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Electronic Publishing
The Unfolding Revolution

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ABSTRACT

The author gives an overview of electronic publishing and enumerates the technological advances that has led to its growth. He discusses the advantages offered by the technology to researchers and other library users. The disadvantages to the publishers and libraries/information centres are also discussed and the effect of this technology on the policies and processes in the library are presented.

1. INTRODUCTION

Electronic publishing is the dissemination of information in electronic form and its distribution to potential users either on electronic networks such as Internet and local area networks or in stand-alone formats such as CD-ROMs and diskettes. The information so disseminated is intended for the user to read, print, and download for later use, within the limits imposed by copyright laws, including incorporation of selected information into other electronic documents.

Electronic publishing products may include text, graphics, audio, video, numeric and textual databases; reference sources such as directories and atlases; and computer programs. The products of electronic publishing are seen everywhere. These include indexing, abstracting, and full-text databases; computerised library catalogues (also referred to as online public access catalogues or OPACs); national and regional union catalogues of library collections such as OCLC (Online Computer Library Center, Inc.); digital libraries; encyclopaedias, dictionaries, thesauri, directories, bibliographies, and other reference sources; refereed and non-refereed electronic journals and newsletters; multimedia sites such as museums; and news sources which display graphic, audio, video, and textual information. The vastness and diversity of these sources is mind-boggling and we are just witnessing the unfolding of a major technological revolution. Most such resources are readily

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accessible to users who have access to Internet.

Electronic publishing is the culmination of a number of trends that have been emerging for the last four decades. First is the rapid development and wide-spread use of computer technology, especially the advent of microcomputers, and word processing and typesetting software which brought desktop publishing to millions of people. The second trend is the growth of computer networks which resulted in Internet–the global networks of networks–and opening of Internet to commercial enterprises and citizens. The third trend is the merging of computer and telecommunications technologies which, with the help of microcomputers, telephone lines, modems, and fiber optic networks have converted educational institutions, businesses, and homes into information centres and electronic publishing houses. The fourth trend is the development of information industry that demonstrated the feasibility and advantages of electronic information for managing library functions and serving library users.

By the end of 1980s, these trends converged and the explosive phenomenon of electronic publishing started taking shape. The dust has not settled yet but it is already evident that scholarly communication, the publishing industry, and library and information centres will be affected irrevocably.

The traditional print-based publishing industry, which developed over hundreds of years, served scholars in furthering scholarly communication, libraries in preserving and disseminating scholarly communication, and publishers in obtaining reasonable returns on their investments [1]. Scholars, subsidised by educational institutions, state and federal government, and research-supporting foundations, created the information; publishers evaluated, published, and marketed that information; and libraries acquired, catalogued, stored, preserved, and helped in disseminating it.

Electronic publishing is likely to upset this neat picture. All the players–scholars, publishers, and libraries–will be affected by the electronic publishing revolution. The following are some speculations about the impact of electronic publishing on these three players.

2. RESEARCHERS AND OTHER LIBRARY USERS

The greatest benefit of electronic publishing is the richness of information that is available to the end-user. Users now have access to information that print technology could not deliver. For instance, encyclopaedias and dictionaries can provide audio information which shows how certain words are pronounced–which is much simpler and more straightforward to understand than trying to read and decipher complex pronunciation guides provided in dictionaries. Likewise, illustrations in electronic encyclopaedias can, with the help of animation, demonstrate the workings of machines. For researchers, research papers can be accompanied by the original data that can be downloaded for further scholarly use.

Electronic publishing allows faster dissemination of information than print technology because the step of printing on paper is eliminated altogether. Information may be made accessible on

electronic networks weeks or months before it can appear in print form.

Electronic publishing gives greater freedom to researchers to disseminate their research results without having to go through the cumbersome route of finding a publisher who is willing to publish their results. In this context, publishers and scholars are working with different objectives–publishers need to make a profit while scholars want expeditious dissemination of their research findings. Electronic publishing allows those scholars to by-pass the publisher and disseminate their scholarship directly to other scholars and interested lay persons.

One of the arguments advanced by the print publishers is that they add value to the scholars' work by peer reviewing, copy-editing their submissions and otherwise acting as gatekeepers in the scholarly communication process. This value addition activity, however, is independent of the medium of publication–that is, the same set of quality standards, peer review, and intensive editing procedures can still be maintained in electronic publishing.

There are also disadvantages in electronic publishing from the scholars' point of view. Much of scholarly publishing is driven by the "publish or perish" syndrome in academic institutions. Scholars are evaluated on the quality of their publications. In this regard, print publications carry certain external clues as to the quality–in terms of their look and feel, design, type of paper, and so on. In the arena of electronic publishing, such superficial clues no longer apply. Such superficial but important clues have implications for promotion, tenure, and pay decisions. Since electronic publishing is so new, publishing in this medium does not yet have the same prestige. Many promotion and tenure committees may view electronic publishing as nothing more than self-publishing. However, the chances are that electronic publishing will slowly gain ascendancy over print publishing in the near future.

3. PUBLISHERS

Publishers embraced electronic publishing technology in recent years because it speeds up the publishing process, makes editorial changes easier to accomplish, and enables the relatively small publishers to effectively participate in publishing activities. Electronic publishing has opened up new markets such as publication of encyclopaedias in CD-ROM format, creation and distribution of electronic databases of indexing and abstracting services, and electronic journals. In fact, since most of the publishers are now requiring their authors to send in their manuscripts in electronic format, it is relatively simple to load them on computers and make them available to readers and libraries.

Publishers, however, face serious dangers from electronic publishing. Many scholars view publishers as "middle men" and as "exploiters" of the scholarly communication process. Scholars, for instance, earn few royalties from journal articles and most of the scholarly communication process is subsidised by taxpayers. Even though publishers view themselves as "value adders," there are many sceptics. Consequently, there is a strong tendency towards eliminating this middle person.

Publishers are driven by profit motive and therefore, they publish only that

material that is likely to generate profits. On the other hand, the primary motivation of scholars is the exchange of ideas with fellow scholars. The motivations of these two groups thus conflict with each other. The print publication process takes much too long in many cases to serve the needs of scholars and, therefore, electronic publishing looks very attractive to scholars. In any case, we are already witnessing the impact of electronic publishing on print publishers—a number of them are actively exploring Internet publishing; many publishers are making their reference publications accessible as electronic products; and the growth of electronic journals is giving a pause to journal publishers.

4. LIBRARIES AND INFORMATION CENTRES

Libraries and information centres are the beneficiaries of the electronic publishing revolution. The emphasis is shifting to "access" from "ownership", i.e., many libraries now believe that it is important to supply scholars and library users what they need as opposed to having to own the material that is likely to be needed by their users [2]. This trend is also known as "Just in Time" service as opposed to "Just In Case" collection.

Likewise, libraries are no longer limited by the four walls of their buildings. Resources such as OCLC, regional online catalogues, and online textual and numeric databases can be accessed by libraries irrespective of the physical location of these resources—that is, such resources need no longer be located on their premises or on their campuses. Simpson calls this phenomenon as "shrinking core" and "expanding periphery" [3]. The explosive growth of Internet has already shown that this dream of "library without walls" or "virtual library" is within reach.

Electronic publishing resources improved library services to their customers and made their internal operations more efficient. For instance, users can now search vast databases, print results of their searches, download papers and information of interest, and further incorporate this electronic information into their regular day-to-day work.

However, there are disadvantages. There is concern about the future of libraries. If more and more resources are available on Internet and in electronic format and if they can be accessed from anywhere—e.g., from faculty offices and students' dormitories—what will become the role of libraries? The old statement that "libraries are the hearts of educational institutions" will no longer hold true if nobody has to go to the library and if the libraries are indistinguishable from computing centres [4]. Another concern is the threatened historic role of libraries in "preserving, organising, and providing access to the scholarly and cultural record." Lynch notes that electronic publishing is leading to centralisation and monopoly of information which will result in society's loss of control on the "integrity of the record" [5]. From a purely procedural perspective, preserving and retrospectively accessing electronic publications will be difficult since the hardware and software that created that information are likely to be obsolete quite quickly and, no one is really sure of the longevity of the electronic storage media.

Electronic publishing is forcing libraries to shift more and more financial resources from print publications to the acquisition of electronic resources. Such a financial

shift will dramatically affect the publishing industry and the print publishing industry may lose its viability–the impact of which on libraries is not yet clear.

On another level, libraries' objectives and internal operations have already been affected and will be affected further. Some of the areas that are being affected include collection development, interlibrary loan operations, and reference services.

The proliferation of electronic resources is already blurring the distinction between local and external collections [6]. In the case of print publications, collection development librarians worked towards building local collections so that their users have ready access to the information they need. External collections such as the collections of other libraries could be accessed but such access was slow and expensive. In the case of electronic publishing, the demarcation between the two types of collections may not either exist or be relevant to the user. The user who sits at the computer terminal and accesses an information resource does not need to be concerned any longer about whether that resource is held by the local library or by some other outside entity. In this situation, the role of collection development needs to be rethought.

Likewise, the role of interlibrary loan operations may also change in a substantial manner [7]. If libraries load full-text journals on computer networks and make them available to regional or member libraries, users no longer have to go through interlibrary loan operations to get copies of the articles they need. Such a scenario, however, is beneficial for both the libraries and users. Libraries can improve access to their materials while, at the same time, keeping the costs down by eliminating a layer of personnel and services. Users also benefit because access to the materials they need may improve while achieving a faster turn-around time.

The role of reference librarian is also changing dramatically. Reference librarians are now able to serve their patrons better by accessing and showing their users how to access a wide diversity of electronic information sources. They however, face the problem of techno-stress in that they are expected to learn about a large number of electronic resources with their differing protocols, user interfaces, and retrieval capabilities. In addition, many users now have the luxury of by-passing reference librarians altogether and still be able to access the information they need quite successfully. At this stage, however, accessing and using electronic resources, including those on Internet, is difficult and confusing. Although vast resources are available on Internet, navigating and retrieving information on Internet, even with the help of tools such as Netscape and Web Crawler, is still perplexing and time consuming for novice users. This will give an opportunity to reference librarians to redesign their responsibilities more and more towards instruction in the use of electronic resources.

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