



Open Access: Opportunity or Hype?

Several years ago, some U.S. funding agencies mandated that publicly funded research should be freely disseminated to the public.

The ever-rising costs of academic journal subscriptions and publishing coupled with the financial downturn led some major universities to revise their libraries' business models. These institutions publicly announced that they could not keep up with the costs, and so they would favor open access. Both of these events spurred the current fever of open access, as evidenced from the high number of journals making all of their articles freely available. Even the IEEE is launching a mega open-access journal with light review. As members of the scholarly research community, we should be prompted to ask: Is open access opportunity or hype?

In late 2000, I was working with a start-up publisher on a journal for the European Association for Signal Processing (EURASIP). A major concern we faced was how to get people to pay for subscriptions to absorb the publishing costs. We knew it would not be easy since it was a non-IEEE journal and without a brand name. A business model could work immediately with low-entry barrel open access. This model would rely upon the authors paying to have their work published rather than the subscribers paying to read. Why is this model easier for a start-up publisher? Because an author has incentives to pay to publish his/her work, while few readers would pay to subscribe to a small publisher or unknown journal.

Does such a model make sense? Well, it seems that it could work as long as authors are both willing to pay and able to afford it. Yet it does seem to violate the fundamental economic principle that the consumers (readers/subscribers) should pay. In this model, the content producer

(author) is paying for the cost to make it freely available to the consumer. Isn't it strange that the buyer now has no role to pick and choose in the balance of demand and supply? The buyers are now the sellers in open access!

More than a few issues arise in this model. First, can open access replace the current paradigm of publishing by changing the payment structure from subscribers to authors? If the costs are too astronomical for institutions to bear, then how can they be borne by comparatively poor individual authors? It just does not add up! Therefore, it is unlikely that all journals will become open access journals, for individual buying power cannot replace that of institutions.

But it makes sense for publicly funded research to be freely available to the public, right? One should bear in mind that the costs to publish (reviewing, typesetting, editing, printing) and to disseminate to the public are significant. So what is a fair price for authors to pay? The IEEE used to have a policy that would allow an author to buy an open-access published version of their article for US\$3,000. But there were few takers. Why? It was perceived as way too expensive!

Is this number outrageous? Under the current IEEE *Xplore* paradigm, a paper published in *IEEE Transactions on Signal Processing* will earn the Society about US\$3,200. Therefore, this order of pricing is what keeps the IEEE and Society infrastructure afloat. The monopoly position of IEEE publications in terms of quality and quantity allows for such premier pricing and earnings. Similarly, open access journals in biomedical areas also charge on that order.

However, the past few years have shown that this open-access price is not bearable in engineering! So, to accommodate a wider market, one option is discount the price to approximately US\$1,750 per article. Then, to make up for the loss in revenue

and to sustain the infrastructure costs, the number of papers published would need to increase. As such, we would find ourselves in uncharted territory where authors are eager to pay to publish and the publishers are eager to publish to make up the revenue. This scenario would create a negative cycle wherein the market force of demand and supply as balanced by sellers (authors) and buyers (readers/subscribers) may no longer function.

Yet, the assumption that the authors can pay is still questionable. How many authors are being supported by funding agencies to pay for big publication fees? If the journals are reserved for only those who can pay to publish, then the impact could be the creation of an elite group of authors favored by funding agencies or supported by countries of financial means. Wouldn't our ideal scenario instead be one where good researchers can publish their work, the costs for which are paid by the readers?

Open access does have its advantage in that it offers a low-entry barrel for a small/unknown publisher to become a player. Open access creates healthy competition and democratizes the playing field by allowing big and small to compete. It also offers a channel for the authors who can afford to pay to allow their articles to be read freely. Nevertheless, it does not solve all the issues in publications. Indeed, it also brings about its own new phenomenon and challenges.

So, will open access take over the known, existing publications industry and become the only paradigm that survives? Likely it will stay as a niche solution that caters to some with such a need. It may take over one day only when the poor (individuals) can pay for the rich (institutions)!