Chapter 7

Archiving
7.1. Introduction

With the rapid development of electronic and network technologies, there is considerable and justifiable concern in the academic community about the challenges with protecting electronic information for future generations of scholars and students (Guthrie, 2000). If electronic information is not actively and repeatedly updated, the technology used to read and interpret it is likely to become obsolete. Buckley and his colleagues (1999) believe that a host of factors contribute to the electronic journals archiving challenges. Rapid obsolescence and uncertainty about the physical longevity of digital documents are major concerns. The dilemma is which electronic format is best for archiving and it has to be resolved. The question of which electronic journals should be archived also needs to be addressed. Finally, the issue of whether libraries will retain the right to access volumes of electronic journals for which they have paid even if subscriptions are later cancelled remains unresolved.

Rothenberg (1995) summarizes the long-term problems associated with future access to all kinds of digital documents. The content of digital files may be lost to future scholars not just because the physical item deteriorates, but because the information cannot be extracted and interpreted correctly. Words on the printed page can be viewed and comprehended without any special equipment as long as one knows the language in which they are written (Cox 1997; Rothenberg 1995). Digital documents, however, are dependent on the hardware and software needed to access them (Neavill & Sheble 1995).

7.2. Archiving and Format

A wide range of formats are available for publishing and archiving electronic journals (Cochenour & Moothart 1995; Duranceau et al. 1996; Boyce et al. 1997). Some authors express preferences for one format over others, and there seems to be no clear consensus as to which is best.

Simple ASCII text was prevalent in early stage of publishing electronic journals, but it suffered because it was unable to express complex mathematical formulae or symbols. The PDF (Portable Data Format) file appears to be the current standard in
electronic serials publishing. This format reproduces an actual printed page in electronic format. Therefore whatever can be printed should be able to be stored or viewed in PDF format. This format does not, however, take full advantage of the possibilities that electronic journals offer, including links to references, navigation within articles, and smooth flow of information on screen. Boyce et al. (1997) found that users of their electronic astronomy journal chose to access articles in HTML versions five times more frequently than PDF versions. These authors believe PDF and the similar PostScript format function more as the equivalent of an electronic document delivery system. They further state that an electronic journal without links to references should not even be taken seriously.

HTML (Hyper Text Markup Language) is quite effective for navigating within and between the articles in an electronic journal or database. One can link directly to original data, intermediate results, and related references (Boyce et al. 1997). It also allows for forward referencing to articles published at a date later than the paper being read.

SGML (Standard Generalized Markup Language) offers richly tagged files which may be the best for long-term archiving and converting to future formats (Tagler, 1998). Boyce et al. (1997) state that “SGML is the standard for electronic manuscript tagging which has been adopted in practice by the physical science community.” They further state that it is possible to migrate from SGML to emerging formats “without losing information or altering the article.”

Cochenour and Moothart (1995), however, raise the interesting question of whether electronic journals should be archived in electronic format at all. Perhaps archives should be in print or microform format to ensure longevity of the documents.

7.3. Electronic Journal Archiving Challenge

Long-term archiving of electronic journals is a key concern of many academic authors and customers of STM publishers. Subscribers to electronic journals, particularly academic libraries whose core business depends on being able to ensure future access to
published works, are deeply concerned with ensuring provision for continuing access to licensed publications. The transition from purchasing print journals, which are then owned by libraries, to licensing access to content controlled by publishers, requires planning and collaboration to provide an assurance of continued access at an affordable price.

It seems that in the past two or three years, e-journals have become the largest and fastest growing segment of the digital collections for most libraries. Collections that a few years ago numbered in the few hundreds of titles now number in the thousands, and the rate of growth continues to increase (See Fig. 4.1: Growth in Electronic Journal Publishing).

In many ways, archiving and preserving electronic journals will be dramatically different from what has been done for paper-based journals. In the paper era, there was large-scale redundancy in the storage of journals. Many different institutions collected the same titles. The copies of journals being saved for future generations were the same copies being read by the current generation of users. Many of the things that helped maintain journals for the long term (binding, repair, sound handling and shelving practices, environmental control, reformatting when usability was threatened) were not differentiated from what a library did to provide current services. Preservation through microfilming and through shared book storage facilities was thought useful, though there was little conscious coordination of preservation activities regarding in a level of redundancy.

The common service model for electronic journals is quite different than paper journals. Access to the most of electronic journals through a single delivery system is maintained either by the publisher or its agent. There is little replication, and only a few institutions actually hold copies of journals locally. Libraries can fulfill their current service requirements without facing the issues involved in the preservation of the resources. Further, in the digital realm the issues involved in day-to-day service are quite different from those involved in long-term preservation.
The issue of long-term archiving and preservation of e-journal content has become one of increasing importance. Specifically because of archiving concerns, many research libraries continue to collect paper copies at the same time they pay for access to the electronic versions. This dual expense is not likely to be sustainable over time. Publishers are finding that authors, editors, scholarly societies, and libraries frequently resist moving to electronic-only publication because of concern that long-term preservation and access to the electronic version is uncertain. Perhaps even greater long-term concern is while libraries continue to rely on the paper copy as the archival version, from the viewpoint of publishers it is increasingly the electronic versions of titles that are the version of record, containing content not available in the print version.

7.4. Self-Archiving

To Self-archive is to deposit a digital document in a publicly accessible web site, preferably an Open Archive Initiative-compliant Eprint Archive. Depositing involves a simple web interface where the depositer copy/pastes in the “metadata” (date, author-name, title, journal-name, etc.) and then attaches the full-text document. Software is also being developed to allow documents to be self-archived in bulk, rather than just one by one (http://www.eprint.org/self-faq/#self-archiving/).

The Open Archive Initiative (OIA) has designed a shared code for metadata tags (e.g., ‘date,’ ‘author,’ ‘title,’ ‘journal’ etc.). The full-text documents may be in different formats and locations, but if they use the same metadata tags they become “interoperable.” Their metadata can be “harvested” and all the documents can then be jointly searched and retrieved as if they were all in one global collection, accessible to everyone.

OAI-compliance means using the OAI metadata tags. A document can be OAI-compliant and an Eprint archive can be OAI-compliant. All OAI-compliant documents in OAI-compliant archives are interoperable. This means distributed documents can be treated as if they were all in one place and one format (http://www.openarchives.org/).
An Eprint Archive is a collection of digital documents. OAI-compliant Eprint Archives share the same metadata, making their contents interoperable with one another. Their metadata can then be harvested into global “virtual” archives that are seamlessly navigable by any user (just as a commercial index or abstract database is navigable, but with full-text access). Free Eprints software (itself using only free software) has been designed so institutions or even individuals can create their own OAI-compliant Eprint Archives. Setting up the archive only needs some space on a web server.

The purpose of self-archiving is to make the full text of the peer-reviewed research output of scholars/scientists and their institutions visible, accessible, harvestable, searchable and useable by any potential user with access to the Internet.

The Eprints movement is calling upon authors to consider carefully what rights they assign to publishers if they want to go on and self-archive a copy of their work. Some publishers currently support self-archiving of either the pre-refereed or the post-refereed version under the conditions stated and some publishers support self-archiving of both versions (http://www.eprint.org).

It may be noted that where copyright agreements do not yet formally support self-archiving, the publishers may still be willing to negotiate with individual authors on a case-by-case basis.

7.5. RoMEO Project

The RoMEO Project (Rights MEtadata for Open archiving) was funded by the Joint Information Systems Committee (JISC) for one year (1 August 2002 - 31 July 2003) to investigate the rights issues surrounding the 'self-archiving' of research in the UK academic community under the Open Archive Initiative's Protocol for Metadata Harvesting.

The RoMEO project was aimed to develop simple rights metadata by which academics could protect their research papers in an open-access environment and also develop a means by which OAI Data and Service Providers could protect their open-
access metadata. RoMEO proposed to show how such rights solutions might be disclosed and harvested under OAI-PMH.

It aimed to develop some simple rights metadata by which such papers may be protected in an open-access environment. It also aimed to investigate the issues relating to the IPR protection of metadata disclosed by Data Providers and harvested by Service Providers, with a view of developing a means by which the rights of such freely-available metadata might be protected under the OAI-PMH. The RoMEO project was divided into two phases: a data-gathering phase and a development phase.

Phase One collected data from relevant stakeholders (academic authors, journal publishers and OAI Data and Service Providers) on appropriate IPR issues which was fed into the development of the rights metadata and metadata protection solutions in Phase Two (http://www.lboro.ac.uk/). Phase Two of the project took the results of the author survey showing how academics wished to protect their open-access research papers and fed them in to the development of an appropriate rights metadata solution.

7.6. SHERPA Project

SHERPA was part of the JISC FAIR (Focus on Access to Institutional Resources) Programme which supports projects aiming to achieve the “disclosure of institutional assets” with the vision of setting up a “web of resources built by groups with a long term stake in the future of those resources, but made available through service providers to the whole community of learning.” The SHERPA Project was open to institutions and other bodies joining the project as Affiliate Partners. SHERPA is hosted by the University of Nottingham and is funded by JISC (Joint Information Systems Committee) and CURL (http://www.sherpa.ac.uk/projects/).

SHERPA attempted to investigate issues relating to future of scholarly communication. It developed open-access institutional repositories in a number of research universities to facilitate the rapid and efficient worldwide dissemination of research. The work of the project at individual institutions was under the control of Project Officers, supported by a Technical Officer, a Preservation Officer. This project came to an end by January 2006. However, much of its work in advocacy and assistance
in the establishment of institutional repositories is continuing under SHERPA Plus (http://www.sherpa.ac.uk/projects/).

7.7. Commercial Publishers’ Archiving Policy

An attempt is made here to present a critical study of the archiving policies of the top five commercial and the top five society publishers covered under the present study.

7.7.1. Elsevier

Since the TULIP project (1993-1995) Elsevier has been active in the electronic journal service. However, the policy has dramatically changed since 1996 onwards in terms of service, cost and long-term archiving. Elsevier’s policy for electronic journal archiving has been addressed in the agreements with libraries. One such example is the agreement between Elsevier and KB.

Elsevier Science started discussions with the Koninklijke Bibliotheek (KB) in 1995 with the introduction of Elsevier Electronic Subscriptions and signed an agreement with the KB in 1996 to deposit e-copies of all Elsevier Science journals with a Dutch imprint. This covered initially 270 journals. When ScienceDirect began its commercial program, Elsevier felt that it has the responsibility of archiving its e-journals. This became a formal commitment and part of the ScienceDirect license in 1999, saying that Elsevier would preserve the material in perpetuity and, should there come a time when Elsevier could no longer maintain this commitment, it would transfer the archive to library-approved hands. By autumn 2000, Elsevier also determined that it would be desirable to go a step further and deposit the e-journals on a current basis with a trusted repository.

While there have been (and continue to be) discussions with libraries in many parts of the world, the KB was the natural partner, as it is the home national library for Elsevier Science and a clear leader in digital preservation development (http://www.jisc.ac.uk/uploaded_documents/ejournalsdraftFinalReport.pdf).

At the same time Elsevier also started working on an archival project with Yale University Library, partnering with them in 2001 with funding from the Mellon
Foundation. This research project, which involved close co-operation with the KB, reconfirmed certain key archival principles, including the need to focus on content preservation (rather than look and feel) and to adopt the OAIS standards for preservation systems.

Moreover, Elsevier Science announced its new policy on permanent archiving of electronic journals in 1999. Elsevier will maintain the journals offered through ScienceDirect, its host service, in perpetuity. The archives will be migrated as the technology for storage, display, or access changes. According to the announcement, an internal production archive separate from the ScienceDirect distribution platform will ensure redundancy and the ability to re-create the files in case of disaster.

The present ScienceDirect server holds over 700,000 articles from Elsevier Science journals and expands at a rate of 25,000 articles per month. The current format standards are SGML and Adobe PDF; most files are retained in both formats. Elsevier allows for self-archiving by pre-refereed version only and on a public eprint server.

7.7.2. Taylor & Francis Group

In 2002, Taylor and Francis published over 750 of its journals online, with the articles available in PDF format, and free searching for all users. The complete articles are available free with institutional subscriptions (and in some cases to personal and society subscribers too) and via a document delivery charge for all other users. In addition to the PDF, the content pages and abstracts are available in HTML.

Taylor and Francis is working with a number of libraries to enable them to link directly to the online contents pages (and through to the final article) from their own intranets. Taylor and Francis have used “active reference linking technology” to enable customers to move between its online journals and other resources, such as secondary databases wherever possible (http://www.tandf.co.uk/journals/).

Taylor and Francis new pricing model allows an institution to dramatically increase its online journal collection, without having to dramatically increase its budget as follows:
• Current print subscriptions must be renewed (3% allowance for cancellations).

• E-only journals can then be selected for just $150.00 US per title - regardless of the list price.

• A minimum of 10 additional titles must be purchased per participating institution.

Access to the full archive is granted, and any access that has been paid for is available in perpetuity, even if a subscription is cancelled. There is no requirement for a minimum number of institutions to participate. However, this publisher does not allow for self-archiving.

7.7.3. Kluwer Academic Publishers

In order to know about Kluwer archiving policy, the agreement on long-term digital archiving between Kluwer and Koninklijke Bibliotheek (KB) is addressed as an example.

On 19th May 2003, Director General of the Koninklijke Bibliotheek (KB), the National Library of the Netherlands, signed an agreement on long-term digital archiving of the electronic publications of Kluwer Online. Under the terms of this agreement, Koninklijke Bibliotheek will receive digital copies of all Kluwer journals and books made available on its web platform, Kluwer Online. The web platform now contains 235,000 articles from 670 journals and more than 600 e-Books covering the areas of science, technology and medicine (http://www.kb.nl/kb/pr/pers/pers2003/).

In 1994, the KB decided to include electronic publications into its deposit collection. Since then, research and development on long-term digital archiving has been top priority in the National Library of the Netherlands. In close collaboration with IBM, the KB developed the e-Deposit system, which was implemented in December 2002. The Koninklijke Bibliotheek was the first national library in the world to own an operational system for the deposit and long-term preservation of digital publications.
For everybody involved in research and the communication of research results - authors, researchers, librarians and publishers alike - the agreement between the KB and Kluwer is yet another step forward in keeping digital archives available in perpetuity. The KB tries to enter into similar agreements with all major scientific publishers.

The KB will provide on site access to the journals on a current basis to all who come to the library and are permitted access to the library’s collections. The agreement covers new publications as well as digitised backfiles. In addition, should there be a catastrophic disaster such that the Kluwer Online system is inoperable for a long period of time, the KB would be part of the interim service system. Finally, should Kluwer or a successor cease interest to make these journals available on a commercial basis, as an official archive the KB could open access to all on a remote (in addition to walk-in) basis. With this agreement Kluwer is able to provide its customers with a solid and secure long-time archiving solution for electronic publications (http://www.kb.nl/kb/pr/pers/pers2003/). Kluwer does not allow for self-archiving.

7.7.4. Blackwell Publishing

Blackwell Science, Blackwell Publishers, and Munksgaard have been merged during 2001 to form Blackwell Publishing. Today, the three companies cumulatively publish nearly 600 journals in partnership with over 500 societies. They have produced over 600 text and reference books across a wide range of STM, social science, and humanities subject areas in 2001. Blackwell Publishing will consolidate the individual companies' reputations for high quality publishing of highly cited and reasonably priced peer-reviewed journals. The online versions of the majority of these journals are available on Blackwell’s online delivery system, called Blackwell Synergy (http://hul.harvard.edu/publications/library_notes/1301/index.html).

In 2001, the Harvard University Library and three major publishers of scholarly journals—Blackwell Publishing, John Wiley & Sons, Inc., and the University of Chicago Press—have agreed to work together on a plan to develop an experimental archive for electronic journals (http://www.diglib/org/preserve/harvardfinal.pdf).
The new joint venture is sponsored by the Andrew W. Mellon Foundation, which recently made a $145,000 grant to the Harvard University Library specifically for the planning of an electronic journal archive. The year-long planning effort will explore the issues related to electronic journal archiving and develop a plan for a repository at Harvard for electronic journal publications. The expected outcome is a proposal for an archive for these journals. Major areas to be studied during the year include:

- Establishing agreements between the partners regarding archival rights and responsibilities;
- Formulating a technical implementation plan;
- Defining methodologies that the archive would adopt to validate archival processes and assure the scholarly community that the journals for which the archive is responsible will be preserved and useable over time; and
- Creating organizational and business models.

It may be noted that Blackwell allows for self-archiving by pre-refereed version only and on author or institutional server only. Server must be non-commercial and publisher copyright and source must be acknowledged.

7.7.5. Springer-Verlag

Springers’ LINK provides an extensive digital library delivered directly to the workplace of scientists, librarians and information brokers, with users having access to the electronic version before its printed counterpart is published. Springer-Verlag is co-operating in a couple of national and international research and development projects.

Springer-Verlag has gained valuable experience in the field of electronic publishing in the course of many national and international projects. Current projects deal with the improvement of the complete electronic publishing process and involve collaborations with universities, publishing houses, libraries, abstracting services and
societies. For example; there is an electronic archiving initiative for mathematics journals that Springer-Verlag is working with (http://www.springer.sbm.de/en/press/release.php).

Electronic mathematics archiving initiative now has its own web site. The Electronic Mathematics Archiving Network Initiative (EMANI) has set up its own web site at www.emani.org. EMANI now offers access to 100 mathematical journals from various publishing companies at this URL. These also include retro-digitised journals, such as Mathematische Annalen, which has been published by the scientific publishing company Springer-Verlag since 1869.

All issues of the Springer journals *Inventiones Mathematicae* and *Mathematische Zeitschrift* are also now available in electronic form. Further publications from the entire specialist publishing group are scheduled to be digitised in the near future, including *Commentarii Mathematici Helvetica* published by Birkhäuser in Basel and the mathematical publications of Teubner and Vieweg in Wiesbaden. All these publishing companies belong to the specialist publishing group Springer Science+Business Media, as does the scientific publishing company Springer-Verlag. Moreover, Springer is involved in a knowledge management project dealing with digitally produced publications in order to ensure that they can be accessed on a long-term basis.

EMANI, a partnership between the world’s leading science libraries, mathematical institutions and Springer-Verlag, has been digitising, archiving and distributing specialist mathematical knowledge collected over a period of decades since 2001.

The initiative is designed to preserve and allow access to the intellectual heritage of mathematics for future generations (http://www.springer.sbm.de/en/press/release.php).

The libraries that have joined EMANI to date are Göttingen State and University Library in Germany, Cornell University Library in the USA, Tsinghua University Library in China, and MathDoc (an association of several French maths libraries and Cellule MathDoc in Grenoble). In addition to the publishing companies that belong to the Springer specialist publishing group, the European Mathematical Information Service’s
electronic library (ElibM in EMIS) also provides content for the initiative. Academics and librarians are involved in the project’s progress through an Advisory Board. EMANI welcomes new partners, content providers and libraries.

Another project is long-term preservation of electronic publications that Springer is co-operating with (http://www.springer.sbm.de/en/press/release.php). In June 2000, Die Deutsche Bibliothek and Springer-Verlag (Berlin/Heidelberg), a part of the Bertelsmann-Springer Publishing Group, concluded a contract for the long-term preservation of digital publications. The agreements are based upon groundwork laid by the “Electronic Deposit Library” task force, in which Die Deutsche Bibliothek is represented alongside publishers VCH-Wiley, DuMont, K.G. Saur, Springer and the Buchhändler-Vereinigung [German Book Trade Association].

On the basis of a review of selected publications issued by these publishers, Die Deutsche Bibliothek drafted a set of requirements for the organisational and technical design of procedures for the transfer, processing, long-term preservation and availability of digital publications. These requirements are now being implemented in a prototype transfer and processing system for electronic publications.

In its Internet-based LINK information service, the Springer-Verlag publishes some 500 periodicals, publication series and expert systems in various fields of medicine, science and engineering. The role of Die Deutsche Bibliothek is to load electronic publications from LINK onto its own archive server http://deposit.ddb.de and take appropriate measures to ensure their long-term availability. Users of Die Deutsche Bibliothek can access these publications directly in the reading rooms.

The project work accomplished in co-operation with the Springer-Verlag is “prototypical” in the sense that it was focused from the outset on the objectives ensuring broad-based applicability and deriving long-term benefits from the investments involved. In the process of analysing the transmission and archiving procedures required for online publications, the structure used by the Springer-Verlag in publishing periodicals content was consistently approached as one of several possible variants to be incorporated within an archive system.
It may be noted that Springer-Verlag allows for self-archiving on author's own web site and published source must be acknowledged.

7.8. Society Publishers' Archiving Policy

7.8.1. Oxford University Press

The Oxford Journals online collection is a collection of online journals that they promote to academic library consortia, academic multi-site institutions and corporate multi-site customers world-wide. The collection consists of an agreed list of online journals from arts, social science, scientific, technical, medical, professional and humanities disciplines. They offer customers the choice of subscribing to the complete online collection, a subject-based collection or select sub-set of the online collection (http://www3.oup.co.uk/oup-bin/faq).

Archive information for all Oxford University Press titles for both abstracts and full issues is available at http://www3.oup.co.uk/jnls/online/all.html. Alternatively, users can go to the relevant title's home page and click on the Browse the Archive link. All available back files are included as part of a multi-site or consortium agreement.

Oxford University Press is participating in a number of archiving projects, including the Andrew W Mellon Foundation's e-journal archiving program, and Stanford University's LOCKSS and Dark Cave projects. Oxford University Press is also working with the University of Pennsylvania in order to archiving and preservation of electronic journals.

Currently Oxford University Press has made a commitment to enable its institutional subscribers to have perpetual access to journal content that they subscribe to, or have previously subscribed to. Customers may obtain ongoing access to their subscriptions on the Oxford University Press web site. Or they should refer to their agent for information regarding access via their preferred gateway. However, should Oxford University Press no longer retain the rights to publish that content (for example, if there is a shift in journal publishing from one publisher to the other) currently they could not guarantee continued access. This is a recognized problem across the industry that
publishers are working to find a solution for. Oxford University Press allows authors for self-archiving of pre-refereed version only.

7.8.2. Cambridge University Press

Cambridge University Press provides full text for over hundred journals. Some 150 titles are currently published for an international readership, covering a wide range of disciplines, from architecture and area studies to botany and zoology. A significant number of these journals are published on behalf of, or in association with, learned and professional societies such as The Physiological Society, The London Mathematical Society, The Zoological Society of London and The British International Studies Association.

Cambridge University Press is committed to innovation in its journal publishing. Ongoing developments include distribution of single articles across the Web and the publication of complete electronic-only journals, which allows for the inclusion of sound and moving image material as well as the more traditional data. The majority of Cambridge journals are now available electronically through the Cambridge Journals Online service, which provides access to the full text of more than 150,000 pages, 24 hours a day, seven days a week (http://journals.cambridge.org).

In addition, the development of electronic distribution media and of the Internet now offers the prospect of publishing new kinds and combinations of material from a systematic electronic archive. Cambridge Journals Online does include other journal titles but users only have full text access to the journals that their library subscribes to in print form. If users select a journal title not included in the authorized listing they will have access to journal contents pages and article abstracts only. Full-text electronic access is from 1997 onwards (http://uk.cambridge.org/information/introduction/international.htm).

Moreover, in 2003 a press release from the University of Cambridge announced a joint project between the Cambridge University Library and the Massachusetts Institute of Technology (MIT) Libraries to establish a digital repository based on the D-Space
software. The press release says that the Cambridge system - to be known as 'DSpace@Cambridge' - will have two main roles (http://www.lib.cam.ac.uk/dspace/).

Firstly, it has the ability to capture, index, store, disseminate and preserve digital material created by the academic community, including scholarly articles and pre-prints, theses, technical reports, archives and other textual material, together with different formats such as multimedia clips, interactive teaching programmes, datasets and databases.

Secondly, it will provide a home for the increasing amount of material that is being digitized from the University Library's collections.

Cambridge University Press allows for self-archiving. The condition is published source must be acknowledged and it must be on author or institutional server only.

7.8.3. **IEEE (Institute of Electrical and Electronics Engineers)**

Serving over 322,000 members in 150 countries, the IEEE (Institute of Electrical and Electronics Engineers, Inc.) is devoted to advancing the theory and application of electrical, electronics and computer engineering. Founded in 1884, it is the largest technical society in the world. No other single organization can provide professionals with as many resources and opportunities to advance their careers.

With over 115 periodicals and 170 conference proceedings, IEEE publishes over 30% of the world's technical literature in the field. IEEE members get access to critical research first. IEEE Spectrum, the world's foremost electrotechnology magazine, and other IEEE magazines offer the theory and application of recent developments in the field. IEEE also publishes innovative books and produces CD-ROMs featuring the latest innovations from technical leaders at major corporations and academic institutions all over the world (http://www.ieee.org/products/onlinepubs/info/licensing.html).

Each year, IEEE conducts more than 300 major conferences and 4,500 local meetings around the world, far more than any other technical society. More than 350,000 professionals participate in the major conferences alone.
More than 650 IEEE Standards are currently in use around the world. Each year, some 80 new and revised standards are approved and published, while more than 100 standards development projects officially enter the IEEE system. As IEEE members, your employees have access to IEEE Standards at a discount and have opportunities to contribute to their development (http://www.ieee.org/products/onlinepubs/).

Online Collections of IEEE is listed below:

- IEEE/IEE Electronic Library (IEL): Information Driving Discovery
- IEEE Conference Proceedings: POP and POP All Online
- All-Society Periodicals Package (ASPP): the most highly-cited journals in the field
- IEEE Computer Society Electronic Library (CSLSP-e): the leading research in computer science and engineering
- IEEE Biomedical Engineering Library (BEL): IEEE Information Driving Innovation in Biomedicine
- IEEE Information Technology Library (ITeL): more than 1,500 conference proceedings and publications
- IEEE Standards Online: Innovation by Design

All IEEE online publications delivered through the IEEE Xplore. Access to tables of contents of IEEE transactions, journals, magazines, conference proceedings and standards is free to all users. In order to access to full text institutions need to register and pay subscription fees.

Upon termination of an online subscription, the subscribing institution (Licensee) may retain the right to use in archived form the content of the Database for the years in which Licensee subscribed provided that Licensee; further IEEE:
- Continues to adhere to its obligations with respect to security and restrictions on usage as stated herein and/or in the then current license agreement;

- Pays all costs associated with providing the Database content to Licensee on a mutually agreeable media type; and

- Continues to limit access to the content of the Database to Authorized Users at the Authorized Sites or via Remote Access.

In addition, IEEE allows for self-archiving of post-refereed version only.

7.8.4. MCB University Press (Emerald)

In 2001 MCB University Press adopted the name Emerald as its new organizational identity. The initial focus was on management disciplines like strategy, change management, and international marketing. More recently, MCB has diversified into information science too. Today it publishes more than 150 journals, including Management Decision, The European Journal of Marketing, and Library Management (http://ariel.emeraldinsight.com).

MCB's top-100 journals are also available electronically via the Emerald Full text product. In addition, the company sells a number of other database offerings, including Emerald Management Reviews, which contains reviews of articles from the world's leading management publications, and Emerald Abstracts, which provides abstracts of key journals in the fields of civil engineering, computer science, and computer and communications security.

Emerald Full text is a collection of over 42,000 articles from over 100 of the most prestigious management journals, complete with full text archives back to 1994 and abstracts back to 1989. Emerald Full text provides users with access to the latest research and global thinking via the Internet.

Emerald has some archives online, available through its Internet site, enabling readers to track trends in research. Many titles within Emerald Full text go back as far as

MCB understands that a fair archiving policy is of concern to its customers. So it provides an archiving service to the years which the library subscribed should they cancel their subscription. Data can continue to be provided through the Internet or on an archival CD-ROM. Currently, the archive is provided to consortium members only as a benefit of membership (http://ariel.emeraldinsight.com).

However, reasoned debate is no longer the issue. What the Emerald story underscores is the unbridgeable ideological gulf that now exists between commercial publishers and many in the research and library communities.

Moreover, for a company created by frustrated authors seeking to “do it themselves,” there is an uncomfortable irony in the knowledge that Emerald is now viewed as part of the problem, rather than a solution. It turns out, argue critics, that the answer to author frustration lies not in emulating publishers, but in marginalizing them. This is a strategy made possible today by placing academic papers on the Web. “The Emerald case illustrates clearly that researchers' dissatisfaction is not remedied by their becoming publishers, but by [their institutions’] self-archiving all their own [peer-reviewed] research output,” argues Stevan Harnad, professor of cognitive science at Southampton University in the U.K (Harnad, 2001).

Emerald permits contributing authors to also self-archive their articles and the published source must be acknowledged. But since the endgame of self-archiving assumes that the publisher’s role is downsized to peer review alone—or even disappears completely—it’s hard to see how Emerald's current revenues could be maintained if self-archiving were to become the norm.
7.8.5. American Psychological Association (APA)

American Psychological Association (APA) is committed to preserving the knowledge base in psychology and to serving user and customer needs. To ensure preservation of the knowledge base, American Psychological Association maintains a digital archive of all the journals in PsycARTICLES and will convert that archive as technology changes. American Psychological Association has from its inception had an agreement with the American Association for the Advancement of Science to transfer any archives in the unlikely event that American Psychological Association could no longer maintain its archives (http://www.chest.ac.uk/search).

American Psychological Association recognizes the business needs of libraries and other customers to retain potential access to content for which they have purchased current access. APA’s annual data fees cover current content. As a courtesy to customers and users, American Psychological Association provides all backfiles without additional fees during the period of time the customer pays for a site license. If, at a later date, a customer does not renew the site license, they will retain rights to access all American Psychological Association full-text journal articles published from the first actual year through the last year for which they paid data fees, without paying additional data fees. If the customer desires access to full-text content files from years prior to the years in which they paid, American Psychological Association will make those files available for a fee.

American Psychological Association is also committed to providing customers options for delivery for site licenses. Currently, those options include customer loading, access through several vendors, or access directly from American Psychological Association, and there is a separate cost for delivery. The customer who has stopped paying for an annual site license may also choose one of these options for the segment of content for which they retain rights (http://www.chest.ac.uk/search). Although customers would not pay ongoing data fees, they would pay for the delivery of the content. For example, customer pays annual access and data fees for PsycARTICLES from 2002 to 2010. The customer does not renew access for 2011. At that point they retain rights to get access to content APA published between 2002 and 2010. If they wish to get access to
data published in prior years, they may pay a separate data fee. Delivery of the content entails a separate fee, just as it does with annual licenses.

This policy will apply to all APA-owned content. As American Psychological Association negotiates contracts with other content owners, the association will encourage those owners to agree to the same terms as part of their participation in the database. American Psychological Association does not allow for self-archiving.

7.9. Summary

Archiving of electronic journals is one of the important challenges for libraries and publishers. Most publishers are creating and allowing access for the short term to materials published in electronic form, and many are enabling subscribers to access previously published materials that are digitally available. However, not all publishers are retrospectively digitizing materials originally published in print or migrating older digital formats to more current ones.

Archiving policies of the ten studied publishers showed that except Taylor and Francis, IEEE, and MCB University Press, all other publishers have been working with other institutions such as National Library of the Netherlands or universities libraries for archiving of electronic journals. Taylor and Francis, IEEE and MCB University Press have prepared their own electronic archiving (See Table 7.1).

As it is seen from Table 7.1, three publishers including Taylor and Francis, Kluwer and American Psychological Association do not allow for self-archiving and all other publishers do allow for self-archiving.

Having discussed in the present chapter, archiving challenge and policies of the top five commercial and the top five society publishers effort is made to present licensing policies of these publishers, in the next chapter.
<table>
<thead>
<tr>
<th>Name of Publishers</th>
<th>Self-Archiving</th>
<th>Archiving Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Elsevier</td>
<td>YES</td>
<td>Working with National Library of the Netherlands or Koninklijke Bibliotheek (KB), and Yale University Library</td>
</tr>
<tr>
<td>2 Taylor &amp; Francis</td>
<td>NO</td>
<td>It has prepared its own electronic archiving and any access that has been paid for is available in perpetuity, even if a subscription is cancelled.</td>
</tr>
<tr>
<td>3 Kluwer</td>
<td>NO</td>
<td>Working with National Library of the Netherlands or Koninklijke Bibliotheek (KB)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Working on “Electronic Deposit Library” task force along with Die Deutsche Bibliothek, VCH-Wiley, DuMont, K.G. Saur, Springer and the Buchhändler-Vereinigung [German Book Trade Association]</td>
</tr>
<tr>
<td>6 Oxford University Press</td>
<td>YES</td>
<td>Participating in a number of archiving projects, including the Andrew W Mellon Foundation’s e-journal archiving program, Stanford University’s LOCKSS and Dark Cave projects</td>
</tr>
<tr>
<td>7 Cambridge University Press</td>
<td>YES</td>
<td>Working on a digital repository based on the DSpace software in corporation with Cambridge University Library and Massachusetts Institute of Technology (MIT) Libraries</td>
</tr>
<tr>
<td>8 IEEE</td>
<td>YES</td>
<td>It has prepared its own electronic archiving</td>
</tr>
<tr>
<td>9 MCB University Press (Emerald)</td>
<td>YES</td>
<td>It has prepared its own electronic archiving and it is available through the Internet or on an archival CD-ROM</td>
</tr>
<tr>
<td>10 American Psychological Association (APA)</td>
<td>NO</td>
<td>1. APA maintains a digital archive of all the journals in PsycARTICLES and will convert that archive as technology changes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. APA is working with the American Association for the Advancement of Science to transfer any archives in the unlikely event that APA could no longer maintain its archives.</td>
</tr>
</tbody>
</table>

Table 7.1: Archiving Policies of Publishers