Business Planning for Digital Libraries

International Approaches

Mel Collier (ed.)

LEUVEN UNIVERSITY PRESS

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E-JOURNALS IN BUSINESS PLANNING FOR DIGITAL LIBRARIES

Mel Collier and Hilde Van Kiel

State of the art

In no other aspect of the digital library has the development been so rapid and the dominance so definitively established as in e-journals. In 1995 e-journals still existed only in embryonic and experimental form, whereas now, only fifteen years later, e-journals are the dominant method of publishing in the natural and the exact sciences and the preferred way of publishing research results. It is estimated that there are now (2008-9) some 59,549 e-journals in existence and any large broadly based university library is likely to have subscriptions to a substantial proportion of the available total, normally through the so-called "big deals". At the University of Leuven for instance some 23,276 e-journals are available to users. While it is true that growth in the humanities has not been so dramatic, the trend towards electronic publishing can also be discerned there, encouraged by the wealth of access now available to humanities scholars through retrospective digitization programmes.

The dominance of e-journals is graphically illustrated by the increasing debate over whether for certain disciplines the traditional library as a place is required at all. This debate is likely to be liveliest where the library is highly research orientated in a narrow enough set of disciplines where it can reasonably be said that e-journals can satisfy the great majority of needs, and where there is no overriding mission to retain paper stocks and subscriptions for long-term preservation purposes. This debate at the bio-medical campus of the University of Leuven has led to a decision to go e-only in the campus library. Similarly the chemistry departmental library at the University of Oxford had already been effectively abolished in favour of online access as early as 2003. The dominance of e-journals is further illustrated by the proportion of the journals budget that is devoted to them. At Leuven in 2009 around 75% of current journal titles are available electronically (due to pricing policies and differential value added tax rates a substantial number are for the time being also available as print), which itself may not be a particularly high proportion because of the strength of the humanities and the need for Dutch language publications.

This change, radical enough in itself, has also brought another fundamental change in the market and in the relationship between publisher and user or subscriber. With paper journals the subscriber becomes the owner of the purchased volumes, whereas in the electronic domain the subscriber normally obtains only access to, not ownership of, the current output. This leads to concerns over continuity of access in the future and to provision for preservation of the research record. It is true that several publishers who only

license access to current output nevertheless sell ownership of the archive or permanent access after a certain period. This may provide reassurance about access in the long term if technical aspects of preservation and legal guarantees can be solved.

Brief historical review

Although ideas for e-journals had been circulating for some time the first experiments started to appear as early as the 1980s. In Britain, for instance the BLEND (Shakel 1983) project was supported by the British Library Research and Development Department. Other experimental projects included HyperBIT (Mcknight 1993). By 1992 the chairman of the Advisory Committee of the British Library's Research and Development Department, Sir Peter Swinnerton-Dyer, wrote a paper suggesting it was time for electronic journals to be established in the UK on a regular rather than experimental basis (Meadows 1994). In the middle of the 1990s the first commercial products began to appear. By 1995 there were about 100 peer-reviewed e-journals available (Hitchcock 1998). The growth to the present figure amounts to a phenomenal change in the structure of an industry, in the process of scholarly communication and in library economics over an extremely short period.

This growth in e-journals generally brought great improvements in access to scholarly publication, both in immediacy of access (provided you have access to the Internet) and in range of accessible journals (provided you or your institution can afford them). The Big Deal appeared on the market. The change from ownership to licensing of access began to change the nature of the library and the behaviour of its users. It created uncertainty about future access to publications for which a hefty licence fee had already been paid, alleviated somewhat by the offer of archives for purchase. During this period there was also a continuous trend towards consolidation in the commercial journal publishing industry, raising further concerns about monopolistic practices. At the same time not-for-profit organizations such as JSTOR were busy digitizing back sets of journals and making them available at reasonable prices. This has started to have a major impact on access to scholarly information in the humanities.

In response to what was seen by some as the unbridled exploitation by commercial publishers of research results and scholarly output which was usually funded in the first place by the public purse, the Open Access movement was founded and gathered pace. It remains to be seen whether this will provoke structural change in the market. See the further discussion in the chapter by Prosser.

Alongside the provision of e-journals associated services for their management have developed. Under pressure from users and libraries e-journal publishers are gradually providing improved statistics on the use of their products, ideally according to the COUNTER standards. Library management systems suppliers and serials agents also provide solutions for the management of e-journal subscriptions and for federated searching of e-journals across other sorts of resources. This is dependent of course on the e-journal suppliers making their metadata available or harvestable.

The e-journal market: consolidation and consortia

Consolidation

Consolidation in the scholarly journal market over recent years has led to the domination of the market by a relatively few players such as Elsevier, Springer and Wiley-Blackwell. This has not led to a reduction of titles on offer (as the big players themselves continually offer new ones) but to the buying-out of smaller publishers by larger ones, and in some cases learned society publishers selling out to commercial ones. It does however have an important effect on library budgets, as expenditure flows to fewer and fewer suppliers and the budget allocated to the remaining smaller publishers comes under pressure.

This dominance provides the big players with two great advantages: the ability to control prices – and always until now in an upwards direction at more than the rate of general inflation – and to protect their position as owners of journals with the highest impact factors.

Consortia

In order to cope with this radical effect on library expenditures and on the complexity of licensing and access issues libraries formed consortia for the purpose of negotiating with publishers. They were actually encouraged in this to a large extent by publishers, who could see reductions in their sales and marketing costs by not having to deal directly with so many customers. Libraries are no strangers to consortia as librarians have long seen the advantages of scale in cooperation in cataloguing, inter-library loan and acquisition (Perry 2009). But ever since OHIOLINK made its first deal for e-resources in the 1990s there has been an enormous growth in the number of consortia worldwide with an emphasis on negotiating e-resources. An overview of European consortia has been given by Giordano (2005) and by Hormia-Poutanen (2006).

Because of the so-called serials crisis through the 1990s, users had seen a sharp decrease in the number of articles and journals to which they had access. Therefore the focus of OHIOLINK's deal originally was not so much on saving money as on gaining more access for its users (Kohl 2001). The idea and format of what Frazier was to call the 'Big Deal' was born: the consortium would get access to a large number of journals by agreeing to pay at least the sum of its members' current spend plus an agreed annual price cap and a no-cancellation clause for their print subscriptions. Frazier (2001) put his finger on the downside of the Big Deal: yes users did get more access, but a few big publishers would drain most of the libraries' budgets, thus squeezing out the smaller ones. Those big publishers would also gain a solid position, because a consequence of the Big Deal was that the selection power of the librarians diminished and the non-disclosure clauses made it difficult for libraries to exchange information on their deals.

Consortia soon realized that internal information exchange on deals and other consortia-linked problems might become very important. In 1997 COC (Consortium of Consortia) came together as an informal group to exchange information between (North American) consortia. At this meeting consortia coordinators were able to talk about the outlines of their deals and proposals without breaking the non-disclosure condition. Publishers were

asked to present their products and to agree to a so-called grill session. This was beneficial for both parties: consortia coordinators and librarians could explain the problems they had with the publishers' product(s), licence(s) or technical conditions; publishers saw this as a very effective way of saving marketing resources, as they would get a reaction from a large group to their proposals (Friend 2003). Through this dialogue publishers and librarians sometimes came to a better understanding. The organization captured the interest of consortia worldwide and became ICOLC. By 1999 a European section of ICOLC (e-ICOLC) was set up and the coalition now has a spring meeting in the US and an autumn meeting in Europe.¹

An analysis of the agenda of the American and European ICOLC meetings shows an interest in all subjects related to electronic resources from a consortium perspective: structure and governance of consortia, the way to negotiate and license, pro's and con's of big deals and possible exit strategies or retreat models, future business models, long-term preservation, perpetual access, and usage statistics. Furthermore Open Access, institutional repositories, Transfer Code of Practice, eBooks and Google Books as well as more technical issues like ERM, discovery tools, authorization and authentication appear also on the agenda, although arguably less on the European agenda than on the American. The fact that American consortia were formed more on an existing operational base whereas European consortia started up especially for the e-resource negotiations may be a reason for this. Perry (2009) observes a growth in the number of consortia worldwide by 56% between 2000 and 2009, so this type of organization must clearly have benefits for the library community, but what are they and what could be the downside?

Financial Benefits of Consortia

Despite efforts to get away from it, the Big Deal still seems to be an attractive way to give access to a very large number of electronic resources for library users (Gatten 2004). Although it puts a huge stress on library budgets and has its negative points, there is a strong supporting financial case on the basis of cost per article. Consortia are able to provide more access to electronic content than any single institution could afford on its own budget. Users get a better service from their library because of the consortium arrangements. A study of the deep logs of OHIOLINK showed that all of the journals within their deals are really used (Nicholas 2006). Within K.U.Leuven one of our consortium deals gave us back access to a number of journals which had been cancelled in the previous years due to budget constraints. Seven of them show up in our thirty most used journals from that publisher for 2008.

Licences are essential to gain access to e-resources. In the early days each publisher had his own licence, sometimes even a different licence per product. Soon consortia realized a *model licence* accepted by a large library community and by a large number of publishers would be beneficial for both parties. Hence the proposed model licences by LibLicense and Nesli2. One of the first achievements of ICOLC was a statement on licensing issues which is used as a guideline for negotiations and endorsed by many consortia.²

¹ <http://www.library.yale.edu/consortia/>.

² Statement of current perspective and preferred practices for the selection and purchase of electronic information, 1998. <http://www.library.yale.edu/consortia/statementsanddocuments.html>.

Pressure for Better Service

Consortia representing a number of libraries have more power to improve licence terms during negotiations than an individual library would have. Terms on interlibrary loan, institutional repositories and learning environments have been achieved by consortia worldwide (Grogg 2009). Consortia also have tried to find models to get away from the big deal, as for example the orderly retreat from OHIOLINK (Gatten 2004).

Usage Monitoring

If a large part of your collection is in an electronic format, a big advantage is that you will be able to look at *usage*. As only a few consortia are able to load all data locally, as OHIOLINK does, most consortia still rely on usage data provided by the publishers. To compare usage of different publishers there has to be a generally accepted format. Based on work done by ARL, NISO and the Guidelines for Statistical Measures of usage of Web-based Information Resources from ICOLC, the COUNTER Code of Practice has now been accepted by most of the publishers, thus providing consortia and librarians with a uniform format of usage statistics (Shepherd 2002). Improvement is still possible, but the results are already extremely useful.

Policy Benefits

Other statements have been issued; the latest statement on the economic crisis by ICOLC was supported by a hundred consortia worldwide, reinforced on some points by an ARL statement (Hahn 2009). This gives the statements very strong support and we see that publishers do take them into account.

A study of the Canadian situation showed that librarians felt consortia activities brought them more together and gave them more knowledge and respect for each other's situation (Maskell 2008). This applies not only to librarians but also their university management seems to get a new perspective on the library community. Politicians and university deans take notice more of the library activity because of the consortia activity and will consider libraries involved in consortia as being more forward looking (Friend 2003). At Leuven University this has clearly been the case: via talks about the Big Deals arranged by the university library, the contacts between university management and library management became much closer than before and library issues gained more interest at university management level. This higher profile also provided opportunities to talk about Open Access possibilities and invited researchers and academic staff to rethink their involvement in library policy making.

Other Benefits

Besides making available e-journals and other electronic resources, some consortia provide extra services to their members. Consortia offer platforms with access to the resources for their members, be it via loading all content on this platform as OHIOLINK does, by developing a portal (for example Nelli by FinELib) or by providing access through a commercial package (HealLink) (Hormia-Poutanen 2006). The fact that most consortia work with one or more dedicated negotiators gives these people the opportunity to

become experts in the field, which is beneficial for their members as they will not all have specialized personnel to carry out negotiations. The pressure a consortium is able to put on publishers gives it the ability to work towards new licensing and publication models (see below on the future of consortia).

Benefits on the publishers' side are quite clear: they have to deal with some hundreds of consortia which represent thousands of libraries, which means substantial staff savings, and through the big deals they are assured of constant revenue for a number of years. Because of the larger consortia deals publishers have seen a quicker change to e-only deals than would have been the case had they had to deal with all the institutions separately. They also had an immediate starting point for the marketing of extra products such as archive collections and e-books.

Disadvantages

Consortium forming does not always run smoothly. Certainly a few years ago libraries spent quite some time making up internal cost division models. Librarians spent a large amount of their time on discussions to find a good working model for their consortium; in some cases this caused serious internal problems within the consortium.

The Big Deal, which has many advantages as mentioned above, can also be seen to have serious downsides. Publishers are in a quasi-monopolistic position and can use this strength to place restrictive conditions on deals such as limited scope for cancellation of titles. Many deals are so constructed that if clients wanted to have a selection of the publisher's titles they would pay far more than they would for the total package. For publishers this is an excellent lever for maintaining income streams but places serious limitations on libraries' room for manoeuvre. In the good times this is less of a problem, but when all libraries are suffering budget restrictions it is clearly a disadvantage. To make matters worse publishers have been used to using their position to demand exorbitant price rises year on year. It is clear that the Big Deal, or at least the supply-side philosophy and the practice, is in need of reform, especially in the current financial climate. The progressive consolidation of the academic publishing industry mentioned above tends to concentrate more and more of a library's budget on fewer and fewer publishers and can put small publishers in a very difficult position.

There can be different sorts of consortia: regional, subject oriented, national. As a result a library which wishes to buy an electronic resource can choose between different consortia which all provide a deal for that product. In this case there is the possibility of undesirable competition between consortia (Grogg 2009). Consortia are providing more access, but also more streamlined access. Collection development therefore shifts from institutional level to consortium level, and this puts pressure on librarians to explain to their users why there is less flexibility in decision making than used to be the case. For a small region like Flanders, deals for the universities are not on an opt-in base. This puts pressure on the institutions to find the necessary money if a majority of the universities would like to have a certain deal.

Future of Consortia

Consortia are active in exploring new publication models. They can use their negotiating power to combine access to the subscription collection of a publisher with an agreement that allows their researchers to publish a number of articles in Open Access for the same amount of money they spent before, for example the Springer deals with Max Planck and UKB (The Dutch consortium).³ They can provide information on new publication models: the French consortium Couperin opened a website on Open Access to make the research community aware of all the possibilities.⁴

Consortia will also try to explore new licence models. In Europe consortia soon come up against national borders, so DEFF (Denmark), JISC (United Kingdom), DFG (Germany) and SURF (Netherlands) joined forces to start the Knowledge exchange. This is a way to explore the possibilities of supra-national contracts, new licence models and an experiment with tender procedures instead of negotiated licences as well as getting a layer of information freely available on the Internet.⁵ Consortia are also looking to extend their activities to e-books, such as with the JISC programme (see the chapter by Woodward).

In the USA we see a number of consortia merging. SOLINET and PALINET now form Lyrasis which is a huge consortium of more than 4000 libraries.⁶ Maybe these very large consortia will become more like an intermediary or agent between publishers and libraries. Agents like Swets and Ebsco may be entitled to feel more than a little rueful about this.

The form of the e-journal

In the early days it was expected that technology would bring about radically new forms of scholarly publication and certainly diversion from the traditional print journal model. Interestingly this is yet to happen on any large scale. E-journals generally still mimic the paper form. This is probably due to the fact that the economic model of the paper form (the subscription) has transferred easily into the e-journal era and the academic world relies heavily on the traditional form for its measurement of research excellence.

Electronic resources management (ERM)

As electronic collections grew larger, libraries soon realized that the process of handling these resources was quite complex and libraries and consortia sought systems to oversee the whole flow of information they had to manage. Publishers provided information by a variety of means: emails, paperwork and of course licences themselves, which libraries had to disseminate to different user groups. Traditional library management systems (LMS) provided librarians with no means to manage the workflow of e-resources. In 2001 Tim Jewell started working on best practices for the selection and presentation of commercially available electronic resources (Jewell 2001) which was taken further by the

³ Springer, Max Planck Reach Deal, Library Journal (feb 2008), <http://www.libraryjournal.com/article/CA6533053.html> (viewed 7 December 2009).

⁴ <http://www.couperin.org/archivesouvertes/> (viewed 7 December 2009).

⁵ <http://www.knowledge-exchange.info/> (viewed on 7 December 2009).

⁶ <http://www.lyrasis.org/About-Us/Overview.aspx> (viewed 26 November 2009).

Digital Library Federation and resulted in 2004 in a report from the DLF ERM Initiative with standards for ERM data (Jewell 2004).

Major issues that ERM should solve are:

- Being a central point of administrative data on e-resources (licence details, acquisition, statistics)
- Being able to follow the workflow of the licensing process
- Providing different licence details to multiple people
- Being able to work with the structure of the packages and their details
- Providing facilities for trials
- Interchange of information with the LMS
- Overseeing the information in a consortium environment

With a standard now being available, commercial vendors used this as a guideline to develop their products, but in the meantime larger universities or consortia had also already developed their own electronic resource management systems, such as MIT's VERA, Johns Hopkins' HERMES and Gold Rush from the Colorado Alliance of Research Libraries (Nelson 2009). More recently subscription agents also offer systems for resource management, namely ERM Essentials from Ebsco and eSource Manager from Swets. Although it is only five years since the standard was developed, products have appeared and disappeared again partly because some of the major LMS vendors have merged (for example Ex Libris acquired Endeavor from Elsevier and SirsiDynix partnered with Serial Solutions) but also because some of the home-grown products such as HERMES were no longer maintained. A good overview of products and their specifications can be found in Collins' article (Collins 2008). So far it appears that existing systems on the market have difficulty in being flexible and responsive enough to cope with the ever changing environment. ERM are still 'Ghosts in the machine' (Emery 2007) as they do not yet offer the right balance between the effort required to input the information and the deliverable outputs. This may be a very difficult task as the e-resources environment still has not stabilized and may not do so in the near future. It is a big problem to keep track as journal titles change every now and then from one publisher to another. Packages may be cancelled while perpetual access rights still guarantee access, and up to now there does not appear to have been a watertight system to provide an historical overview of collections for the past five to ten years. A possibility being explored at Leuven University is combining the Swets ERM product which would provide a system pre-populated with subscription data and financial information together with the next generation of an LMS provider, for example URM from Ex Libris,⁷ a solution which might be able to remove most or ideally all of the current obstacles.

Cost-benefit of e-journals compared with paper journals

A number of benefits of e-journals can be readily identified: benefits which are shared with the digital library in general. E-journals can be consulted independently of time and space by the authorized user; powerful search tools are available to identify the desired subjects and articles; and, once identified, access to the required article is instant to the

⁷ Unified Resource Management: The Ex Libris Framework for Next- Generation Library Services, Ex Libris Document version 1.1, 2009, <http://www.exlibrisgroup.com/files/Solutions/TheExLibrisFramework-forNextGenerationLibraryServices.pdf> (viewed 16 January 2010).

desktop. The system of big deals has progressively provided more titles and content to the user year on year. Publishers argue that *per article available* their prices have reduced over time. Also in support of e-journals, library managers can argue that against the licence cost of the electronic product, administration costs are reduced by their not having to process the paper volumes, and not storing them, which reduces capital expenditure. Various studies support this argument. A study at Drexel University (Montgomery 2002) suggests that the overall costs *per use* of providing an electronic journal collection are less than the costs of providing a print collection. Key costs to factor in here are the amortized costs of space for storing print items. Although selection and negotiation costs are higher, cataloguing costs can be reduced by the use of various web lists and tools. It should be noted that Drexel takes little responsibility for long term archiving. Another study suggested that labour requirements generally are lower in a digital than a paper library; that space requirements are lower; and that materials requirements are also lower. The study is inconclusive about digital equipment requirements (Connaway 2003). A further study (Schonfeld 2004) develops the comparison methodology much further on a life cycle basis. The study restricts itself to the *non-subscription costs* and concludes that the transition to electronic journals is likely to offer substantial long term savings.

On the negative side the caveat to all these studies is that the electronic form at this time offers no water-tight assurance of long-term access or digital preservation. This is clearly so, but the question for each library is whether long-term preservation and access are its responsibility. It is arguable that the responsibility for long-term access and preservation lies with the national institutions of the country in which the material is published. In so far as digital access can be assured through the techniques available at a given time, it makes little difference whether access is provided by a local, national, continental or global partner, provided sufficient assurance and redundancy are built in.

A further debatable point is the long-term sustainability of the big deal culture. On the one hand the big deals tend to offer a lower cost per title and possibly per use, but on the other the monopolistic practices of the publishers tend to render the *overall cost* of the big deals unsustainable as they result in annual price rises above normal inflation and tend to disallow cancellation from the package of titles which are not well-used.

Nevertheless, leaving aside the aesthetic issues of reading on screen as against reading on paper, it would appear that the long-term strategic cost-benefits are strongly stacked in favour of e-journals, particularly in the natural and exact sciences, and increasingly in the humanities also, assuming that the library in question does not take upon itself the responsibility for long-term access and preservation.

Business planning elements

Budget

As can be gathered from the previous parts of this chapter the major issue facing research libraries with large e-journal budgets is the challenge of paying for the licences in a culture of big deals where year-on-year prices are rising at rates above inflation. The fact that

many librarians feel tied in to the deals either by contractual terms or user demands means that the e-journal budget will progressively absorb more and more of the available budget, and the share of the e-journal budget will flow to fewer suppliers. Restrictive practices which disallow cancellation of titles within the big deals can have the effect of subordinating collection development. On the other hand the costs of acquisition and storage are dramatically reduced or even eliminated.

Administration

Negotiation of e-journal contracts is undoubtedly a more complex and time-consuming affair than was the case with the paper journal. Whereas in the past much of the routine administrative work was done by the serials agents at their cost (from within their discount margins) they have now largely been squeezed out and the cost falls on the library. It is true that costs can be shared by belonging to a consortium, but the cost of belonging to the consortium must be included in the budget. The combination of big deals and fewer suppliers may imply that under public sector procurement rules periodic tender procedures have to be employed. On the other hand labour intensive tasks of check-in, chasing missing parts, binding and physical handling are eliminated.

Consequences for library organization

Although long heralded (or threatened, depending on your point of view) the demise of the library as we knew it is now at least partly coming to pass. Commercial firms which once had substantial scientific research libraries see no further need for them. Academic libraries which are specialized in the sciences where e-journals are dominant are coming more and more into question, and if they survive are being re-born as learning centres. This inevitably can bring uncomfortable times for the staff involved, hopefully resolved by appropriate re-orientation of jobs or redeployment.

Long-term access

Longevity of e-resources is an unresolved issue, so the move to e-only journals coupled with non-retention of the paper back issues poses a risk for long-term access. This can be addressed by co-operative storage of the paper version if it exists. If the journal is published only in electronic form then one can only rely on best practice to provide for future accessibility. Responsibility for long-term access must imply utilization of the best possible digital archiving procedures available at the time and onwards into the future. This responsibility cannot be left to the publisher alone, as the future of the publishing concern, whether commercial or not, can never be guaranteed. Steps must be taken therefore, as Elsevier has done with the Dutch Royal Library, to entrust archiving to reliably permanent institutions, backed up in more than one place.

Prospects

E-journals, already dominant in the natural sciences, will become so gradually across all disciplines including the humanities. It is not unreasonable to suppose that the paper versions of e-journals will eventually be eliminated, for economic reasons. When that

happens, there should be no impediment to the development of innovative forms of the e-journal, whether in the business model or the use of multi-media, because the paper paradigm will have disappeared.

The present stranglehold on the market by the commercial scientific publishing sector seems to be unsustainable. Even modest annual price increases over general inflation will lead in a relatively short period to the inability or unwillingness of institutions to pay. The business models must therefore change in the interests of both suppliers and consumers. The Open Access movement can be a lever in this process, but cannot of itself be the total solution, which will need resolute action by the research community.

It is inevitable that libraries which are specialized in the natural and exact sciences and which have no archival mission will go e-only. For purely research libraries in those disciplines the library as a place comes seriously into question. For those with an education mission they will transform into learning centres focused on student-centred learning. For multi-disciplinary libraries there are no credible signs that the library as a place will disappear, for books and other non-digital resources remain important for the humanities disciplines and for the preservation of heritage. This does not mean, however, that even those libraries must not change, for it is clear that the behaviour of users is radically changing in the Internet age and the changes we are seeing in libraries as a result of e-journals are only the start.

Summary

- E-journals have become the dominant form of formal scholarly communication within a short period.
- Market consolidation and big deals have led to much wider access, but also to quasi-monopolistic practices, which are not sustainable.
- The customers responded by forming consortia which can bring significant benefits through collective negotiation. Consortia and consolidation have largely squeezed out intermediaries.
- The total cost of access to e-journals is lower than the total cost of ownership of print journals
- For business planning big deals pose significant budget challenges. Administration is more complex, but logistics much simpler or even eliminated.
- In the natural sciences e-journals can bring the library as a place into question.
- Long-term access and preservation of e-journals are not a solved problem, but trusted repositories may provide the solution.

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