Some Recent Issues on the Business of Journal Publishing: An Independent Point of View

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Abstract

The electronic revolution has forced all publishers of scientific journals to redraw their business models. New technologies have enabled drastic changes in journal production and distribution, and created the opportunity for new features in the electronic editions of traditional paper journals. During that process of adjustment and change, some of the most prestigious commercial scientific publishers have gone under, or have been absorbed by larger publishing companies, some even by media giants with no previous tradition in academic publishing. In my article, I will discuss some of the more recent developments in journal publishing, and where the decisions made by a typical independent journal, the Houston Journal of Mathematics, have been quite different from those made by large commercial publishers. In particular, I will address important new developments that have been initiated by commercial journals: `Pay-Per-View` and the related trio of `Data Object Identifier, CrossRef and Metadata`. The core of my article will address the problem of archiving older issues. I will explain why `HJM` found it more advantageous to go ahead in establishing a digital archive using its own funds instead of waiving copyright restrictions in exchange for having this done for free by one of the designated `Digital World Libraries.`

1 Various Ways to Sell a Journal

Traditionally, publishers have been selling journals to libraries as volumes of annual subscriptions. Besides providing books and journals for the faculty, libraries played the primary role in archiving and preserving printed material. While this is still true for paper editions of a journal, the role of a library for its electronic holdings has turned out to be radically different. Currently, a subscription to an electronic edition only means that individuals who are affiliated with the subscribing institution can have direct access to document files. The library does not own any files and, in most cases, is not permitted to download files in any systematic fashion. With respect to electronic editions, libraries are *agents* of their clientele. This situation has given major commercial publishers the idea of offering an alternative to full subscription of a journal:

`The Pay-Per-View` option. For a fee, any person can download an article he is interested in. Some publishers even go further. The freely available abstract of a paper may not be fully self-contained, for example because of not explicitly given references. Or if posted in TEX, it may contain illegible user-defined macros. Thus, they offer, of course for a charge, an *enhanced* abstract, that is a `PDF` file of the abstract, bundled with the list of references.

If a a publisher decides to follows the trend of selling articles of a single issue, or even segments of individual articles, then this must have serious repercussions to the whole journal operation.

In the next sections I will describe the decision-making process and the consequences of those decisions for an independent journal, `HJM`, of which I am the editor.

2 Some Thoughts on the Pay-Per-View Option

`Pay-Per-View` is gaining popularity. It is now not only offered by major commercial publishers, like *Elsevier*, but also by large academic publishers, e.g., *Cambridge University Press*, and for some journals participating in *Project Euclid.*[1] For a flat fee, any article can be purchased through the internet by a simple credit card transaction. However, according to the findings of [11, p. 6], a 2001 study conducted by Stanford University Libraries, this option is surprisingly unpopular. According to this study, only 12% of the control group have used this feature, and found it useful. Urgent need was given as the main reason for using `Pay-Per-View`. Of course, "urgent need" means something different, say for a person in the medical profession, than for a mathematician who only wants to know whether an article overlaps, or might be useful or not, for his research. This survey included a variety of university professionals, so, if restricted to the group of research mathematicians, the need for `Pay-Per-View` might even be lower.

For a library there may be one particular reason for support of `Pay-Per-View`: Cancellation of an expensive journal may be less painful to the faculty. However, collaboration of the library with its subscription agency, or the publisher, may be necessary, in order to set up a system where a portion of the journal budget can be used by faculty for `Pay-Per-View` purposes. For non-academic institutions, `Pay-Per-View` may evolve as a convenient option to provide its employees access to diversified information without carrying the expenses of maintaining a library. However, at this time, the major subscription agencies offer `Pay-Per-View` only to academic libraries and then only to those libraries that subscribe to their electronic journal services. That is, non-academic institutions and individuals are excluded. Moreover, these agencies, as well as Project Euclid, do provide `Pay-Per-View` only as part of their own and in most cases rather generic WEB hosting service. It looks like that if a publisher wants

[1] Project Euclid is a conglomerate of some independent and societal publishers. It is run by Cornell University.

to provide Pay-Per-View for individuals, it has to be made available on the publishers Website.

It should be obvious that for inexpensive journals Pay-Per-View may not be an attractive option. While journal prices vary tremendously, e.g., on a price per page basis, the flat Pay-Per-View rate for downloading an article published in a mathematics journal ranges currently from \$15 to \$30, regardless of publisher and journal. Articles in mathematics are, in general, not very long, fifteen pages is about average. This means that the cost per page ranges between \$1 to \$2 per download. This is not totally out of step for expensive journals where a price of \$1 per page is not unheard of. For independent journals the existing price per page is much lower, about \$0.1 to \$0.17, so Pay-Per-View doesn't make much economical sense: For the price of a few downloads, a library could buy the whole volume, together with unrestricted electronic access.

Now, Pay-Per-View is not only an economic issue. Because authors have signed a copyright transfer form, publishers probably have the legal right to sell for profit an author's work indefinitely, and an unlimited number of times.

This is certainly at odds with the fact that in the past authors have received a generous number of reprints of their work. Besides that, in most cases, authors now possess electronic files of their papers. As I see it, Pay-Per-View has the potential to interfere with the academic tradition that an author should feel free to distribute his published work in form of sending reprints to colleagues, or answering requests of interested parties. Whether an author mails reprints or e-mails a file should be of no concern for the publisher. And, indeed, some journals, like HJM, provide authors not only with reprints, but also with the final and official PDF file of their work.

In contrast to this kind of policy, at least one commercial publisher, *Wiley*, no longer provides free offprints. Instead of offprints, authors receive a probably specifically prepared low resolution (300 dpi) PDF file, from which they are allowed to prepare only a limited number of printouts.

For publishers that offer Pay-Per-View, other problems can arise. An article that is put up for sale has attained an economic identity. For this reason, e.g., for simplifying the process of invoicing, every article could be assigned an identification number. Because publishers may change hands, an independent agency might assign these numbers which are then permanently affixed to articles, like barcodes. Such an identifier could also be useful for indexing purposes, that is, simplify the work of reference organs, search engines etc.

A group consisting of mainly large commercial publishers are therefore endorsing the organization that created the Data Object Identifier (DOI). Related to DOI, are Metadata, and CrossRef.

Now one knows for sure what effect these developments will have on mathematical journal publishing. But for independent journals which have to operate under strict budgetary constrains, a cautious, but also critical approach, is certainly warranted.

3 The Problem of Assigning ISSN Numbers for Electronic Editions

On a smaller scale, an identifier problem has been around for some time. Namely, should one assign the same ISSN number to different forms (e.g. in print, on the Web, or on a CD of the same article. Resulting editions are rarely identical. For example, the electronic version of an article may show graphics in color that the print edition is missing. The electronic edition may also provide features, like hyperlinks, or even animations, that are meaningless for print. Do these inherent differences between print and electronic editions justify a separate ISSN for electronic versions of a print journal? According to the ISSN organization, the answer is yes: *"When a publication is published in different media, with the same title or not, different ISSN and key titles shall be assigned to the different media editions."* However, the wisdom of this rule is still very much under discussion. The primary purpose of ISSN should be to identify a journal. With respect to content, print and electronic editions are essentially the same. An electronic edition can provide only an enhancement of form and presentation. Thus, one could argue that the electronic edition is very much like a CD included in a book. Interestingly enough, in this case the ISSN organization decided differently: *"However, the same ISSN can be used for different file formats (ASCII, PostScript, Hypertext) of the same online publication. The same applies for a multiple physical format publication (for example a print publication with a CD-ROM included or a Video recording) where only one ISSN will be assigned."*

In case where a CD is included with the price of the book, the CD itself does not have an economic identity, and this might be the reason that it can share the ISSN of the book. However, the use of the CD in a book is in general restricted by a license agreement, as it is the case for on-line access of print journals.

In mathematics, all of the major reviewing and AI (Abstracting and Indexing) organizations (*MathReviews, Zentralblatt, ISI*) now work, if possible, from electronic editions and certainly take it for granted that they are covering the same journal articles, whether they are in print, or in electronic format. Thus, HJM decided that currently there are no compelling reasons to apply for a separate ISSN of its electronic edition.[2]

The working document [9] contains interesting thoughts on the topic of ISSNs for electronic versions of printed journals.

[2] One must not forget that the ISSN of the electronic version is also a "dumb" number, not related in any way to the ISSN of its printed counterpart.

4 Data Object Identifier, CrossRef and Metadata

The problem of assigning ISSN numbers for electronic editions of print journals is at the moment an academic rather than a pressing issue. There is currently no need for multiple ISSNs because libraries and subscription agencies are not asking for them. If the situation changes, an additional ISSN can easily be added afterwards to existing WEB pages of electronic editions.

For DOIs, the situation is quite different. The DOI applies to individual articles and is attached to all of its versions, including the printed version. Through *agents*, e.g., CrossRef, a publisher can register with the DOI organization and is assigned a unique *prefix*, like 10.1007. This prefix is followed by a *suffix* which the publishers determines according to recommended, or their own rules. It can be arbitrarily long, resulting in something like

10.1007/s00211-003-0460-2

for a particular article. This number must be registered to the DOI organization which will keep track of all URL's associated with this article, even if publishers change hands:

http://dx.doi.org/10.1007/s00211-003-0460-2

then serves as the URL of the aforementioned DOI which currently identifies an article in *Numerische Mathematik* within the Springer Link. Even if Springer should change ownership[3] again , the article still can be found through its DOI, while the actual URL may have changed.

Such service, of course, costs money. There are annual fees, and fees for each and every registration. But, more importantly, a publisher also needs personnel for the creation of the suffices and the proofing process.

Another organization, CrossRef, provides for scientific publications interlinking of documents using DOI as reference points, but only amongst its members. Thus, CrossRef might very well be perceived as the commercial counterpart of freely accessible open archive initiatives, e.g.([4]).

In the field of mathematics, the research literature is covered by *MathReviews* and *Zentralblatt der Mathematik*. If publishers change, these reviewing organs may have to update links from the review to the publisher, or in some cases even to the reviewed papers. It appears that the DOI organization and CrossRef can provide a valuable service to these reviewing organs. This may explain why the AMS endorses CrossRef and DOI. Not only are all articles of AMS journals registered with DOI, the AMS has even provided a template for DOI registration that other publishers, especially the independent ones are free to use ([1]).

On the other hand, the AMS has sent out mixed signals. For example, *Bodil Branner*, president of the Danish Mathematical Society, chaired a panel

[3]Through the recent sale of Bertelsmann/Springer to Cinven and Candover, it looks like that Kluwer with its about 700 journals will merge into Springer.

discussion during the *AMS Scand 2000* conference, on which *Donald G. Babbit*, AMS publisher, explicitly stated: *"...However, the library community seems to be very wary of the current form of the proposal: the main participants are the large commercial publishing houses, and the fees involved are potentially a burden for smaller publishers. The AMS has withdrawn from the DOI scheme and now supports the review based model..."*

I guess what Babbit meant with *review based model* is a rudimentary implementation of reference linking by adding `MathReview` numbers to references. Authors of mathematical papers have been encouraged doing this now for more than thirty years. But did mathematicians actually do this? A quick check for HJM revealed that for the years 2000—2003 less than 1% of authors included such identifiers in the list of references. Because HJM has always had a policy of not editing bibliographies, this low number is an indication of how mathematicians think about the potential virtue of electronic linking through `DOI`'s. As I see it, the idea of using the `DOI` for other than accounting purposes will fly only if mathematicians will start adding `DOI`'s to references. Chances that this is ever going to happen are probably close to nil. Thus, I certainly feel that for independent publishers of mathematics journal there are currently no tangible advantages of joining `DOI` through `CrossRef`.

With respect to `MetaData`, indexing and reviewing organs are free to harvest those, including the abstracts, from our "Electronic Editions", where everything is in HTML format. However, the design of our electronic editions is more visual than structural. As users, we had mathematicians in mind and not the AI community.[4] HJM provides all electronic document files to the recognized reviewing and indexing organizations for free so that they can be used for bibliographical and other statistical analysis. However, so far HJM has refused to provide any specially prepared material to subscription, or other for profit agencies for the purpose to be included in their Web hosting or document delivery services.

In conclusion, HJM maintains a wait and see attitude toward the trio of `DOI`, `CrossRef` and `MetaData`. As it stands, I feel that for an independent journal there is not much to be gained by joining `CrossRef` for `DOI` registration and consequently adhering to certain `MetaData` forms. There are also good chances that other, less commercial and more flexible approaches will prevail.

5 Should Independent Journals Do Their Own Electronic Archiving?

Currently, two of the most prominent commercial publishers, *Springer Verlag* and *Elsevier*, have come up with answers that are different from those HJM has made. Springer wants a designated library, the GDZ in Gőttingen, to do the digitizing of most of its journals and make those available for free, while Elsevier wants to create an archive as an additional commercial unit. For the AMS,

[4] For example, all abstracts of one issue are on one page. Of course, the AI community prefers to have already individual files for abstracts, and not only for papers.

JSTOR does the digitizing for all of its print journals. This rather diverse state of affairs is described in [7] and commented on by John Ewing [6]. The situation is confusing because about a dozen publicly funded organizations are pursuing the same goal, namely digitizing journals of the pre-electronic age. The dominant file format is PDF, obtained from pages that have been scanned as images in standard graphics format, like `tiff` or `gif`. Most of these organizations, but not all, have added `Optical Character Recognition (OCR)` to make documents searchable. While independent journals could wait till they get invited to provide content for larger organizations, e.g., through *EMIS*, some independent and smaller journals have already done their own digitizing without much fanfare. The *Michigan Mathematical Journal* is an example of an independent journal that has already been digitized from 1952 on.

Now, how important is it for a journal to provide back issues in electronic form? In the field of mathematics, the older literature has always been valued. Indeed, this appreciation for the past literature is given as primary reason for building *The Digital Mathematics Library.* The same study [11] which concluded that `Pay-Per-View` is not very useful, found that for e-journals, lack of back issues is a big problem.[5] Thus one can conclude a certain urgency for mathematics journals to start digitizing their older print issues.

If a journal decides to go ahead doing its own digitizing of older volumes, certain decisions have to be made upfront. First, one has to set priorities, and then define standards. I think top priority should go to screen appearance, and to the quality of printouts. At this point in time, for mathematics documents, the PDF file format seems to be the only realistic contender.[6] If one decides on the PDF format, then one not only has to choose a resolution, but one also has to decide on additional features, like providing for some search capabilities. And what should be the smallest file unit, e.g., for WEB posting? Should it be a page, an article, issue, volume, or even a whole set of volumes? I think that individual articles should serve as file units. It looks like that OCR for adding search capabilities may not be terribly important. To see that, one must not forget that in almost all cases, searches outside the publishers domain, e.g., searches on *MathSciNet*, *Zentralblatt* or *Google*, have already pointed to a particular title. Additional searches within the publishers domain then rarely will add anything essential. Thus, the content of a paper is all what is needed. But adding some basic search capability to PDF files has become standard and does not add much with respect to costs and file sizes. Moreover, in the future, more and more publishers may decide to have their journal files also stored outside their own domains, for example, at sites maintained by major agencies or libraries. These agencies will have implemented their own search facilities covering tens of thousands of their "holdings". Of course, it will be of advantage for a journal to be included for keyword and other searches.

[5] Hyperlinking in its various forms seems to be the most useful Online Feature [11, p. 4]. In the field of mathematics comprehensive linking is already more or less a reality with respect to reviews.

[6] For scanned images that contain lots of graphics and photographs, there are better choices, like DjVu.

Unfortunately, the quality of PDF files which have been obtained through scanning of hard copies is not always very high and certainly lower than of PDF files that have been produced through conversion from digital source files, e.g., directly from LaTeX. In his report [7] on *"The Digital Mathematics Library"*, *Allyn Jackson* does not make any evaluative statements. The *GDZ* in Göttingen uses for scanning 600 dpi, while *JSTOR* uses only 300 dpi. However, resolution provides only one quality component. Pages should appear straight and be free of distortion, a difficult task if scanning has to be done from uncut books. [7]

One of the the principal reason for choosing the PDF format is that every year mathematics journals alone produce millions of pages in PDF format, thus increasing the chances that PDF will remain the *de facto* standard of all digitized mathematics. WEB specific approaches, for example `SGML` (cf. [2]), offer advantages that are of no concern for journals where print, referred often to as the "original", and electronic version, have to look the same. In this respect, PDF really shines. Nowadays, the printing of documents is done from PDF files, anyway.

While the cost of scanning is not very high, files have to be processed, that is, they have to be named, stored and linked. According to [7], for some organizations, scanning comprises only ten percent of the total production costs and a figure of $2 has been quoted as the total for price per page.

However, if a journal has already established a full-fledged WEB site, e.g., one with a complete index of all published titles, then a great deal of organizational work has already been done, and close co-operation with the scanning service (the *digitizers*) can reduce substantially time and expenses needed for further processing. HJM chose a scanning service (PrincetonImaging) that employed programmers who could take advantage of the HJM Website architecture, in order to create for us the tables of content for all individual issues.

I feel that there are very good reasons why publishers should consider their own archiving. Just to name the single most important issue: Seamless integration of archived material with current electronic editions. This is important for continual forward/backward linking of related articles.

For independent journals, there might be some cost sharing with the library of the publishing institution. For HJM this did not work out.

Now, if older issues have been digitized, how should they be made available? I feel that full access to the archive should be free to those current subscribers who also have registered for electronic access, and therefore have signed the license. The same restrictions that have been spelled out in the license, that is primarily the exclusion of files for *Inter Library Loans*, should apply for the archive. However, for providing access to its archive, HJM will definitely consider the `Pay-Per-View` option. Unlike it is the case for recent

[7] With respect to mathematics, JSTOR covers only a rather limited number of very well known, mainly societal journals. Thus, chances that a mathematician finds undiscovered gems in old issues of JSTOR journals are low. One of the purposes of digitizing is to provide researchers convenient access to the older literature, especially to high quality journals that are not universally held. In contrast to JSTOR, which is considered as quite expensive, the freely accessible GDZ contains a much larger list of such journals.

files, Pay-Per-View of archived material should not pose much of a conflict of interest between the publisher, who is putting up for sale individual articles, and the author, who is distributing his work through reprints.

For non-subscribers, the price per download should cover possible handling expenses, plus a modest share to cover the journal's costs of production. Again, ILLs have no place in this business model where independent publishers of low-priced journals and subscribing libraries support each other for a good cause.

HJM will continue its policy where new subscribers will have immediate access to all available issues, regardless whether they had a previous subscription for them or not. This should serve as an enticement to subscribe to the journal. If a library cancels a subscription, all access privileges will be revoked, in order to discourage such an act.

Of course, one might argue that material presented on the WEB should be freely available in order to be effectively usable by researchers. John Ewing [6] argues along these lines. But he assumes that there are funding agencies which have financed the costs of archiving and are continually paying for maintenance of DML's or other portals. However, in the absence of such sources, I conclude that modest charges for users of archives are the best solution.

In general, archived editions will lack separate abstracts. Links to MathReviews and Zentralblatt could serve as a viable alternative. And, indeed, a few journals have already adopted this approach, for example the journals archived by Project Euclid as well as those in the French digitizing project, Numdam. On the other hand, one might argue that a review is not part of a paper and should not be linked to it. The reasoning is that a reviewer wrote his assessment of a paper with the understanding that it would be published only in the reviewing organ and not get permanently attached to the reviewed paper. When I confronted the board of editors with this issue, an overwhelming majority voted for my proposal not to provide links to reviews in MathReviews and Zentralblatt. However, linking reviews to papers seems to be more logical and should not pose any problems. Of course, a direct link to covered journals would already be very helpful, and this is what MathSciNet has already provided for a large majority of journals and publishers.

6 Management of the Archive and Delivery of Electronic Documents

The CD option was heavily promoted during the mid nineties but quickly went out of favor. One primary reason was that libraries didn't know what to do with them. Because most publishers prohibit libraries to use digital content the same way as printed material, libraries concluded that CD's could only be lent to patrons. However, in general researchers have interest only in particular papers and checking out CD's doesn't make much sense to them. Thus, even if CD's would be given away for free, e.g., as part of a subscription, most libraries wouldn't take them. The sensible alternative, namely storing CD's on local

servers requires more time and technical expertise than the simple process of creating a bookmark to the WEB site of a publisher. For a library, a bookmark is all that is needed, once an electronic subscription has been established. Actually, most libraries don't even do this anymore because they have access to electronic journals managed by subscription agencies, like Swets and Ebsco. Thus, there is no need whatsoever for a library to go through an annual ritual to add volumes to its digital holdings, because there are no real holdings. HJM learned the hard way (c.f. [8]) that providing a CD for 1998 was money wasted. However, the files on this CD established the beginning of HJM's archive.

As I have explained before, for HJM the archive is a a separate part of its electronic editions, consisting of files of digitized older volumes.

Some publishers are making their archives freely accessible, either on their own site,s or at sites of designated libraries, e.g., Gőttingen's GDZ for Springer journals, or Cornell for members of *Project Euclid.* In case of the GDZ, and most other such places mentioned in [7], one should not forget that publishers have only lifted copyright protection, they did not pay anything for creating the archive. Library and federal funds did. Thus, such designated digital libraries have a vested interest in maintaining their unique status and it looks like that these "mathematical world libraries" are not willing to share freely with other repositories their digitized holdings.

For publishers that have used their own funds to establish an archive, and are continually maintaining it, free public access doesn't make much sense. Thus, for HJM the most sensible approach was to provide free access to subscribers, that is to institutions which have been supporting the journal.

On the other hand, not only subscribers should have access to the archive. This has made `Pay-Per-View` a viable possibility. Thus, HJM might eventually offer "`Pay-Per-View`" and then primarily for archived material where offprints are not available or difficult to get. It should be thought of as a service to the mathematical community and will in no way change HJM's policy of providing free offprints and document files for authors to distribute their own work.

At this point in time, when it comes to electronic editions, libraries are only agents who buy temporary file access for faculty. It may be hard to believe that university administrations will be content forever with this kind of situation. Especially when electronic versions of research journals will push their printed counterparts to the sidelines, that is to remote repositories, and eventually replace them altogether. One could make the point that the library of the future should have more to show for the money than just a book of contracts. But why should libraries not "own" files as they have been owning printed material? While the nature of electronic media has created certain legal issues, for example more stringent copyright restrictions, this should hardly mean that there can be no longer any "real" return for the money. For a library, "real" can only mean to have possession of files, and the right to use them in any appropriate way, as long as they stay on the premises, and are not mutilated, changed, or used for Inter Library Loans or commercial purposes.

Thus, HJM will consider the possibility that libraries can buy the whole archive. It could even be offered on a CD which has been designed as an

"offline" Website. Once loaded on the library server, older issues would become available near instantaneously, while request to newer files would launch an internet connection.

But are libraries going to buy electronic journal holdings? According to what I learned by corresponding with librarians, it just doesn't look that way. It seems to be the case that currently at most 30% of those libraries that subscribe to a print edition opt for electronic access, even if electronic access comes at no extra costs. One can expect a much smaller percentage of libraries to show interest in keeping possession of electronic files. There might be a dilemma: Smaller libraries in general do not have the IT personnel for handling large numbers of document files, while large libraries (e.g., `Digital World Libraries`) might be afraid that requests from smaller libraries for documents might lead to copyright violations, in case their holdings include restricted electronic material.

However, it may very well be the case that eventually subscription agencies, or even booksellers will evolve into places of universal electronic holdings. For printed material, the *Institute for Scientific and Technical Information (CISTI)* which is the library of the *Canadian Research Council* has already evolved into an international journal delivery service. It is not unreasonable to expect a similar service to evolve for electronic material.

7 Conclusion

As I have pointed out, business decisions made by independent journals may differ from those made by their commercial counter parts. This is understandable: Commercial journals are under the obligation to maximize profits[8], while independent journals only have to meet their rather modest financial obligations.[9] The recent developments of `DOI`, `Pay-Per-View` and Archiving older issues have a commercial, as well as an academic aspect. Thus these developments ask for a critical evaluation, and where there are conflicts between monetary advantages and academic values, different outcomes can be expected. Thus most independent journals ignore `DOI` and `Pay-Per-View`, at least for the time being. Members of Project Euclid are the exception. In the past, only libraries did the archiving, but, of course, only of printed material. Speaking from experience, I feel that smaller and independent publishers are in a splendid position to arrange for their own digitizing: Costs are not prohibitive, and file storage shouldn't pose much of a problem. Thus, by having everything under one roof, Websites of independent journals may provide quality features that larger commercial, or even societal publishers may have difficulties matching. While aggressive pricing of commercial journals is not only meant to increase their profit, but also to push out smaller and independent publishers, it doesn't appear that commercial journals will succeed with this plan anytime soon, see

[8] According to published figures, the annual profit of Springer Verlag exceeds $\$1,000,000$, the new owners have promised to double this amount.

[9] For most independent journals about $\$60,000$ will suffice to cover annual expenses for one journal; it can be considerably less if there is no printing involved, or no regular staff to pay.

[10]. With their nimbleness and dedication solely to the academic good, it looks like that despite many problems all journals are facing these days, independent journals have many reasons to feel optimistic about their future.

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