

## On the consumer market economics of scientific knowledge

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With an increased commercialization of traditionally public activities a significant portion of scientific communication has become subject to relatively uncontrolled market forces. Regulatory measures have not yet been developed although “there is evidence to suggest that the market for STM [Scientific, Technical, and Medical] journals may not be working well”, as was pointed out in a report from the [U.K.] Office of Fair Trading [1]. We have a situation, which is well known to the readers of this e-publication, where libraries have the role of middlemen between publishers and readers. So the consumers do not have a direct customer relationship with the producers (or their sales agents).

This business model creates a local market for the readers where the goods (STM articles) are free. In such a market microeconomic processes do not work; there is nothing to control demand, and libraries are under pressure to provide “everything”. We know, however, from studies of journal use that many STM articles are unread.

It can be interesting to speculate about how a real consumer market for STM articles would work; that is a market where the consumer makes the individual decision to buy an article. A more careful assessment of the likely value of an article will probably be made. Can such an assessment be made without seeing the whole article? Research on relevance judgement indicates that a pretty good judgement can be made on the basis of “document

surrogates", i.e. bibliographic records. Relevance judgments become more accurate if there is an abstract presented. Here we can see a potential dilemma for the producer: to increase the chance of a sale the abstract should give a good picture of the content, but not so good that it replaces the article.

To become paying customers the readers must have their own acquisition budget, and even though some readers will have access to plentiful funds there will still be a need to economize. The result can well be that a number of abstracts will be read without leading to a purchase of the article. These abstracts are then part of the background research for the work at hand, and can be part of the listing of sources. We can see "Abstracts" as a new type of source next to, for example, "Articles" and "Monographs". The acceptance of this new type of source will not be immediate, but as the microeconomic forces work over time it seems plausible.

The pricing of STM-articles can follow several models. "Value for money" is always a crucial factor for consumer goods. Hence a "good" article can merit a higher price than a mediocre article. The difficulty with this model is that the value of an article will depend on the context of use.

If the price is not differentiated and all articles have the same price there is a risk that the price will be too high (for the value) since a relatively small percentage of articles will have to generate the revenue to the producer.

"What the market will bear" is a frequently used pricing strategy. Since both producers and consumers in this new STM-article market lack reference models the likely pricing will be based on some cost level that looks familiar; something between the copyright clearing cost and the cost for an inter-library loan (ILL) copy might be acceptable

The consumer market model for individual articles threatens one of the three pillars for the power of the commercial publishers: that of bundling [2]. The producer surplus will be reduced, but there is no guarantee for a consumer surplus.

The model would totally redefine the role of libraries, and it would put a lot of new work and responsibilities on the readers. The magnitude of the change will probably make the transition very slow. But a continued economic pressure on the libraries will make them leave the "big deals", and this will increase ILL-traffic which can be seen as a step towards a consumer market.

Most of the economic battles in STM-publishing concern new information: The selling of new articles (actually new journal

issues) is the primary business of commercial STM publishers. To respond to pressures demanding online availability without losing the profits from new information publishers introduce delays in alternate channels in the form of "embargos" or "moving walls". These "value subtracted services" (the opposite of value added services) have a much lower price, but are unreliable since journal titles can be removed from the packages at publishers' will.

However, for science permanence is of essence. In fact, permanent access is a requirement for an electronic work to qualify as part of the record of science [3].

The economic interest in back files of articles is much less than for new articles. Demand is very scattered over time, and since the percentage of demanded articles is low it is difficult to make money on this material. Some publishers have made agreement with publicly funded institutions to guarantee long term availability of articles.

Public institutions can sometimes offer services free, but a large scale archival database of scientific articles will have high costs for technology. In addition there is a need to build an infrastructure of "trusted repositories" [4] and this will add to the cost. So it can be expected that the repositories will have to do some cost recovery from access fees. If these fees are cost-based the consumer marked forces will drive the cost down so that it corresponds to the market value. The way to achieve lower cost is to adjust the service level. Consumer power in the market for archival articles is potentially stronger that in the market for new articles.

These speculations about a consumer market for STM articles can be made irrelevant, at least for new articles, if the Open Archives Initiative continues to grow. The OAI community offers readers the freedom of selection and free access to articles. With the development of formalized quality indicators all three pillars for producers' power are within the scholarly community.

[1] Office of Fair Trading (2002), "The market for scientific, technical and medical journals - A statement by the OFT", OFT396, September 2002. Available at:

<http://www.offt.gov.uk>

[enter search for STM; verified 2004-08-10]

[2] The other two pillars are the intellectual property rights and the quality stamp from peer review.

[3] Frankel, M. S. et al., "Defining and Certifying Electronic

*Publication in Science", Learned Publishing (ISSN 0953-1513), vol. 13, nr. 4, (October 2000), pp. 251-258. Also available at:*  
<http://www.aaas.org/spp/sfml/projects/epub/define.shtml>  
*[verified 2004-08-30]*

*[4] Research Libraries Group (2002), "Trusted Digital Repositories: Attributes and Responsibilities," Final Report, May 2002. Available at:*  
<http://www.rlg.org/longterm/repositories.pdf>  
*[verified 2004-08-30]*

## **Svensk sammanfattning**

En ökad kommersialisering har medfört att en stor del av den vetenskapliga kommunikationen nu styrs av relativt okontrollerade marknadskrafter. Vi har en situation, välkänd för denna e-publikations läsare, där bibliotekarierna är mellanhänder mellan förlag och läsare och konsumenten saknar direkt kundrelation med producenten (eller dennes försäljningsagent). Det kan vara av intresse att spekulera i hur en konsumentmarknad för STM-artiklar skulle kunna fungera, d.v.s. en marknad där konsumenterna kan fatta individuella beslut om köp av enstaka artiklar. Då skulle man sannolikt före köpet göra en mer noggrann bedömning av en artikels troliga värde. Kan abstractet ge tillräcklig information för ett sådant inköpsbeslut och vilka faktorer skall avgöra artikelpriset?