

# Applying Performance Measurement to Safeguard Budgets: Qualitative and Quantitative Measurement of Electronic Journal Packages.

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## Abstract

In the current financial climate effective performance measurement has become a vital tool for library managers. This paper presents a case study from Cranfield University in the United Kingdom on qualitative and quantitative techniques employed to measure the performance of electronic resources. Cranfield University Libraries have developed a process for systematic and sustainable assessment of its electronic resources. Initially focused on electronic journal packages, the process enables the library service to demonstrate smart procurement to key stakeholders.

Quantitative key performance indicators were developed based on the COUNTER usage statistics, internal financial information and population data. A systematic process for capturing, storing and analyzing usage data was developed. In order to make the process sustainable a template was created to calculate all derived metrics and present the key performance indicators in a format suitable for senior stakeholders.

It was soon discovered that quantitative measures alone would not enable the library to fully assess the performance of the collection. Through academic liaison interviews the library staff embarked upon a process to capture the qualitative information pertinent to the resources. A template was used for each package documenting who is using the resource, how they are using it, and what impact any cancellation would have on the strategic goals of the organization.

The combined approach of both quantitative metrics and qualitative factors enabled the library to effectively demonstrate the value of the electronic journal packages. The results were successfully used to lobby against a proposed resources cut, safeguarding the electronic journals from budget reductions. Lessons learnt from the development of the process along with next steps are presented.

This paper will be of interest to those involved in library collection management and library staff with a remit in performance measurement. In particular it may assist the development of deeper understanding of measuring the value and impact of electronic library collections, and will also therefore be of value to all those concerned with library strategy and development.

## Applying Performance Measurement to Safeguard Budgets: Qualitative and Quantitative Measurement of Electronic Journal Packages.

Cranfield University is the UK's only wholly postgraduate university specializing in science, technology, engineering and management subjects. It is one of the top 5 research intensive universities. Approximately 4,500 students study at the University every year, supported by around 1,500 staff members. Cranfield Libraries strive to meet the needs of its community through the provision of information and library services at a level expected by its customers. One element of the services provided by the library is its subscriptions to academic journals. Over 36,000 titles are taken on a subscription basis, with over 99.9% of journals available electronically.

Like many university libraries, Cranfield has seen its expenditure on eJournals increase annually at an above-inflation rate. In order to maintain current journal collections, expenditure on other resource formats has been reduced dramatically. A quarter of the information provision budget is spent on databases including abstract & indexing resources, with expenditure on books now equating to just 8% of the budget. Benchmarking these figures against the University's peer institutions found a similar pattern, with around 70-75% of information provision expenditure spent on Journal subscriptions. Given the huge sums of money that the library spends on journals each year it is important to demonstrate how these collections are supporting the institution in achieving its learning, teaching, research and business goals.

In April 2010 Cranfield Libraries embarked upon a project to develop an evaluation framework for its journal subscriptions. The Library Management Team required a system that enabled informed decision making for subscription renewal or cancellations, and demonstrated smart procurement to senior stakeholders. The system needed to be systematic and sustainable, making the best use of staff resources in an ever time-pressured environment. In order to contextualize the evaluation framework the same methodology was to be deployed for all electronic journal packages to enable internal benchmarking between the individual resources. Previously the library had relied on the cost-per-download metric as the primary evaluation tool for electronic journals, calculated by dividing the number of downloads within a year by the annual cost of the subscription. Recognizing that this system did not take into account the value of the information to the research community, the new framework needed to incorporate a narrative approach on how information was being used and the impact any cancellation would have. The new approach sought to bring together quantitative and qualitative evaluation methods equally.

A literature search found various approaches to collection performance measurement; the work conducted by Evidence Base in their Analysing Publisher Deal project<sup>1</sup> and the key performance indicators (KPIs) implemented at Newcastle University Library<sup>2</sup> formed the basis of quantitative KPIs applied at Cranfield. Adapted to local institutional needs, the quantitative metrics were developed to evaluate the size, usage, coverage and value for money for each electronic journal collection. These included the commonplace metrics such as number of titles, number of downloads and cost-per-download; along with descriptive metrics. A full breakdown of the metrics used are shown in table 1.

Table 1: Quantitative Metrics

	Metric	Description
1	Number of titles in the package	Initially defined as all titles in JR1, altered to reflect all titles in deal.
2	Number of subscribed titles	Number of core titles subscribed to within the deal
3	Number of additional titles	Calculated by subtracting metric 2 from metric 1
4	Total full-text downloads	Total annual downloads from JR1 report
5	Subscribed titles full-text downloads	Total number of annual downloads from the subscribed titles only
6	Additional titles full-text downloads	Total number of annual downloads from the non-subscribed titles only
7	Downloads per student (FTE)	Metric 4 divided by the full-time equivalent number of students
8	Downloads per staff (FTE)	Metric 4 divided by the full-time equivalent number of staff members
9	Downloads per FTE total	Metric 4 divided by the sum of full-time equivalent staff and students
10	Total cost of package	Actual amount charged for the annual subscription
11	Cost of subscribed titles	Annual cost of the subscribed titles only
12	Cost of additional titles	Metric 10 minus metric 11
13	Number and % of titles with zero downloads	Number of titles with zero article downloads within an annual period, and the percentage of the collection that represents
14	Number and % of titles with low downloads	Number of titles that had between 1 and 49 article downloads within an annual period, and the percentage of the collection that represents
15	Number and % of titles with medium downloads	Number of titles that had between 50 and 499 article downloads within an annual period, and the percentage of the collection that represents
16	Number and % of titles with high downloads	Number of titles that had between 500 and 999 article downloads within an annual period, and the percentage of the collection that represents
17	Number and % of titles with very high downloads	Number of titles that had over 1,000 article downloads within an annual period, and the percentage of the collection that represents
18	Average number of downloads per title	Metric 4 divided by metric 1
19	Average number of downloads per subscribed title	Metric 5 divided by metric 2
20	Average number of downloads per additional title	Metric 6 divided by metric 3
21	Average cost per title	Metric 10 divided by metric 1
22	Average cost per subscribed title	Metric 11 divided by metric 2
23	Average cost per additional title	Metric 12 divided by metric 3
24	Average cost per FT download (overall)	Metric 10 divided by metric 4
25	Average cost per FT download for subscribed titles	Metric 11 divided by metric 5
26	Average cost per FT download for additional titles	Metric 12 divided by metric 6
27	Average cost per FTE Student	Metric 10 divided by total number of full-time equivalent students
28	Average cost per FTE Staff	Metric 10 divided by total number of full-time equivalent staff
29	Average cost per FTE Total	Metric 10 divided by total number of full-time equivalent staff and students
30	Top-30 titles with the highest number of downloads	List report of the most popular titles within a package
31	Top-30 titles - % subscribed	Percentage of subscribed titles in Top-30 downloaded titles list
32	Zero / low titles - % subscribed	Percentage of subscribed titles with less than 50 downloads within a year

In order to evaluate the journal packages consistently whilst maximizing staff resources an Excel template was created. Using COUNTER JR1 reports; staff and student population data, and a three-year financial report provided by the library's subscription agent, the

template used match formulas working with ISSNs to link title prices with usage and holdings. All calculations were automated as far as reasonably practicable, with output reports being automatically populated when the input data was added to the template. Three main output sheets were designed to meet the different management information needs; core subscriptions, top 30 titles and key performance indicators. For each report the results fitted onto one printable page to aid the data review.

The core subscriptions report presented the three year trends in title costs, downloads and cost-per-download for the subscribed titles within the package. Titles with low downloads and high cost-per-download became a priority for cancellation or substitution. The evaluation initially used the definitions of low, medium and high usage as defined by Evidence Base in the Analysing Publisher Deals project. When applied at Cranfield it was discovered that the low population numbers resulted in the majority of titles falling into the low or medium usage categories, and all title costs and costs per download falling into the very high category. The definitions of low, medium and high were adjusted to suit local needs.

The top 30 report showed the highest used titles within each package. Three calendar years of COUNTER JR1 reports were reviewed to show the titles consistently being used heavily. The number of downloads were ranked to show their relative positions in the download chart in previous years. Titles consistently in the top 30 that were not a core subscription became a priority for substitution or subscription. A title that appeared in the top 30 once, but had low downloads in other years became a priority for investigation. Often these usage spikes were caused by technical difficulties as opposed to an increased demand for the title. Cost data from the package provider was added to show the costs for the highly used titles, along with the subject areas the title supported to give an indication of the research areas that would be impacted by a change in the subscription.

The metrics created reported on one complete year for each package. One consideration for the evaluation was which period should the analysis cover: academic/financial year, calendar year or contractual period. With staff resources in mind, a consistent approach was required for each package. This ruled out contractual period as the reporting period owing to the variations in subscriptions. Adjusting the reporting periods of the COUNTER JR1 reports were less problematic than adjusting the subscription agent financial reports which resulted in academic/financial year being the final reporting period. Although contractual period would be the most accurate reporting period the staff time required to calculate the metrics outweighed the benefit of this approach. For completeness all three approaches were tested with the results showing a difference in cost-per-download of only a few pence.

Obtaining accurate title lists, and lists of the subscribed titles, proved challenging. Changes in personnel and information systems meant that this information was not readily available within the Library. Obtaining accurate title lists from publishers was time consuming and problematic at times, especially when ISSNs were absent from reports. The COUNTER JR1 reports initially provided an indication of the titles within the package. Reporting directly from these provided inaccurate figures as the JR1 contains downloads for all titles provided by the publisher; the library did not necessarily have a subscription to all of the titles within the report. Once accurate title lists were obtained the titles that the library did not have access to were removed from the JR1 report to ensure accuracy in the reporting.

When reviewing the packages the evaluations needed to consider the size of the target population that use the resource. For broad reaching publishers it was reasonable to assume that the majority of our STEM subject areas would use the resource, however for

specialized resources which support niche research areas the size of the target population was considered when reviewing the quantitative metrics.

Review of the metrics helped highlight issues with some of the COUNTER JR1 reports received from the publishers. Longitudinal analysis of title-level usage highlighted unusual peaks within a package, and benchmarking between packages helped contextualize the usage data. Unanticipated large variations in usage were discovered between the packages. When investigated a variety of causes were discovered. Some included internal barriers to discovery and inappropriate cataloging which was rectified internally; others included the variation in resource design. As Bucknell<sup>3</sup> discusses, platforms that provide the full-text for an article alongside the abstract will have inflated usage statistics compared to a package that requires the user to access the full text after reviewing the abstract.

The quantitative metrics, calculated within an Excel template and combined into one-page reports, proved to be a systematic and sustainable methodology for evaluating the electronic journal packages. It allowed the library to benchmark the packages against one another and provided the management team with an easy to digest report. It soon became apparent however that the quantitative metrics alone were not sufficient to inform decision making and demonstrate smart procurement. Statistics only provide a two dimensional view and should never be used in isolation. Article downloads are not necessarily equal to articles being read, used or valued. The metrics lacked a certain 'So what?' factor; the Journal of Incognito had 2,500 downloads last year, but so what? In order to gather evidence of the value of the electronic journals qualitative data was required.

As part of normal working practices, all academic liaison staff within the library aim to meet with the academic staff they support for a one-on-one discussion at least once a year. These discussions focus on what the academic staff member is working on, and how the library may support both their teaching and their research. As part of these discussions information was sought from the academic community on their use of the electronic journals. The library sought to identify who was using what, how, and what impact any cancellation would have on the academic endeavor. The library staff were provided with a template of interview style questions to support their discussions. To support the knowledge management of these discussions the library developed an in-house customer relationship management type tool. The Barrington Liaison Tool (BLT) is a database of academic liaison conversations which can be interrogated by course, department or academic staff member. Should a discussion cover resource usage the text is tagged at the package level to enable qualitative comments to be collated and reviewed to inform decision making. A template was created and used for each package documenting who is using the resource, how they are using it, and what impact any cancellation would have on the strategic goals of the organization. This qualitative information was presented alongside the quantitative metrics for the package.

Combining the qualitative and quantitative measures enabled the library service to evaluate the electronic journals enabling informed decision making and demonstrating smart procurement to senior stakeholders. The approach adopted was found to be systematic and sustainable. Both the quantitative and qualitative measures combined told the story of the resource. The next planned phase includes an evaluation of course reading lists to identify which articles the academics are recommending, where they are published and how frequently a journal title/article is recommended.

Previously the library had relied on cost-per-download as the sole indication of resource value. With the new approach it was apparent that the resource which had the highest

cost-per-download overall also had the second highest use and value to the institution; the cost-per-download metric was inflated owing to the exceptionally high cost of the resource. Cancelling the resource owing to its perceived poor performance would have had a large negative impact on the academic community.

Evaluation of this nature does require sufficient resourcing and in some cases up-skilling of library professionals. Library management should consider if an investment in this type of analysis is going to be of benefit to the library service. At Cranfield the results were successfully used to lobby against a proposed resource cut, safeguarding the electronic journals from a budget reduction. There is no guarantee that evaluation of this nature would safeguard information provision budgets, but providing some evidence of the impact a reduction in resources would have on your institution cannot harm your case if you are campaigning for funds.

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<sup>1</sup> Conyers, Angela. 2007. "What do publisher usage statistics tell us? The analysing publisher deal project from evidence base". *SCONUL Focus*, 40: 72-76, accessed July 4, 2013.

[http://www.sconul.ac.uk/sites/default/files/documents/25\\_5.pdf](http://www.sconul.ac.uk/sites/default/files/documents/25_5.pdf)

<sup>2</sup> Taylor-Roe, Jill, and Spencer, Cliff. 2005. "A librarian's view of usage metrics: Through a glass darkly?" *Serials: The Journal for the Serials Community*, 18 (2): 124-131, accessed July 4, 2013.

<http://uksg.metapress.com/link.asp?id=7t24m2en2ea5eq8a>.

<sup>3</sup> Terry Bucknell (2012) "Garbage In, Gospel Out: Twelve Reasons Why Librarians Should Not Accept Cost-per-Download Figures at Face Value". *The Serials Librarian*, 63:2, 192-212, accessed July 4, 2013. DOI: 10.1080/0361526X.2012.680687.