

Serials rationalization at Oxford University Library Services using Ulrich's Serials Analysis System

Oxford University Library Services (OULS) brings together collections of 36 centrally funded libraries in Oxford. The integration of collections is a lengthy and very complex process. OULS has chosen Bowker's Ulrich's Serials Analysis System (USAS) as the most suitable tool to analyse and rationalize its serials collections. This article describes the background to the project and the implementation of USAS at Oxford University. Gathering and uploading serials information from 36 different university libraries into one system proved to be a challenging task. The internal issues universities may face as they start to gather consistent serials information are discussed, and the problems arising from uploading serials data into USAS are considered. Despite these drawbacks OULS is convinced that the new analysis system from Bowker is a potentially very powerful tool for local, regional and national collection management.



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Background

The University of Oxford's many libraries contain the largest and most diverse collections for the support of teaching and research in any institution of higher education in the United Kingdom. Its library collections as a whole are world-class. Because its principal library, the Bodleian, has been a legal deposit library for almost 400 years, members of the University and scholars from far and wide expect to satisfy a very high proportion of their library needs somewhere within Oxford's libraries.

The libraries that make up Oxford University Library Services (OULS) contain more than 11 million volumes; and, if periodical parts are included, OULS adds to stock an average of well over 1,000 items per day throughout the year. It is an integral part of OULS' mission to develop and exploit these collections for the benefit of scholarship generally, and to retain and preserve the vast majority of them for posterity.

At present, OULS consists of 36 libraries and was formally established, with the approval of the University, in February 2000. This date marked the start of the integration process of centrally funded

libraries. Librarians will, however, recognize that bringing libraries together on paper does neither automatically lead to the harmonization of policies and practices, nor to the integration of collections. Integration and rationalization of collections is a lengthy process which requires major efforts from both library management and staff.

The review and co-ordination of current serials holdings was seen as a major step towards rationalizing acquisitions and achieving better budgetary and management control over collections across OULS. In August 2004 the project SCORPIO (Serial Co-ordination Project in Oxford) was launched in order to:

- gather and analyse serials management information
- identify the level of duplication across the OULS
- investigate ways of reducing serials expenditure
- prepare transfer of subscriptions between OULS libraries

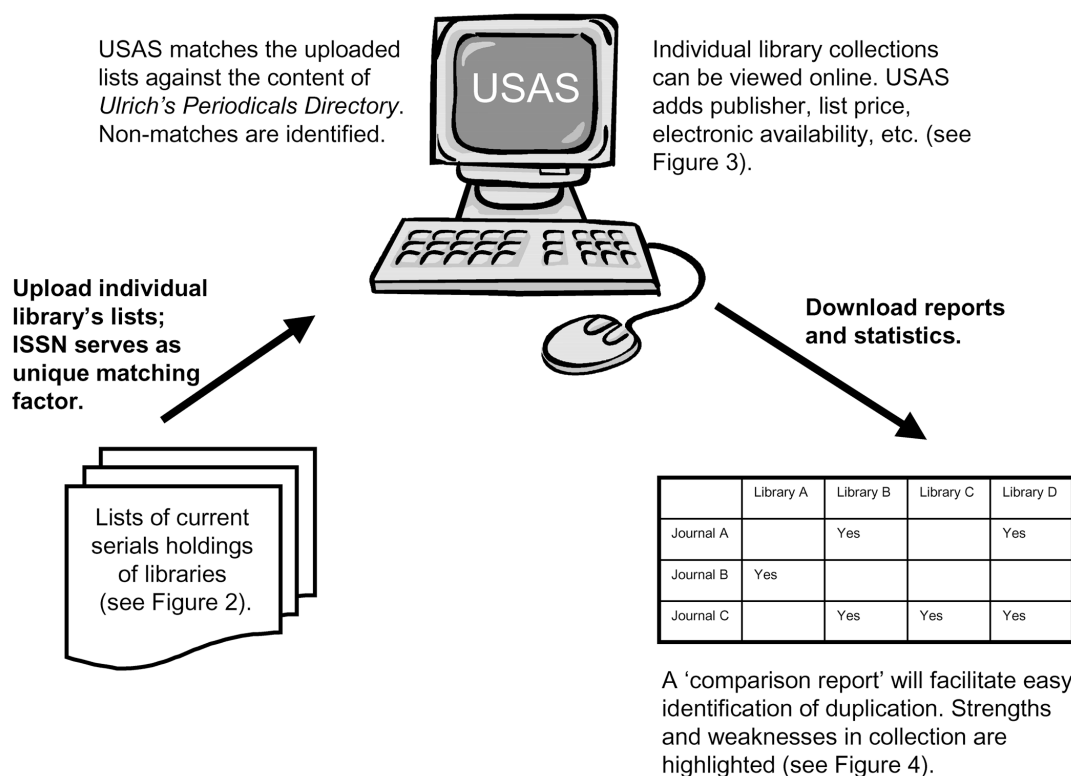


Figure 1. Diagram showing the steps of uploading individual libraries' lists, the matching process in USAS, and the subsequent downloading of comparison reports and statistics.

- explore ways of integrating print and electronic resources in the most cost-effective manner
- ensure that legal deposit material is used to best advantage.

It is recognized that integration of collections is a three-phase process. In the first phase comprehensive and consistent collection management information must be gathered and analysed (see Figure 1). This data will form the basis for management decisions and policy formulations during the second phase. Changes of policy can be implemented during the third phase of the integration process.

If, as in Oxford, one of the aims of an integration process is the rationalization of serials holdings, the first phase would include identification of the exact level of duplication. During the second phase library managers are challenged to draw up policies on how to deal with planned and unplanned duplication, and on the integration of print and electronic holdings. It is only when these two steps are completed that selective cancellations can be made and holdings transferred from one library to another.

The quality, transparency and flexibility of data gathered during the first phase are crucial to the

successful integration of collections as a whole. This article focuses on the method and system OULS has chosen to complete this first phase.

Implementation and gathering information

OULS selected Ulrich's Serials Analysis System (USAS) as the most suitable electronic tool for the SCORPIO project. This system is an add-on to the online version of *Ulrich's Periodicals Directory*, a database already available online at Oxford University¹. USAS is the only known collection analysis tool to have been developed specifically for analysing serials holdings. It is relatively new to the UK, but a number of academic libraries in the United States have already used the system for various purposes including rationalization projects. The

¹ *Ulrich's Periodicals Directory* and Ulrich's Serials Analysis System are both provided by R R Bowker. A presentation on USAS from Bowker is available at: <http://www.ulrichsweb.com/ulrichsweb/analysis/help/findoutmore.asp>.

	A	B	C	D	E
11	1464-7931	Biological reviews	Prof. Blakemore*	DO	PHY 1975-
12	0006-3495	Biophysical journal	Dr. Tucker*	DO	PHY 1960-
13	0006-8950	Brain	EBSCO	£390.00	PHY 1879-
14	1066-7814	Canadian journal of applied physiology	Prof. Robbins*	DO	PHY 1994-
15	0008-6363	Cardiovascular research	EBSCO	£650.48	PHY 1967-
16	1047-3211	Cerebral cortex	EBSCO	£535.00	PHY 1994-
17	0009-7322	Circulation	EBSCO	£474.03	PHY 1997-
18	0009-7330	Circulation research	EBSCO	£461.89	PHY 1968-
19	0143-5221	Clinical Science	EBSCO	£382.55	PHY 1979-
20	0960-9822	Current Biology	EBSCO	£645.49	PHY 1991-
21	0955-0674	Current Opinion in cell biology	EBSCO	£838.08	PHY 1989-
22	0959-4388	Current Opinion in neurobiology	EBSCO	£790.40	PHY 1991-
23	0014-4819	Experimental brain research	EBSCO	£4,156.72	PHY 1966-
24	0958-0670	Experimental physiology	Physiol. Society	£70.00	PHY 1990-
25	0892-6638	FASEB journal	EBSCO	£480.40	PHY 1968-
26	1355-6037	Heart	Prof. Noble*	DO	PHY 1993-
27	0378-5955	Hearing research	EBSCO	£3,291.97	PHY 1978-
28	0021-521X	Japanese journal of physiology	Prof. Blakemore*	DO	PHY 1950-
29	8750-7587	J of applied physiology	EBSCO	£692.83	PHY 1948-
30	0021-9533	J of cell science	EBSCO	£1,312.23	PHY 1962-

Figure 2. An example of a list in spreadsheet format provided by a library. USAS allows users to upload three 'free' fields in addition to ISSN and title. OULS chose to include name of vendor, price (or 'DO' if a donation), and holdings. The file needs to be converted to plain text format before being uploaded into USAS. To follow the title 'Brain' on its way through USAS, see also Figures 3 and 4.

Virtual Library of Virginia (VIVA) has used it for its Serials Audit Project², and it is in use at Northern Illinois University Libraries.

USAS works on the basis of holdings information uploaded in the form of lists. As the project got under way an Excel spreadsheet containing all current serials subscriptions, purchases, regular donations and exchanges was requested from every library. The list would ideally include ISSN, title, vendor, price, and holdings information (see Figure 2).

In most cases the project assistant made a personal visit to each library in order to discuss the best way of producing the relevant data. What can often be a problem in large, diverse academic library systems such as OULS is that some libraries will have in-house or manual systems for registering serials. If a library already has a comprehensive

list of their current holdings in an electronic format – a database or a spreadsheet – the work can be fairly easy. In some cases it will be possible to extract the required data from the automated library catalogue. In other cases much or all of the required information exists only in manual registers or files. Transferring this into spreadsheets can be an extremely time-consuming task. The success of the project depends partly on the quality of the information provided by libraries. The spreadsheets also remain important after the lists have been uploaded into USAS, as libraries may choose to subscribe to USAS for a limited time only.

In addition to the 36 lists from individual OULS libraries, a list was compiled containing all e-journals available across the university. Fortunately all e-journals are registered centrally in TDNet, which made this task quite straightforward. It was decided that serials received by legal deposit would be dealt with separately, as these titles are not registered in the same way as regular subscriptions. As no list of legal deposit titles was available, OULS asked Bowker to supply a customized data extract of periodicals with UK

² VIVA's recently completed analysis is the most comprehensive use of USAS by any American consortium to date, incorporating information representing over 91,000 serials subscriptions (report not yet published).

or Ireland as country of publication. Spot-checks between this extract and serials actually received by legal deposit were then carried out. Initially the correspondence between the list from Bowker and legal deposit holdings seemed unsatisfactorily low. However, restricting spot-checks to academic titles significantly improved this correspondence. Eventually, lacking any more accurate data, OULS decided to use the UK and Ireland list provided by Bowker to evaluate the level of duplication of academic serials published in the UK and Ireland.

Uploading lists into the analysis system

Based on the ISSN, USAS 'matches' the contents of the uploaded lists with the corresponding information in *Ulrich's Periodicals Directory*. Once uploaded, library lists are presented on the screen in a format quite similar to the format of the directory (see Figure 3).

By clicking on one of the titles, the information in the database associated with that title becomes readily available. In OULS, the most useful of these external data are subject category, Bowker list price

and publisher. Other useful data elements show whether the title is refereed and if it is available electronically. Clearly, direct access to this information from an online list of a library's own titles is one of the advantages of using USAS. An additional bonus is that the system will report on any ISSNs or titles on a library list that have changed or ceased, based on the title history information recorded in the directory. These details are not automatically changed by USAS when the list is uploaded; updates need to be done manually. Bowker argues that this is an advantage; it keeps libraries in control of the information that is updated. Automatic updates could create a conflict between the USAS record and the library's other in-house records, without the library noticing. In fact, libraries may find that the most straightforward way of carrying out updates to the list in USAS is to make the changes on the original spreadsheet before uploading it again. Although it may seem cumbersome, this at least ensures that the change is recorded both online and on the original spreadsheet.

The whole process of uploading depends entirely on USAS matching up ISSNs on the library lists with ISSNs in the directory. When so much

The screenshot shows the Ulrich's Serials Analysis System (USAS) interface in a Microsoft Internet Explorer browser. The address bar shows the URL: http://www.ulrichsweb.com/ulrichsweb/analysis/viewlist.asp?sort_field=2&list=225338&display_num=50&. The page has a search bar and a 'GO' button. Below the search bar, there is a table of journals. The table has columns: TITLE, ISSN, USAGE STATS, NOTES 1, NOTES 2, REFEREED, A & I, ELEC. JRN., ISI IMPACT, MFL, and NON-MATCH. The table lists several journals, including 'American Journal of Physiology (Consolidated)', 'Archives Italiennes de Biologie: Journal of neuroscience', 'Biophysical Journal', 'Brain: a journal of neurology', 'Cardiovascular Research', 'Circulation (Baltimore)', 'Circulation Research', 'Experimental Brain Research', 'Japanese Journal of Physiology', and 'Journal of Cell Science'. Each row has a checkbox for 'For actions on one or more titles, check boxes next to each, then' and a 'GO' button. The 'Brain: a journal of neurology' row is selected, and its full title is displayed in the 'TITLE' column.

TITLE	ISSN	USAGE STATS	NOTES 1	NOTES 2	REFEREED	A & I	ELEC. JRN.	ISI IMPACT	MFL	NON-MATCH
<input type="checkbox"/> American Journal of Physiology (Consolidated)	0002-9513	EBSCO	"£2,173.78"	PHY 1898-	Yes	Yes	Yes			Review
<input type="checkbox"/> Archives Italiennes de Biologie: Journal of neuroscience	0003-9829	EBSCO	£98.23	PHY 1963-	Yes	Yes		Yes		
<input type="checkbox"/> Biophysical Journal	0006-3495	Dr. Tucker*	DO	PHY 1960-	Yes	Yes	Yes	Yes		Review
<input checked="" type="checkbox"/> Brain: a journal of neurology	0006-8950	EBSCO	£390.00	PHY 1879-	Yes	Yes	Yes	Yes		
<input type="checkbox"/> Cardiovascular Research	0008-6363	EBSCO	£550.48	PHY 1967-	Yes	Yes	Yes	Yes		
<input type="checkbox"/> Circulation (Baltimore)	0009-7322	EBSCO	£474.03	PHY 1997-	Yes	Yes	Yes	Yes		
<input type="checkbox"/> Circulation Research	0009-7330	EBSCO	£461.89	PHY 1968-	Yes	Yes	Yes	Yes		
<input type="checkbox"/> Experimental Brain Research	0014-4819	EBSCO	"£4,156.72"	PHY 1966-	Yes	Yes	Yes	Yes		
<input type="checkbox"/> Japanese Journal of Physiology	0021-521X	Prof. Blakemore*	DO	PHY 1950-	Yes	Yes	Yes	Yes		
<input type="checkbox"/> Journal of Cell Science	0021-9533	EBSCO	"£1,312.23"	PHY 1962-	Yes	Yes	Yes	Yes		Review

Figure 3. One library's list of titles has been uploaded into USAS. In addition to the three 'free' fields 'Usage Stats', 'Notes 1', and 'Notes 2', this view indicates whether the titles are refereed, abstracted and indexed, available electronically, etc. Clicking on a title will provide additional information. Note that USAS has automatically supplied the full title of the journal 'Brain' (compare with Figure 2).

depends on the accuracy of one piece of information, some disadvantages of the system soon become apparent. Academic librarians will be aware that many serials do not have ISSNs, and also that a large database such as the directory can never claim to be entirely comprehensive. For instance, the directory does not, in principle, contain local government publications. So what happens when an ISSN is uploaded that does not find a matching ISSN in the directory? If a title does not have an ISSN, or has an ISSN that is not recorded in the directory, the title will be classified as a 'non-match'. Ceased titles are also classified as non-matches. It goes without saying that in some collections with many highly specialized or ephemeral titles the percentage of non-matches can be substantial. Even though non-matches will be included in the online lists in USAS, the system cannot generate statistics on these non-matches. A few OULS libraries have around 50% non-matches. Overall, the average level of non-matches in OULS appears to be approximately 22%. Of course, not much can be done about titles having ceased, or failing to have an ISSN. A more unsatisfactory situation is the relatively high number of titles in the directory for which no ISSN has been supplied. As all matching is done by ISSN a library's list cannot match onto these titles even when it includes this reference. It is understood that the inclusion of these titles' ISSNs will depend on increased research on the part of Bowker. Bowker has promised that if libraries can present lists of directory titles found to be lacking ISSNs, an effort will be made by their editorial team to prioritize research on these.

Generating reports and statistics

USAS can be used to analyse and compare serials holdings of individual libraries, of groups of libraries, or of consortia. It can also be used to compare reported holdings with the entire content of the directory (approximately 175,000 active titles), or with a 'core' set of academic titles (approximately 50,000 active titles) defined by Ulrich's³. All

reports are downloadable in spreadsheet format and can then be utilized and manipulated for a range of purposes.

The analysis system enables an academic library system to better understand subject coverage or serials expenditure, highlight strengths and weaknesses in the current collection, and establish areas and level of duplication. A 'comparison report' facility makes it easy to identify duplicates across a selection of libraries by counting the number of occurrences of every title (see Figure 4).

This is one of the major advantages of USAS. Users can choose which lists to include in each comparison report. In addition, it is possible to choose to include details associated with the title in the directory, such as subject category and Bowker list price. Once downloaded in a spreadsheet, the titles can be sorted according to the number of occurrences USAS has identified.

As already mentioned, statistics cannot be generated on non-matches. However, non-matches are included when USAS generates reports that count duplicates. This is a useful feature, despite the fact that additional data such as subject category and list price cannot be retrieved due to these titles' status as non-matches⁴.

A more serious problem concerns USAS' ability to generate comprehensive analyses by subject category. In theory, USAS enables libraries to analyse their holdings in terms of the Ulrich's subject categories. In the directory, each title has one or more main subject categories (of which there are approximately 200) or subcategories (of which there are almost 1,000). However, when the analysis system generates statistics, it can only associate each title with *one* of its subject categories. Accordingly, if a title has more than one subject category, it will only be included under one of these in the statistics. This may not be convenient for certain kinds of analyses. It has been pointed out that since there are many journals which can be placed under more than one subject heading, the analyses provided by USAS must unavoidably be incomplete and even

³ Bowker's criteria for inclusion in the 'core' are rather vague. It is claimed that the core consists of academic titles, but spot-checks show that not all titles in the core are academic, and also that there are academic titles which are not included in the core.

⁴ In SCORPIO it was decided to give each unique non-match a fake ISSN (X000-0001 and so on) before uploading lists, in order to enable non-matches to be counted in the report that identifies duplicates.

	A	B	C	D	E	F	G
1	Sample comparison report						
2	issn	title	list_price	found in	Library A	Library B	Library C
15	0006-8950	Brain: a journal of neurology	USD 697	4		Yes	Yes
16	0008-6363	Cardiovascular Research	USD 1048	4	Yes		Yes
17	0009-7322	Circulation (Baltimore)	USD 576	4	Yes		Yes
18	0009-7330	Circulation Research	USD 780	4	Yes		Yes
19	0031-6997	Pharmacological Reviews	USD 191	4	Yes		Yes
20	0031-9333	Physiological Reviews	USD 400	4	Yes		Yes
21	0033-8419	Radiology: a monthly journal devoted to clinical radiology and allied sciences	USD 225	4	Yes		
22	0039-2499	Stroke: a journal of cerebral circulation	USD 287	4	Yes	Yes	
23	0066-4154	Annual Review of Biochemistry	USD 185	4	Yes		
24	0066-4219	Annual Review of Medicine	USD 160	4	Yes		Yes
25	0066-4278	Annual Review of Physiology	USD 165	4	Yes		Yes
26	0147-006X	Annual Review of Neuroscience	USD 160	4		Yes	Yes
27	0362-1642	Annual Review of Pharmacology and Toxicology	USD 165	4	Yes		Yes
28	0892-6638	The F A S E B Journal	USD 693	4	Yes		Yes
29	0001-6314	Acta Neurologica Scandinavica	USD 855	3		Yes	
	0002-8703	American Heart Journal: the international publication for the study of the heart and	USD 509	3	Yes		

Figure 4. A sample of a report that identifies duplicates within a chosen number of holdings lists, downloaded in a spreadsheet format. One can choose to include additional information such as list price. Along with the total count of occurrences of a title ('found in'), users can see the names of the libraries in which each title has been found.

misleading⁵. Even though Bowker claims that only 5–6% of all titles in the directory are indexed under more than one subject category, this is not an insignificant number. Bowker has recognized this problem and is investigating various solutions, especially with regard to titles that are markedly interdisciplinary. A related problem identified by OULS concerning subject categories is that the specific needs of academic libraries are only partly catered for. While the categories within science and medicine seem to reflect 'academic' subjects quite well, Ulrich's humanities categories are sometimes too broad and are not readily transferable to an academic library environment. One example would be the subject heading 'Literature' whose

subcategories include 'Adventure and Romance' and 'Poetry'.

Conclusion

Ulrich's Serials Analysis System is a relatively new analysis tool for libraries. The backbone of USAS is the information provided in *Ulrich's Periodicals Directory*, a product which enjoys a very good reputation in both academic and public libraries. USAS enables libraries to exploit this high quality, aggregated serials information and use it in their decision making processes. This combination makes USAS a potentially very powerful tool for local, regional and national collection management.

The experiences of OULS show that it is not a trivial undertaking to gather and upload serials information from 36 different university libraries into one system. On the one hand it has proved difficult to obtain automated lists of current subscriptions from all libraries. Even in an academic environment many libraries still operate with manual registers.

⁵ See Chew and Norman, Ulrich's Serials Analysis System. In *Issues in Science and Technology Librarianship*, Summer 2003, available at: www.istl.org/03-summer/databases.html.

Some of the problems pointed out here have since been rectified, while others persist.

On the other hand the exclusive dependency on the ISSN as matching factor between uploaded library lists and USAS has raised a number of problems. OULS appreciates Bowker's co-operation and has successfully found workarounds for most problems. OULS is also satisfied that USAS can easily cope with uploading long lists and analysing very large and diverse collections.

Despite the drawbacks described in this article the analysis system promises to be a very useful and powerful tool for effective collection management. As the serials rationalization project at Oxford University continues, we will have the opportunity to test the full scope of the reporting and statistics functionalities offered by USAS.

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