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## Performance measurement in a changing environment: the SCONUL e-measures project 2010

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# Performance measurement in a changing environment – the SCONUL e-measures project 2010

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## *Keywords:*

e-measures; statistics;

## **Abstract**

### *Purpose*

Increased use and changes in the way e-resources are delivered led some libraries to question the detail of some of the definitions used and particularly to suggest that statistics required by SCONUL did not always match the requirements or practice of the libraries themselves.

### *Design/methodology/approach*

A pilot project was set up to test a set of e-measures, sufficiently robust to give confidence in their use in a national/international context and in benchmarking individual libraries. Twenty SCONUL members made quarterly returns during 2009-10. During the year, categories and definitions were adjusted in the light of comments received. A workshop was held to exchange views and inform the decision on what went into the new return.

### *Findings*

It was clear from the start that practice varied, and compromise would be required. Foremost among the changes are: inclusion of e-resources held within databases in the count of titles; count of free titles or titles purchased in previous years; inclusion of database searches; separation of costs of different types of e-resource.

### *Originality/value*

The SCONUL statistics are a tool and servant of the members, helping libraries to run more effectively, and at the same time providing valuable evidence on UK academic libraries and their activities to the wider world. The new e-measures questions will provide a reliable picture of the use of e-resources across the sector and be useful to libraries individually or in benchmarking groups in assessing their own usage.

## Introduction

Measuring provision, spend and use of electronic resources has long been a concern for libraries. Data on provision are complicated by the variety of formats and packages available, while spending figures are often subject to institutional finance systems which were designed in a more straightforward age. On usage, providers offer a plethora of statistics for different resources, which Project COUNTER [1] has done much to standardise. While these are, generally, excellent as management statistics on which to base collection development decisions, they can be less useful on an aggregated basis, to describe the library collection, or to present the wider picture for the sector as a whole.

Academic libraries in many countries have been engaging with ways to quantify sector-wide levels of provision and use of electronic resources for many years. Early work was often overtaken by the speed of development, both in the technology behind the supply of e-resources and the models of delivery and pricing adopted by different publishers and aggregators. Measuring use of e-resources has been particularly challenging. In the US, the Association of Research Libraries (ARL) E-Metrics project first addressed the need for measures of electronic information resources in 1999, publishing its first set of measures in 2002 (Blixrud, 2002). In the UK, the EQUINOX project devised a set of performance indicators for electronic library services in 2001 (Brophy, 2001). The original Society of College, National and University Libraries (SCONUL) e-measures questions for the UK were particularly influenced by the work of the E-measures project (Conyers, 2004). At the same time, the International Coalition of Library Consortia (ICOLC) has twice revised its guidelines for the statistical measurement of usage of web-based information resources, to take account of new developments since their introduction in 1998 [2]. Project COUNTER, launched in 2002, has recently introduced for consultation the fourth release of its Code of Practice, again reflecting the changes that are taking place, and continue to take place, in electronic resource provision.

In the UK, e-measures questions were last revised for the SCONUL return in respect of 2003/4. Successive years have seen an increase in the number of UK academic libraries able to report on their use of e-resources and a higher level of consistency in responses. At the same time, increased use and changes in the way e-resources are delivered has led some libraries to question the detail of some of the original definitions used, and particularly to suggest that the statistics required and reported on by SCONUL did not always match the requirements or practice of the libraries themselves. The importance of e-resources in academic libraries led SCONUL to initiate a review of the definitions used for e-journals, eBooks and databases, to ensure that the data collected matched, as far as possible, the way libraries are themselves recording their use of e-resources. Three members of the SCONUL Working Group on Performance Improvement Statistics Sub-group, drafted a set of new definitions for the data to be collected, and piloted this during the 2009-10 academic year, with 20 volunteer libraries.

## The e-measures pilot project

The aim of the pilot project was to ensure that the e-measures data in the *SCONUL Annual Statistics* (SCONUL, 2011) were sufficiently robust to give confidence in their use in a national/international context and in assisting SCONUL members to benchmark their own results with other libraries. There was also a desire to bring the data collected by SCONUL in line with international standards. In order to achieve this, the following objectives were set:

- to review the current e-measures questions and their definitions
- to draw together feedback on issues with current e-measures and proposals for change
- to look at the approach taken by other national library associations e.g. the Council of Australian University Librarians (CAUL), and the Association of Research Libraries (ARL), for ideas and examples of good practice
- to make recommendations for amendments and/or additions to the existing e-measures questions

Following an initial meeting of interested parties, a set of possible questions was developed in an excel spreadsheet. It was clear right from the start that practice between libraries varied, and the challenge of matching the data sought with the way libraries worked was considerable. The 20 libraries participating in the pilot were asked to make quarterly returns, to test how easy the data were to obtain, how reliable they were, and how well they aligned with institutional requirements. During the course of the year, the categories and definitions were adjusted in the light of comments received, and the final set of questions was incorporated into a wider revision of the SCONUL Annual Statistical Return for 2009-10.

## **The new e-measures questions**

### *Inclusion of e-journals and eBooks held within databases in the count of serial and eBook titles*

In the original e-measures questions, serials and eBooks held within databases such as ABIInform, Business Source Premier or Early English Books Online (EEBO) did not count towards the total number of serials and eBooks reported. This approach did not follow the practice adopted by libraries and resulted in an underestimation of the number of titles available to users. Under the new model, which is in line with international standards, there is an element of apparent double counting – for example EEBO is counted both as a certain number of eBooks and as one database in the relevant sections, but as these different types of resource are never combined, this is not a concern.

### *Addition of free titles or titles purchased in previous years*

In the original e-measures questions, free resources were not included, as it was felt that this would depend very much on how the individual library chose to treat these. Now, with more open access titles, and more titles free at the point of use through national consortia for example, it was felt important not to neglect this category of resources. This question also allows libraries to record titles purchased previously (for example, journal back file collections, or certain models of eBook purchase). This is intended to provide a more accurate picture of the resources available. In line with international standards, figures on titles available at no cost are collected separately.

### *Addition of database searches as a usage measure*

Although a measure of database searches had been collected by SCONUL prior to 2003/4, the count had been discontinued, as the data were thought to be too unreliable. However, more publishers now follow the COUNTER codes of practice for reporting usage data, and there is more consistency. A usage measure for databases (COUNTER DB1) was therefore introduced. It is recognised that there are still suppliers that do not yet supply COUNTER compliant data; libraries are asked to provide the nearest equivalent in these cases.

### *Separation of costs of different types of e-resource*

Some libraries have on-going difficulty in separating figures for content and spend on the different types of print and e-resources. This has made it challenging to quantify the trend towards increasing emphasis on e-resources, and to produce reliable figures for use in a national or international context or for benchmarking. The proposals for content reporting are designed to obtain a clearer picture of e-resources available. By asking libraries to differentiate, where possible, content held as e-journals, eBooks or different types of database, and to separate out the costs of each, it will be possible to produce more reliable performance indicators relating resources, usage and cost. Although this appears complicated, the intention is to allow libraries flexibility in the way in which costs are reported, as well as being able to link costs, usage and resources in the most appropriate way. Using Early English Books Online (EEBO) as an example, the cost of licensing this resource, entered as an eBook database with its titles included in the total number of eBooks, should contribute both to the average cost per eBook title, and the average cost per database, but should not be double counted in the total cost of e-resources or information provision.

### **Some issues to consider**

#### *How will the new e-measures statistics be used?*

Libraries appreciated that some aspects of the new e-measures questions reflected actual library practice more accurately than previously. However, there remained a question over whether the amount of detail involved in establishing a set of performance indicators for e-resources was worth the effort it would entail. At the same time, the group also suggested new measures, for example counting items in the institutional repository, demonstrating the tension that exists between capturing new trends and creating extra work.

It was also apparent that staff responsible for the actual data collection had a strongly held view that the considerable time and effort required to collect the statistics was not always fully appreciated by library directors, nor justified in terms of the use to which they were put. Pilot members were often unsure how the statistics were used within their own institution, whether the performance indicators were used and, more worryingly, whether the statistics that had been collected were viewed with confidence. This issue reflects on communication within the organisation, and was beyond the scope of the e-measures review to address.

#### *Longer term trends*

As an organisation, SCONUL is often required to provide trend information about various aspects of library activity, including e-measures provision and use. Many individual members also use trend analyses as part of their regular performance monitoring and benchmarking exercises. It was essential that the changes introduced should be compatible with the previous regime, so that wherever possible (and wherever the data were sufficiently complete and reliable), data collected on the new return could be compared with that from the old. It is partly for that reason that some of the detail was included – to maintain the integrity of trends during the transition period.

#### *Can SCONUL provide more help?*

In asking libraries to provide a detailed count of the number of titles in serials collections, databases and eBook collections, they need to approach publishers individually for this information, which is not always easy to obtain. During the pilot project, the approach adopted by the ARL in the US, and work done by the Council of Australian University Librarians (CAUL) was reviewed. Pilot participants

felt that SCONUL could help considerably by providing a central resource that listed all the major collections and the number of titles in each, as is done in Australia by CAUL. Such a proposal has resource implications, however, both in setting up the initial database, and in ensuring it is kept up to date.

## The first year

After thorough testing by the pilot group, the revised e-measures questions were introduced into the 2009/10 return, recognising that not all libraries would be in a position to answer them in the first year. The first year was therefore regarded as a trial, to see what replies and comments came in and to prepare libraries for the data they would need to collect for the following year.

In the event, the number of replies was encouraging and the comments, while varied, showed recognition of what SCONUL was trying to achieve. Out of 148 UK respondents in the SCONUL *Annual Statistics* for 2009/10, 95% were able to answer at least some of the new or revised questions and give the detailed breakdowns requested. As libraries outside the pilot group had received little advance warning of the new questions, this strongly suggests that they fitted in with the way libraries were already collecting statistics on e-resources.

## EBooks

The eBooks stock provision questions were generally well completed, by over 90% of respondents. The decision to include both eBooks and e-journals that were contained within databases led, as anticipated, to a large increase in the numbers reported in both these categories. The inclusion of eBooks within databases in the number of eBooks purchased attracted one of the largest number of comments in the statistical return. These mainly revolved around the inclusion of titles within databases such as Early English Books Online (EEBO), where a JISC Collections agreement makes around 125,000 titles available to UK HE libraries for a modest access fee:

- *The increased return for this year is due to not counting eBooks contained in aggregator databases or free eBooks made available to our users in previous SCONUL returns*
- *250,000 of the eBooks included in C6 & C8 are those contained in EEBO and ECCO (Eighteenth Century Collection Online). EEBO advertises its content as 100K books and ECCO as 150K books.*

Not everyone agreed with the decision, however:

- *I have included EEBO or ECCO in the count because that is the instruction but we have not added bib records to the library catalogue so I feel it distorts our EBook count*
- *This figure is dominated by EEBO and ECCO which are available at most UKHEs due to purchases by JISC Collections for just a nominal annual access fee. It seems counter-intuitive to count these titles in every year*

Yet for others, the increase could also be explained by a policy decision to increase spend on eBooks:

- *Significant increase due to extra funding for purchase of eBooks & inclusion of the EEBO database with 125,000 titles.*
- *As eBooks become more prevalent and in demand we now allocate 20% of our book budget towards their purchase.*

Opinions on this may differ, but it could be argued that now that eBooks are established, the inclusion of large collections such as EEBO does not have the same distorting effect that it would have done some years ago, relative to much smaller eBook numbers. The large numbers now recorded, including titles within databases, reflects more accurately the extent of provision across the HE sector, and provides an improved baseline from which to chart any future growth.

For the 133 libraries that reported on eBooks received but not purchased, there was a large variation in the numbers recorded. Few libraries commented on their figures, which may well represent different approaches within individual libraries to the linking to free e-resources, as well as different methods of acquiring eBook collections.

### *Serials*

Detailed data on serials purchased were provided by over 95% of libraries. Rather fewer had detailed data available on titles received but not purchased (82% to 83%), while 89% provided combined figures. Several libraries drew attention to the increase resulting from the new definitions, including the addition of titles in databases, inclusion of free titles and journal back runs.

- *Much higher than last year as now includes titles from eresources which SCONUL used to consider to be databases, such as JSTOR.*
- *These show significant increases from 2008-2009 because of the inclusion of back sets and back runs in the new definitions*

The question of 'double counting' of serial titles in particular which are available from more than one platform arose during the pilot. It was agreed not to introduce complex rules to prevent this but rather to accept that a degree of duplication would be inevitable. Some respondents pointed to the problem of double counting where titles are available in different packages:

- *Best estimate, as unable to follow through title by title de-duplication of print and e titles where not already known.*
- *There is a considerable amount of duplication between content of backfiles and current subscriptions, and between titles available on a number of different platforms. It is impossible to deduplicate these titles with any accuracy...*

For some libraries there remained the problem of separating the count of print and electronic titles that was noted in earlier returns:

- *We continue to have difficulty separating print and electronic elements. Some print resources will be contained in C11 and some electronic resources in C9.*
- *Some print only subs also have electronic links from other sources.*

Overall, however, the number able to provide this breakdown was high (95%). This was particularly useful to indicate the total number of titles available in electronic form, as libraries move away from print.

As with eBooks, there were variations in the numbers of serial titles received but not purchased reported, again perhaps reflecting different library approaches. Some libraries had used their link resolver to find the number of free titles:



- *The number of full text titles within our SFX link resolver denoted as free*

At least one was aware of the extent of duplication that is likely here:

- *Our response to C14 is based on the data provided to us in our Article Linking Software - the Serials Solutions Knowledge Base. Some open access titles that we track will be duplicated across large collections. For example the 'Directory of Open Access Journals (DOAJ)' and 'J-Gate' do track some similar content.*

An interesting by-product to including questions on e-serials received but not purchased was that, for the sake of completeness, a new question on print serials received but not purchased was also included. Although we had not expected this to be of interest to all libraries, 82% provided a figure.

### *Databases*

In the original e-measures questions, the definitions table used to distinguish databases from e-journal or eBook collections had been a source of some controversy. As already indicated, it was felt necessary to ask libraries to divide databases into 'journal, eBook and other' in order to arrive at meaningful cost indicators. Some libraries provided a note of the databases they had included in a particular category, but there were no comments suggesting difficulties in dividing up databases in this way, and most libraries were able to do this. Between 92% and 99% of libraries were able to provide information for the set of database questions on levels of provision.

### *Usage*

The question on full text journal article requests was unchanged and there were few comments, apart from notes identifying those services for which statistics were not available. The number able to answer this question (81%) was higher than the figure for the previous year (76%).

For eBook section requests, the difficulty of providing accurate figures when some suppliers provided the COUNTER BR1 report (title requests), and others the BR2 (section requests), was remarked on by several respondents. This difficulty had been acknowledged in the notes to the relevant question. Some respondents had used the suggested multiplier, introduced to provide a measure of consistency:

- *Only 4 of 22 eBook resources licensed currently provide BR2 reports. Data for most of others obtained by BR1 x 5.4.*
- *Statistics obtained by mixture of BR2 results and BR1 x 5.4 estimate as per SCONUL notes*

There is also the issue of the number of eBooks for which usage statistics are not COUNTER compliant, or are not available at all.

- *The usage in D8 is a combination of BR1, BR2 and non-COUNTER stats. We only receive usage stats for a small proportion of our eBooks*

Despite these reservations, 80% of libraries provided data.

The question on database searches was new this year and the number of replies was lower (73%) than for use of e-journals or eBooks. There was a number of comments on the lack of search data, or indeed, any data at all, for a number of databases:

- *No data available for 14 databases. In addition, 24 databases did not provide search data.*
- *Statistics for D9 are lower than reality since many of our databases are not COUNTER compliant and only record number of visits or sessions*

One library drew attention to the effect on database searches and sessions figures of using different federated search tools:

- *This figure is about triple last year's figure. This is primarily because our searches and sessions figures for databases have increased enormously since replacing Metalib by EBSCO Discovery Service (EDS) and EBSCO host Integrated Search (EHIS) as our federated search tool.*

There were two comments relating to the exclusion of free items, or items purchased in previous years from the usage figures here, one relating to databases, the other to eBooks:

- *We receive Medline for free and therefore have not included it in C20 or the searches in D9. However as it is a very heavily used database, the total number of searches are recorded here as a comment. These were 192,206.*
- *where collections have been purchased for several years it would be extraordinarily time-consuming to try to break down usage reports into titles purchased in each year. Our figures therefore include figures for all purchased eBooks, no matter which year they were purchased. Would SCONUL request print circulation statistics for books purchased in particular years?*

The decision not to include free or previously purchased items in the usage data requested was made both in relation to doubts as to reliability, and to the wish to provide 'cost per download' figures. These would have been distorted by the inclusion of usage of free/previously purchased items. This decision may need to be revisited in future, and a way found to include these items. It provides a further illustration of the continual dilemma between minimising work and improving the range of statistics available.

### *Costs*

The data sought on the costs of the various resources appeared very different from previous years, and the detail was not well completed, compared to data on resource provision. Between 78% and 84% of libraries provided figures for spending on journals and databases broken down in any degree of detail. For example, a number of libraries were unable to separate out expenditure on print and electronic journals. While 98% of UK libraries provided a figure for 'total serials' less than 83% were able to provide any breakdown:

- *Shows the total expenditure on serials in print and electronic form. It includes expenditure that should be entered in H2 and H4, but is not possible to separate.*
- *Some figures are rounded up. Not possible to disentangle spend on the various definitions of serials/journal databases: that on e-journals is by far the largest part so total figure is entered in H4*

Others, however, were able to use this breakdown to demonstrate a move from print spend:

- *Note the reduction in print journals as a collection decision for 2009/10, with a view to reducing costs*

Where libraries are able to provide a breakdown, this clearly has advantages in enabling them to demonstrate, both internally within the institution and for benchmarking, the effect on their costs of moving from print to electronic resources.

## What difference did it make?

Comment has already been made on some of the differences noted by individual libraries in their statistics, particularly on the numbers of titles reported for electronic resources. This section quantifies some of these differences on a national scale, for SCONUL members as a whole.

### Resource provision

Figure 1 shows that numbers of e-journals had been rising steadily from 2004-05 to 2008-09. The dotted line shows a projection of where this might have been had figures for 2009-10 been collected on the 'old' definition – i.e. excluding titles in full text journal databases. Adding these has resulted in a figure some 70% higher than it might have been without. Perhaps more interesting is the effect of titles not purchased in the current year – backfiles for which no current subscription is held, open access titles catalogued by the library, and titles purchased by others or via consortia with no direct subscription cost to the library. These represent some 33% - one in three – of all journal titles available electronically.

*Figure 1 Electronic journal titles*

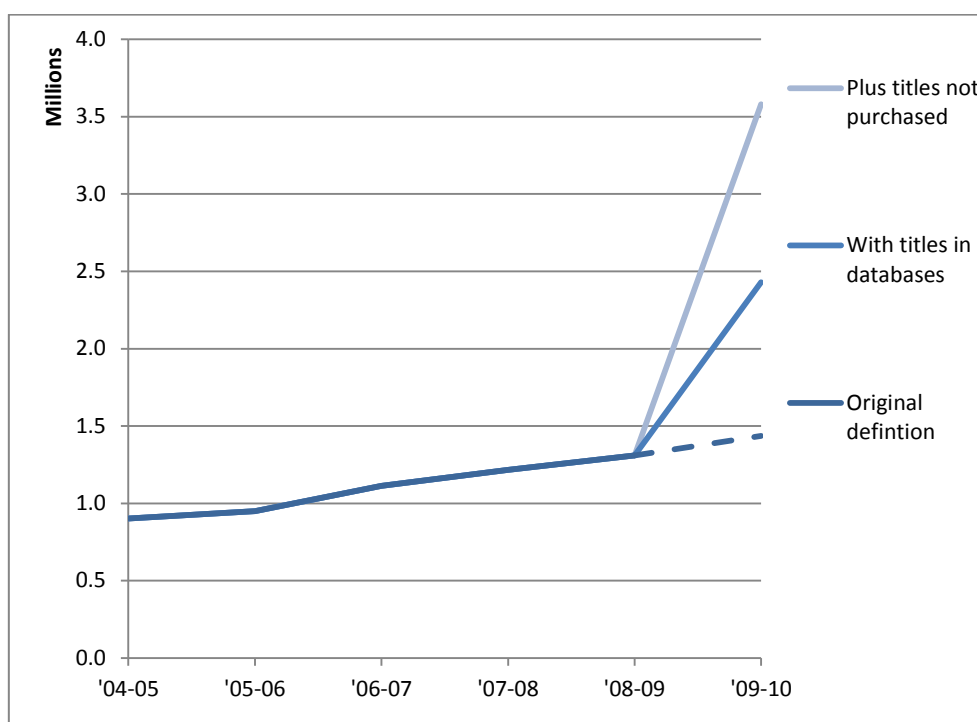
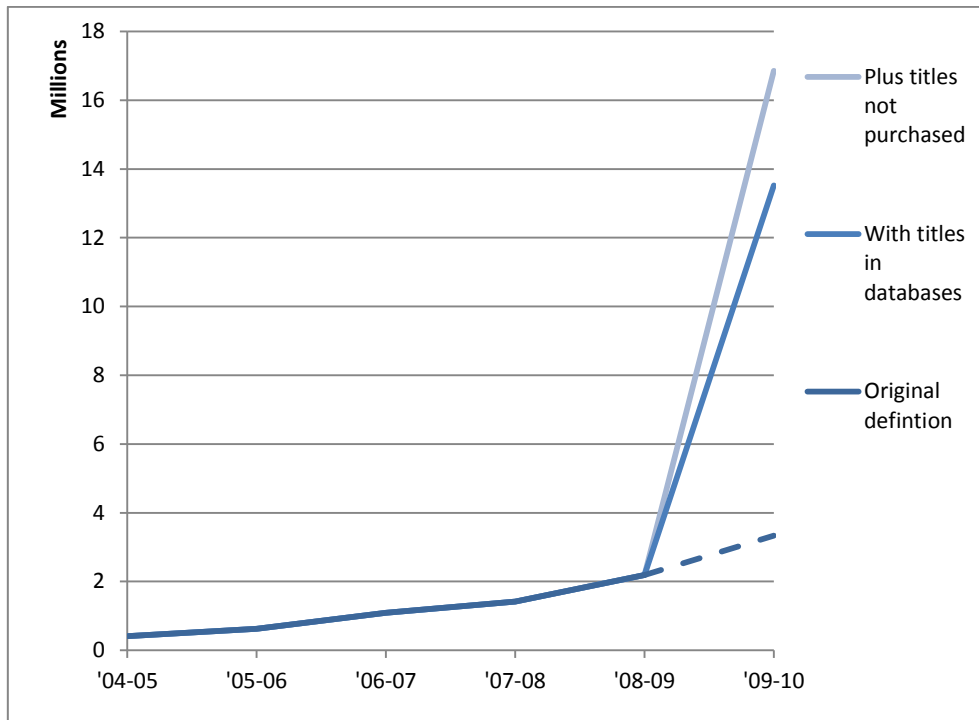


Figure 2 shows that the numbers of eBooks had also been rising steadily from 2004-05 to 2008-09. Again, the dotted line shows a projection of where this might have been had figures for 2009-10 been collected on the 'old' definition – i.e. excluding titles in eBook databases. The picture is similar to that for journals, but here databases make most difference:

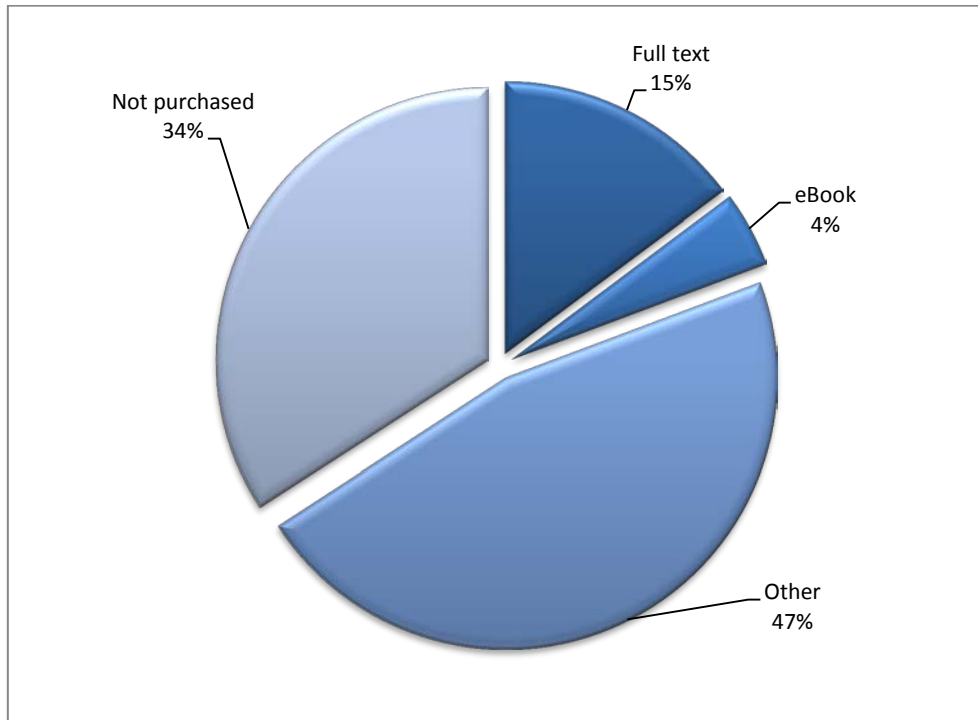
- Original definition – estimated 3.3 million eBooks in UKHE
- Adding databases gives estimated 13.5 million – four times as many
- Free titles add further 3.3 million – as many as are bought outside databases

*Figure 2 Number of eBooks*



Details on databases by content was collected for the first time in 2009-10, with an estimated total of 22,000 available across UK HE. Given the impact of databases on the numbers of journal and eBook titles, might be expected that eBook databases would be a significant component, but figure 3 shows that this is not the case – eBook databases contain vast numbers of individual titles. Interestingly, around one third of databases available were not purchased in the current year.

*Figure 3 Types of databases*



### *Spending*

The main change in the data collected on information resource expenditure was to seek separate figures for spending on the three categories of database. The intention was to be able to cut the spending cake in a variety of different ways to suit different performance indicators and reporting requirements. The most basic distinction might be between print and electronic expenditure (Figure 4a). Another likely to be of interest is to group spending by content – journals vs. books, for example (Figure 4b). There is also the capacity to map to the old definitions (Figure 4c), to maintain the continuity of trends over time.

Figure 4a Print vs. electronic

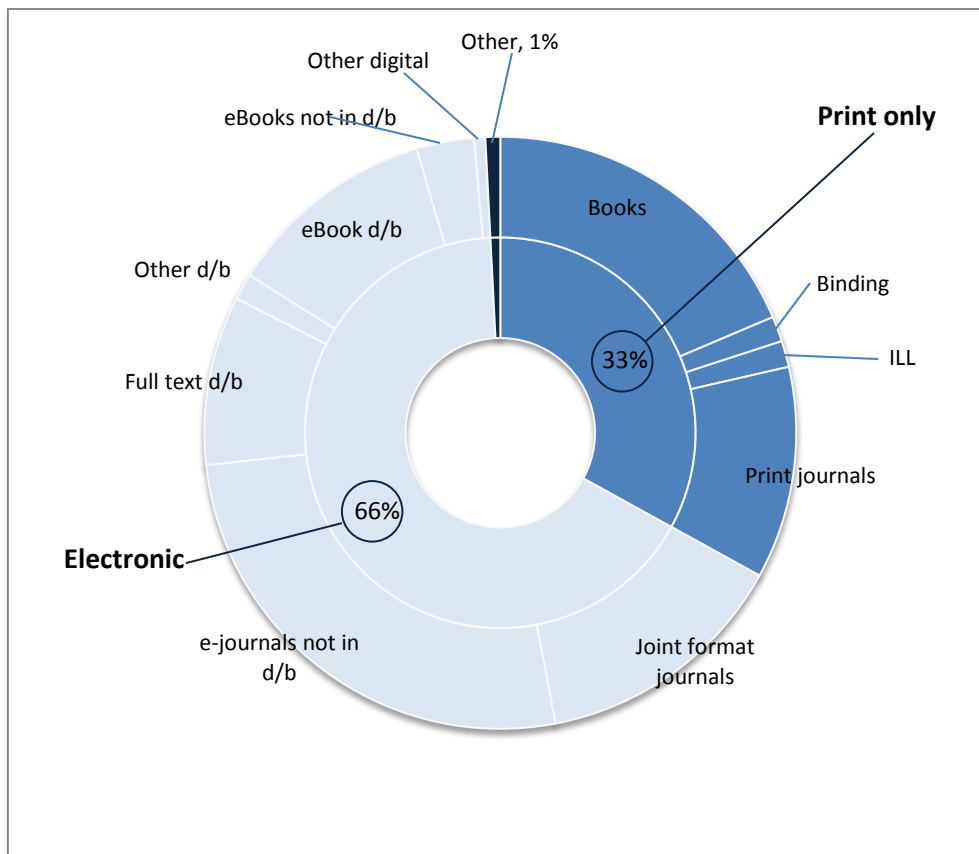
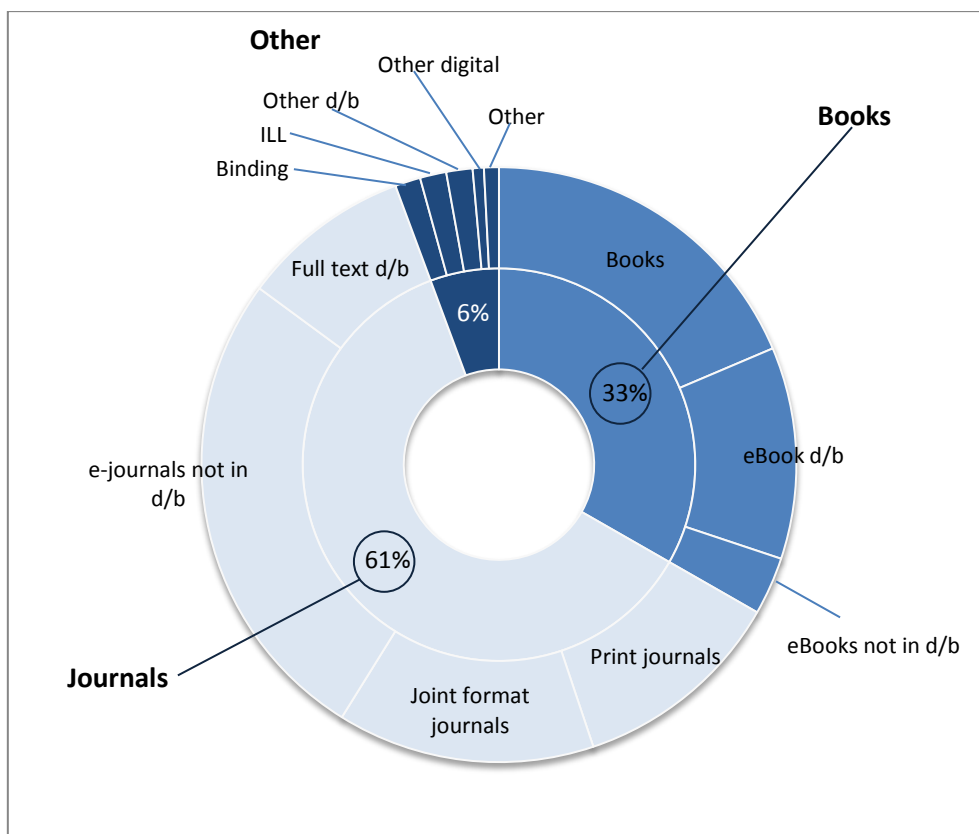
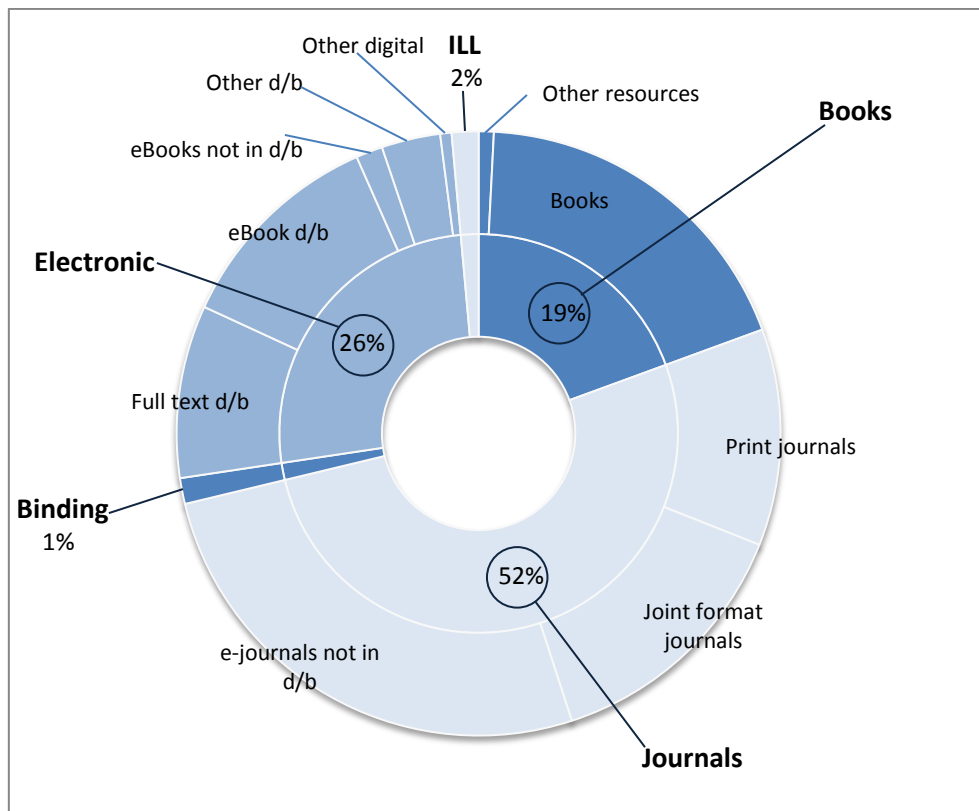


Figure 4b Books vs. journals vs. other



*Figure 4c The original definitions*



### *Performance indicators*

It was thought to be too onerous to ask libraries to report e-resource usage in as much detail – it is a sufficiently difficult task to provide any data, without needing to know whether a title is available in a database or not, or whether it was purchased outright. So three basic usage figures were collected – full text downloads of journal articles, section requests of eBooks, and searches of databases, all based on COUNTER definitions, or the nearest equivalent for non-COUNTER compliant vendors. In all cases, libraries were asked to include all subscribed titles, so it is important to include the relevant database costs when calculating cost per use indicators. The usage and cost figures still might not marry up completely, but this is a step in the right direction. The general trends have been downwards, and for eBooks in particular, including the database costs does little to affect the general downward trend (Figure 5).

*Figure 5 Trends in cost per use; journals and eBooks*

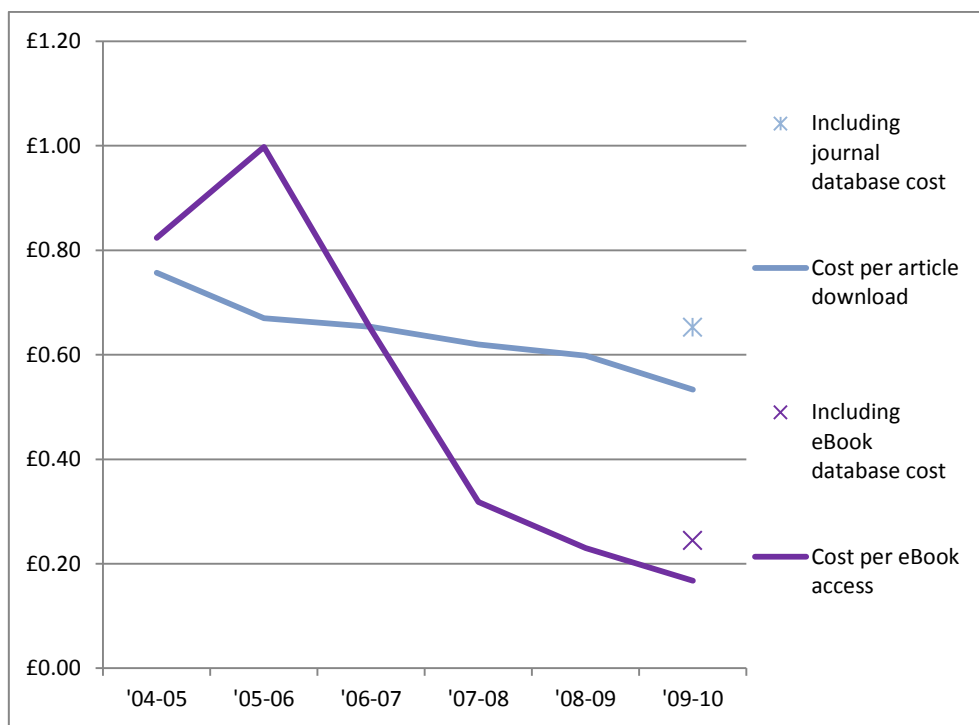
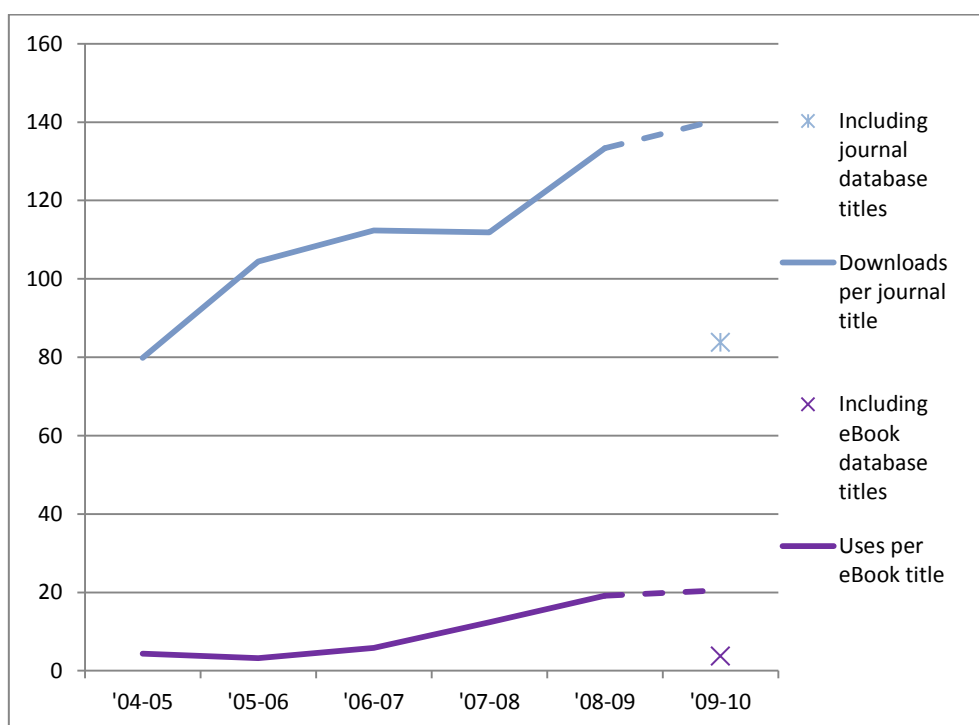


Figure 6 illustrates the trends in use per title, and shows the likely impact of including titles in databases in the count of what is available. This has reduced overall levels of use per title, but these figures are now more realistic in terms of what is actually happening in libraries. The dotted lines are projections for 2009-10 of where these figures might have been under the old definitions.

*Figure 6 Trends in use per title; journals and eBooks*





## Conclusions

SCONUL did not expect that every member would be able to give figures in all the new categories without time to prepare. There are many more categories than there were before, because the landscape of e-measures has become increasingly complex in recent years. Providing figures which can be compared between libraries, and aggregated across them to give the headline figures needed for strategic advocacy on a national scale, has necessitated a more detailed breakdown than in the past.

The numbers able to provide answers to the new or revised e-measures questions suggest that these more clearly reflected existing practice in libraries than had previously been the case. One important test of how successful the new questions have been is how well they stand up to being used to derive ratios that will have meaning across the sector. One striking factor is that it has been possible to derive a range of ratios, using some of the new or revised questions, based on responses from around 95% of libraries. With existing ratios, the numbers on which they are based are generally higher than in previous years. The new data provide a clearer picture of the percentage of spend on e-resources, and the percentage of spend on print, print and electronic and electronic only journals.

The statistics and ratios may be there, but questions remain, particularly on how accurately they reflect usage across the sector. As has been pointed out, there are often wide variations in the numbers reported, for example in the number of free or previously purchased e-resources. Numbers of requests, particularly for eBooks or databases, will be affected by lack of COUNTER compliant statistics for all resources, and sometimes lack of any statistics. The actual number of items may be difficult to pin down at any given time as new resources are added during the course of the year. Items will appear in a variety of different formats and may well be double counted.

In spite of all these provisos, it is more important than ever to have a picture of the use of e-resources across the sector. SCONUL hope that the new e-measures questions have made this easier to achieve. Clearly these new questions will require time for libraries to adjust to what is required. Feedback received this year has been used to adjust and clarify the definitions for the 2010-11 return. SCONUL will continue to monitor the national and sector-wide trends, both in the data that are reported, and in the changing environment of electronic resource provision, to ensure that the data collected remain in tune with library requirements and practice.

The SCONUL statistics are a tool and servant of the members, helping libraries to run more effectively, and at the same time providing valuable evidence on UK academic libraries and their activities to the wider world. It is hoped that the new e-measures questions, as tested by the pilot project, will provide a reliable picture of the use of e-resources across the sector, and will be useful to libraries individually or in benchmarking groups in assessing their own usage. The ways in which libraries will respond to the new questions over the next few years will demonstrate how successful this aim has been.

## Endnotes

[1] <http://www.projectcounter.org/> (accessed 3 January 2012)

[2] <http://www.library.yale.edu/consortia/webstats06.htm> (accessed 3 January 2012)

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