EDITOR'S COMMENTS

Some Futures of the Marketplace for Journals

Subsequent to writing my September 2002 editorial statement on the AIS-*MIS Quarterly* alliance, some colleagues asked me to prepare an editorial statement on the future of journals. In my September 2002 statement, I attempted to spell out some characteristics of the structure and dynamics of the journal marketplace, especially from an economic perspective. I made some predictions about likely future outcomes in this marketplace to show some motivations for implementing the alliance between AIS and the *MIS Quarterly*.

For several reasons, it is easy to understand why information systems researchers might be interested in the journal marketplace. First, journals play an important role in disseminating information, and information as a phenomenon lies at the heart of our discipline. Second, information technology has had and is continuing to have an important impact on the journal marketplace. Third, the journal marketplace provides an interesting context in which to study some important e-business issues, especially appropriate business models. Fourth, some of us are concerned that current institutional arrangements are beginning to undermine our ability to access and use journals.

The economic issues associated with the journal marketplace are complex, the stakeholders sometimes present emotive and conflicting views, and often we lack good data to help us understand important trends and the reasons why stakeholders take particular actions. Accordingly, I am acutely aware of the risks one takes when making predictions about the journal marketplace. Moreover, please note that I am presenting only one perspective (primarily an economics perspective), and of course as researchers we ought to try to understand the journal marketplace from multiple perspectives. My hope, however, is that I might lay some groundwork that other colleagues who choose to work on the topic might find useful.

In the sections below, I have examined the journal marketplace in the context of five major stakeholders: producers of journal content, commercial publishers, online journal database vendors, libraries, and consumers of journal content. Other important stakeholders exist—for instance, employers concerned with establishing intellectual property rights. I believe the five I have chosen, however, illustrate some important issues that might concern us as information systems researchers.

Content Producers

Scholars produce the content for journals. They perform this function for at least six major reasons. First, they seek to disseminate the results of their work. Many, if not all, hope to make a contribution to knowledge, and they hope that their contribution will have an impact on their colleagues' work. They are motivated by altruism or ego or some combination of both. Second, as a related issue, many use journals as a means of "networking" with and establishing their reputation among their colleagues. This motivation is especially salient for younger scholars. Third, many scholars are attempting to satisfy promotion-and-tenure criteria imposed upon them by the institutions that employ them. Indeed, in some countries the rewards afforded to scholars by their institutions depend substantially on their publication record. Fourth,

having a high-quality publication record allows scholars to obtain resources to support their research. For example, the likelihood of scholars winning research grants depends in part of their publication records. Fifth, the prestige afforded to scholars, and thus their formal and informal power, often depends significantly on their publication records. Productive scholars are given important positions within their disciplines. To some extent they also become immune to the vagaries of institutional and disciplinary politics and whims. Sixth, by publishing their ideas in a journal, scholars establish ownership of the ideas (and perhaps even formal property rights to the ideas).

The motivation for scholars to produce content creates a *demand* among them for journal space. We have the somewhat anomalous situation, therefore, whereby the *producers* of the good (journal content) obtain value from the production that is not associated with the *consumers* of the good paying them for the good. If both producers and consumers obtain value from the good, an "efficient" outcome requires that both producers and consumers pay for the good. If the combined revenues do not exceed the cost of producing the good, it ought not be produced.

Unfortunately, the institutional context in which the market for journal space (content) operates is unlikely to lead to an economically efficient outcome. One reason is that scholars who produce journal space do not bear the full costs of their production (at least directly). For the most part, a scholar's institution and perhaps a research-funding agency bear these costs. They compensate scholars for their time and provide resources to support research. Such support is needed for good reasons. For example, because of the public-good nature of much research, scholars may be unable to reap sufficient private gains to justify their undertaking research. Under these circumstances, basic economic theory tells us that underproduction of research will be the outcome. Moreover, institutions and funding agencies often own the intellectual property associated with research and obtain reputation benefits from the work undertaking by the scholars they employ or support. In some cases, institutions are also funded (e.g., by governments) based on their researchers' productivity. Thus, the institutions and funding agencies ought to pay for the value that accrues to them. Scholars also do not pay for the costs associated with the review process. Their colleagues provide this service free of charge, except perhaps for a journal submission fee.

There are no free lunches! To the extent scholars' institutions, governments, and funding agencies are paying for the costs of producing research, less money is available overall to compensate scholars directly (e.g., via salaries and bonuses). Thus, scholars are paying indirectly for the costs of research that institutions, governments, and funding agencies are bearing. Because the cost signal is indirect, however, the effects on scholars' production activities is muted.

The institutional arrangements we observe currently are the outcome of a complex set of interactions among stakeholders in the research process. Stakeholders have had to confront the problem of dealing with a product (research) where market failure occurs because of its public-good characteristics. All face a conundrum. The public-good characteristics of research create disincentives that lead to underproduction of research. The subsidization of research, however, creates incentives to overproduce research. My own view is that we have not yet found effective institutional arrangements that somehow balance the disincentives with the incentives such that the "right" quantity of research is produced. Specifically, one reason I believe we have overproduction of journal space is that the full costs of providing this journal space are not borne directly by the scholars who produce the research that takes up this space.

Commercial Publishers

Historically, commercial publishers have provided attractive services to scholars who wish to publish a journal. First, once papers have been accepted for publication, they assume responsibility for producing

a journal (in hard copy and/or electronic form). They may also provide certain types of editorial assistance—for example, editing accepted papers to improve grammar and style. Second, publishers take responsibility for promoting a journal. They use their expertise to increase the subscription base and to maximize revenue from advertising in and sales of the journal. Third, they help manage a journal. For instance, they have systems in place to monitor the number of submissions, acceptance rates, rejection rates, sources of subscriptions, and so on. Editors are better placed, therefore, to act in a timely fashion to threats and opportunities that face their journals. Fourth, they provide important administrative services. For instance, they distribute a journal, manage the subscription database (issue invoices, collect revenues, process change of addresses, etc.), provide legal advice when needed, and process copyright requests. Fifth, they act as underwriters for a journal. They finance a journal's operations and bear the risk that the journal ultimately may fail. In this regard, they sometimes cross-subsidize a journal so that it can continue to be published.

My perceptions are that for some reason over the last decade publishers have become increasingly important stakeholders in the journal marketplace. I suspect the main reason is that publishers have realized the journal marketplace potentially is lucrative. They were quick to realize, for example, that they could improve the profitability of many journals they acquired through following a differential pricing strategy (charging significantly higher prices to libraries relative to the prices they charged individuals). The demand for journal space has also grown rapidly, driven partly by scholars who produce content (see above) and partly by scholars who consume content (see below). Furthermore, I suspect that scholars wishing to publish journals increasingly have chosen to use commercial publishers to assist them. Some of my librarian colleagues believe that many academics, learned societies, and university presses substantially underpriced their journals when they sold them to commercial publishers, thereby allowing the publishers to obtain high returns relative to the purchase price.

Commercial publishers have incentives to increase the size and diversity of their portfolio of journals. Up to some point, a bigger, more-diverse portfolio enables them to generate greater profits. It also allows them to better manage their risks. In this light, they have aggressively sought to establish new journals. They have also actively engaged in mergers with and acquisition of other publishers. These merger and acquisition activities have had the twofold advantage of giving publishers bigger, more-diverse portfolios and oligopolistic power within the journal marketplace. In this regard, in 2002 the U.K. Office of Fair Trading released a report entitled, "The Market for Scientific, Technical and Medical Journals," where it indicated its concern (p. 1) "that the market for STM journals may not be working well" (OFT396, http://www.oft.gov.uk). Also, as I pointed out in my September 2002 editorial statement, during the 1996-2000 period, the Scholarly Publishing and Academic Resources Coalition (SPARC) found that journal prices increased on average 33.36 percent in the library and information sciences disciplines (http://www.arl.org/sparc/DI/appendixA.html). This increase is well above the rate of inflation. The OFT report also points out (p. 10) that the rate of increase in price for commercial journals is "substantially higher than those of non-profit journals." In some cases, however, the mergers and acquisitions associated with commercial publishers have been costly. Thus, they have had incentives to use journal sales as a means of achieving a reasonable return on their investment in the merger and acquisition activities in which they have engaged.

On the other hand, commercial publishers have had to face an increasingly difficult journal marketplace. In this regard, information technology has underpinned two important changes that have occurred. The first is that the number of personal subscriptions to journals has decreased substantially. As I reported in my September 2002 editorial statement, Tenopir and King (2001) estimate that the average number of personal subscriptions per scientist has halved over the last 20 years (see http://www.nature.com/nature/debates/e-access/ Articles/tenopir.html). This trend has been fuelled by the increasing availability of online journal databases. Individual scholars now have fewer incentives to purchase a journal if they can access it for free via the Web-based facilities provided by their library.

The second change is that online journal database vendors have emerged as a powerful force within the journal marketplace. These vendors have been aggressive in developing portfolios of journals that they make available online for a fee. Their primary customers are libraries, although through differential pricing they still attract some private subscribers. Commercial publishers refuse to contract with online database vendors at their peril. Scholars increasingly have an expectation that their own journal papers will be made available online (to increase the frequency with which their papers are read and cited). For instance, Lawrence (2001) reports that computer science articles that are published online are cited on average 2.6 times more often than those that are published offline (http://www.neci.nec.com/~lawrence/pub-ri.html). Similarly, increasingly scholars have an expectation that their colleagues' papers will be available online to facilitate their identifying literature that is relevant to the research projects they undertake.

The upshot of these two changes is that in some areas the revenues of commercial publishers of journals have been eroded. They have lost in terms of personal subscriptions. Moreover, they have lost in terms of library subscriptions. In the absence of online journal database providers, they held a monopoly position with library subscribers. Thus, they could charge prices that gave them abnormal profits. They were the only source of the journals they controlled. Few, if any, online database providers, however, have followed a business model whereby they have signed exclusive agreements with a commercial publisher to make the publisher's journal available online. Rather, most appear to have opted for nonexclusive licences to publish commercial publishers' journals online, presumably in the belief that they will earn higher profits by providing more rather than fewer journals in their databases (see below). Fewer online database providers exist than libraries, and each potentially exercises more market power than a library. Thus, they can force the price paid to commercial publishers for their journals down. A threat by an online journal database provider to exclude a commercial publisher's journals from online publication is potent, and it can trade off commercial publishers against each other. For these reasons, commercial publishers have had to seek other ways to increase their revenues in the journal marketplace. In the next section, I will describe some of the strategies they have used.

Online Journal Database Vendors

Online journal database providers face the complex problem of choosing a business model under which to operate. One possibility is for them to sign exclusive agreements with a commercial publisher to make the publisher's journals available online. The upside of this model is that they can charge monopolistic prices for the publisher's journals to subscribers. The downside is that their profits are limited by the relatively small size of the portfolio of journals they offer to subscribers. An alternative model is to sign nonexclusive agreements with commercial publishers. The upside of this model is that their portfolio of journals will be more attractive to subscribers. The downside is that they will have difficulty distinguishing themselves from other online journal database providers. They will simply be one player among many in the marketplace, and presumably competition will allow them to earn only normal profits.

I suspect the first business model is unstable. It is difficult to see why commercial publishers would have an incentive to sign exclusive agreements with online journal database providers. The journals are their strategic resource. Outsourcing them to an online journal database provider under an exclusive agreement makes little sense, unless the provider offers gains from economies of scale that offset the loss of revenues that will occur as a result of the outsourcing agreement. This is why I believe we observe that vertical integration has occurred, whereby commercial publishers have also taken on the role of online journal database provider for their own journals. Moreover, I suspect the need to capture economies of scale in online journal database provision accounts in part for the mergers and acquisitions that have occurred among commercial publishers.

I suspect that only online journal database providers that were not commercial publishers in the first place follow the second model. They enter the marketplace because they believe they can obtain at least normal profits. Perhaps the early players also believed they could earn abnormal profits, at least in the short run, from first-mover advantages. The sources of journals for their portfolio primarily are learned societies and small publishing houses (e.g., some university presses).

One business model that appears to be gaining prominence is where commercial publishers provide an online database for their journals but sell indexing rights for their journals to another vendor. The difficulty faced by a commercial publisher is that scholars are increasingly reluctant to search multiple databases to find the journal they are seeking. Instead, they want to go to a single site, search the site electronically for the journal they are seeking, and then go directly to the site where the journal is located. The indexing vendor thus provides the single point of entry to journals provided by multiple commercial publishers. In this way, commercial publishers still retain monopoly control over the journals they own but allow easy access to their journals from multiple sites.

Libraries

Over the last 5 to 10 years, for several reasons libraries have been placed in an invidious position. First, with the growth of online journal databases and the consequent reduction in individual subscriptions to journals, increasingly libraries are subsidizing the work of individual researchers. Second, because scholars are increasingly demanding access to journals to satisfy both production needs (e.g., responding to publish-or-perish pressures) and consumption needs (e.g., knowing about the most up-to-date research), the demand for journals continues to grow. This demand is not checked through scholars having to pay the full costs of their production and consumption activities. The outcome appears to be that we have overconsumption and overproduction of journals. Third, commercial publishers appear to have sought to capitalize on their monopolistic power and the seemingly insatiable demand for journals through substantial increases in the prices that they have charged to libraries for their journals. While some compromises have occurred recently, at least initially they also required a library to buy entire packages of journals, even though some journals in the package might have been of little interest to the library. Whether the price increases that occurred reflected added value (e.g., online search facilities) is a moot point. At least *prima facie*, commercial publishers have tried to compensate for the losses they have incurred through falls in personal subscriptions and indeed to increase their profits markedly (see also my comments above).

In light of these changes, libraries have faced and continue to face a number of difficult decisions. For instance, they have had to decide whether they will maintain both print and online subscriptions to journals. As the number of journals produced continues to increase, the costs associated with storing, managing, and providing access to the print versions of journals has become a major concern. Having only a print version of a journal also limits the services libraries can provide to their users. For example, increasingly researchers expect that they can access and search journals online and download copies of papers that they deem relevant to their work. If libraries maintain only an online subscription, however, potentially they face "lock-in" problems with journal publishers. If in due course they cease to subscribe to an online version of a journal, often they have no right of online access to any issues of the journal, even for those years during which their subscription was active. In other words, all issues of the journal are lost through failing to maintain a subscription. Such losses inevitably evoke hostile reactions from their users. Given this context, librarians have been quick to realize that journal publishers can act opportunistically to exploit this situation. Thus, the availability of online journals has not decreased costs for many libraries. On the

contrary, costs have increased because both print and online subscriptions to journals have been maintained. Moreover, the cost of an online journal subscription alone is often higher than the cost of a print subscription.

Another difficult decision now facing many libraries relates to how they will fund the additional costs associated with their journal-related activities. Even though libraries are increasingly subsidizing individual researchers' use of journals, the institutions in which the researchers work (and where libraries most likely are located) are often reluctant to increase funding to libraries to support journal-related activities. Perhaps a cost-effective way of charging individual researchers for their use of journal services eventually will emerge. For the moment, however, many librarians believe that journal-chargeout approaches will encounter the same sorts of problems that have undermined attempts to charge researchers for their use of computing services. In this light, they are reluctant to proceed down this path. Some librarians are also philosophically opposed to charging scholars and students to use library services. They see freedom to read as a right not a privilege.

In response to cost pressures, some libraries have engaged in aggressive and sometimes hostile negotiations with journal publishers. Some have ceased subscriptions to more-costly journals, often in concert with other libraries as a way of sending a strong signal to journal publishers about their pricing practices. Some have also formed associations to exert pressure on publishers to curb journal price increases (see, e.g., http://www.arl.org/sparc/). At first glance, the idea of having associations of libraries to counter the power of journal publishers might seem desirable. Unfortunately, as with sellers, basic economic theory tells us that having only a small number of buyers in a market often leads to undesirable outcomes in terms of the price and amount produced of a good or service.

If libraries begin to charge individual researchers to access online journal databases, researchers then have incentives to go directly to the providers and pay the prices charged by the providers. Indeed, the providers of online journal databases then have incentives to act opportunistically and discount prices to individual researchers so as to undermine the position of libraries as providers of journal services. Libraries then face a choice. Either they pay high subscription prices and subsidize individual researchers, or they relinquish their role as providers of journal services. If they make the latter choice, they must redefine their role if they are to survive in the long run.

Content Consumers

Scholars consume journal content to support their own research, pedagogy, consulting, and service activities. Information technology has reduced the cost of consumption to individual scholars. For example, as I indicated above, increasingly libraries are subsidizing individual scholars in the provision of journal content. Moreover, searching for and obtaining copy of relevant content is now easier. Perhaps ironically, like journal content, scholars also often do not pay for the information technology and support services they consume to access and obtain copy of journal content. As consumption costs go down, scholars can "cover" a larger number of journals and more issues of a journal in their consumption activities. While theoretically this increased consumption might be confined to a stable set of journals, in practice the production of journal content appears to have increased in response to this higher demand.

The concern here is that individual scholars are not paying for their journal content consumption activities. As a result, basic economic theory tells us that overconsumption of journal content probably is occurring—perhaps substantial amounts of overconsumption! Potentially, the negative externalities asso-

ciated with this overconsumption are high. For example, to produce journal content to satisfy consumption demands, scholars have to undertake research. If the amount of content is not being controlled effectively via a price mechanism, then most likely marginal research is being undertaken. Furthermore, researchers who are not well placed to do high-quality research probably undertake it because they know their chances of publication somewhere are reasonably high. If their institutions compensate them on the basis of the number of journal papers they publish, this behavior is reinforced. The research process is expensive, and thus we always need to be circumspect about the value of the work we do as researchers.

Some Brief Conclusions

As I indicated at the outset of this editorial statement, the journal marketplace provides an important, interesting example of a complex interplay between consumers, producers, intermediaries, and information technology. In particular, it brings into sharp focus some of the difficulties associated with determining appropriate business models in an e-business environment. As stakeholders strive to achieve their own goals, the way in which the journal marketplace will evolve is unclear. In this light, I hope this editorial statement might motivate colleagues to study the journal marketplace to enhance our understanding of its structure and dynamics and the role that information technology might play in its evolution. As scholars we ought to have high levels of self-interest. Potentially the interaction between information technology and current institutional arrangements could severely undermine the value of journals and the quality of the research we undertake. Potentially it can also create opportunities to increase our research productivity and impact.

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