

Pricing and Publishing Models of Electronic Journals

by

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Abstract

There has been a crisis in scholarly communication since the late 1980's due to the spiraling costs of scientific journals. Libraries were the first to experience the effects of the breakdown as they struggled to keep up with the exploding volume and cost of journals in Science, Technology, and Medicine (STM). As the cost of serials in major libraries soared, libraries were forced to cancel millions of dollars worth of subscriptions. Most pricing and publishing models were created to offer a constructive response to this issue. The aim of these initiatives is to transform scientific journal publishing into a market-aware and fiscally responsible enterprise. There are many pricing and publishing models for electronic journals. The following models are explained in this paper: TULIP, PEAK, SPARK, BioOne, HighWire Press, Project MUSE, JSTOR, PubMed, and EPIC.

Key Words: Pricing Models, Electronic Journals

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Introduction

The number of journals offered in electronic format is increasing rapidly, and new pricing and publishing models that are being offered by publishers and universities are also increasing.

Users generally will expect extra value in an electronic version of a journal such as the ability to make electronic highlights or hot links to referenced papers. Users will also be reluctant to invest the time and effort to learn a new electronic journal system if there is not a critical mass of available content.

One beneficial aspect of digitizing journals is the ability to dis-aggregate journal issues and allow libraries different pricing models for purchasing individual papers. One model of a non-commercial electronic journal generates fees by charging the authors of a paper a publication fee instead of charging users a subscription fee to offset the costs publication costs, editorial work, proof-reading, distribution. This model addresses the fact that current Internet users that expect free content will be reluctant to pay for an electronic journal, and also avoids the extra costs associated with subscription (maintaining accounts and restricting access).

Traditional journal pricing, where an annual subscription fee is charged per title creates a low-risk market for publishers. The user base is wide, and money is paid up front. In an electronic environment, journal articles can be un-bundled and sold either on-demand, or repackaged in bundles better suited to individual libraries or departments. Publishers sometimes bundle all their titles and sell a site license to the entire collection. This is analogous to bundling a set of journal articles into one issue of a title; money is paid in advance, and weaker articles (or journal titles) are subsidized by stronger articles (titles).

Electronic publication allows flexibility in the bundling of individual articles and in the prices charged for them. For example, different prices may be charged for the same article depending on who accesses it; staff, undergraduate or graduate student or at different times of the year – articles may be more expensive near exam time (thereby penalizing last minute studying).

Background

The high and fast-rising price of journals has had a profound effect on the flow of scholarly communication. Data collected by the Association of Research Libraries (ARL) (2001), a membership organization of over 120 of the largest research libraries in North America, reveals that the unit cost paid by research libraries for serials increased by 226 percent between 1986 and 2000 (In comparison, over the same time period, the consumer price index increased by 57 percent).

With serials costs increasing at 8.8 percent a year, and library materials budgets increasing at only 6.7 percent a year, libraries simply could not sustain their purchasing power. It may be noted here that even though the typical research library spent almost 3 times more on serials in 2000 than in 1986, the number of serial titles purchased by them declined by 7 percent. Even more dramatically, as libraries diverted resources to support journal subscriptions, book purchases declined by 17 percent.

The overall high prices and significant price increases of journals have been traced to titles in Science, Technology, and Medicine (STM). Studies over the years have led librarians to believe that at least a part of the cause of the high prices in the STM disciplines is the increasing commercialization of science publishing.

It seems that science has become an endangered concept for scientists. Although journals are produced by researchers who contribute their time and effort for the benefits of their professional community, the net effort is to support commercial publishers' high profits. According to Buckholtz STM journals are more costly. For example, an institutional subscription to *Brain Research* will cost U.S \$15,000 per year; a year of one nuclear physics title cost around U.S. \$11,000 and one pharmacology journal will be almost \$7,000 per year. She pointed out that though humanities and social science journals have also increased in price, the rates are still a fraction of STM journals. Ironically, humanities and social science journals are among the first cut when libraries need to make room for cost increases on STM journals. She also believes that pricing is not a moral issue. In commercial publishing, competition is the name of game. But it is not a game most scientific or universities have experienced with, and it threatens the future of scientific communication (Buckholtz, 2000).

In 1998, Wyly also had a look on the most significant scholarly publishing operating such as Reed Elsevier, Wolter Kluwers, John Wiley and Sons, and Plenum Publishing (Wolters Kluwer later acquired Plenum). He addressed that in the “consumer publishing market”, the publisher produces the content and other publishers can compete by producing similar content themselves. In the “scholarly market”, the content produced by authors external to the publisher, and author are reluctant to move another publishing channel. He noted that this is a very positive market situation for a publisher because it avoids competition so long as the economic model is not disturbed by innovation. In analyzing these companies and the price hikes they have imposed, Wyly suggests that the absence of competition allows their profit margins to rise above the industry standard for periodicals. He believes the introduction of electronic publications could jolt the industry: "New publishing channels that include technological or structurally innovative features, reach broad audiences, and offer prestige early in the life-cycle might lure authors away from established channels," and he continues "We must innovate to produce competitive communication systems over time or continue suffering under a system of shrinking access due to the lack of competition in the present system."

In addition to the market dominance, commercial publishers are seeking to expand their market share through mergers and acquisitions. The purchase of individual titles from societies and independent editorial boards increases the number of titles under commercial ownership, while the purchase of other companies consolidates more and more content into the hands of fewer and fewer firms. Both these practices have been shown to exacerbate already high price increases (McCabe, 2000). One of the most significant mergers was the purchase in 2001 of Harcourt General by Reed Elsevier. This transaction brought over 400 additional STM titles under the control of Elsevier Science, already the largest publisher of science journals in the world with its sizable portfolio of about 1200 titles. The emerging of publishers has continued over time. For example, in 2003, the Academic Press also emerged into Elsevier and later Springer-Verlag and Kluwer emerged together.

While the economic impact of mergers is of great concern, there are equally grave implications of more and more scientific information being owned exclusively by a single company. Major content owners, like Reed Elsevier, have aggressively lobbied for

database legislation, and restrictions on the educational use of copyrighted digital works. If there are not significant changes in the trends that have emerged over the past fifteen years, the next twenty will be increasingly dire. A study by Association of Research Libraries (ARL) shows that by 2020, the typical research library will be paying \$1,632 for a journal subscription and \$107 for a monograph compared to \$267 and \$47, respectively, in 1999 ("Journal Costs," 2000). Such a library would continue to lose purchasing power, buying only 13,700 serials and 15,048 monographs—16 percent fewer serials compared to 1986 and 54 percent fewer monographs. With the economy currently struggling and library budgets under siege, the actual results could be far worse.

Some promising solutions have emerged to offer a constructive response to the escalating journals cost and crisis in scientific communication issues. The following pricing and publishing models of electronic journals such as TULIP, PEAK, SPARK, BioOne, HighWire Press, Project MUSE, JSTOR, PubMed, and EPIC have been explained in this paper. The aim of these initiatives is to transform scientific journal publishing into a market-aware and fiscally responsible enterprise. Almost all of them have created in electronic environment which has the potential to reinvigorate scholarly communication, and in the end achieve nothing less than the restoration of science to scientists.

1. TULIP (*The University Licensing Program*)

The University Licensing Program (TULIP) was a cooperative research project testing system for networked delivery and use of journals, carried out by Elsevier Science and nine leading universities in the USA. The universities were: Carnegie Mellon University, Cornell University, Georgia Institute of Technology, Massachusetts Institute of Technology, University of California (all campuses), University of Michigan, University of Tennessee, University of Washington and Virginia Polytechnic Institute and State University. *The University Licensing Program* (TULIP) started in early 1991 and concluded at the end of 1995 (<http://www.elsevier.nl/>).

The goal of the project was to jointly test systems for networked delivery to, and use of journals at, the user's desktop.

Materials science provided a field in which there was both a sufficiently large corpus of frequently-cited material within one publishing company and interested faculties. Therefore 83 journal titles were chosen from the collection of Elsevier Science journal titles.

Some technical conclusions of the TULIP are listed below:

- Most universities decided to “*shift to the Web*”, thereby abandoning X-Windows and MS-Windows applications, as the advantages plus the sheer user-pull outweigh any disadvantages such as fewer possibilities to provide “*real-time*” functionality (e.g. image-zooming).
- Speed was crucial for image viewing on the screen. The components of the system, influencing the (perceived) speed, were the server/storage speed, the network speed, the client machine speed and application software image caching “*smarts*”.

The objective of the user research behavior was to obtain specific feedback about TULIP from end users. Two types of research were done: quantitative and qualitative. The quantitative research consisted mainly of analysis of the logfiles, i.e. records of user actions. The qualitative research, which consisted mainly of focus groups and one-on-one interview, using basically the same interview guides for each site, was aimed at answering the questions raised by the quantitative research. (<http://www.elsevier.nl/>).

Some conclusions that drawn from the user studies, include the following:

- The general concept underlying the TULIP project was very well received by students and faculties. This concept consisted of desktop access to full text/image articles; fast and easy to search, to read and to print.
- Hardware and software were serious obstacles for convenient use of the TULIP information at most sites.
- Most users considered the coverage (in number of titles and in time) of the journals in the TULIP project to be insufficient. This insufficient coverage (not all core journals - those not published by Elsevier - were available in the database) required end users to search additional information elsewhere, which was

considered time-consuming and redundant; not contributing to an increased convenience.

- Graduate students used TULIP more frequently than faculty.
- There was enthusiasm about the concept of desktop access to electronic information, but the end of paper products seemed to be far away still. Besides some practical benefits of paper products, there also seemed to be “*emotional*” ties with paper and the library.
- Promotion played an important and continuous role in the degree of success that could be achieved. Recognizing the fact that meeting user needs was primary; promotion and training were crucial for a service such as TULIP, to develop a base of regular users.

2. PEAK (Pricing Electronic Access to Knowledge)

The University of Michigan has operated a field trial in electronic access pricing and bundling called "Pricing Electronic Access to Knowledge" (PEAK) (MacKie-Mason, et al, 1999). PEAK was both a production service for electronic journal delivery and an opportunity for experimental pricing research that provides access to the 1,100+ journals published by Elsevier Science -- journals that include much of the leading research in the physical, life and social sciences. The underlying economic motivation for the PEAK experiment was to learn how additional value can be extracted from existing content by means of innovative electronic product offerings and pricing schemes such as bundling.

Generally, a print-on-paper journal is, in itself, a bundle of issues. Each issue, on the other hand, contains a bundle of articles, each of which is again a bundle of bibliographic information, an abstract, references, text, figures and many other elements. In addition, the electronic environment makes possible other new dimensions of product variations. For example, access can be granted for a limited period of time (e.g., day, month, and year) and new services such as hyperlinks can be incorporated as part of the content. Permutations and combinations are almost limitless (MacKie-Mason, et al, 1999).

The research team sought to determine how users respond to different pricing schemes and assess the additional value created from the different product offerings. The team also analyzed the impact of the different pricing schemes on producer revenues. The team's aim was to be able to generalize results to various business models, customer populations and information goods. Finally, they would like to contrast the empirical results with the current conclusions of the economic literature on bundling of information goods (Bonn, et al, 1999). Participants in the PEAK experiment were offered packages containing two or more of the following three access products:

1. *Traditional subscription.* Unlimited access to the material available in the corresponding print journal. It was a seller-chooses bundle, in that the seller, through the editorial process, determines which articles are delivered to subscribed users.
2. *Generalized subscription.* Unlimited access to any 120 articles from the entire database of priced content, typically the two most current years. It was a user-chooses bundle.
3. *Per article.* Unlimited access for a single individual to a specific article. If an article was not available in a subscribed journal, nor in a generalized subscription, nor are there unused generalized subscription tokens, then an individual may purchase access to the article for personal use. It was a buyer-chooses scheme.

They observed several interesting features of user behavior and the economics of access to scholarly literature:

The innovative access model they introduced -- the generalized subscription -- is only feasible in an electronic environment and, apparently, was quite successful. The user cost of access, consisting of both monetary payments and time or effort, has a significant effect on the number of articles that user access. There was a substantial learning curve during which users become aware of the service and accustomed to using it. It appears that usage was increasing even after a year of service (MacKie-Mason, et al, 1999).

3. SPARC (The Scholarly Publishing and Academic Resources Coalition)

The Scholarly Publishing and Academic Resources Coalition (SPARC) is a worldwide alliance of libraries and library organizations and is an initiative of the Association of Research Libraries (<http://www.arl.org/sparc/about/index.html/>).

SPARC was built as a constructive response to market dysfunctions in the scholarly communication system. These dysfunctions have reduced dissemination of scholarship and crippled libraries. SPARC was formally launched in July 1998.

Membership in SPARC numbers approximately 200 institutions in North America, Europe, Asia, and Australia. It is working with the Ligue des Bibliothèques Européennes de Recherche (LIBER) and other European organizations to establish SPARC Europe, and is investigating the potential for a similar initiative in Japan. SPARC also is affiliated with major library organizations in Australia, Canada, Denmark, New Zealand, the UK and Ireland, and North America

SPARC-endorsed journals are both print and electronic. All SPARC-endorsed journals that appear in print also appear as web editions. Three journals, *PhysChemComm*, *New Journal of Physics* and *Internet Journal of Chemistry*, are electronic-only.

SPARC's financial support of journals generally takes the form of subscriptions placed by its members rather than through direct funding (<http://www.arl.org/sparc/about/>).

SPARC provides many other services to its publisher-partners, including: an advisory role in the planning and development phases; advertising, publicity and promotion to the broad marketplace; and sales and marketing focused on encouraging SPARC member purchases.

4. BioOne

BioOne is a unique aggregation of high-impact bioscience research journals. BioOne provides integrated, cost-effective access to a thoroughly linked information resource of interrelated journals focused on the biological, ecological and environmental

sciences. BioOne was created by organizations representing key aspects of the scholarly communications process: scientific societies, libraries, and the commercial sector.

It is being developed by the American Institute of Biological Sciences (AIBS), SPARC, the University of Kansas, the Big 12 Plus Libraries Consortium, and Allen Press. Each of these collaborating organization deeply involved in various aspects of the scientific communications process (<http://www.BioOne.org/>).

When launched in 1999 as a non-profit organization, BioOne collaborators are currently working with societies to create model licenses tailored to these publishers' needs. By bringing to the Web a uniquely valuable aggregation of the full texts of high-impact bioscience research journals, BioOne helps societies ensure their own future vitality. With BioOne, societies enable users to navigate seamlessly among journals from different societies, assured that the price of access is motivated by goals of cost recovery and maximization of dissemination. BioOne provides integrated, cost-effective access to a thoroughly linked information resource of interrelated journals, focused on the biological, ecological, and environmental sciences.

BioOne Internet delivery system is based on an archival SGML database. SGML and PDF are full text format of all articles. It offers a seamless information environment allowing cross-journal linking from references. Each article clearing indicate the journal source to maintain their identities and users can evaluate articles based on their origin. In 2005, 762 Libraries in 32 countries has taken BioOne around the world (<http://www.BioOne.org/>).

5. HighWire Press

HighWire Press is a division of the Stanford University Libraries. It began in early 1995 with the online production of the weekly Journal of Biological Chemistry (JBC), the most highly cited (and second largest) peer-reviewed journal. Scientists and societies rapidly saw the potential for new forms and features of scientific communication, and Science and Proceedings of the National Academy of Sciences soon joined Journal of Biological Chemistry online. HighWire produces 939 sites online in

2006, with many more planned. HighWire is organizationally a department within Stanford, much as the Stanford University Press is.

The journals HighWire supports correspondingly focus on science, technology, and medicine (STM) and are preponderantly among the highest-impact journals in the literature. HighWire was founded to ensure that its partners - scientific societies and responsible publishers - would remain strong and able to lead the transition toward use of new technologies for scientific communication.

HighWire journals offer the features that are standard in web publishing, plus some innovative functions. Readers can browse tables of contents, in some journals in advance of publication. For all journals, current and earlier contents can be browsed (<http://www.highwire.org>).

Cross-journal searching is possible among HighWire journals. For most HighWire titles, articles can be displayed in HTML format or PDF. Readers generally use the HTML version for navigating and exploring the electronic text online and print the PDF for reading offline.

Of course the real strength of the web is the ability to hyperlink text or images with related information. HighWire offers a variety of interesting and useful links. Many of the most useful links utilize PubMed, the free web version of MEDLINE developed by the National Center for Biotechnology Information (NCBI). For example, articles in Journal of Biological Chemistry (JBC) offer links to the MEDLINE citation for the article and links to related articles in PubMed (<http://www.highwire.stanford.edu/>).

In each HighWire journal, there are links from cited references to abstracts or full text of articles in other HighWire journals. For example, if someone is viewing an article in the *Proceedings of the National Academy of Sciences* which cites a recent article in Journal of Biological Chemistry (JBC), there is a link from the cited reference to the full text of the cited article. A great feature of these inter-journal links is that in most cases they are toll-free. The value of these toll-free inter-journal links is limited at present but is expected to grow as a larger number of journals become accessible to subscribers only.

6. Project MUSE

Project MUSE was launched in 1995 by the Johns Hopkins University Press, in collaboration with the Milton S. Eisenhower Library at Johns Hopkins University, to offer the full text of Johns Hopkins University Press scholarly journals via the World Wide Web. In 1999, MUSE expanded to become a unique partnership of not-for-profit publishers, increasing its ability to offer essential periodicals in the humanities, the arts, and the social sciences.

Project MUSE has been hailed for its library-friendly licensing and usage policies, easy online navigation, reasonable pricing, and generous discount plans for consortia and various categories of libraries. It is a MUSE policy that once content goes online, it stays online. As the back issues of journals increase annually, they remain electronically archived and accessible (<http://muse.jhu.edu/>).

In 2006, *Project MUSE* offers over 300 quality journal titles from some 60 scholarly publishers. As one of the academic community's primary electronic periodicals resources, *Project MUSE* covers the fields of literature and criticism, history, the visual and performing arts, cultural studies, education, political science, gender studies, economics, and many others. *Project MUSE* is setting the standard for scholarly electronic journals in the humanities and social sciences. At this time, *Project MUSE* subscriptions are available only to institutions

A *Project MUSE* subscription offers value and convenience for both the library and end-users: (<http://muse.jhu.edu/>)

- The database is available 24 hours a day, 365 days a year
- Full campus subscriptions permit remote access from home or on the road via the campus network
- No simultaneous user restrictions
- A MUSE subscription prevents bottlenecks in the reserve room and alleviates the problem of issues missing from the periodicals room
- All previous issues are kept readily available as newer issues go online

It may be noted that many popular indexing/abstracting services and e-journal gateways, as well as JSTOR, are seamlessly linked to MUSE content.

7. JSTOR (Journal Storage)

JSTOR (Journal Storage) is a scholarly journal archiving. JSTOR was established as an independent not-for-profit organization in August 1995. Originally conceived by William G. Bowen, President of The Andrew W. Mellon Foundation, JSTOR began as an effort to ease the increasing problems faced by libraries seeking to provide adequate stack space for the long runs of backfiles of scholarly journals. The basic idea was to convert the back issues of paper journals into electronic formats that would allow savings in space (and in capital costs associated with that space) while simultaneously improving access to the journal content. It was also hoped that the project might offer a solution to preservation problems associated with storing paper volumes. In the broadest sense, JSTOR's mission is to help the scholarly community take advantage of advances in information technologies.

The titles included in JSTOR have been selected based on the following criteria:

- The number of institutional subscribers a journal has
- Citation analysis
- Recommendations from experts in the field
- The length of time that the journal has been published.

JSTOR provides two methods of accessing its content: searching and browsing.

If user decides to search JSTOR, he/she will be taken to a search form where he/she can enter words to be found in article text, titles, authors, or abstracts.

The Browse the Journals option will take user to a list of journal titles. Choosing a title will take user to a list of the volumes within the titles, from which user can choose particular issues and articles. User may look through issues, page by page.

The JSTOR archive contains the full text of scholarly journals, beginning with the very first issue of each title. There is a gap, typically from 1 to 5 years, between the most recently published journal issue and the content available through JSTOR. User may choose to search the full text (every word) in any or all of the disciplines presented on the search page.

When searching full-text, user's search terms are compared with every word in the body of the articles as well as the citation information (e.g., author, title). He may also choose more narrowly-defined searches where only the author, title, or abstract field is searched (<http://jstor.org/about/>).

In addition to the full text available in the JSTOR archive, users are also able to search and browse the metadata (title, author, and abstract) for more recent issues of select titles. For these titles, direct links to the full text articles available at other online resources will be provided. In order for users to access the full text of the linked articles, they must have a subscription to the other resource, either through their library or individually.

In order to archive electronic only journals, JSTOR has launched its Electronic-Archiving Initiative, the mission of which is to preserve scholarly literature published in electronic form and to ensure that this literature will remain accessible to future scholars, researchers, and students (www.jstor.org/).

8. PubMed Central (PMC)

“PubMed” is a service of the U.S. National Library of Medicine that includes over 16 million citations from MEDLINE and other life science journals for biomedical articles back to the 1950s. “PubMed Central” is a free digital archive of life sciences journal literature, developed and managed by the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM).

PubMed Central aims to fill the role of a world class library in the digital age. It is not a journal publisher (<http://www.pubmedcentral.nih.gov/>).

PubMed Central (PMC) is an electronic archive of full-text journal articles, launched in February 2000 with content from the *Proceedings of the National Academy of Sciences* and from *Molecular Biology of the Cell*.

Access to PubMed Central is free and unrestricted. Maintaining open access serves as the best test of the durability and utility of the archive as technology changes over time (<http://www.pubmedcentral.com/about/faq/>).

PubMed Central follows in the footsteps of other highly successful and useful services that the National Center for Biotechnology Information (NCBI) has developed for the worldwide scientific community: GenBank, the genetic sequence data repository, and PubMed, the database of citations and abstracts to biomedical and other life science journal literature.

GenBank, and the tools provided by the National Center for Biotechnology Information (NCBI) for searching and manipulating its contents, have been a boon to molecular biologists and have helped advance developments in the field.

PubMed (which encompasses Medline) is the database of choice, for researchers and clinicians alike, to locate relevant articles and, in many cases, link directly to a publisher's site for the full text. Participating by publishers in PubMed Central (PMC) is voluntary, although participating journals must meet certain editorial standards. Journals are encouraged to deposit all their content (and not just research papers or other selected material) in PMC so that the archive becomes a true digital counterpart to NLM's extensive collection of print journals (www.pubmedcentral.nih.gov/about).

In line with this objective, the U.S. National Library of Medicine (NLM) is digitizing earlier print issues of many of the journals already in PubMed Central. Although immediate open access to all content is most desirable, a journal may delay release of its full text in PubMed Central for some period of time after publication.

A journal is guaranteed access to a copy of its deposited data upon request, at no cost. PubMed Central does not claim copyright on any material deposited in the archive. Copyright remains with the journal publisher or with individual authors, whichever is applicable.

The value of PubMed Central, in addition to its role as an archive, lies in what can be done when data from diverse sources is stored in a common format in a single repository.

GenBank has proven the advantages of collecting DNA sequences in a central repository with a common format. You get more rapid searching, manipulation, and cross-linking of the complete collection, and all the benefits that derive from that.

Similarly, with PubMed Central, one can quickly search the entire body of full-text articles and locate relevant material regardless of its source. It also makes it possible to integrate the literature with a variety of other information resources such as sequence databases and other factual databases that are available to scientists, clinicians and everyone else interested in the life sciences.

Many journals already have online publishing operations and there is a growing tendency to publish material online only, to the exclusion of print. This literature must be preserved in a form that ensures open access to it over the longer term. This is what the U.S. National Library of Medicine (NLM) has undertaken to do (www.pubmedcentral.nih.gov/about).

9. EPIC (Electronic Publishing Initiative at Columbia)

The Electronic Publishing Initiative at Columbia (EPIC) is a groundbreaking new initiative in digital publishing at Columbia University that involves Columbia University Press, the Libraries, and Academic Information Systems. It has established since 2001.

Its mission is to create new kinds of scholarly and educational publications through the use of new media technologies in an integrated research and production environment. Working with the producers of intellectual property at Columbia University and other leading academic institutions, it aims to make these digital publications self-sustaining through subscription sales to institutions and individual users.

The Electronic Publishing Initiative at Columbia (EPIC) is a business models for producing, marketing, and licensing online content and supports political science, earth

science, and history journals. Its publications are designed to be innovative, efficient and cost-effective.

The Electronic Publishing Initiative at Columbia (EPIC) creates mechanisms for the development, implementation, and sustainability of innovative, cost-efficient, and high quality digital library resources designed for the enhancement of teaching and learning in science (<http://www.epic.columbia.edu/>).

Conclusion

The high and fast-rising price of journals has had a profound effect on the flow of scholarly communication. Most pricing and publishing models were created to offer a constructive response to this issue. They work to find common ground among libraries, publishers and scientists who share the goal of making scientific communication responsive to the goals of science. They aim to introduce top-quality science, technology and medicine (STM) journals at a significantly lower price than those currently available.

Some models such as TULIP and PEAK began and ended but others models are developing. SPARC and HighWire Press support for STM journals, BioOne for high-impact bioscience research journals, PubMed Central for life and medical sciences journals, EPIC for political science, earth science, and history journals.

Project Muse is the only model that supports journals in humanities, the arts, and the social sciences.

JSTOR (Journal Storage) is a scholarly journal archiving model.

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