Chapter L
The Role of Open Source Software in Open Access Publishing

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ABSTRACT

This chapter discusses the rapid transition from paper to electronic distribution of scholarly journals and how this has led to open-access journals that make their content freely available over the Internet. It presents the practical and ethical arguments for providing open access to publicly funded research and scholarship and outlines a variety of economic models for operating these journals. There are hundreds of journals that are run on volunteer effort by a few people or even a single person. Journal management software that can streamline the peer-review process as well as other aspects of operating a journal can dramatically reduce the effort of operating these journals and allow them to flourish. The availability of high-quality, open source journal management software is playing an important role in facilitating the success of small volunteer-run, open-access journals.

INTRODUCTION

This chapter discusses the Open-Access Initiative (OAI) in scholarly publishing and how open source journal management software can be a critical resource for small open-access journals published by volunteers. The issues that will be covered include the following:

- Rapid transition from paper to electronic distribution of scholarly journals and its economic implications
- Practical and ethical arguments for open access to research and scholarship
- Alternative models for funding the dissemination of scholarship and the key role open source software can play in facilitating open access to scholarship
- Future trends in the organization and funding of scholarly publications

BACKGROUND

Although a few scholarly journals[1] were distributed electronically prior to the World Wide Web (the Web), the development of the Web made electronic distribution of journals practical. Today,

the majority of scholarly journals are available via the Internet, and electronic dissemination is quickly becoming the dominant means by which these journals are distributed (Van Orsdel & Born, 2002).

This rapid transition and the inherent differences between paper and electronic distribution have thrown the 340-year-old, multibillion-dollar scholarly publication system into turmoil. With electronic dissemination, many of the most resource-intensive roles that have traditionally been played by both publishers and librarians are disappearing, and it is not yet clear who will perform the roles that remain and how the evolving system will be organized and financed (Solomon, 1999).

Along with speed and convenience, electronic distribution has significantly reduced the cost and effort required to publish a journal. While these efficiencies are evident throughout the publication process, the most striking difference is that electronic dissemination essentially has removed the cost of distribution.

Since the incremental cost of distributing each copy of a paper journal is significant, the only practical means of funding these journals is through subscription fees. With electronic publication, funding a journal by other means and disseminating the content of these journals at no charge is both feasible and, in the view of many people, highly desirable. The calls for free and open access to scholarly journals started almost as soon as they began appearing in digital form (Harnad, 1990). By 2002, the movement organized itself into what is commonly called the open-access initiative (Budapest Open Access Initiative, 2002). There are compelling reasons for open access to scholarship that involve both practical and ethical issues.[2]

As noted by Willinski (2006), open access is not an all-or-nothing phenomena, but rather a continuum with many forms. He defines 10 styles of open access that provide different types of access that largely reflect how the cost of publication is funded. At the most basic level, there

are two general approaches to open access: the development of open-access journals and authors archiving their own manuscripts in open-access archives. These have been termed the "gold" and "green" roads to open access (Guedon, 2004).

At its most limited form, there are journals that make abstracts freely available. At the other end of the continuum are what Willinsky (2006) terms subsidized journals, which provide immediate open access to their full content with the cost of operating the journal subsidized by other means. Other models include partial open access, in which some material is freely available and the rest is available only by paid subscriptions; delayed open access, in which material is restricted to paid subscribers initially and at some point is made freely available; and author-paid models, in which the material is made freely available but authors must pay a fee to publish in the journal.

All these models provide some level of access over the traditional subscription fee model; however, all but subsidized journals limit open access to some extent or charge authors as a means of funding the publication process. Unfortunately, any restriction on access, including charging authors for publication, places barriers to the dissemination of research and scholarship that reduces the value of the information.

ARGUMENTS FOR OPEN ACCESS TO RESEARCH AND SCHOLARSHIP

There are compelling ethical and practical reasons for providing complete unrestricted access to scholarly literature. From an ethical standpoint, much of the cost of scientific research and other forms of scholarship is funded though public sources. The National Institutes of Health (NIH), for example, is spent approximately $29 billion on biomedical research in fiscal year 2006 (National Institutes of Health, 2005). Willinsky (2000) has called the product of this research public knowledge and argues that since the research is pub-

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