

IMPLICATIONS OF ELECTRONIC JOURNALS FOR INFORMATION INSTITUTIONS

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ABSTRACT

Features of current electronic journals systems have been reviewed and practices of handling e-journals in information institutions examined with a purpose to study the possible implications of e-journals on serials control work. While most of the delivery and access systems are similar in browsing and searching facilities, there are variations in pricing policies, archiving, licensing, and access control methods that create problems for information institutions. Information institutions are in the process of making adjustments in their practices of selection, cataloguing, and serials control procedures to accommodate this new medium. Information professionals, however, feel that fundamental changes will have to be made in the mission, objectives, and policies of the information institutions to take full advantage of the potential of e-journals.

INTRODUCTION

Electronic journals systems have created excellent opportunities to access information resources, which were previously beyond the reach of information institutions due to financial and geographical factors. The potential of electronic journals to extend library collections and provide convenient access to information has been described in several studies, notable among them are the articles published by Stanley (1995) and Guedon (1995).

In the meantime, electronic journals have created serious implications for information institutions. Since they are not physically available like their printed versions, e-journals are expected to have profound impact in different functional areas of work in libraries and information centers. Meadows (1996), and Haddad and Jones (1995) have discussed various influences e-journals are expected to have on budgeting and other requirements in information institutions. Ungern-Stenberg and Lindquist (1995) and Nisonger (1996) have discussed the impact of electronic journals on various serials control functions.

To facilitate access and to manage e-journals effectively, staff in information institutions need to be more knowledgeable about the options, play an active role to seek solutions to the issues involved, and be more innovative in changing their way of

performing various operations (Chaudhry, 1996). While considerable literature is available on the potential of e-journals and general discussion and descriptions have been provided on the basis of opinions and impressions, empirical research on the possible implications of e-journals on information institutions is lacking.

We concluded a study of access and management of electronic journals in March 1999 at Nanyang Technological University in Singapore. This research was aimed at reviewing the systems designed for delivery and access of electronic journals, examining the practices of handling these new resources in libraries and information centers, and surveying their impact of electronic resources on policies and procedures of information institutions. This paper reports the results of this study. The results highlight the managerial aspects and policy issues that are expected to be of interest to several groups interested in accessing and managing electronic journals. Information institutions that are planning to integrate electronic journals into their collections will find the results of this study particularly useful. The information on practices of handling e-journals in leading information institutions provides guidelines for determining requirements for adjusting policies and procedures. Discussion on problems and issues will be helpful for information professionals in their work related to processing operations and serials control activities. The conclusion drawn from the results of this study might also be helpful to electronic journal publishers and vendors in their marketing strategies.

A combination of quantitative and qualitative techniques was employed to gather information for this exploratory study. A detailed review of online and printed sources was conducted to identify different types of electronic journals systems. Checklists were used to collect and present information on the salient features of delivery and access systems. A request for information, including a list of questions, was sent to libraries and information centers involved in e-journals soliciting information on their practices for handling electronic journals. Messages were posted to a number of Discussion Lists seeking input on problems and issues related to management of electronic journals. Interviews were conducted with the senior staff in selected information institutions to survey the current status of e-journals. In addition, focus group discussions were held with information professionals knowledgeable in different functional areas of serials control work to discuss various issues related to access and management of e-journals.

E-JOURNAL SYSTEMS

Electronic journals systems have mushroomed in recent years. Machovec (1997) provides a good market overview of e-journals. We reviewed 23 systems including 13 delivery systems (developed by publisher) and 10 access systems (developed by aggregators). Publishers have acted aggressively in putting their journals on the web. Most of these journals are still following the format of print ones and are distributed as volume and issues. Most allow information institutions to register the IP address to access e-journals reducing the work for managing of passwords. Publishers are careful with releasing the right to download of information from e-journals. Systematic downloading is normally prohibited with only a few exceptions. Interlibrary loan in most cases is restricted to hard copies. Besides providing basic functions to allow users viewing the articles on the Internet, the delivery systems have provided some value-added services tailored to user needs. These include online help, e-mail alert about the

availability of new issue, etc. Information professionals pointed out several inconsistencies and a number of problems, particularly with the archiving policies and pricing and access control methods.

Aggregators play an intermediary role and provide one-stop searching for electronic journals by aggregating titles from different publishers into a consolidated package. They assist in handling and managing electronic journals by providing usage reports, contracting with publishers, registering the IP address or passwords, or even negotiating license with publishers.

Although the e-journal systems tend to be similar in the facilities provided, there are still variations with regard to the software needed, interface design, and search functions. The pricing policies and license terms are also different. The inconsistencies among systems make the selection and acquisition complicated. If an acceptable pricing paradigm, a common interface as well as standard licensing terms can be developed with the coordination among publishers, aggregators, and information institutions, the work of information professionals to provide access to e-journals will be greatly facilitated.

Our review of delivery and access systems revealed that the back issue availability is different from publisher to publisher and even from journal to journal. Most publishers provide the current issues and issues since 1994 or 1995. Some will go back to 1991 (ACM), some only cover from the year 1997 (Kluwer, Wiley, SIAM and Springer). Majority of publishers has not made a clear statement with regard to their archive policies. Elsevier, Johns Hopkins University Press, MCB and Springer claim that they will offer an archive of the journals they provide. Back issue availability is better in case of access systems. A number of aggregators are providing issues from 1996 onward but there are others who have not done archiving so far. Some aggregators are expected to keep an archive on their servers only for a short period of time considering that it may not be cost effective to maintain low use electronic files. The archiving and preservation problems have been discussed in the literature at length. Some notable studies include Luijendijk (1996); Harvey (1997); and Duranceau (1998).

IMPLICATIONS

Printed journals have generally allowed access to anyone with technological capabilities no more advanced than the possession of a letterbox or the ability to utilize a library (Osborne, 1995). But with the arrival of electronic journals this will no longer be the case. Providing access to e-journals could be far more complex than that for print journals. The complexities of access to e-journals have been discussed in detail in several articles including Meadows (1996); Kaag (1998); and Persons (1998). As described in the next section, the results of this study indicated that all areas of work in information institutions have been impacted by e-journals.

Selection, Acquisition, and Serials Control

Our survey indicates that there is a general agreement that selection process of electronic journals is similar to that of traditional journals and most of the criteria used for print journals should also apply to e-journals. The information professionals we

interviewed seem to have a consensus that major consideration in selection is the content of information rather than the form. Fundamental criteria used for selection of print journals, e.g., coverage, relevance, usefulness, costs, publisher reputation, accuracy and currency of information, etc., is applicable in case of e-journals. But, a number of additional factors unique to the new media were reported by information institutions as important criteria for selection of e-journals. These include network, hardware, and software compatibility; technical requirements; quality of interface; access and service implications; reliability of vendor; licensing considerations; and archiving. Selection policies of selected information institutions are shown in Table 1.

Table 1: Criteria for Selection of E-Journals

N=20

Category	Responses (%)*
Normal selection criteria: authority, relevance, coverage, research/teaching value, demand, etc.	80%
License restrictions	60%
Archive facilities and availability of back issues	55%
Ease of use and access: interface, interaction, links, etc.	55%
Pricing considerations	50%
Technical factors: requirements, format, technology employed by publishers, etc.	45%
Stability: stable journal, stable URL, dynamic web page, etc.	20%
Miscellaneous factors: duplication with print equivalent, online trial, vendor support, etc.	20%

*Sum of percentage is over 100 because of multiplicity of choices

A number of information professionals pointed out that e-journals were more complex to be brought into the library and to be regulated. Their acquisition and access require an entirely new workflow, one that is no longer a series of linear resources. The procurement of electronic journals is considered more complicated and difficult to handle. Every title has a different ordering process and every publisher has a different license with different conditions. Like-wise, the check-in of journal issues takes on a new meaning in the web-based environment. The challenge now is not just to receive the individual issues but to ensure that the library continues to have access to the page and to keep track of URL as it changes with time.

Majority of the information institutions surveyed agreed that different treatments are needed to acquire this new format of journals. They expressed that new steps including checking the system requirements, making sure about the vendor support, determining the licensing issues, and negotiating terms with the publishers are crucial steps in acquiring a journal or making an arrangement to access a particular title. Once access is confirmed, testing is done before the e-journal is made available to users. Licensing agreement, which is new to information professionals, creates implications in terms of permission or restrictions on the use. Some institutions require a higher authority to sign such agreements, which in turn slows down the acquisition process.

Serials control work (check in and claiming) is also changing in the case of electronic journals, since no physical issues are being received. Approximately 65 per cent of the information institutions that were contacted for information in the course of data

collection indicated that they still perform check-in operations in one or the other form. However, the concept of check in has changed from checking the availability to the validity of the URL and the accessibility of issues. A new concept called “quality checks” was suggested that should be used to represent check-in work in the new environment. This process focuses more on confirming the on-time presence of specific issues of electronic journals.

Cataloguing and Access

Cataloguing rules and procedures were built around the physical availability of printed journals. These do not seem to be appropriate to be used to describe e-journals, which are accessed not owned. Several guidelines have been prepared by LC, OCLC, CONSOR, and individual libraries to assist in cataloguing e-serials. But numerous questions and issues need to be addressed before adequate cataloguing support could be guaranteed for this new format. Whether or not to create another record for electronic version of the print journals is an unsettled issue. Another question that has been asked frequently is "should the cataloguing record include the holdings information?" Consensus emerged from responses of the participants of the study that the following issues need to be decided before proper cataloguing support for electronic journals can be provided:

1. What kind of electronic journals should be catalogued?
2. What modification should be made in cataloguing records to describe the electronic versions?
3. Will the information of print and electronic version be in the same catalogue record or in a separate record?

Table 2: Cataloguing of Electronic Journals

N=23

Cataloguing Policies	Responses (%)*
Catalogue only those electronic journals that are subscribed	65%
Catalogue all electronic journals accessed (including those which are available free online)	22%
Original cataloguing according to AACR2, CONSER, etc.	44%
Copy cataloguing OCLC and other utilities	30%
Policy formulation still in process	17%
Single record approach is followed	39%
Separate record approach has been employed	35%
No holdings information is provided in the catalogue record	30%
Have holdings information in the bibliographic record	17%

* Sum of percentage is over 100 because of multiplicity of choices

Information professionals also pointed out problems they faced in cataloguing electronic journals. These include the unstable URL, decisions about determining the intellectual responsibility, and difficulty in collating works for cataloguing that are not physically available. Cataloguing policies of selected information institutions are given in Table 2. Electronic journals are catalogued like other materials. The single record approach is preferred. Cataloguing is done using guidelines developed by OCLC, Library of Congress, and CONSOR within the framework provided by AACR2 for description of

computer files. Normally, MARC fields 856, 530, and 538 are added to indicate the availability of journals in electronic format. Maintaining information about the electronic location address, the URL, has created more work for cataloguing staff.

A number of issues need to be considered before providing access to e-journals. Librarians need to determine how to get the log in information to legitimate user keeping it away from those who should not have access through the license. Access is often controlled either by a user name or password system or IP address. Each of these systems has its pros and cons creating implications for decision-making. The respondents of our survey pointed out the following as key issues: restrictions imposed by license agreements, security methods, and the availability of computer facilities to users.

Archiving and Preservation

Traditionally, libraries have always assumed the role of preserving journals for future use. But in the case of electronic journals, costs, technical requirements, and licensing issues are making it extremely difficult for libraries to continue the archival responsibilities. Current alternatives, on the other hand, do not seem to guarantee that the library users will have continuing access to files of network-based journals, if libraries were to abandon this function. Options suggested include archiving by publishers/vendors, consortia, and national libraries.

Our survey indicates that information institutions fear that they will no longer be able to access electronic journals they subscribe if they were to stop the subscription. Seventy five per cent of the information institutions that participated in this study reported that they had not done any archiving for electronic journals. They would like to rely on publishers for continuing availability of issues that were produced during the subscription period. Libraries reported three factors that deter them from archiving. These include publisher's control over the archiving by means of restrictive license terms; staff requirements for archiving work; and technical issues that are considered beyond the capabilities of libraries.

Table 3: Archiving of Electronic Journals

N=16

Archiving Options		Responses (%)*
Do not do archiving		75%
Do some archiving		13%
Have not decided yet		13%
Prefer other parties do archiving (88%)	Publishers/vendors	75%
	National libraries	25%
	Research institutions and universities	44%

* Sum of percentage is over 100 because of multiplicity of choices

We came to the conclusion that libraries are no longer taking it for granted that archiving should be their role. They are expecting other parties to take over this function. There seems to be a consensus among information professionals that publishers should do the archiving and provide long-term access to back issues. But,

because of the possible problems and risks involved in delegating the archiving responsibility to publishers, information institutions are attempting to highlight that archiving is a national, rather international level issue, definitely not a local one, and needs immediate attention of professional forums and policy makers. Archiving policies of information institutions that participated in the study are given in Table 3.

Preservation is also an important issue as it lies at the heart of library's mission to provide access to human records. There are many problems with the preservation of e-journals, including the preservation of the physical medium on which the information resides, preservation of the storage technology that makes use of that medium and preservation of the information itself - intellectual preservation (Neavill and Sheble, 1995). Solutions to these problems are not clear. Some respondents suggested off line storage methods, e.g., tape, hard disks, floppy disks, and CD-ROM. However, the longevity of these media as a permanent archiving media for e-journals was not approved by a majority of the participants of our study.

Policies and Procedures

Appropriate changes in policies are required to handle electronic journals efficiently. No empirical data is available on this aspect. A comprehensive report in this regard was produced by the Association of Research Libraries (Paranag and Saunders, 1994) that has become obsolete because considerable changes have occurred in the format of electronic journals after the study. The information professionals we sought information from reported that adjustments became necessary in policies and procedures, budgeting approaches, and staff assignments as e-journals presented problems that were not encountered in the past. Changes affected by participants of the study in their policies and procedures are given in Table 4. Information professionals realized that because of licensing agreements and comparatively high costs involved they need more protection and support to make decisions regarding access to e-journals. It has therefore become very crucial that appropriate authority is delegated to them through elaborate policy provisions.

Table 4: Adjustments in Policies and Procedures
N=22

Category	Responses (%)*
Different policies and procedures have been developed for e-journals	73%
Policies are being changed and revised	9%
Few adjustments have been made	18%
Budget structure has been adjusted	23%
Special committee/ special staff have been assigned to advise on electronic journals management	32%
Additional work has been assigned because of different practices	41%
It is experienced that higher knowledge level staff are needed	23%

* Sum of percentage is over 100 because of multiplicity of choices

Our discussions in the focus groups and interviews indicated that more fundamental changes were needed to take full advantage of the potential of e-journals. For example, libraries were committed to preserve printed journals for future use and therefore they used to highlight this in their mission statements and goals and objectives. The nature of preservation and archiving has changed requiring corresponding changes in the mission and goal statements. Like-wise, selecting e-journals and making arrangement for their access are decisions that involve more than one department and therefore requires flexibility in organization structure and departmental relationships so as to facilitate collective decisions and team work spirit. Also, staff responsibilities will have to be expanded and their skills upgraded to enable them to handle decisions involving determining the technical requirements and support and negotiating license agreements.

CONCLUSIONS

Electronic journals make work of information institutions more complicated. Many practices of acquiring and processing information materials need to be altered due to the dynamic nature of electronic journals. There is no simple and uniform policy that can be employed by all information institutions for proper handling of e-journals. Even updated and revised policies are likely to shift with the change in the character of e-journals and terms and conditions to be imposed by producers of e-journals. To be able to take full advantage of the potential of this new resource, information institutions will have to be willing to make fundamental changes to overcome the implications created by electronic journals. Their staff has to update their knowledge about the options and alternatives and upgrade their skills to be able to handle e-journals effectively. Information institutions have to review their missions and objectives, roles and relationships of their divisions and departments, communication patterns among professional staff at various levels, and staff assignments and responsibilities, and nature of their relationship with the publishers and vendors.

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