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**An Exploration of the Use of Push Technology
in a Consortia for Electronic Publishing**

by

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In “Digital Diploma Mills: The Automation of Higher Education,” David F. Noble gives an overview of the “commoditization” of the university in the last 20 years. According to Noble, the first phase of the commoditization began in the mid-1970's when “corporate and political leaders of the major industrialized countries of the world recognized that they were losing their monopoly over the world’s heavy industries (space, electronics, computers, materials, telecommunications, and bioengineering).” This realization led to the capitalization of the university with collaboration between corporations and academia. One of the salient aspects of this was the reform of the patent law in 1980 which for the first time gave universities automatic ownership of patents resulting from federal government grants. As Noble says--

Laboratory knowledge now became patents, that is Intellectual capital and Intellectual property. As patent holding companies, the universities set about at once to codify their intellectual property policies, develop the infrastructure for the conduct of commercially-viable research, cultivate their corporate ties, and create the mechanisms for marketing their new commodity, exclusive licenses to their patents. The result of this first phase of university commoditization was a wholesale reallocation of university resources toward its research function at the expense of its educational function.”

Noble’s second phase is the commoditization of instruction which is the commercialization of higher education through distance learning and instructional technology. That is not germane to the subject of this paper. But there is another aspect to the

commoditization of the university, one which Noble doesn't mention, but which is related to it. That is the commoditization of the results of academic research and scholarship--research reports, journal articles, and the scholarly monograph. The commercialization of the dissemination of the results of research is intertwined with the commoditization of the intellectual property, the "Faustian bargain," as Stevan Harnad calls it.ⁱ The results of research are viewed as another category of intellectual property or intellectual capital to be exploited for profit. The discontinuance of the support for research and publication through university subsidy, or if not discontinuance at least diminution, led to the entry of corporate enterprises into the research and the subsequent dissemination of the results of research. The technology/engineering and biomedical sectors of the higher education enterprise flourished under this model. The more traditional areas in the arts and humanities and those social sciences with service missions rather than corporate agendas began to wither.

It is ironic that the funding engines of the federal government and corporate partnerships ultimately choked the universities which became ever more dependent upon those sources of funding as tuition and state funding became smaller and smaller percentages of the cost of doing business. The universities were reaping profits from patents on the one hand and paying to buy back the results of the research on the other hand. In the latter 1980's and early 1990's the realization hit at the administrative level that the inflationary cycle in the for-profit publishing arena had priced this dissemination of intellectual property out of their budgetary reach. The commodization had at first produced a golden egg, but the commercial partners had run off with the product, the egg, and now were expecting the universities to buy it back.

A number of leaders in the research library arena began suggesting that research universities should form consortia to publish their own researchⁱⁱ. Although these ideas have been around for nearly ten years, it was not until the advent of Internet web technology that consortial electronic publishing became technologically and financially feasible. The authors presented a workshop at the 13th NASIG conference in Ann Arbor, Michigan in May 1997 in which a model for consortial electronic publishing was proposed. A portion of the NASIG workshop was devoted to the exploration of copyright as it affects such a model. Since that

workshop, the authors of this paper have kept up with the news and research on the possibilities and problems associated with consortial electronic publishing. This paper is an update of that proposal with the inclusion of similar projects which have formed since the NASIG workshop and some attention to push technology as a suitable delivery mode for electronic subscriptions.

The saga of how the current economic model of commercial dissemination of research results came about has been covered above. The existing economic model for research is one of subsidization of the researcher's salary and benefits through released time, payment of graduate assistants both from institutional and grant funds, and payment of page charges or other publication costs, all without the institution receiving any direct financial remuneration. In addition to the subsidization of the research and publication, the product is sold back to academe in the form of journal subscriptions and monographs purchased by libraries and throughout the academic enterprise by the generators of the research.

Under the existing model, publishing by scholarly societies and university presses has been constrained by the high costs of editorial, production, marketing, and distribution. The high costs of a product with a limited sales audience has placed the specialized scholarly monograph in a crisis on the verge of extinction. This economic model in which the university pays directly for the generation of the product without receiving any direct reimbursement is a model in need of revision.

We propose a new model for the electronic publication of scholarship, an electronic commons in which ownership guarantees access, but ownership is achieved only through dissemination of the product in both mass and customized modes, and the archiving of multi-media products. The model should be amenable to utilization by scholarly societies, university libraries or presses without the high costs now necessary for journal and monograph publications. Such a model would not focus on high-end profits, but rather on an in-kind return to universities on the investment made in the generation of research and scholarship.

This new model for the electronic publication of scholarship is an electronic commons in which ownership guarantees access, but ownership is achieved only through the contribution of

research and scholarship to the “commons.” In this model, copyright would be less of an issue because the ownership would be consortial.

A number of projects are not functioning which have some aspects of the consortial model we propose or have experimented with similar pricing and delivery mechanisms.

Columbia University Press has secured the cooperation of a number of research centers from around the world to form a publishing consortia for international affairs. Columbia International Affairs Online (CIAO) contains the full-text of books, abstracts of articles from key foreign policy journals, policy analysis papers and reports from think tanks such as the Brookings Institution and the Cato Institute, government reports and working papers all mounted on the CIAO website. The project combines the search and access capabilities of the internet with the high standards and peer review process of university press publishing. A key feature is that it makes scholarship accessible to subscribers as soon as the papers are written. All content is stored cumulatively and can be printed or downloaded by members. Subscription rates are based on the size of the institution by students and faculty/staff. This project is an example of a consortial agreement for the provision of content and a membership arrangement for subscription and access fees.

A somewhat smaller project but also an example of the use of membership subscription fees is the Electronic Journal of Communication distributed by the Communication Institute for Online Scholarship (CIOS). A membership fee is charged and full database retrieval privileges are denied to non-members.

Another variation of barter or exchange is “e-cash,” intended for use in a totally on-line economy. Ecash can be used to buy access to on-line information that has been placed in electronic “shopping malls.” Ecash is generated by posting some information that others will find useful enough to buy.ⁱⁱⁱ

The American Historical Association is attempting to form an electronic publishing

initiative for the dissemination of specialized scholarly monographs which are no longer viable even for university presses.

TULIP, a collaborative project between Elsevier Science and nine leading universities, was to jointly test systems for networked delivery to the user's desktop. The major focus of the project for the first half of the time period 1991-1995 was the technical side. This project provided valuable experience in the implementation of the delivery of electronic journals. It began before web-based technology was available other than FTP and at a time when the majority of universities did not have the technological infrastructure needed to support sophisticated delivery modes such as push technology which was abandoned in favor of a "pull" system.

Push technology is just now coming to the fore in libraries for information retrieval. The first issue for 1998 of Information Outlook, the publication of the Special Libraries Association, contains an article on the applications of push technology in the corporate sector. Push technology is advocated as a web/Intranet delivery of customized information which users can receive by cellular phone and pagers as well as at the desktop. The more sophisticated push applications enable information professionals and end-users to create relational profiles and receive relevant information automatically from multiple sources^{iv}

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