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**ELECTRONIC PUBLISHING OF PROFESSIONAL ARTICLES: ATTITUDES OF
ACADEMICS AND IMPLICATIONS FOR THE SCHOLARLY COMMUNICATION
INDUSTRY***

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The study that was described in this presentation sought to answer the question, "What contribution, if any, can the publishing of professional articles in electronic form make to scholarly and research communication?"

The British physicist, Ziman (1969) wrote that the development of the learned article as "a mechanism for the systematic publication of *fragments* of scientific knowledge may have been the key event in the history of modern science". The professional article, arguably more than any other form of research communication, is fundamental to the Western system of scholarship.

The importance of the research question was seen to extend beyond the relative efficiencies of print and electronic media as publishing technologies. Fundamentally at stake is the "interaction order" (Barley 1990) within what the study terms "the scholarly communication industry". Principal participants in this industry are academics as authors and readers of professional articles; publishers; subscription agents (vendors); and libraries. Others affected include computer network providers; universities as communities and organisations; individuals and organisations with research interests in the wider society; and governments which both contribute funding to; and seek social benefits from, research.

Electronic publishing of professional articles is defined as follows:

Dissemination and archiving of full-text professional articles via computer storage media (eg. magnetic or optical disks). Access is through computers in stand alone mode and/or connected to communication networks.

The research design for the study comprised three inter-related elements:

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- 1) *Theoretical perspectives:* These viewed electronic publishing of professional articles a) as a process of technologically induced change across an industry (Barley 1990), and b) as a means by which academics and their universities can increase efficiency and gain competitive advantage (Porter & Millar 1985).
- 2) *A state-of-the-art review.* This was based mainly on the literature, and systematically presents information and opinion relevant to the research question.
- 3) *Survey.* Responses of 582 academics in Australia, the United Kingdom and the United States to a survey in the second half of 1982 enabled an assessment of the position of academics in relation to electronic publishing.

The full paper to be published in *JASIS* systematically presents evidence collected in the state-of-the-art review and the survey.

One key observation from the state-of-the-art review is that, since the advent of fast and affordable photocopying technology in the 1960's, librarians have functioned in effect as "on-demand re-publishers" of professional articles, under the banner of "inter-library loans". It is suggested that the 78% real cost increase in journal subscriptions over twenty years (Marks et al 1991) might well be explicable as a de-facto re-publishing licence charge.

Main conclusions were:

The entire publishing value-chain (including print publication) is already heavily electronically assisted: competitive advantage will rest mainly with the "marketing" values and arrangements for disseminating professional articles.

During the print era, there were approximately three interaction orders available involving the key actors, namely authors, publishers, vendors, librarians and readers. Typically, dependency would flow from author to publisher to vendor to librarian to reader (Merri-man 1993). In the electronic era there are an additional 12 interaction orders, for most of which there are already examples in operation. For instance CARL Uncover/Blackwells represents an interaction order in which dependency flows from author to publisher to a vendor-librarian consortium (which holds the database) to reader. The OCLC Dispatch

service is an example of an interaction order in which dependency flows from author to publisher to a librarian co-operative (which holds the database) to reader.

Academics are torn between two conflicting ideologies. Librarians have been responding to Ideology A: the co-operative tradition of academics, in which professional articles are an "economic commons" (Byrd 1990), to be shared freely among all people. The main electronic expressions of this tradition, to date, have been e-journals on the Internet. On the other hand, publishers, and especially commercial publishers, have been responding to Ideology B: the competitive tradition of academics, in which academic articles - and the relative prestige of the journals in which they are published - are a principal means of securing status and career advancement. The main electronic expressions of this tradition to date have been full-text article services via online hosts (eg. on DIALOG) and major CD-ROM products such as *ADONIS* and the UMI databases (eg. *BPO*, *IPO*).

The following *main recommendations* were offered in the light of the study.

To *strengthen vertical integration* in the scholarly publishing industry, across the full range of print and electronic options:

- Publishers could treat articles as "mini-monographs", with royalties to authors paid after a prescribed threshold of sales is reached.
- Librarians could function as "literary agents", helping the academics in their institutions to find the right publisher(s) for professional articles.
- Librarians could act as "document supply agents" for publishers disseminating articles in electronic form. Commissions from sales within their institution and/or to external customers could be re-invested by libraries in improving their service.

To *support Ideology A* - co-operation and sharing

- Universities could compete in the marketplace as e-publishers on a not-for-profit (but also unsubsidised), commercial basis.

- Universities could support sustainable "at-source-subsidised" e-publishing (cf. typical e-journals on Internet).
- Universities could assist their individual students and staff to purchase specific e-published articles they require (eg. by issuing debit/credit cards).

To support *Ideology B* - competition and prestige

- Universities could resist national "compulsory" at-source-subsidised e-publishing schemes. Rather they could encourage diversity.
- Universities could encourage the development of academic networks as "electronic publishing shopping malls", hospitable to commercial publishers.
- Academics could re-examine their own interests within the publishing value chain - specifically a) what circumstances justify the alienation of copyright and b) whether they should continue to be as indifferent to receiving royalties on professional articles in the future, as they have been to date.

The answer given to the research question initially posed for the study is that electronic publishing of professional articles can contribute greater diversity and choice in a marketplace where at-source-subsidised publishing competes with fee-for-service publishing.

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