaped their information-seeking behaviour and their use of such journals.

The objectives are to:

- investigate researchers' behaviour, in terms of levels and patterns of usage, content viewed, navigational preferences, and routes used to access e-journal content
- ascertain how researchers' behaviours vary by subjects and disciplines, and in relation to the universities and other institutions in which they work
- gather and analyse any evidence of relationships between researchers' behaviours and usage, and institutional expenditure on e-journals, and
- gather and analyse any evidence of relationships between researchers' behaviours on the one hand and research productivity, outputs and outcomes on the other, including such measures as numbers of publications produced, citations attracted, and the results of research evaluations.

The work reported here is exploratory and pathfinding, and it raises many questions. But since so much money, time and energy are expended on journals, it is important to understand how they are actually being used.

In the current data vacuum, we hope that the results of this study will spark a debate.

Research design

The design of this study is unusual in that it uses a mix of bottom-up and top-down

We have mined publishers' logs (from Elsevier ScienceDirect and Oxford Journals) from the bottom up to generate fine-grained insights into the information-seeking behaviour of

We are looking to establish if there are relationships that appear positive and strong and that suggest a *prima facie* case for further analysis and questioning in the second phase.

In a parallel top-down exercise, we have built a statistical database that relates library indicators, article downloads and measures of research success for all UK universities.

Links to further information about research methods and findings may be found on page 45

University of Aberdeen
Banger University

Chemistry and chemical engineering
Earth and environmental sciences

Bangor University	Earth and environmental sciences
University of Cambridge	Economics and econometrics
Centre for Ecology & Hydrology (CEH)	History

Chemistry and chemical engineering
Earth and environmental sciences

Earth and environmental sciences
Economics and econometrics
History

Electronic journals are a huge success

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Electronic journals are a huge success

The rise of e-journal provision

The primary means of gaining access to the knowledge in scholarly articles is now through e-journals.

It is now estimated that 96.1 per cent of journal titles in science, technology and medicine, and 86.5 per cent of titles in the arts, humanities and social sciences are now available online (John Cox Associates for ALPSP, *Scholarly Publishing Practice Survey 2008*).

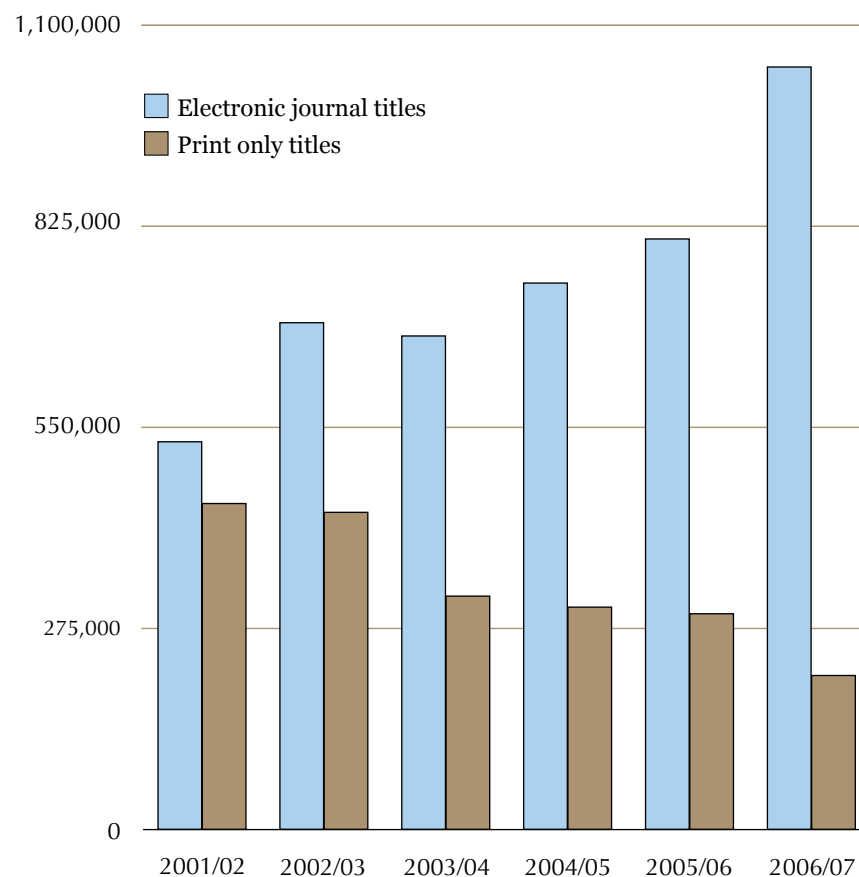
The scale of the e-journals enterprise is now enormous:

- UK universities and colleges spent nearly £80 million licensing electronic journals in 2006/07
- we estimate that university researchers and students downloaded almost 102 million articles during that period, and
- downloads cost, on average, 80 pence (excluding overheads, time and other indirect costs).

The rise of electronic journals

n=115 UK universities

Source: Sconul 2008



Electronic journals are a huge success

Rapid consumer take-up

Users in UK universities have taken full advantage of the enhanced provision of e-journals over the past five years.

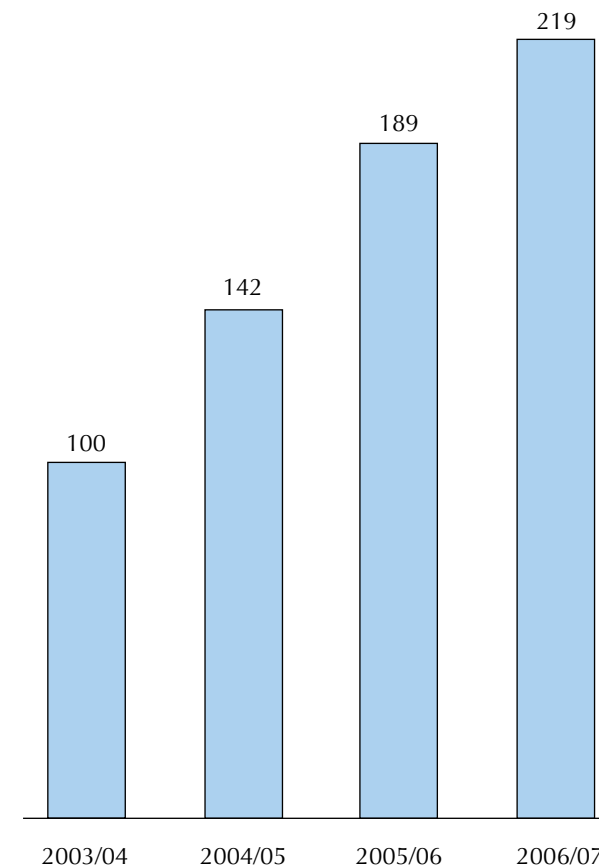
The graph opposite shows the number of full text article downloads (from all publishers). Downloads are indexed to 100 for the academic year 2003/04 for ease of comparison.

In just three years:

- total use more than doubled
- at a compound annual growth rate (CAGR) of 21.7 per cent per annum.

The growth in article downloads n=67 UK universities

Source: Sconul 2008/COUNTER 2008



Electronic journals are a huge success

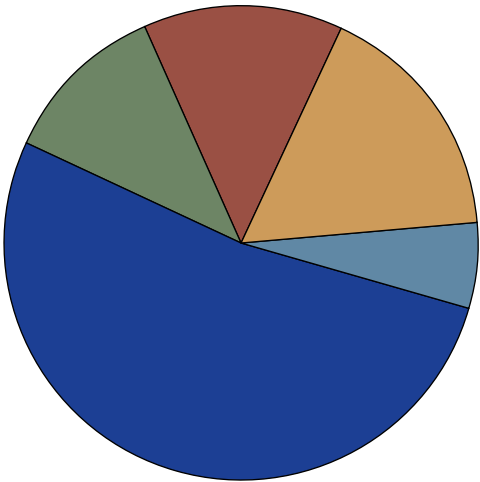
Intense activity across all subjects

Deep log analysis offers unique insights into user behaviour. The following pages all relate to the deep log analysis we did of ScienceDirect.

These pie charts convey something of the sheer scale and intensity of use made of e-journals. The numbers are mind-boggling: and all this activity is from just ten institutions over the first four months of 2008.

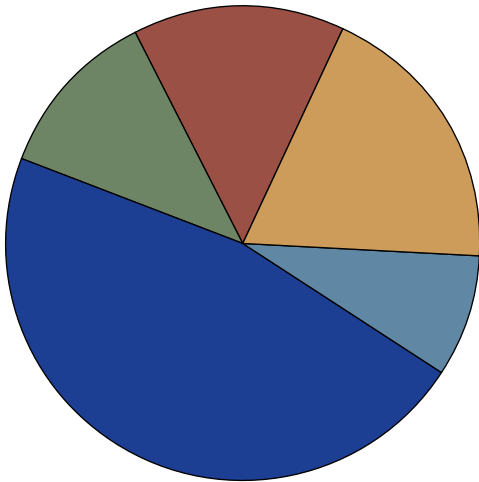
Number of sessions

Life sciences	270,844
Physics	60,196
Chemistry	69,235
Environmental sciences	86,487
Economics	31,162



Number of page views

Life sciences	700,044
Physics	176,005
Chemistry	217,876
Environmental sciences	288,896
Economics	125,043



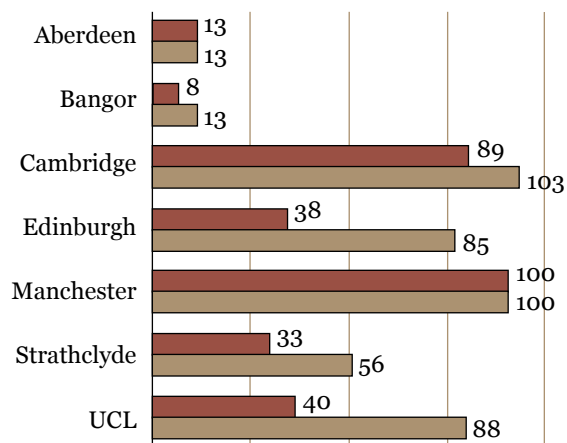
Electronic journals are a huge success

... but the intensity varies across case study institutions

The next three charts compare use (page views) with size of subject discipline (as indicated by numbers of staff FTEs submitted to the 2008 Research Assessment Exercise*). For each graph, the data are indexed to the institution with the largest number of research-active staff in that subject.

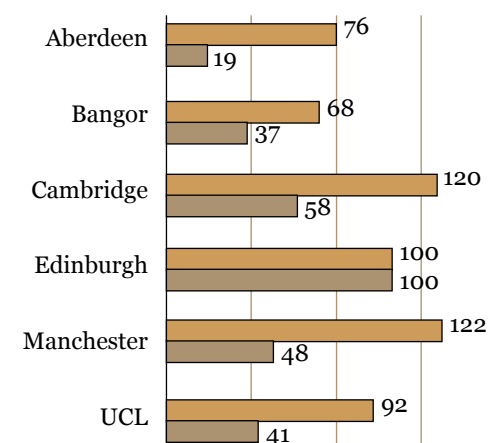
Chemistry

■ Relative use
■ Relative size



Environmental sciences

■ Relative use
■ Relative size

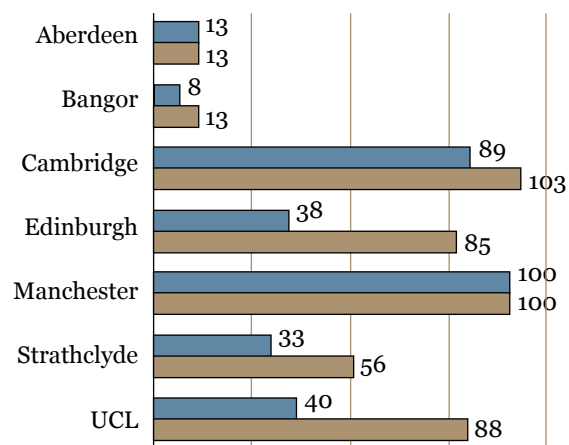


*Not all institutions submitted all their research-active staff, so these charts provide only a rough indication of relative size.

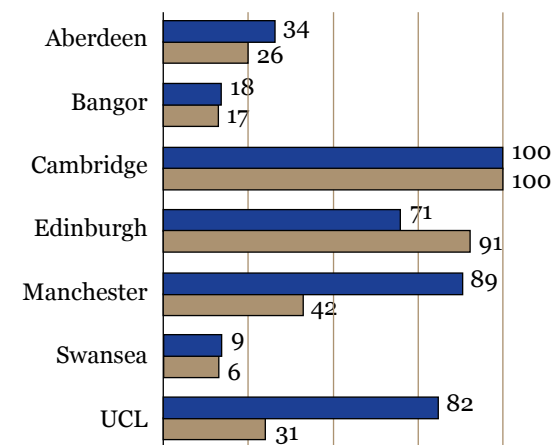
... but the intensity varies across case study institutions

... but the intensity varies across case study institutions

■ Relative use
■ Relative size



■ Relative use
■ Relative size



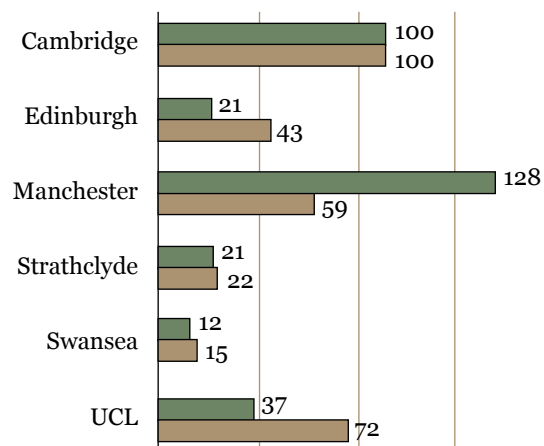
*Not all institutions submitted all their research-active staff, so these charts provide only a rough indication of relative size.

Electronic journals are a huge success

... but the intensity varies across case study institutions

Physics

■ Relative use
■ Relative size



*Not all institutions submitted all their research-active staff, so these charts provide only a rough indication of relative size.

The relationship between use and size requires further investigation.

Information-seeking behaviour

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Information-seeking behaviour

Google is hugely popular and influential

Once journal content is opened up to Google for indexing, Google is then used by large numbers of even the most proficient and informed information seekers. Just four months after ScienceDirect content in physics was opened up to Google, more than a third of all traffic arrived via this route. This is particularly notable in a field richly endowed with online information resources.

Google's popularity is also shown in the case of Oxford Journals where Google has had access for some years: over half of their traffic comes via Google, especially in the case of 'super-users'.

Information-seeking behaviour

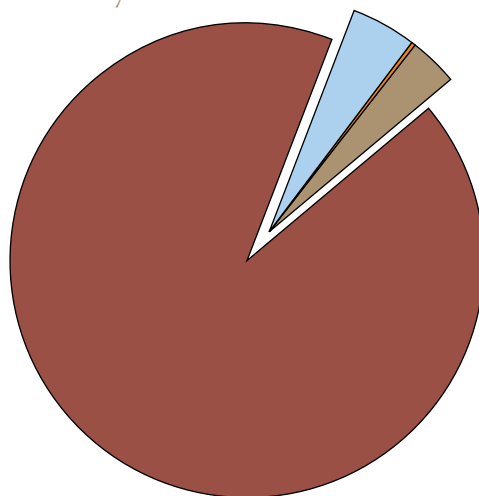
... and searches on the publisher's platform are rare

Few users make use of the search and navigational features that publishers offer on their own platforms.

The pie charts opposite are for chemistry and physics respectively in ScienceDirect, and a similar pattern emerges in the other subjects.

Use of publisher search facilities: chemistry

Basic search	4.4%
Advanced search	0.3%
Citation function	3.3%
None	92.0%



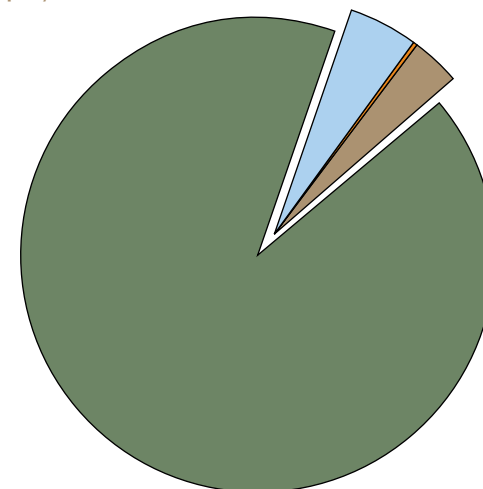
On average, in chemistry and physics:

- one session in 22 includes use of the basic search facility
- one session in 400 includes use of the advanced search facility, and
- one session in 30 includes use of citation.

As already seen, much searching is now being conducted outside of the publishing platform on third-party 'gateway' services such as Google, GoogleScholar or PubMed.

Use of publisher search facilities: physics

Basic search	4.7%
Advanced search	0.2%
Citation function	3.4%
None	91.7%

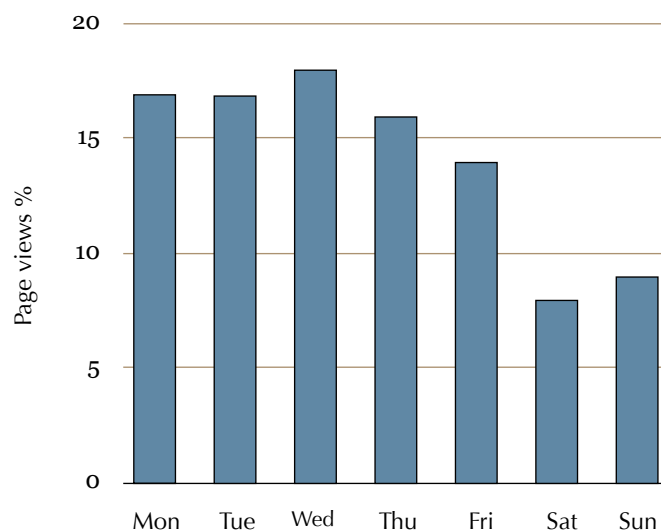


Information-seeking behaviour

UK readers burn the candle at both ends

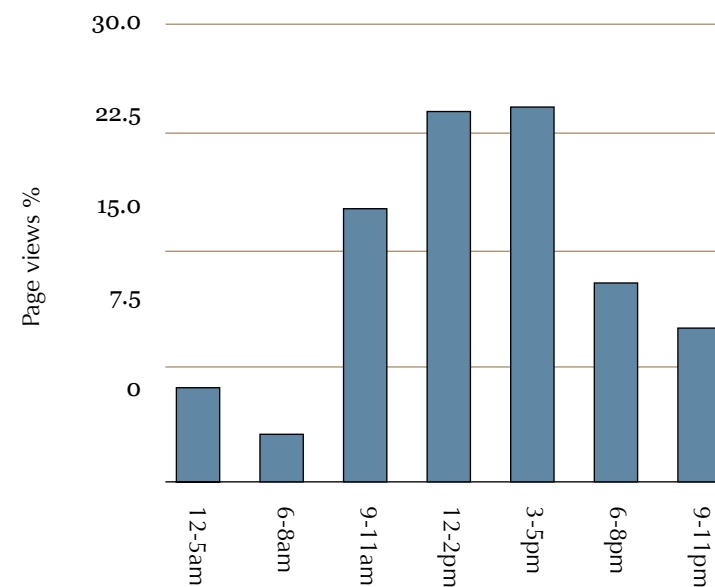
Users are making the fullest possible use of e-journals.

A working week in economics



So far, we can see very little difference in usage patterns across the four months of ScienceDirect data that is available, but seasonal trends may well become apparent over a full academic year.

A working day in economics



Readers in different subjects behave differently

For example:

- there is much variation in abstract views per session: from 19.5 (life sciences) to 30.4 (economics), and
- users in the chemistry are more than twice as likely as users in economics to arrive via a gateway service.

	Journal titles viewed	Most popular 5% of journals accounted for % use	Page views (average per session)	Abstract views (% sessions)	Gateways (% page views arriving via gateways)
Chemistry	196	39.5	3.2	23.3	49.2
Environmental sciences	248	29.6	3.6	22.7	41.4
Economics	132	46.9	3.8	30.4	19
Life sciences	531	38.1	2.0	19.5	65.9
Physics	204	26.6	2.5	20.1	57.8

Note: Gateway access includes Google, Google Scholar, PubMed and other third-party services.

Information-seeking behaviour

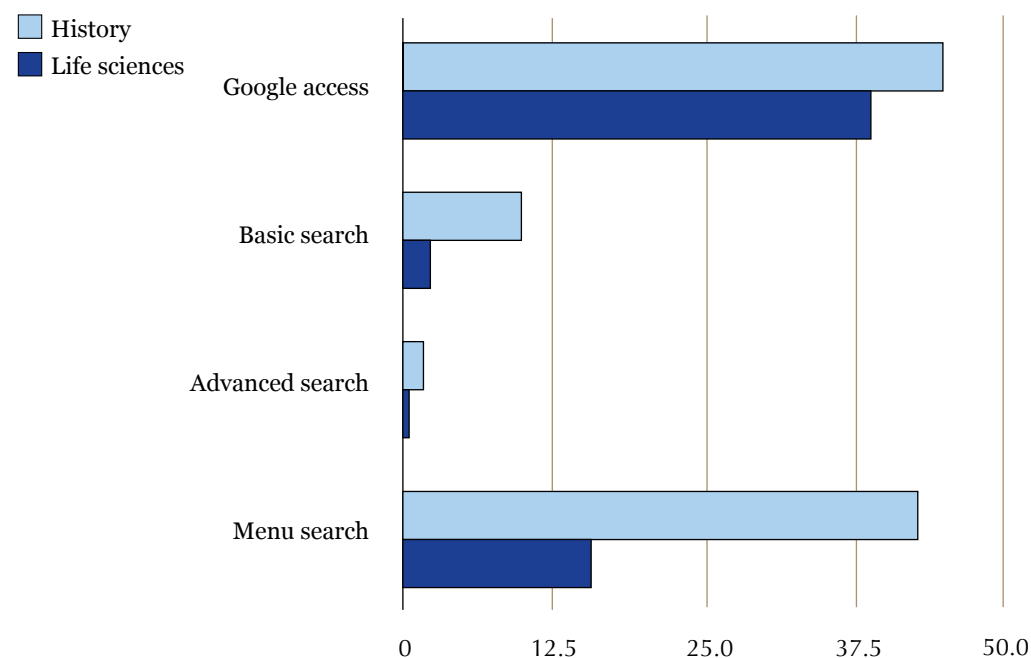
Historians are different from scientists

E-journal databases such as Oxford Journals, do not appear to force users into a common style of behaviour. Subjects do!

Historians search for and use e-journals in ways very different from their scientific and social science colleagues.

Compared, for instance, with life scientists, historians are more likely to access e-journals via Google, and to use search tools, especially menus, once they are inside the publisher's platform.

Percentages of sessions search tool



Information-seeking behaviour

Readers in different institutions behave differently,
even in the same subject

One of the most surprising findings of the deep log analysis is that there are large measurable differences in readers' behaviour between institutions, even within the same subject area on the same platform.

This is most apparent when we compare big research-intensive universities with smaller less research-intensive ones.

First, the most research-intensive universities are the biggest users, in part because they have more researchers. In chemistry, earth and environmental sciences, economics and physics, Manchester is the biggest user. In the life sciences, Cambridge is the biggest user.

Second, the biggest users (and the most highly research-rated) employ the shortest sessions. This appears to be related to a preference for using gateways.

Third, the less research-intensive universities (Bangor, Swansea and Strathclyde) use the widest range of online facilities and functions, including advanced search and articles in press (a possible currency indicator). The reasons for this are not clear and merit further investigation.

Percentages of sessions using facility: life sciences

	Menu use	Basic search	Advanced search	Articles in Press
Cambridge	26.5	0.7	0.2	6.5
Manchester	31.3	2.0	0.2	6.9
Strathclyde	54.1	3.9	0.3	10.4
Swansea	58.7	5.2	0.6	10.2

Information-seeking behaviour

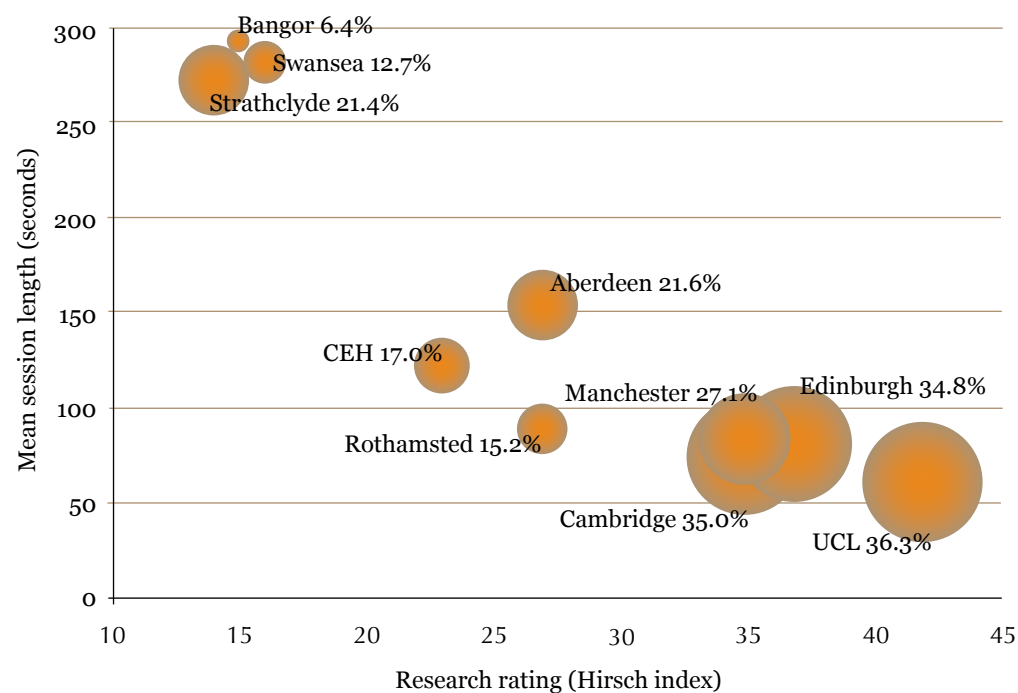
Session length and gateways

The most successful research institutions tend to use gateways more often and this is reflected in much shorter sessions on the publisher's platform.

This chart contrasts average session length and research rating in the life sciences.

The percentages indicate how many ScienceDirect sessions originated from a gateway service such as PubMed or Google. The diameter of the bubbles is scaled to this value.

Deep log analysis of ScienceDirect



Information-seeking behaviour

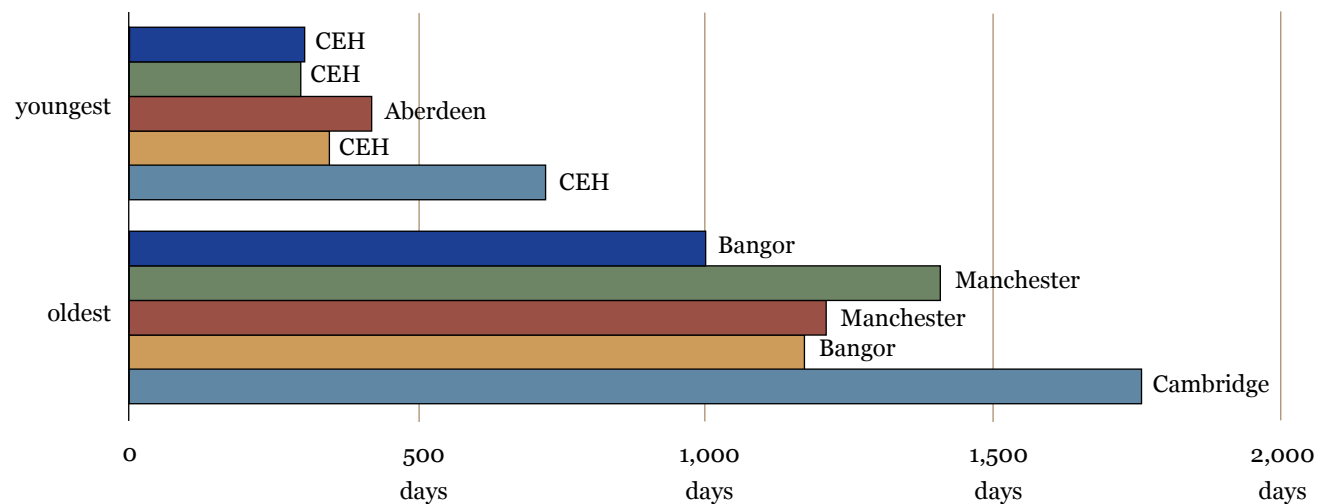
It's an age (of article) thing

There is significant variation between subjects and between institutions in terms of the average age of the articles viewed.

This may vary by as much as a factor of six. Age preference does not appear to be related to research performance and we need to find out what is going on here.

Average age of materials viewed

- Life sciences
- Physics
- Chemistry
- Environmental sciences
- Economics



Information-seeking behaviour

What do users in different institutions have in common?

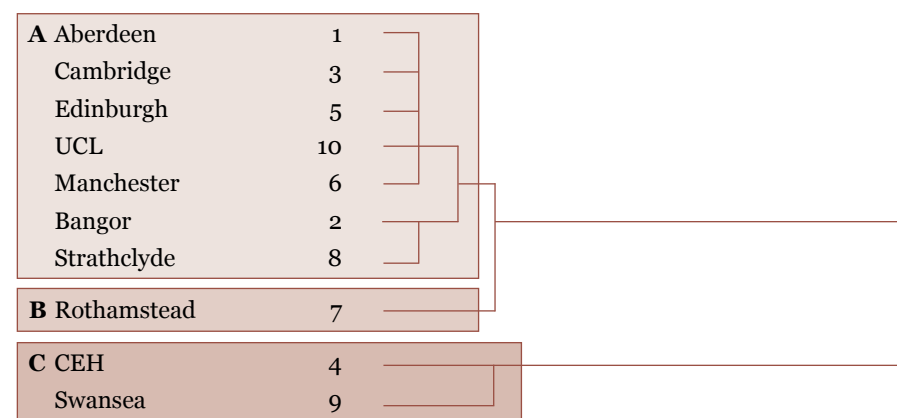
We have grouped users in case study institutions according to how similar or dissimilar their navigational preferences are.

There are big differences between users in the same subject - chemistry in this instance - especially as to the use of gateway services, menus and basic search. Similar differences are found in other subject areas. We need to understand more about the reasons for these differences and their significance.

The research rating measure for each group of institutions used opposite is the Hirsch index. This is a composite measure both of the volume and of the citation impact of chemistry research published at each institution over the period 2005 to mid-2008.

There seems to be a relationship between gateway preferences and research performance. Does this arise by chance?

Navigation footprints for chemistry

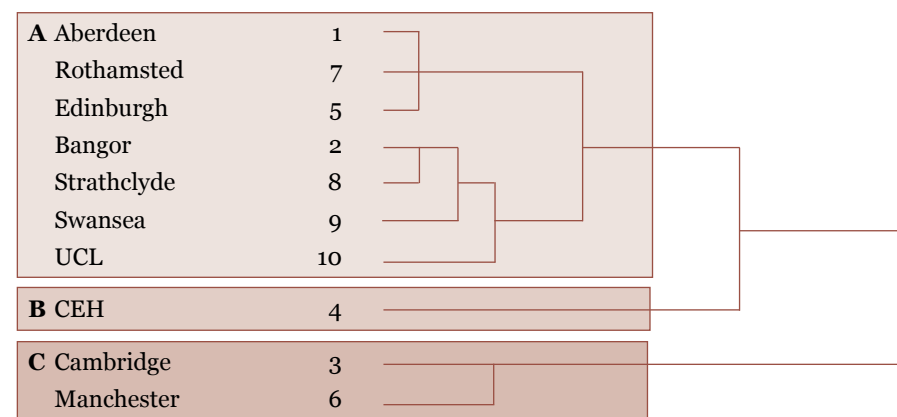


% of sessions:	A	B	C
access via gateway	54.4	41.8	25.7
Navigation within platform:			
menu access	48.6	59.8	74.8
basic search	3.7	4.3	14.2
advanced search	0.2	0.4	1.2
citation search	2.9	2.7	8.8
research rating	32.2	13.0	21.0

What do users in different institutions have in common?

Why should this be, within the same subject area and on the same platform?

Again, we also see hints of a relationship between user preferences and research rating, with researchers in higher-ranking institutions tending to make less use of added value services such as alerts and articles-in-press.



% of sessions:	A	B	C
abstracts	24.8	21.1	22.4
alerts	0.19	0.65	0.09
articles-in-press	10.3	18.3	7.8
age of materials (days)	862	722	763
research rating	22.7	12.0	32.8

Information-seeking behaviour

Institutional differences in the citation impact of the journals viewed

This table shows the average impact factor (IF) of the journals viewed by the case study institutions (all subjects).

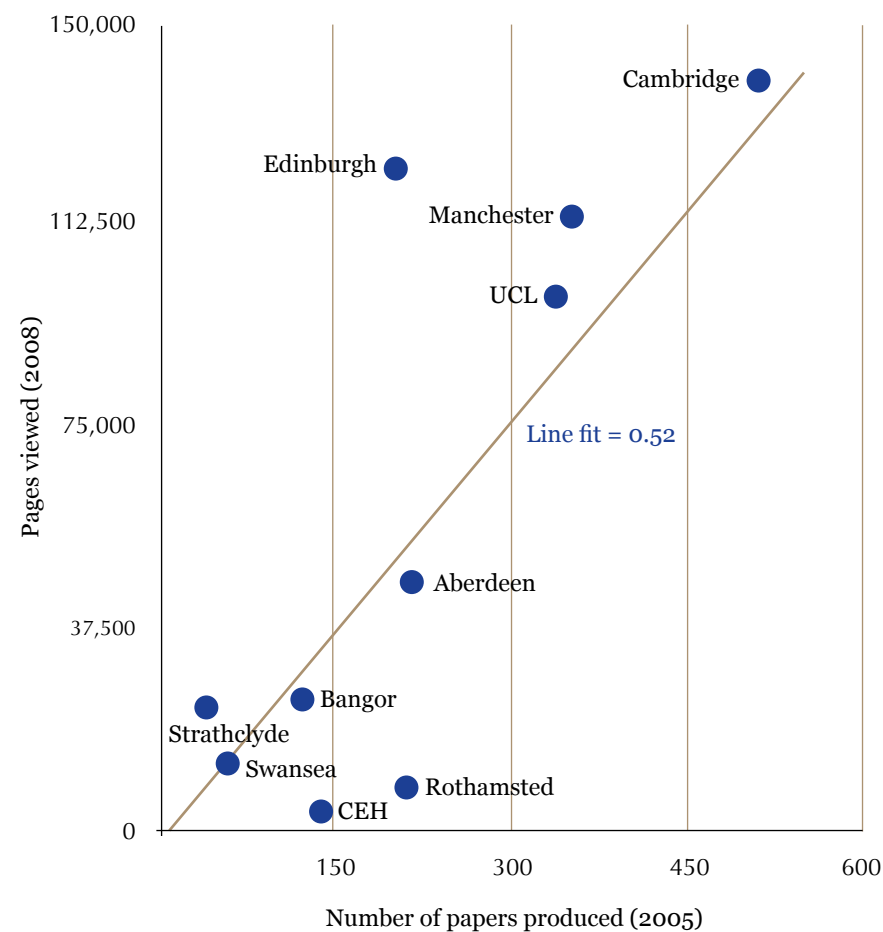
Since IFs vary, often considerably, between disciplines, we have created a new indicator: 'relative impact'. This matches each journal viewed against the average for that discipline. A value of 1 means that the journals viewed at that institution are typical - in terms of their citation impact - of the subject as a whole, worldwide. A value greater than 1 means that researchers at that institution are viewing articles in journals that are more heavily cited than the average in their discipline.

Case study	Average impact factor of journals viewed	Relative impact
Aberdeen	3.0	1.2
Bangor	2.3	0.9
Cambridge	5.0	2.0
Centre for Ecology and Hydrology	2.6	1.0
Edinburgh	3.7	1.5
Manchester	3.9	1.6
Rothamsted	2.6	1.0
Strathclyde	2.7	1.1
Swansea	2.5	1.0
UCL	4.1	1.7

Page views and publications: a link?

This chart shows a strong correlation between page views and articles published at each institution.

Does this mean that information consumption and production are in some way related to each other?



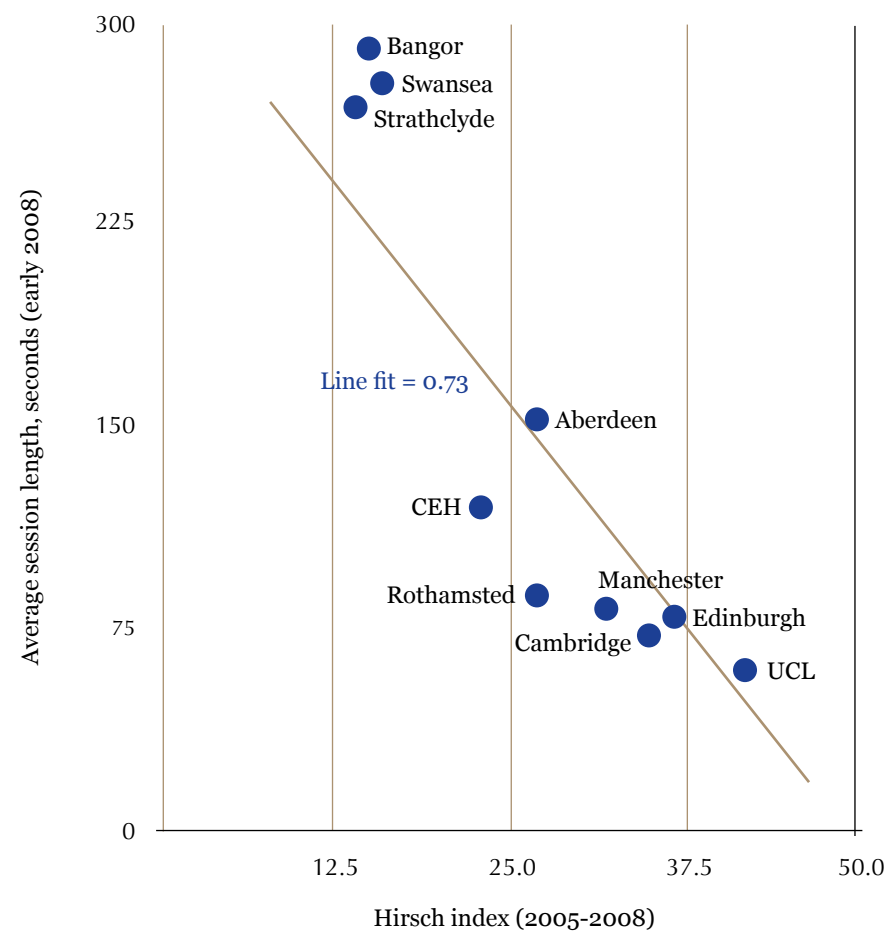
Information-seeking behaviour

Efficient search = successful research??

Life sciences

This chart shows a strong negative correlation between the research rating of life scientists in each institution, as measured by the Hirsch index, and the length of their sessions in ScienceDirect (measured in seconds).

Is there a link between efficient search and successful research? We need to find out.



Information behaviour and research ratings

Readers in the most successful institutions tend to use gateways rather than the publishers' own platforms as their preferred means of information discovery. Their sessions are shorter and more focused, with fewer pages articles and titles viewed.

Correlation coefficients

session length	-0.66***
gateway access	0.27*
basic search	-0.52***
advanced search	-0.49**
titles viewed	-0.68**
pages viewed	-0.56***
titles viewed	-0.51**

*significant at the 10% level

Correlation coefficients indicate the strength and direction of a straight-line relationship between two variables. Direction may be positive (as one variable becomes larger, so does the other) or negative (as one becomes larger, the other become smaller). Strength is measured on a scale of 0 to 1 (or -1). A value of 0.1 represents a small effect, 0.3 a medium effect and more than 0.5 a strong effect.

34 ●●●●●●●●●●●●●●●●●●●●



Journal spend, use and research outcomes

Journal spend, use, and research outcomes

Information-seeking and research outcomes

A number of strands begin to come together as we look in detail at the behaviour of users in our case study institutions.

So, for example, we find evidence that:

- information consumption (as measured by page views) correlates with numbers of publications produced
- researchers in the most productive and highly-ranked institutions average less time per session when using e-journals than their colleagues in other places and they seem to be more focused in their viewing behaviour, and
- researchers in the most productive and successful research institutions read more highly-rated journals, as measured by their average impact factor.

Further evidence of links between journal use and research outcomes is developed in the following pages.

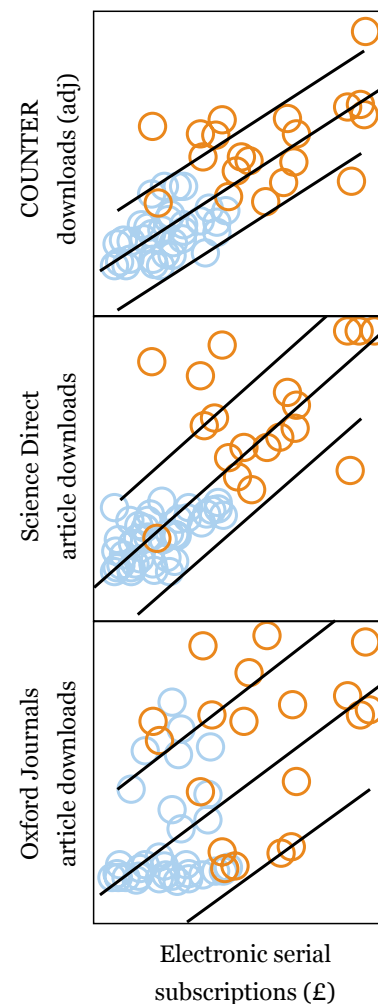
Journal spend, use, and research outcomes

Journal spend and journal use

Surprisingly, no one seems to have explored the relationship between UK spending on electronic journals and levels of actual use.

The chart opposite illustrates highly-credible correlations between electronic serials spend and downloads: whether for all COUNTER-compliant sources (the vast majority of journals), or for Elsevier or Oxford Journals titles.

This suggests that levels of usage are closely related to levels of expenditure, and that money is being spent efficiently at the UK level.



Note: The yellow dots represent Russell Group universities.

Journal spend, use, and research outcomes

Are super-users also super-producers?

We have identified three groups of universities in terms of downloading volume: moderate, high and super users. In the table below, we match these usage groups with research outcome measures: The evidence provided here suggests a tentative link between e-journal consumption and research outcomes.

The evidence provided here suggests a tentative link between e-journal consumption and research outcomes.

The differences between the three groups are statistically very significant with respect to research outcomes, but there is no such difference in terms of average cost per download.

	Moderate users (<i>n</i> =80)	High users (<i>n</i> =25)	Super users (<i>n</i> =10)
Research papers per academic	0.4	0.8	1.0
Research grants and contracts per academic (£000's)	12.7	29.0	39.7
PhD awards per 100 academics	9.1	17.5	17.4
Cost per download	£0.89	£0.74	£0.60

Journal spend, use, and research outcomes

Use and outcomes: PhD awards

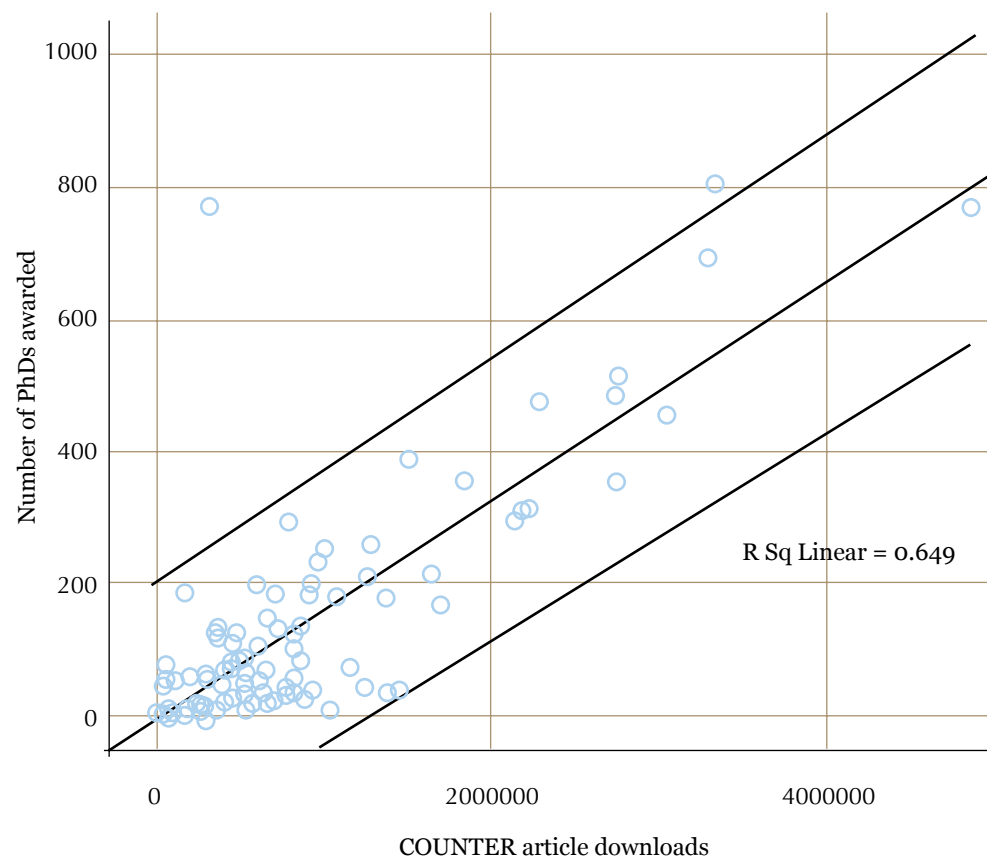
This is the first of three pages that demonstrate strong statistical associations between journal use and research outcomes.

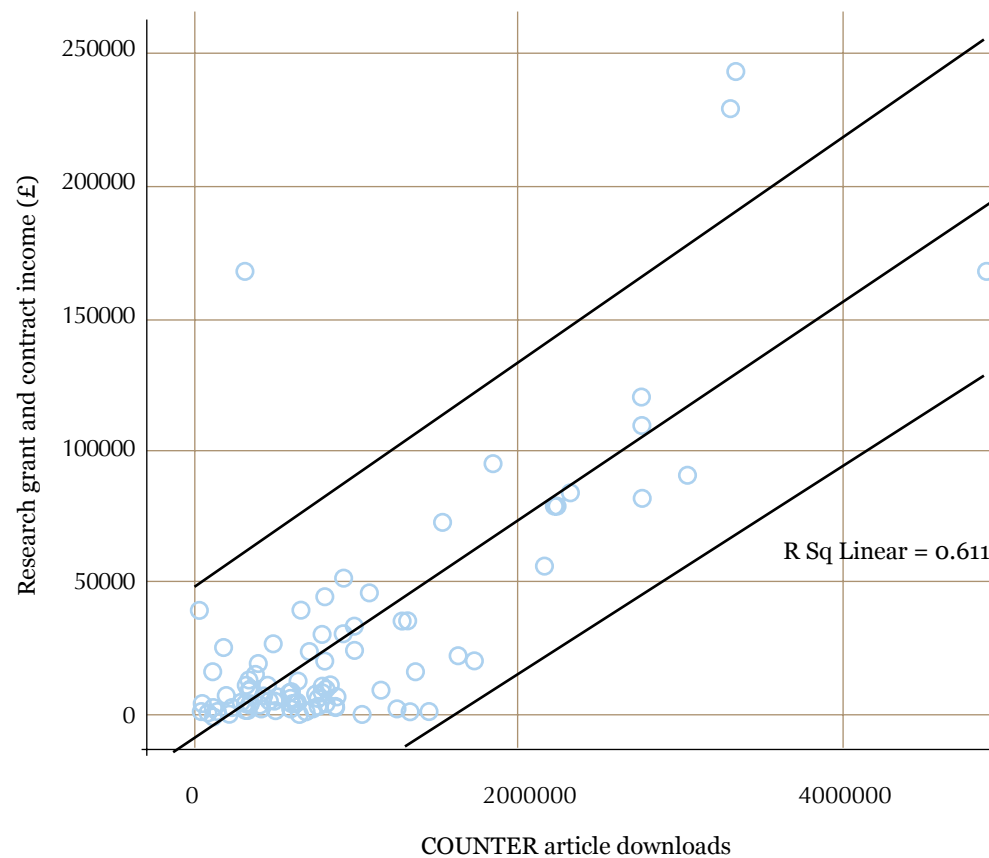
The diagram plots numbers of article downloads (as recorded by institutions using the COUNTER standards) against PhD awards for 2006/07. The outer lines are 95 per cent confidence intervals.

The model shows a good fit with few outliers.

PhD awards and article downloads, 2006/07

n=112 UK universities





Journal spend, use, and research outcomes

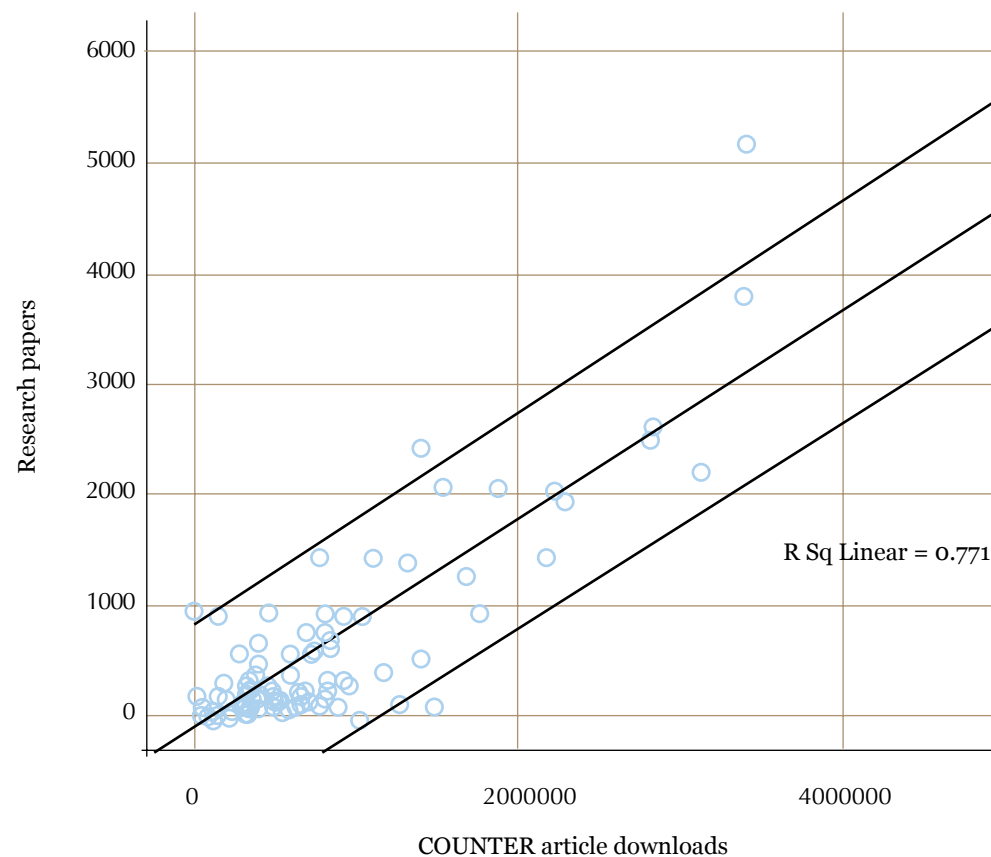
Use and outcomes: publications

Finally, we see a powerful statistical association between numbers of article downloads and numbers of papers published in scholarly journals.

The model shows a good fit with few outliers.

Papers published and article downloads, 2006/07

n=112 UK universities



Journal spend, use, and research outcomes

Use and outcomes

The previous slides are intriguing: patterns of e-journal use at UK universities appear to line up very closely both with spending and with selected research outcomes.

We might, of course, be simply measuring scale effects: larger institutions consume more journal data because they have more users. However, even when we control statistically for the size of the institution, or even for the presence or absence of a medical school, the correlations remain strongly positive.

Even when we control statistically for the size of the institution, or even for the presence or absence of a medical school, the correlations remain strongly positive.

Armed with confidence in the strength of the associations between journal spend and use on the one hand, and research outcomes on the other, we have developed a tool that can be used to model these relationships at the UK level.

Output from the model is shown on the next page. It is important to stress that the model does not claim to show causal relationships between journal spending, use, and research outcomes. The elements may be entirely independent of one another, and the association between them simply co-incidental (although this seems to fly in the face of reason).

Nevertheless, the relationships are suggestive, and require further investigation. We need to understand more about how universities' expenditure on, and their researchers' use of, e-journals and other information resources are related to success in research.

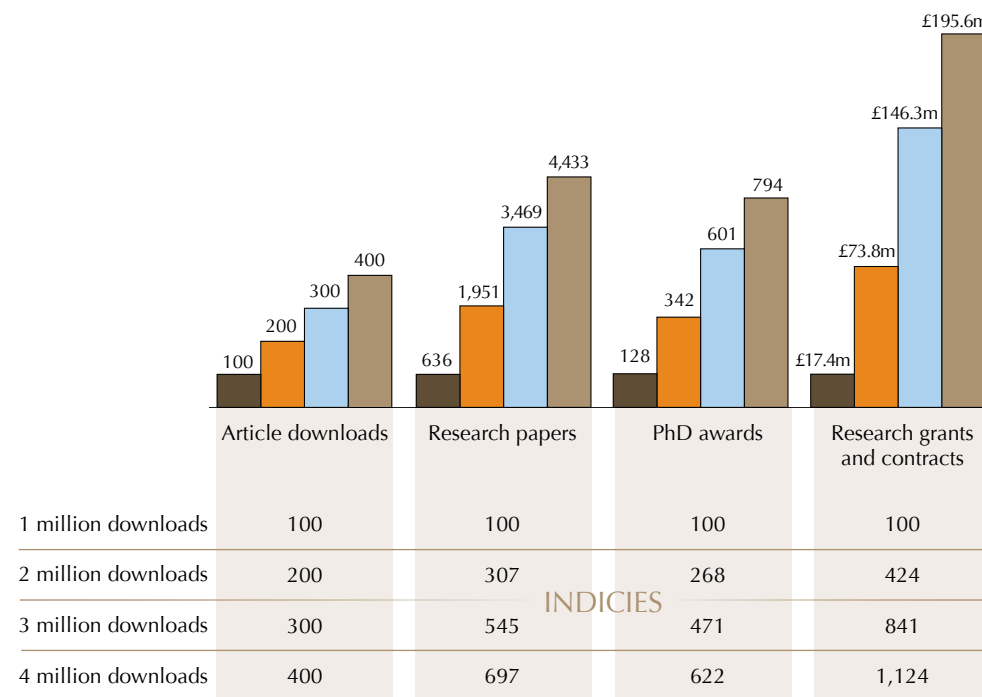
Journal spend, use, and research outcomes

Use and outcomes: understanding the value of e-journals in terms of successful research

Our computer model quantifies the association between downloads and research outcomes.

A doubling (100 per cent increase) in downloads, from 1 to 2 million, is statistically associated with dramatic - but not necessarily causal - increases in research productivity: papers up by 207 per cent; PhD awards up 168 per cent; and research grants and contract income up 324 per cent.

The gearing becomes even stronger as the volume of downloads increases further.



Background notes and further details



A brief note on methodology

Full details of the research methods used are presented in the working papers that underpin this overview (see page 50).

To avoid ambiguity or confusion, some brief notes may help the reader better to understand the data in this overview.

How we define subjects or disciplines

Subject or discipline is defined in this study by the following Scopus journal classifications:

- Agriculture and biological sciences (AGRI)
- Chemistry and chemical engineering (CHEM/CENG)
- Earth and environmental sciences (EART/ENVI)
- Economics and econometrics (ECON)
- Physics (PHYS)

The point here is that we are looking at the whole output of a university in these journal categories, **not at specific departments**. For the sake of brevity, we refer in this report to ‘agriculture and biological sciences’ simply as the ‘life sciences’. This is a subset of a much broader set of Scopus bioscience categories that include biochemistry, genetics, molecular biology, immunology, microbiology, neuroscience and medicine. These did not form part of our study.

Deep log analysis

CIBER mined the publishers’ logs provided by ScienceDirect for the period January to April 2007. Since the data provided by Oxford Journals was much smaller, the reference period was extended to the full calendar year 2007.

Other data sources used

The other sources used for this report include Sconul annual library survey returns, proprietary data supplied by Elsevier for the downloads at 115 universities and colleges (indexed to Oxford), together with research performance indicators from the Higher Education Statistics Agency (HESA) and the Higher Education Information Database for Institutions (HEIDI). Scopus was mined for information about the number of papers in the relevant subject categories generated by each institution.

The bottom-up study

The case studies selected for this study represent a tiny fraction of UK research output but

The top-down study

As in the bottom-up study, it is impossible to distinguish between student and faculty use of

The data in this report refer to the 2006/07 academic year and may be influenced by unusual

If, as our research suggests, there may well be an association between research productivity



Glossary

Gateway

Gateway is a term used by Elsevier that describes an access to ScienceDirect or other platform via a link that jumps straight to content. In these circumstances, no site menus or non-content resource pages are used. It can be thought of as an advanced referrer field that links sites, resulting in a direct view of an article. Most ScienceDirect users make use of gateways such as PubMed, others surf from paper to paper using citation linking, but these are in the minority.

Menus

Menus are tables of contents, lists of journals and subjects; lists of any kind.

Researcher identification

It was not possible from the logs to distinguish between research and teaching / learning use. Two filters were used to reduce non-research use: (a) the case study institutions are all significantly research-active, and (b) the e-journal platforms chosen contain a high proportion of highly-ranked research journals and are thought by their publishers to appeal to a largely research audience.

The kinds of sharp spikes often associated with student use (for example, as new modules begin or coursework exercises are released) were largely absent.

Use

Page views to abstracts, full text, menus and search pages.



Further information

More information about this study, including detailed findings, aims and objectives and research methods, may be found on the RIN and CIBER websites.

For more copies of this document:

E-journals: their use, value and impact

www.rin.ac.uk/use-ejournals

For copies of CIBER working papers:

Aims, scope, methods and research context

Journal spending, use and research outcomes: a UK institutional analysis

Bibliometric indicators for the case study institutions

Information usage and seeking behaviour: subject and institutional profiles

All available at www.rin.ac.uk/use-ejournals



About the Research Information Network

Who we are

The Research Information Network has been established by the higher education funding councils, the research councils, and the national libraries in the UK. We investigate how efficient and effective the information services provided for the UK research community are, how they are changing, and how they might be improved for the future. We help to ensure that researchers in the UK benefit from world-leading information services, so that they can sustain their position as among the most successful and productive researchers in the world.

What we work on

We provide policy, guidance and support, focusing on the current environment in information research and looking at future trends. Our work focuses on five key themes: **search and discovery, access and use of information services, scholarly communications, digital content and e-research, collaborative collection management and storage.**

How we communicate

As an independent voice, we can create debates that lead to real change. We use our reports and other publications, events and workshops, blogs, networks and the media to communicate our ideas. All our **publications** are available on our website at **www.rin.ac.uk**

This report is available at **www.rin.ac.uk/use-ejournals** or further hard copies can be ordered via **contact@rin.ac.uk**

Get in touch with us

The Research Information Network
96 Euston Road
London
NW1 2DB
UK

Telephone **+44 (0)20 7412 7946**

Fax **+44 (0)20 7412 7339**

Email **contact@rin.ac.uk**