

WHAT TO DO WITH A MATH JOURNAL?, MUSINGS ON A BUY, HOLD, SELL DILEMMA

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Imagine, if you will, that you have just inherited a moderately successful print and electronic math journal - what would you do with it? Do you buy in and invest for a sustainable future? Do you just hold on and see what happens? Or do you see if you can just sell it off and take the money and run? If you are holding your journal in one hand and your smart phone or tablet in the other, might your inheritance be more trouble than it is worth? Indeed, might the dead weight of your print journal be an epitaph?

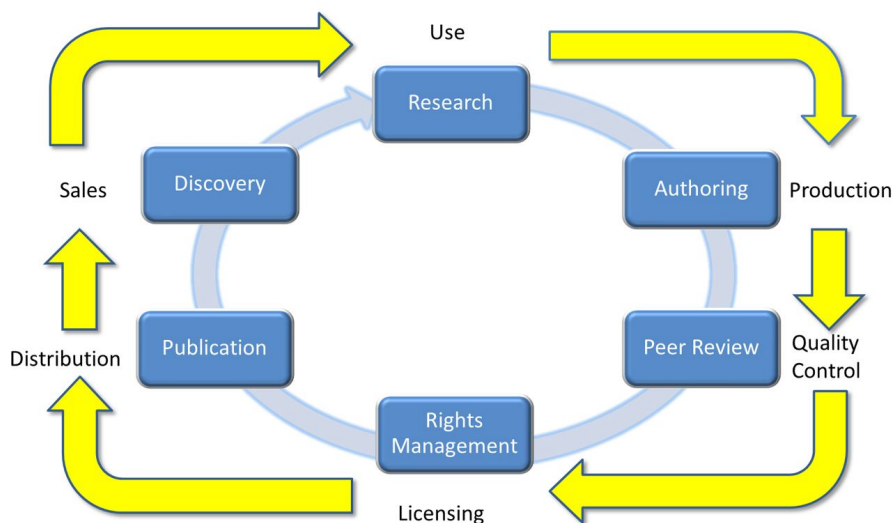
How you address the buy, hold, sell dilemma will largely be dictated by who you are - which in the math (or academic) publishing world means that you are either a commercial publisher like Springer with a couple of hundred math journals, a math society or organization like the AMS with a dozen or so publications, or a university department like University of Houston that publishes just the Houston Journal of Mathematics.

Whatever the entity, there are some basic considerations that can be examined. What is the value of research or research publication? How many journals are there? Who are the publishers? What are the issues? What are the influences? And where are journals heading? While these considerations are admittedly quite selective and limited, they do serve as a quick not-too-rigorous proxy for an assessment framework.

1. JOURNAL VALUE PROPOSITION

The strategic value for the production and use of research can be somewhat simplified to six fundamental stages:

K. Kaiser, S. Krantz, B. Wegner (Eds.): Topics and Issues in Electronic Publishing, JMM, Special Session, San Diego, January 2013.



From a production perspective:

- A researcher undertakes research and uses research;
- Which hopefully leads to the production (authoring) of new research;
- The quality of which can be validated by peer review;
- Which is subject to how the rights to that research are managed;
- Gets distributed (published);
- And if useful (discovered), gets sold;
- And, in turn, is used to fuel more research.

This is a fairly straightforward and solid value cycle, so at least the notion of a math journal still seems to make sense.

2. THE MATH JOURNAL POPULATION

Math first began appearing in the early journals of the mid to late 1600's and by 1800 there were just over 200 journals with some content. The first math journal appeared in 1810 and by 1899 there were about 950. Today, MathSciNet links to over 2,000 journals while SWETS estimates that they index more than 8,700 math-related journals. Suffice to say that there are lots of math journals being published. Would one be missed if it disappeared or would anyone notice if a new one popped up? Given the number of existing math journals and journals with math content, it is hard to imagine that there might be much interest in

adding another journal or much concern about the loss of a journal (eminent journals being the exceptions).

2.1. The journal publishers. Journal publishing is heavily dominated by large commercial publishers that publish journals from across the academic spectrum with math being a relatively small sector. Springer lists almost 200 mathematics journals, while Elsevier lists 121 journals with mathematics and Taylor and Francis lists 86 mathematics and statistics journals. At the same time, academic societies publish far fewer titles with Cambridge University Press listing 29 journals, the American Mathematical Society involved with 15 journals, and the London Mathematical Society supporting 12 journals. The rest of the field is pretty well left to groups producing one or a few journals.

2.2. The journal issue. Perhaps the biggest issue in academic (including math) journal publishing is Open Access (OA) quite simply giving anyone and everyone some form of free access to research. Whatever model of OA is employed and however it evolves, about 60% of published research is expected to be shortly under some rubric of OA. The introduction of OA also changes the revenue model for publishers. While OA advocates see OA as unshackling research from expensive commercial bundles of research, it can also be expected to have a major impact on society publishers that rely heavily on publishing revenue to underwrite their activities. Given that government is expected to pay for OA, OA also represents a government incursion into the marketplace who is to say what the cost of putting research into OA is or should be. While Springer lists OA charges in the thousands of dollars, discussion at the 2013 Joint Mathematics Meeting bantered about some costs as low as \$40 to \$50. Furthermore, OA is opening up a whole new segment to journal publishing the OA publisher that, for a fee, will essentially publish any research - a kind of vanity research publisher that, other than quantity, adds little to the research community. At the current stage of OA evolution, it is not that unusual to find research published in a commercial journal that is available for a fee (subscription or one-off) and at the same time can be sourced elsewhere for free.

There is also some collateral damage to be expected from OA. For any given amount of funds set aside for research, if OA is to be supported, it will diminish the amount of funding available to actually do research. In Canada, for example, while OA publishing costs are an eligible cost against research funding, there has not been an increase in research funding to offset the added cost of OA publishing. In effect, OA shifts the cost of publishing from the subscribers to the producers and making the researchers pay means less research is undertaken. Faced with

a funding squeeze, a researcher might be tempted to publish in the lowest cost journal that still supports a credible peer review process instead of the best quality journal available. As a trend, this may have a major impact on research quality overall. At the same time, a cheap easily accessible source of OA publication may also make it easier for research to be published that might not otherwise have been accepted for publication contributing little more than ‘noise’ in the collective research library.

3. OTHER JOURNAL PUBLISHING CONSIDERATIONS

Large commercial publishers traditionally maintain and grow their market share through ‘Big Deal’ bundling or aggregating their stable of research publications, giving libraries a ‘one-stop’ source, a bundled discount subscription price, and increasingly more important, access to their research database. The ‘bundle sale’ has evolved into essentially selling multi-source aggregated research access rather than simply providing a collection of subscriptions. Meanwhile, after the commercial publishers have secured their share of subscription budgets, the society and ‘one-off’ publishers must compete for whatever leftover funding might be available.

At the same time, the technical and operating barrier to entering the math journal publishing business is not very high. As an entity, like a website or a blog, journals can be incredibly easy to launch to do so profitably, is another issue. If your journal is a labour of love then it relies on goodwill and volunteers and probably the infrastructure support of your faculty. If your journal needs to make ends meet, then you need decent citation rates and impact factors which necessitate good quality research that can only be secured by a credible editorial board and peer reviewers and you will need to compete with other journals for eminent colleagues to support your journal.

3.1. Influencing journals. Today, any consideration of journal publishing needs to also look at the developments at the margins that can affect content.

In December 2011, Apple was granted a patent on the idea of gathering search results and presenting them in a ‘unitary interface’ and then in November 2012, Apple was granted a patent for the ‘virtual page turn.’ So how you collect, present and format content may need to be licensed and paid for.

The world of Google Now develops user profiles and predicts and readies what you probably want (and what people supposedly like you probably want) to know. So will predictions of content interest limit choice and influence production?

Penguin and Random house, two of the world's big 6 publishers, are merging. Like other sector consolidations, there will be more content control in the hands of fewer conglomerates. Meanwhile, Tor Books, the world's largest science fiction publisher, has announced that it would be eliminating Digital Rights Management. So will consolidation content help or hinder access?

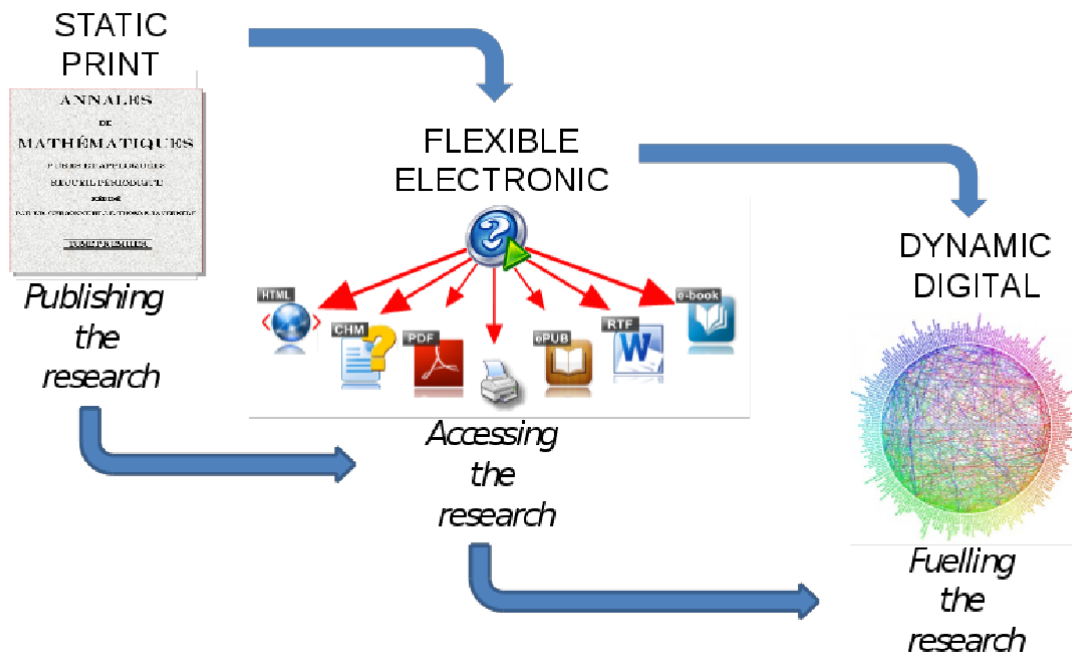
In 2011, it was estimated that there was 1.8 trillion gigabytes in 500 quadrillion 'files' and this was more than doubling every two years. And IBM has been cited just recently as observing that 90% of our data was created in the last two years. So will we be overcome by the sheer volume of content? Fortunately, combing through that growing pile of content, day and night, are a multitude of apps in search for something of relevance. So not only are there human searches, but about half the searches are now being app driven.

In March 2013, there was a lot of media coverage for the Yahoo acquisition of Summly, an app that condenses content. Meanwhile the growth in mobile devices is such that it may soon overtake the number of people on earth. So, by broad extension, people (read researchers) will be able to connect whatever they want, wherever they want, whenever they want, and find (to one degree or another) what they want.

And lastly, in March 2012, it was reported that Germany started work on a law to make search engines like Google and aggregators pay content producers. So whoever is freely aggregating content may now have to pay to value-bundle someone else's information. Then again, if it is being provided for free, chances are that you are the product and there is a price on that.

4. JOURNAL EVOLUTION

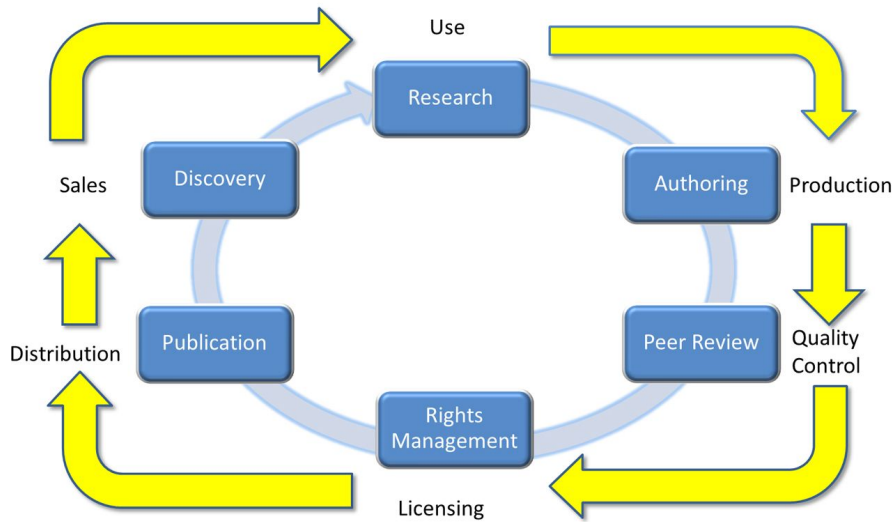
In the beginning, we had the word and the static print page age that was supply driven, pushing print, and product focussed and this produced the printed page. This evolved into the flexible electronic age that was control driven, pushed the accessibility, and produced web access. And in turn, we are now into a very dynamic digital age that is demand driven, pulls content, and is service focussed. So we have gone from publishing the research, to accessing the research, and now fuelling the research.



As we move forward, there are some potential interesting context changes:

- From activity control ... to open and digital mode;
- From a business ... to a social enterprise public good;
- From a commodity ... to a service;
- From a supplier ... to a facilitator;
- From a customer ... to a community member;
- From electronic publishing ... to digital dissemination;
- From periodic ... to 24/7;
- From aggregating ... to curating; and
- From what you have ... to what you do with what everybody can get.

These type of context changes can be transformative to the publishing and value propositions.



Instead of rights management, the focus starts to become registration and identifiers. Instead of publication, the focus is on dissemination. And instead of discovery and sales, the focus is on collecting and selection. With these characteristics, journals are no longer required as we move to streaming research.

5. ASSESSMENT

Given the musing herein, some rather common sense assessments can be formulated.

The value proposition of research and research publication is strong and likely to continue.

There appear to be more than enough print and electronic journals in existence across the mathematical sciences.

The publishing community is and will likely continue to be globally dominated by a few large corporations controlling a very large portion of journals.

Open Access promises to be a real 'game changer' to publishing profitability for both commercial and academic publishers.

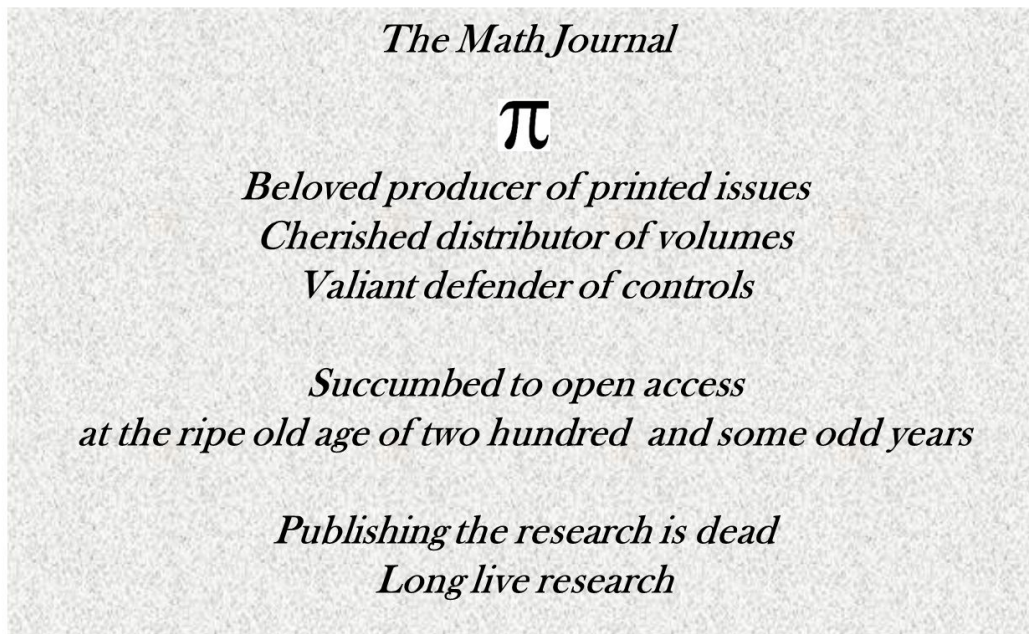
Research publication developments will be digitally, not electronically based.

Evolution suggests the final transformation from a print controlled product to a research facilitation service is nigh at hand.

And finally, contextually, static research journals will be drowned in research streams.

In a dynamic digital world, while the print journal can be relegated to a commemorative option on a print-on-demand basis, the research itself, however, will endure. So what replaces the journal? With research streaming, the notion of a journal package becomes a quality branded research portfolio stream distinguished by the quality of the peer review and availability and access.

So the future of the age-old print research journal is little more than two editors-in-chief, a funeral, and an epitaph:



6. BUY, HOLD, OR SELL?

Today, if you wanted to cover the full spectrum of research, you might subscribe to the Springer, Elsevier, and Taylor and Francis offerings and throw in MathSciNet for good measure where a few well-crafted searches should capture your interests. Meanwhile, the entirety of current research, in one version or another, could be available in various archives. You could find what you are interested in if you know all the places to look as well as how to look.

In the world of housed and/or open access publishing, if your stand-alone journal is safely ensconced inside a commercial 'bundle' and database, you can expect your profitability to diminish as open access takes hold so hold on to what you have. If your stand-alone journal is indeed stand-alone, then better hope it is a labour of love and sell if you can. And if your journal is still just wishful thinking, be prepared for years of free labour as you compete for research subscribers and clamor for citations and impact factors and enough interest to warrant a subscription contribution or an adoptive corporate bundler somewhere down the line so buy in if you will and expect nothing more than a labour of love!

Johan Rudnick is the Executive Director of the Canadian Mathematical Society (director@cms.math.ca) and these musings are based upon his January 10, 2013, presentation at the AMS Special Session: Topics and Issues in Electronic Publishing, 2013 Joint Mathematics Meeting, San Diego, CA.

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