

INCOME MODELS FOR OPEN ACCESS: AN OVERVIEW OF CURRENT PRACTICE

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To the memory of our friend and colleague, Howard Goldstein

INCOME MODELS FOR OPEN ACCESS: AN OVERVIEW OF CURRENT PRACTICE

PREFACE	1
PART I: INTRODUCTION	
1. Introduction	2
1.1 Overview	2
1.2 Frame of Reference	3
1.2.1 Scalability	3
1.2.2 Reforming the Economic Basis of Scholarly Publishing	3
1.3 Costs	4
1.4 New & Converting Journals	5
1.5 About Business Models	5
1.6 Demand- and Supply-Side Models	8
PART II: INCOME MODEL DESCRIPTIONS	
2. Supply-Side Models	10
2.1 Article Processing Fees	10
2.1.1 Suitability	11
2.1.2 Discretionary Open Access	11
2.1.3 Transitioning from a Subscription Model to Article Processing Fees	12
2.1.4 Article Processing Fee Examples	14
2.2 Advertising	16
2.2.1 Suitability	16
2.2.2 Marketing an Advertising Program	18
2.2.3 Advertising Networks	19
2.2.4 Advertising Examples	20
2.3 Sponsorships	20
2.3.1 Sponsorship Examples	21
2.4 Internal Subsidies	21
2.4.1 Dues Surcharge	22
2.4.2 Dues Surcharge Examples	22
2.4.3 Cross Subsidies	22
2.5 External Subsidies	23
2.5.1 Foundation Grants & Corporate Funding	23
2.5.2 Grant Examples	24
2.5.3 Institutional Grants & Subsidies	24
2.5.4 Institutional Subsidy Examples	25
2.5.5 Government Funding	25
2.5.6 Government Funding Examples	25
2.6 Donations & Fundraising	26
2.6.1 Donations from Individuals	27
2.6.2 Donations from Institutions	27

2.6.3 Donation & Fundraising Examples.....	28
2.7 Endowments	29
2.7.1 Endowment Examples	29
2.8 In-Kind Support	29
2.9 Partnerships	30
2.9.1 Partnership Examples	31
III. Demand-Side Models.....	32
3.1 Demand-Side Models & Free Ridership.....	32
3.2 Versioning.....	32
3.2.1 Offline Media.....	33
3.2.2 Offline Media Examples.....	33
3.3 Use-Triggered Fees	34
3.3.1 Selective Benefit.....	35
3.3.2 Social Network	35
3.3.3 Use-Triggered Fee Examples	36
3.4 Convenience-Format License	36
3.3.1 Convenience-Format License Examples	36
3.5 Value-Added Fee-Based Services.....	36
3.5.1 Value-Added Service Examples.....	37
3.6 Contextual E-Commerce	37
3.6.1 Contextual E-Commerce Examples	38
IV. Appendices	39
Appendix A: Publishing Services for Open Access Journals	39
Appendix B: Computing Article Processing Fees	40
Appendix C: Financial Forecasting Template for Transitioning to Discretionary Article Fees..	41
Appendix D: Journal Sponsorship Guidelines.....	44
Appendix E: Resources for Grant Seeking & Fundraising	47
Appendix F: Use-Triggered Licensing, Implementation Steps	48
About the Author	50
About SPARC	50

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Campus-based publishing partnerships: A guide to critical issues

Campus-based publishing partnerships offer the academy greater control over the intellectual products that it helps create. To fully realize this potential, such partnerships will need to evolve from informal working alliances to long-term, programmatic collaborations. SPARC's *Campus-based Publishing Partnerships: A Guide to Critical Issues* addresses issues relevant to building sound and balanced partnerships, including: Establishing governance and administrative structures; Identifying funding models that accommodate the objectives of both libraries and presses; Defining a partnership's objectives to align the missions of the library and the press; Determining what services to provide; and Demonstrating the value of the collaboration.

OPEN DOORS AND OPEN MINDS: What faculty authors can do to ensure open access to their work through their institution - A SPARC/Science Commons white paper

Inspired by the example set by the Harvard faculty, this White Paper is addressed to the faculty and administrators of academic institutions who support equitable access to scholarly research and knowledge, and who believe that the institution can play an important role as steward of the scholarly literature produced by its faculty. This paper discusses both the motivation and the process for establishing a binding institutional policy that automatically grants a copyright license from each faculty member to permit deposit of his or her peer-reviewed scholarly articles in institutional repositories, from which the works become available for others to read and cite.

Publishing Cooperatives: An Alternative for Society Publishers - A SPARC Discussion Paper

This SPARC discussion paper proposes a federation of discipline-specific publishing cooperatives as an alternative operating model for society publishers. Publishing cooperatives would be owned, capitalized, and controlled by nonprofit publishers as users, with publishers sharing risks and benefits proportional to their use of the cooperative. Such publishing cooperatives can provide a scaleable publishing model that aligns well with the values of the academy while providing a practical financial framework capable of sustaining society publishing programs and supporting their transition to non-subscription funding models.

Sponsorships for Nonprofit Scholarly & Scientific Journals: A Guide to Defining & Negotiating Successful Sponsorships

This guide describes how nonprofit publishers can evaluate whether a corporate sponsorship program might be appropriate for their journal and, if appropriate, develop a sponsorship program as a component of the journal's income stream.

PREFACE

Since its inception, SPARC has been a consistent advocate for initiatives that increase access to the results of scientific and scholarly research and, in particular, to the peer reviewed literature. It has endorsed the concept of Open Access, a model for the dissemination of scholarly literature that ensures rapid, free access over the Internet to those works that scholars have traditionally produced without expectation for payment. At the same time, SPARC has explicitly recognized that these initiatives have practical financial implications for society and other nonprofit publishers.

It remains to be seen whether the social and economic limitations of the current market – and models – for distributing research literature will lead to a comprehensive, systemic change in funding for scholarship and research, or to a multiplicity of new, alternative business models. Whatever the future, SPARC recognizes the immediate need to support nonprofit publishers in their transition to new economic models. By providing this comprehensive overview of income models currently in use for supporting Open Access to scholarly and scientific journals, SPARC continues its commitment to providing that support. Greater understanding of options available to support the broadest possible reach of scholarship, along with critical assessment of their relative strengths and weaknesses, is an essential step in moving towards a system of scholarly communication that better balances the needs of all stakeholders.

Heather Joseph

Executive Director

SPARC

I. INTRODUCTION

1.1 Overview

Developing a sound business model is a critical concern of publishers considering open-access distribution. Selecting the model(s) appropriate to a particular journal will depend not only on the expense hurdle that must be cleared, but also on the publisher's mission objectives, size, business management resources, risk tolerance, tax status, and institutional or corporate affiliation.

This guide provides an overview of income models currently being used to support the open-access distribution of peer-reviewed scholarly and scientific journals.¹ It is intended for any publisher that seeks to launch an open-access journal or to convert an existing journal to open-access distribution. Such publishers include independent, single-title operations, operated by a founding editor with volunteer support; society publishers of all sizes, including single- and multiple-title publishing programs; and conventional publishers, both commercial and nonprofit. It is important to remember this broad range of publisher types when reviewing the income models described here. Some of the models require management and marketing resources beyond those available to small or informal operations. Conversely, some models might prove incongruous or ineffective if applied by a large commercial publisher.

A publisher might explore open-access alternatives to a subscription model for a variety of reasons. These include:

- to increase access to its published research by lowering or eliminating market barriers to the content;
- to maximize market reach and support a new journal launch when the market will not support a traditional subscription model; or
- to implement a supply-side model (discussed below) in response to funder-mandated content deposit policies.

A publisher may be motivated to adopt an open-access income model out of sympathy with arguments that Open Access increases the effectiveness of scientific, social scientific, and humanistic research; increases social and political equity between researchers in the two hemispheres; and better aligns with the gift culture of the academy. Or a publisher may simply be seeking the most effective business model to respond to rapidly evolving market expectations.

This guide describes income models capable of sustaining Open Access as typically defined; that is, as free and immediate online access to peer-reviewed journal literature.²

¹ Open-access is a distribution model, not an income model. However, to avoid cumbersome references to “income models capable of supporting open-access distribution,” this guide refers to “open-access income models.” Generally, we use “income model” to refer to the business logic that generates a specific income stream—for example, article processing fees or sponsorships—and use “business model” to refer to the combination of income models that a journal uses to sustain itself.

² For a widely accepted definition of Open Access, see <http://www.earlham.edu/~peters/fos/bethesda.htm>.

Therefore, we have not discussed content embargoes and other techniques which might increase access, but that do not provide full Open Access.

1.2 Frame of Reference

Two principal criticisms are leveled at the alternative income models used to support open-access journals. One criticism (often voiced by journal publishers currently using a subscription model) is that a given model lacks universal applicability to all journals regardless of type or discipline. Another (often voiced by Open Access proponents) is that a particular model maintains a publication's current cost basis, without restructuring the underlying economics of publishing.

While each of these criticisms may be true of a given model—and may be relevant from the perspective of those advancing them—their frame of reference is the transformation of the entire economic system of scholarly publishing. As such, they will typically be irrelevant, in practice, to an individual journal publisher seeking an income model capable of sustaining a particular open-access journal.

1.2.1 Scalability

For a small publisher, the appeal of a universal solution can be explained by the publisher's lack of resources to design, implement, and maintain a new business model. Where subscription agents and aggregators serve a journal's well-established subscription base, maintaining the current subscription model often requires little active effort on the part of a publisher. In such cases, a change of business model might require a small publisher to deploy resources that it does not possess or to incur risks it is unable to assess fully.

However understandable this concern, an income model does not need to reform the entire system of scholarly publication to be worthwhile to a specific journal. In the absence of a comprehensive, systemic change in the manner in which peer-reviewed journals are funded, publishers will continue to apply a variety of income models to support open-access distribution. In this context, an income model should be judged on its effectiveness to support any given journal—or to support a specific class of journals—rather than on its universal applicability to support journals across all disciplines and markets. Where necessary, society publishers will need to apply other solutions, including collective action, to address their resource issues.³

1.2.2 Reforming the Economic Basis of Scholarly Publishing

Some may criticize an income model because it does not directly lower journal publishing costs. In this view, online distribution should reduce the overall cost of publication, and publishers should not be able to capture excessive profits under the guise of Open Access. While a compelling and legitimate case can be made for restructuring the economics of scholarly publishing—a case advocated forcefully by SPARC, the sponsor of this guide—

³ See, for example, Raym Crow. *Publishing Cooperatives: An Alternative for Society Publishers*. (Washington, DC: SPARC Publications), 2006.

such a reformation frames the change in terms of philosophical principles and political imperatives. Income models, however, are indifferent business mechanisms. Their market implications are driven by the financial and mission motivations of the individual publishers that implement them, not by the intrinsic nature of the model itself.

Although the library market reaction to escalating serials prices was a significant impetus to the open-access movement, it is useful to separate the philosophical and social arguments for Open Access from arguments based on immediate, local economic relief for libraries. The most compelling argument for Open Access is that improves the efficiency, effectiveness, and equity of the research process, delivering greater social and economic benefits as a result. Greater social utility, however, does not necessarily translate into reduced costs from a local library procurement perspective.

That an income model does not necessarily restructure the underlying cost of the publication it supports should not disqualify it for supporting an open-access journal. A commercial publisher's article processing fee for a discretionary open-access option may be several times higher than the fees for comparable society journals, but that does not delegitimize the article processing fee model itself.⁴ Further, some income models introduce market dynamics that can, on a system level, have a moderating effect on prices.⁵ For example, as economists Mark McCabe and Christopher Snyder have demonstrated, over time, authors will assess the relative value of article processing fees offered by competing journals, giving a competitive advantage to a journal with a lower processing fee over a journal of equal impact with a higher fee.⁶

Innovative business models continue to emerge, and a model may evolve that elegantly reconciles the social promise of Open Access with the practical need for financial sustainability on an individual journal level. As no single model has yet emerged to support open-access distribution universally, the need for experimentation and testing remains. In this exploratory environment, libraries can actively accelerate the adoption of successful open-access income models by remaining flexible and pragmatic in their evaluation of new models.

1.3 Costs

Publishing expenses vary widely from one journal to the next. Journal publishers—both nonprofit and commercial—range from single-title, founder-editor operations to multinational organizations publishing hundreds of journals. Some publishers have in-house professional staffs to provide editorial, production, sales, marketing, and administrative support. Others outsource some, or all, of these functions to volunteers, part-time staff, independent contractors, or publishing service providers. While there are

⁴ An insistence on lowering system-wide costs also discounts the effect of open access distribution on the use of the content. By increasing access to the content, open access distribution would be preferable to gated models, even without reducing overall publication costs. Greater access, even at the same cost, represents a net system-wide gain.

⁵ Subscription models, of course, are also constrained by market forces. However, in the case of peer-reviewed journals, the market demand mechanism for institutional subscribers—the largest revenue stream for most journals—is impaired by insulating end users from the effects of the a journal's price.

⁶ Mark McCabe and Christopher Snyder. "The Economics of Open-Access Journals." Working paper, May 2006. <<http://www.si.umich.edu/~mccabe/EOAJ.pdf>>.

some economies of scale in journal publishing, larger organizations tend to bear greater overhead costs than smaller organizations. Obviously, a high cost structure imposes a steeper hurdle for a business model to clear, while a low cost structure allows the publisher greater flexibility in selecting a model.⁷

1.4 New & Converting Journals

Whether an existing journal is being converted to Open Access or a new journal is being launched as Open Access may also affect the suitability of a given business model.

A new journal—Open Access or otherwise—confronts an interrelated set of market entry barriers that includes the journal’s need to demonstrate quality and reputation, audience reach, and the ability to attract author submissions. On the positive side, a new journal may be able to operate on a lower cost basis than an existing publishing operation.⁸ Lower costs reduce the financial yield required from the journal’s business model, giving a publisher more latitude in selecting income streams.

An existing journal, while perhaps operating under a higher cost structure, will have already demonstrated its value to authors, readers, and institutional markets. This makes it possible to test the feasibility of various alternative income models based on historical data. This established value may also provide a publisher with leverage in implementing a new business model, allowing the publisher to make a journal’s conversion to Open Access contingent on demonstrating the viability of the new model.⁹

1.5 About Business Models

A business model describes the economic logic that sustains an enterprise. For the publisher of a peer-reviewed journal, it describes the journal’s audiences, the unique value that the journal delivers to each of those audiences, the activities and resources required to create and deliver that value, and the market mechanisms by which the journal translates the value it delivers into income to sustain itself. (See Figure 1.)

Although business models may have many components,¹⁰ the critical elements for a peer-reviewed journal include a publication’s:

Audience or client segments—the various audiences that derive value from the journal.

To develop an effective business model, a publisher needs to identify a journal’s distinct client segments, each with its specific characteristics and value requirements. For a peer-reviewed journal, client segments will typically include authors, readers, libraries, and

⁷ Transparency regarding a journal’s operating costs may encourage support for some types of income models, including individual donations and sponsorships.

⁸ The journal’s author and reader markets will determine whether the journal sacrifices any of its value in exchange for a low cost structure.

⁹ Although a new journal might also make open access distribution contingent on the viability of an open access income model, a new journal will have far less market leverage to secure commitment to the model.

¹⁰ Besides those discussed here, other business model components include client relations, partnerships and alliances, and supplier networks.

advertisers or sponsors. Each of these segments needs to be evaluated in terms of the value perceived, its ability to pay, and the communications and marketing channels that will be used to reach it.

Value proposition—the collection of content and services that serves the needs of each client segment.

A journal's value proposition represents that part of its offering for which a specific client segment is willing to pay. In the context of peer-reviewed journals, this payment is not confined to a cash fee for access to the journal. It also comprises an author's choosing to publish in the journal and a researcher's attention in reading the journal.

Thus the business model for an open-access journal addresses a three-sided market in which readers pay with their attention, funders (whether donors, user proxies, or advertisers/sponsors) pay for access to the target audience's attention, and authors pay (with their content and, sometimes, with article fees) for the audience reach, research impact, and professional prestige that the journal delivers. The business model translates the author's content and the reader's attention into revenue to support the journal.

A business model may comprise one or more value propositions for each of its target client segments. The relative strength of this value proposition—its power to generate income, capture researcher attention, and/or attract content submissions—depends on the extent to which it is unique; that is, the extent to which it delivers something of value—including content quality, content quantity, research impact, professional reputation, or audience reach—that no other journal delivers.

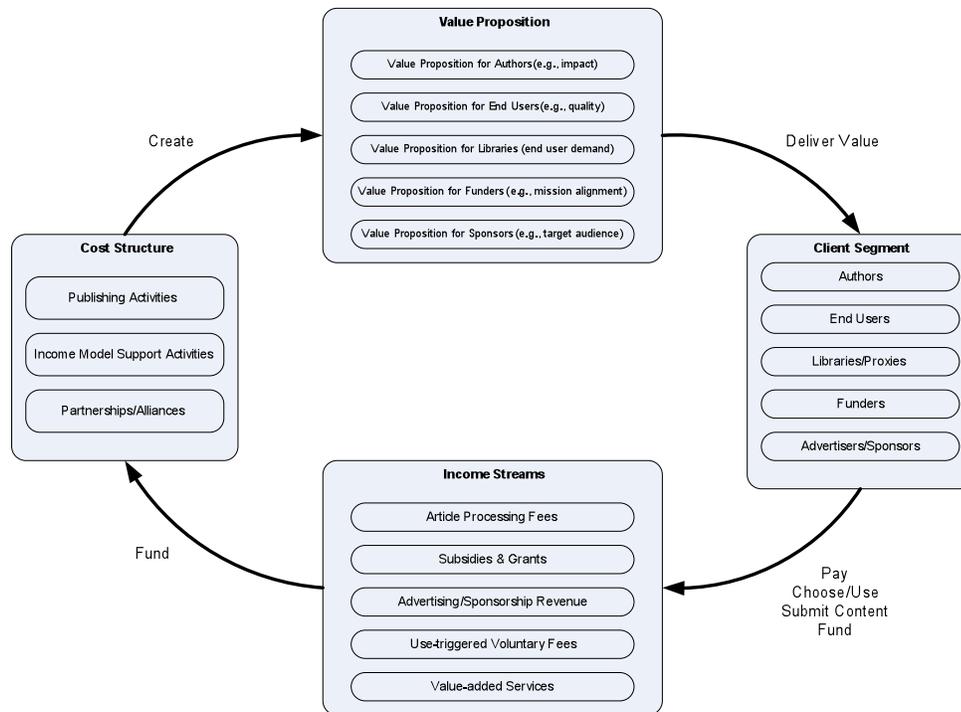
The financial potential and stability of any funding model, whether based on generating earned revenue or securing subsidies, are functions of how tightly the value delivered is aligned with the markets that benefit from it. While intuitively obvious, this point is sometimes ignored—especially when publishers seek subsidies for a journal—resulting in weak, poorly targeted funding models.

Core activities and resources—the set of activities that a publisher undertakes to produce the journal, and to support the income model itself, as well as the resources required for the activities.

The resources required to sustain a journal constitute its cost structure and represent the income hurdle that the journal's funding model needs to clear. These include traditional resources, such as editorial staff and publishing costs, as well as intangible assets, such as the journal's reputation or brand equity.

As far as possible, these activities, and the cost of the resources to support them, need to be aligned with the value proposition and income stream for each client segment. This alignment helps ensure that a publisher focuses on the most critical activities and allocates resources efficiently across the journal's activities.

Figure 1:
Business Model
Logic Diagram



Distribution channels—the channels through which the journal reaches its audiences and delivers its value.

These channels may include print and online distribution channels (including subscription agents, journal aggregators, society memberships, etc.) and other channels. Distribution channels can also affect a publisher’s cost structure for a service (for example, commissions to sales agents and aggregators). They may also influence which revenue models might work: for example, a journal that includes online advertising will require a distribution channel capable of supporting it.

Distribution channels also entail communication and marketing. The value that an open-access journal delivers must be communicated clearly and explicitly to the client segment expected to pay for it. This is true for grants and other subsidies, as well as for earned revenue models, and it is especially true of funding models that shift responsibility to beneficiaries (such as authors) that may have been shielded from direct payment in the past.

Income streams—the channels through which the journal actually generates income—including, potentially, both earned revenue and subsidies—from the client segments to which the journal delivers value.¹¹

¹¹ In a supply-side model, authors and their proxies (for example, research funders) generate a separate income stream. In a demand-side model, although authors represent a distinct audience for journals, requiring their own sets of services, incentives, and marketing, they would typically be considered part of the publisher’s critical activities and partnerships in producing the journal, rather than an end-market that directly generates income.

For open-access journals, income streams can assume the form of article processing fees, voluntary use fees, subsidies, grants and donations, advertising, sponsorships, secondary licensing fees, endowment interest, and other approaches described in this guide. A journal may require multiple income streams to sustain itself. These together comprise its business model.

1.6 Demand-& Supply-Side Models

The manner in which a given publisher selects, implements, and combines various income components will reflect its organizational, philosophical, cultural, technical, and disciplinary context. There may be no logical limit to the combinations and permutations of income models possible, although in practice some components are more complementary than others.

Income models are dynamic, and new models, variations on existing models, and hybrid combinations of models occur frequently. Although a best effort has been made to be thorough, the overview provided below makes no claims to being either comprehensive or definitive.

The income model typology summarized in Table 1 characterizes open-access income models as either:

- demand-side models, funded primarily by consumers of the content or by proxies that pay on their behalf; or
- supply-side models, funded primarily by producers of the content or by proxies that pay on their behalf.

In many cases, supply- and demand-side income models can be combined to maximize the income sources available to support a journal.

Each type of model has its own advantages and limitations when applied in support of open-access distribution. Demand-side open-access models are susceptible to free ridership—where beneficiaries of an open-access journal do not shoulder a share of the cost of providing it—and demand-side models need to be designed and implemented to overcome this tendency (see below).

A supply-side model that relies exclusively on subsidies risks insulating the journal from constructive market forces. Such insulation could result in a journal producing content of a type or quantity out of line with reader demand.¹² Publishers can take steps to mitigate this risk. For example, publishers can empanel advisory boards, including members from libraries and the research community, to serve as proxies for market demand.

¹² In practice, a foundation or sponsor would have little incentive to subsidize overproduction, as the excess production would result in diminishing social returns on the funder's investment.

Table 1: Demand- & Supply-side Models

Demand-Side Models	Supply-Side Models
<i>Versioning</i>	<i>Input Fees</i>
<ul style="list-style-type: none"> ▪ Offline media editions ▪ Convenience-format licenses 	<ul style="list-style-type: none"> ▪ Article processing fees ▪ Discretionary Open Access
<i>Value-added Services</i>	<i>Affinity Relationships</i>
<i>Voluntary Fees</i>	<ul style="list-style-type: none"> ▪ Advertising ▪ Sponsorships
<ul style="list-style-type: none"> ▪ Use-triggered licenses ▪ Donations & Fundraising 	<i>Internal Subsidies</i>
	<ul style="list-style-type: none"> ▪ Society dues surcharge ▪ Partnerships
	<i>Grants</i>
	<ul style="list-style-type: none"> ▪ Institutional Grants & Subsidies ▪ Government Funding ▪ Endowments
	<i>In-Kind Support</i>
	<i>Partnerships</i>

PART II: INCOME MODEL DESCRIPTIONS

2. Supply-Side Models

2.1 Article Processing Fees

Article processing fees or publication charges—charging contributing authors or (more typically) their proxies fees to subsidize processing and publishing costs—are among the most frequently discussed supply-side business model components for open-access journals. Article processing fees are based on the premise that authors and their host institutions are direct beneficiaries of publication in a scholarly journal. Article fees thus distribute a journal's publication costs across those individuals and institutions that benefit most directly from a paper's publication.

About half of open-access journals levy publication fees, which can include submission charges, page charges, illustration fees, and surcharges for color,¹³ and such fees represent about 30% of the revenue generated by open-access journals.¹⁴

In the digital environment, where document length and color illustration have a minimal effect on costs, author charges tend to be flat-rate fees reflecting article processing costs.¹⁵ Some publishers levy charges on all articles submitted, while others apply them only to articles accepted for publication.¹⁶ As both rejected and accepted articles incur costs (some publishers report that rejected articles cost more to process than accepted ones), charging submission fees at the outset may reduce the number of inappropriate submissions that a journal must handle.

The level at which a publisher sets such fees will typically reflect a combination of its pre-press processing costs, its policies as to which submissions will incur a charge, the number of submissions, and the extent to which the publication charges offset actual expenses (in some instances, the publication charge may be intended to completely cover the cost of processing; in others, the charge may only partially defray costs). The latter will depend both on the publisher's cost structure (and hence the level of the fee) and on the receptivity to such fees in the journal's field.

According to one survey, article processing fees are wholly or partially subsidized, either by a research grant (34%), a foundation grant (5%), or by the author's host department (8%) or institutional library (27%).¹⁷ The payment of such fees out of an author's personal funds appears relatively low—about 5% across all open access journals.¹⁸ Most

¹³ See Kaufman-Wills Group. *The Facts About Open Access: A Study of the Financial and Non-financial Effects of Alternative Business Models for Scholarly Journals*. (Worthing, UK: Association of Learned and Professional Society Publishers, 2005), 44, Table 30.

¹⁴ The proportion is lower (approximately 9%) if one excludes journals published by BioMed Central. See Kaufman-Wills (2005), 45.

¹⁵ For a table showing article processing fees for multiple publishers, see <http://www.biomedcentral.com/info/authors/apccomparison/>.

¹⁶ The majority of open access journals that charge a submission fee are published by BioMed Central. Less than 1% if non-BioMed Central journal charge such fees. Kaufman-Wills (2005), 44.

¹⁷ Kaufman-Wills (2005), 45.

¹⁸ Kaufman-Wills (2005), 45.

publishers using the model make allowances for special situations (for example, individuals without a host institution or from less developed countries), assessing lower fees or waiving fees altogether when no institutional subsidy exists. Society publishers often discount article publication fees for members, or waive them entirely. The effect of these policies on fee revenue must be taken into account when calculating article processing fees. Appendix B describes a simple method for computing article processing fees for either submitted or accepted articles.

Several research funding agencies have policies supporting the payment of article fees,¹⁹ and a growing number of academic institutions have established funds to cover all or part of the article processing fee for articles submitted by affiliated authors to open-access publications.^{20,21}

2.1.1 Suitability

For journals in disciplines for which they have been a long-standing practice, article processing charges provide a logical model to support open-access dissemination. However, authors in disciplines without an established page-charge tradition (the case in much of the humanities and social sciences) may be expected to resist the practice.

As noted above, article processing fees seek to recover publication costs from the individuals and institutions that benefit most directly from a paper's publication. While this is one of the advantages of such charges, it is also one of the principal objections to them when they are paid by the individual author seeking professional advancement. If a publisher attempts to transplant the model to a discipline without a tradition of page charges, positioning the charges as being paid by academic institutions, funding agencies, and other sponsors might prove less objectionable. Relying on such author proxies might allay author objections and dispel the perception of vanity publishing. This would also require encouraging sponsors of social scientific and humanistic research to implement policies to fund open-access publication that are similar to those in place for many scientific research funders.

2.1.2 Discretionary Open Access

Another variation on article processing charges makes payment of an article processing fee—and the availability of the article via Open Access—subject to the author's discretion. Besides opening access to some of a journal's content, this approach might provide a transition strategy, potentially even for disciplines in which article fees are not customary.²² Under this model, articles by non-participating authors may remain

¹⁹ For a list of funding agencies that allow grant monies to be used to cover article processing fees, see <http://www.biomedcentral.com/info/authors/apcfaq/#grants>.

²⁰ For a list, see the Open Access Directory wiki, "OA Journal Business Models," http://oad.simmons.edu/oadwiki/OA_journal_business_models.

²¹ The Research Information Network and Universities UK have published a guide for universities and other research institutions, publishers, research funders, and authors on open access article processing fees. See <http://www.rin.ac.uk/openaccess-payment-fees>.

²² One society introduced a discretionary article processing charge that provided authors with electronic PDF "reprints" as an incentive to pay the article processing fee. See Thomas J. Walker "Free Internet Access to Traditional Journals." *American*

available only to subscribers or may be made available free online after an embargo period.

Some publishers realize substantial revenue from reprint sales to corporate buyers. Rather than assuming that such revenues would be lost under an open-access model, publishers that currently enjoy these revenues may want to reposition reprint fees as corporate sponsorships to support Open Access. Corporate purchasers may be willing to continue paying a fee where the publisher provides the reprint in a format that associates the sponsor with the publication's identity and reputation.

2.1.3 *Transitioning from a Subscription Model to Article Processing Fees*

Subscription-based journals that wish to transition to open-access distribution funded by article processing fees may find themselves at an impasse: while they require a compensating income stream to offset the print journal cancellations that might result from open-access availability of the journal, some of their contributing authors may not have access to the funds necessary to pay for publication charges, and levying an article processing fee puts the journal at a competitive disadvantage. The severity of this problem may vary by discipline, depending on the policies of funders in a given field and by the practices of comparable journals.

An individual journal acting unilaterally to implement article processing fees might put itself at a competitive disadvantage in attracting author submissions.²³ To mitigate this risk, a group of comparable journals—for example, society journals in a particular field or subfield, might transition to the new model in concert. The extent of this collective action might be limited to coordinating the timing of the transition, or it could include coordinated planning and marketing of the new approach.

In addition to coordinated action with similar journals, the discretionary publication charge approach described below can help subscription-supported academic journals overcome these issues and manage financial risk in order to transition to open-access distribution funded largely or entirely by article processing fees.²⁴

In a transition to a discretionary model, a journal would lower its subscription price over time as the proportion of authors electing to pay the publication fee increases. In this way, a journal would be able to gain new revenue to support a transition to Open Access at a rate commensurate with the acceptance of publication charges by the journal's author community. The transition period afforded by the model would also provide the time and context necessary to:

- Demonstrate the benefits to authors—including greater visibility, accelerated citation, and higher impact—of Open Access. At the same time, authors who cannot (or choose not) to pay publication charges can continue to publish in the journal.

Scientist. Vol. 86, No. 5 (1998) and “Two Societies Show How to Profit By Providing Free Access.” *Learned Publishing*. Vol. 15, No. 4 (2002), pp. 279-284.

²³ After the Second World War, commercial STM journals arose, in part, to provide an alternative to society publication fees.

²⁴ Thomas J. Walker, personal communication, February 1, 2003 and David C. Prosser, “From here to there: a proposed mechanism for transforming journals from closed to open access.” *Learned Publishing* Vol. 16 (2003), 163-166.

- Allow researchers to begin to build publication charges into their research funding proposals, and for granting agencies to implement publication charge policies to fund publication of the research that they support.
- Assess the effect of the model on other journal income streams. Some of these, such as offprint and permissions income, might be expected to decrease. Whether other income streams, such as advertising, increase or decrease will depend on the manner in which they are implemented in an online environment.

Appendix C provides a financial forecasting template for introducing discretionary article processing fees and illustrates how discretionary fees might be implemented over time. The financial forecasting model takes into account the issues that need to be considered when planning such a transition; namely:

- Journals with relatively high publication costs will typically require higher publication charges. The point at which the article publication fee becomes a barrier to author submissions will depend on both the discipline (that is, the extent to which authors are accustomed to such fees) and the journal's reputation (that is, the value authors perceive in publishing in a particular journal).

Of course, other income sources may allow a journal to set its publication charges at a lower level. Conversely, where possible, setting the publication charge slightly higher than the actual per-article cost can provide an operating surplus to offset years in which the journal incurs an income shortfall due to the timing of subscription cancellations and/or lower than anticipated author participation.

- Most publishers will find it difficult to project with confidence the rate at which authors will opt to pay publication charges. This suggests that a market study of the journal's author community, supported by an effective promotional program, will help improve author participation, increase predictability, and lower risk.
- Where author participation rates are low, slow to grow, or fluctuate considerably from one year to the next, a journal may face short- and mid-term operating losses. For example, were author participation in the discretionary article fee program to drop from the previous year, the lowered journal subscription price might not generate sufficient income to cover the journal's expenses. In many instances, it would be difficult to increase the subscription price sufficiently from year-to-year to cover sharp fluctuations. To reflect this, a journal might impose a cap (for example, 10%) on year-to-year price fluctuations.
- There may be a tipping point for cancellations of paid subscriptions that precedes the journal's ability to support itself through publication charges. In some cases this could be addressed by setting the publication fee higher from the outset of the transition. As long as the initial publication fee is not so high as to discourage author participation, this could generate a surplus reserve that could be applied to subsidize the journal through years when it incurs an operating loss. Again, a journal should

assess its risk by analyzing its author community thoroughly before undertaking the transition.

While such a transition strategy is not without risk, the risk can be anticipated and mitigated, especially by established journals in disciplines with a strong tradition of publication or page charges.

2.1.4 Article Processing Fee Examples

Prominent examples of publishers relying entirely on article processing fees include:

- BioMed Central (<http://www.biomedcentral.com>)
- Hindawi Publishing Corporation (<http://www.hindawi.com>), located in Egypt, leverages a low cost base to provide economically viable, labor-intensive publishing services. Hindawi publishes over 150 open-access titles.²⁵
- *Journal of Medical Internet Research* charges a non-refundable submission fee for regular articles. It also allows authors to pay an additional fee to accelerate the publication process. (http://www.jmir.org/cms/view/Instructions_for_Authors:Instructions_for_Authors_of_JMIR#Open_Access)
- MedKnow Publications, of Mumbai, India, publishes over 80 open-access journals. (<http://www.medknow.com>)
- Molecular Diversity Preservation International (MDPI) journals, while headquartered in Basel, Switzerland, operates in China (<http://www.mdpi.com>). MDPI journals include *Molecules* (launched in 1996), the *International Journal of Molecular Sciences* (launched in 2000), and *Sensors* (launched in 2001).
- *Optics Express*, published by the Optical Society of America, sets article publication fees based on the length of the article (http://www.opticsinfobase.org/oe/submit/review/pub_charge.cfm#opex)
- Public Library of Science (<http://www.plos.org>)

The SHERPA/RoMEO site (<http://www.sherpa.ac.uk/romeo/PaidOA.html>) provides a list of publishers that offer optional paid Open Access. Selected examples are listed below. Peter Suber and Caroline Sutton have also analyzed society open-access journals, including those using article processing fees.²⁶

Discretionary Open Access Examples

- Examples of author-discretionary models from society publishers include:
- The American Physical Society, “Free to Read” option (http://publish.aps.org/FREETOREAD_FAQ.html).
- American Society of Limnology and Oceanography, the “Free Access Publication” program allows authors to make an article freely available immediately upon payment of a fee that supplements the journal’s page and color charges. (<http://www.aslo.org/lo/information/freeaccess.html>)
- Mineralogical Society of America, charges on a per-page basis (http://www.minsocam.org/MSA/ammin/e-pub_policy.htm).

²⁵ For a description of how Hindawi’s low-cost structure enables its open-access distribution, see Paul Peters. “Going All the Way: How Hindawi Became an Open Access Publisher.” *Learned Publishing* 20.3 (July 2007): 191-195.

²⁶ See Peter Suber and Caroline Sutton. “Society Publishers with Open Access Journals.” *SPARC Open Access Newsletter*, No. 115 (November 2, 2007). (<http://www.earlham.edu/~peters/fos/newsletter/11-02-07.htm#list>).

- Royal Society of Chemistry, “Open Science”
(<http://www.rsc.org/Publishing/Journals/OpenScience/FAQ.asp>)
- Royal Society, “EXiS (Excellence in Science) Open Choice”
(<http://royalsocietypublishing.org/site/authors/EXiS.xhtml>)

From university presses:

- Cambridge University Press, “Cambridge Open Option”
(<http://journals.cambridge.org/action/stream?pageId=4088&level=2#4092>)
- Oxford University Press, “Oxford Open”
(<http://www.oxfordjournals.org/oxfordopen/>)

From commercial publishers:

- BMJ Publishing Group, “BMJ Journals Unlocked”
(<http://adc.bmj.com/info/unlocked.dtl>)
- Nature Publishing Group (http://www.nature.com/press_releases/greengold.html)
- Springer Open Choice
(<http://www.springer.com/open+choice?SGWID=0-40359-0-0-0>)
- iOpenAccess, Taylor & Francis
(http://www.informaworld.com/smpp/authors_journals_iopenaccess_about~db=all)
- World Scientific Publishing, “WorldSciNet Open Access”
(<http://www.worldscinet.com/authors/openaccess.shtml>)

Several publishers have instituted models that package article processing fees in an institutional subscription: in some instances, a fixed fee covers all manuscript submissions from researchers at the subscribing institution; in other cases, the institutional membership fee is based on the number of article submissions.

- BioMed Central offers both volume-driven and fixed-discount programs with pre-payment and payment in arrears options, with additional discounts for pre-payment
(<http://www.biomedcentral.com/info/instmembership.asp>)
- Hindawi Publishing Corporation uses a flat rate
(<http://www.hindawi.com/memberships.html>)
- *Journal of Medical Internet Research*
(http://www.jmir.org/cms/view/Support_%2526amp%253B_Membership)
- Public Library of Science (<http://www.plos.org/support/instmembership.html>)
- *The ScientificWorldJournal*
(<http://www.thescientificworld.com/TSW/main/Static.asp?menuid=246&jid=141#>)

Some publishers allow an institution’s subscription fees to cover discretionary open-access article publication charges for articles from authors affiliated with the institution. Examples of this approach include:

- National Academy of Sciences, discounts publication fees for articles from authors at subscribing institutions (<http://www.pnas.org/site/subscriptions/open-access.shtml>).
- Oxford University Press discounts optional article processing fees for authors from institutions that subscribe to the journal.
(<http://www.oxfordjournals.org/oxfordopen/charges.html>)
- Springer waives the article fee for optional Open Access for some institutions and consortia, including the Dutch library consortium (Universiteitsbibliotheken en de

Koninklijke Bibliotheek); the University of Göttingen; and the University of California system.

Some society journals waive article processing fees for members of the society; for example:

- *Plant Physiology*, published by the American Society of Plant Biology, does not charge publication fees to ASPB members (<http://www.plantphysiol.org/misc/ifora.shtml>)

2.2 Advertising

As the volume of research information continues to grow, a journal's reputation and the ability to attract the attention of readers are becoming increasingly scarce. This scarcity can provide a source of income, as long as these assets can be monetized via a business model. Affinity-based models, such as advertising and sponsorships, typically offer the most straightforward approaches for converting journal reputation into revenue.

Web-based advertising extends the traditional broadcast media model. In the case of an open-access journal, the Web site can provide free access to valuable content in combination with advertising messages. A publisher can sell its advertising capacity on its own—or, given sufficient demand, through a broker—to advertisers who wish to target the audience served by the Web site. Alternatively, a publisher can participate in an online advertising network, such as the affiliate programs offered by Google, Amazon, and others (described below).

2.2.1 Suitability

Advertising provides a viable income model where an online journal either draws a substantial volume of visitors, allowing the advertiser to reach a large audience, or where the journal's audience is highly specialized, providing an efficient marketing channel for an advertiser targeting that particular audience. While online journals seldom experience enormous traffic volumes compared with more general Web sites, they typically reach highly specialized audiences. Many print journals have sold advertising for years, and there is no logical reason why such ads should not translate to the online version of the journal. This point can also be made to those who might object to online advertising for aesthetic or philosophical reasons.

There are several approaches to setting Web advertising rates. One method is based on the volume of ad "impressions"—that is, the number of site visitors who view Web pages displaying the ads. Impressions are typically measured and sold based on the cost per each thousand visitors (CPM).²⁷ CPM rates are out of favor with some advertisers, who find it difficult to quantify the financial return of passive advertising. However, they can still prove useful to small market advertisers targeting highly specialized audiences.

A second common ad rate uses a pay-for-performance model (sometimes referred to as a CPA or cost-per-(customer) acquisition model). Using a CPA model, the advertiser pays

²⁷ The price paid in a CPM arrangement is calculated by multiplying the CPM rate by the number of CPM units. For example, 100,000 impressions at \$25 CPM equals a \$2,500 total price. The amount paid per impression is calculated by dividing the CPM by 1,000. For example, a \$25 CPM equals \$0.025 per impression.

the publisher for each visitor that actually responds to the ad in some manner, typically by “clicking-through” the ad and responding to an offer (for example, by making a purchase or by registering for more product information, etc.).

Advertisers often prefer pay-for-performance models as they can predict their advertising return on investment and better manage their advertising spending. From the publisher’s perspective, however, CPM rates better accommodate the particular use patterns of academic researchers, who—engaged in the research task at hand—are less likely to interact with ads. Further, CPM rate-based ad sales typically offer more predictability of income. From a practical perspective, for existing journals with established print advertising programs, both the journal’s and the advertisers’ rate expectations will often be indexed to existing print advertising rates.

Web-based advertising raises a number of issues that open-access publishers should bear in mind:

- *User receptivity:* While few users of any service in any medium will profess that they actually *like* advertising, academic users should have few objections to Web advertising that is relevant to their interests (for example, lab equipment or scholarly monographs) and graphically unobtrusive.
- *Dual media ad packages:* A journal published in both print and electronic formats might sell ad packages for both formats. This can be as simple as a bundled dual media price that entices advertisers to try web-based ads for the first time.
- *Ad sales capacity:* Advertising needs to be sold and traffic managed, which requires the time and resources to do so. For a publisher with little or no staff support, operating its own advertising program might not be cost-effective unless it can leverage the effort with an existing ad sales program or out-source most of the effort to a broker (who will typically be paid only for results, on a commission basis). Alternatively, a publisher might participate in a networked advertising program (described below).
- *Site traffic reporting:* If advertising is sold on a CPM basis, the advertiser will require accurate reports of a journal’s online traffic. While third-party online audience measurement services exist that monitor this type of traffic, they are too expensive for most nonprofit journal publishers. However, for targeted advertising markets, a publisher should be able to reach an accommodation with its advertisers to supply data from server logs to validate traffic figures.

The problem in converting print advertising revenue into online advertising revenue is that advertisers do not yet consider online visitors as valuable as print readers, and the CPM for online readers remains a fraction of that for print. This discrepancy results, in large part, from the greater competition for advertising revenues online. Advertising works well when relatively few entities rely on it, but—driven by supply and demand—less well when it needs to sustain many. A peer-reviewed journal in print has relatively few

competitors in its specific field. Online, however, the journal's advertising competes in a vastly larger market, not just against other peer-reviewed journals.

Print advertising typically represents a modest percentage of a journal's revenue. Similarly, for open-access journal publishers, advertising will likely contribute a relatively modest income stream—perhaps 5% to 20% of total revenue.

2.2.2 *Marketing an Advertising Program*

When marketing to advertisers, a publisher needs to emphasize the strengths of its journal and the demographics it reaches. For example, a publisher should provide the following information, together with advertising rates, to formulate a rate card and media kit (resources to help prospective ad buyers evaluate advertising opportunities):²⁸

- **Readership/Circulation/Impressions:** A publisher should indicate the approximate number of registered subscribers (in this case, those who have registered to receive the journal) and/or the number of page impressions that the journal generates. The former approach requires that a journal capture information on its subscribers, either by requiring registration to use the site and/or through user surveys. (Of course, any registration system should conform to the publishing organization's user privacy and disclosure policy.)

Whether a publisher presents one or both of these figures will depend on a variety of factors, including how long the journal has been available online (for example, until the journal has been online long enough to build up traffic, the publisher may choose to emphasize the projected online readership based on the journal's print subscription base).

- **Cost effectiveness:** If a significant proportion of a journal's audience represents a particular demographic, in addition to the specific discipline the journal represents (for example, researchers in a particular geographic region, researchers in the private sector, etc.), a publisher may want to adduce user statistics that demonstrate that advertising placements in the journal can reduce costs for advertisers who want to reach that audience.
- **Quality of readership:** A publisher should provide a profile of the readers of its journal—for example, describing reader demographics, reader interests, etc.—both online and offline (when such data are available). These assertions will be strengthened when they are supported by detailed user registration information.
- **Other leading advertisers:** Where possible, indicating prominent past advertisers in the journal may generate interest by increasing the credibility of the journal as an effective media outlet and by enticing companies to respond to their competitors' advertising.

²⁸ Media kits typically contain information about rates, ad sizes and formats, audience profiles and targeting options (where applicable), and contact information, along with any other information that will help advertising buyers make informed decisions and encourage them to advertise in a journal. For an example of a rate card and media kit for a peer-reviewed, open access publication, see those developed by BioMed Central (<http://www.biomedcentral.com/info/advertising.asp>).

Some journals may be unwilling to accept certain types of advertising, for example, that which may be viewed as distasteful or not directly pertinent to the audience. While most journals would be unlikely media targets for such types of advertising, it is best to establish an explicit policy beforehand that identify any restrictions.

2.2.3 Advertising Networks

Context-sensitive Web advertising networks provide a simple way for publications to generate online advertising revenue. Although the amount of revenue generated will depend largely on the volume of the publication's Web traffic, many of the networks target niche markets and thus encourage participation by smaller sites. The publisher is typically compensated on a per-click or a per-impression basis.

Publishers allow an advertising network to display context-sensitive ads—including text links, images, banners, pop-up windows, dynamic highlighting, and/or video ads, depending on the provider—on the site by enrolling in the advertising programs and placing some JavaScript code on their web pages. Most networks serve the advertisements based on the content of the publisher's web site, the geographic location of the user, and a variety of other factors. Most ad networks allow a publisher some control over which ads will appear on its site (such as excluding competitor ads and objectionable material), and some allow the publisher to select specific ads.

Besides Google AdSense (by far the largest network), online advertising networks include AdBrite (adbrite.com), AdToll (adtoll.com), Bidvertiser (bidvertiser.com), Casale Media (casalemedia.com), Chitika (chitika.com), Cliksor (kliksor.com), Kontera (kontera.com), ValueClick (valueclick.com), and Yahoo Publisher Network (publisher.yahoo.com).

The Amazon Associates program²⁹ and the Barnes and Noble Affiliate program³⁰ can provide an advertising revenue stream in a manner that some journals will find more attractive. The programs allow Web sites to create links to specific products, which could include books and other products relevant to a journal's field or discipline. Additionally, Amazon offers an "aStore" Associates program that allows a journal to embed or link to an online bookstore on its site without any programming requirements. This approach also allows a publisher to focus on particular product categories, although not specific books.

These programs pay referral fees that can range from 4.0% to 8.5% of the product sales price. Assuming an average book price of \$25, a referral fee rate of 6%, and site traffic of 100,000 unique visitors per year, approximately 3% of a journal's visitors would need to make a purchase to generate \$5,000 in referral fees for the journal.

²⁹ <https://affiliate-program.amazon.com/gp/associates/join/landing/main.html>

³⁰ <http://www.barnesandnoble.com/affiliate/index.asp>

2.2.4 Advertising Examples

Examples of self-administered advertising programs include:

- BioMed Central (<http://www.biomedcentral.com/info/advertising.asp>)
- *Other Voices*, provides an example of a media kit for an open-access journal of cultural criticism from the University of Pennsylvania (<http://www.othervoices.org/advertising.php>)
- Oxford University Press offers a full range of advertising media for the scholarly journals it publishes (http://www.oxfordjournals.org/corporate_services/advertising.html)

For examples of peer-reviewed journals using Google AdSense, see:

- *Open Government Journal*, from the University of Alberta (<http://www.opengovjournal.org>)
- Priory Medical Journals (<http://www.priory.com/>)
- *Contemporary Management Research*, from the Academy of Taiwan Information Systems Research (<http://www.cmr-journal.org/>)
- *Journal of Medical Internet Research* (<http://www.jmir.org/>)
- *Neurology, Clinical Neurophysiology and Neuroscience*, sponsored by the American Academy of Clinical Neurophysiology (<http://www.neurojournal.com/>).

For an example of Amazon Associates program, see:

- *Online Journal* (<http://www.onlinejournal.com/>) provides a link to an Amazon Associates aStore.

2.3 Sponsorships

Sponsorships are similar to advertisements, except that they are typically sold based on time, rather than on the number of impressions. A sponsorship program relies on one or more institutional or corporate sponsors to subsidize some or all of a journal's operating expenses in exchange for recognition on the Web site and, sometimes, in other forms of public communication.³¹

While similar in appearance to online advertising—the sponsorship recognition often takes the form of a banner graphic or display of a logo and brief message—sponsorships differ from advertising in several respects:

- *Greater funding potential:* Sponsoring a journal can deliver greater marketing value than advertising, as the sponsor benefits more directly from the reputation, values, and goodwill of the open-access journal. Thus, a journal may be able to realize more revenue via a corporate sponsorship than the market value of a commensurate amount of advertising. Although difficult to quantify, this concept is well understood by experienced corporate sponsors.

³¹ For a fuller discussion of sponsorships for journals, see Raym Crow. *Sponsorships for Nonprofit Scholarly & Scientific Journals: A Guide to Defining & Negotiating Successful Sponsorships*. (Washington: SPARC Publications, 2005). http://www.arl.org/sparc/bm~doc/sponsorship_guide-2.pdf

- *Less labor intensive:* Once sponsorship guidelines have been established, maintaining corporate sponsorships can be less resource intensive than a self-managed advertising program. First, a journal would often only have one or two corporate sponsors; more would dilute the sponsorship's appeal to potential funders. Second, the length of a sponsorship commitment is typically longer than that for an advertising contract.
- *Existing prospects:* A publisher may already have an established group of potential sponsors available for its journal. For a learned society, for example, this might include corporate members, conference sponsors, and the like.³² Existing affinity relationships should be explored for potential expansion to journal and site sponsorships (within the parameters of the journal's sponsorship guidelines, discussed below).

With the exception of advertising, corporate sponsorships should combine well with many of the other business model components catalogued here.³³ For example, a corporate sponsor might fund a program that provides grants to authors who lack institutional funding to cover article processing fees. Or a sponsor might underwrite a particular section or feature of a journal. Whatever the sponsorship format, an existing journal with a strong brand and market position might prove appealing to potential sponsors.

2.3.1 Sponsorship Examples

- *CERN Courier* (<http://cerncourier.com/cws/latest/cern>)
- The Directory of Open Access Journals (DOAJ), sponsored by the National Library of Sweden, INASP, the Swedish Library Association, and Lund University, launched a membership program in 2007 to help fund the continuing operation and development of DOAJ. DOAJ currently has 13 individuals, 80 libraries, universities and research centers, 10 library consortia and 2 aggregators as members. (<http://www.doaj.org/doaj?func=membership>)
- *Journal of Electronic Publishing* (<http://www.journalofelectronicpublishing.org/>)
- *Palaeontologia Electronica*, sponsored by several scientific societies, including the Paleontological Society, the Palaeontological Association, the Society of Vertebrate Paleontology, the Cushman Foundation for Foraminiferal Research, the Sociedad Española de Paleontología, The Micropalaeontological Society, Canadian Association of Palynologists, and Geoscience Australia (<http://palaeo-electronica.org/owner.htm>)

2.4 Internal Subsidies

In addition to, or in lieu of, the revenue-generating models described above, a publisher may rely on external and/or internal subsidies—either as cash or in-kind contributions—to sustain a journal. A journal's business plan may prudently incorporate subsidies as long as the subsidies are formally recognized, fully accounted for, and carefully managed to ensure their continuity.

³² A society could implement a sponsorship program by introducing a new level of membership that includes sponsor benefits.

³³ Sponsors may demand exclusivity or near-exclusivity, which may be incompatible with a simultaneous advertising program.

2.4.1 *Dues Surcharge*

Subsidies may be available from within the publishing organization itself. Especially in nonprofit and membership organizations, subventions to support open-access distribution may take the form of cross-subsidies from other programs or from member dues. Many societies already allocate a portion of member dues income to support their publishing programs.³⁴ A dues surcharge—or a reallocation of member dues to cover a larger proportion of total publication costs—rests on the logic that open-access distribution supports a society’s core mission.

Many learned societies began as voluntary associations to support publishing and research-related activities. In some cases, the publishing programs of these organizations were originally intended to serve individual members, with supplemental income streams in the form of institutional subscriptions coming later. For many organizations, therefore, extending member support to subsidize the entire journal may represent a return to the organization’s original publishing mission.

A dues surcharge raises membership cancellation and free-rider issues: that is, members could drop out of an organization and take advantage of a publication’s Open Access availability. The success of open-access proposals in membership organizations rests largely on the assumption that membership in the society provides other benefits—both tangible (such as conference participation) and intangible (such as a desire to belong to a discipline’s guild)—beyond the publication itself. A society with a relatively weak member benefit proposition might have to effect collateral policy changes—for example, requiring membership for conference participation or raising various participation fees for non-members—to overcome free-rider behavior.

If imposing a dues surcharge on all members is untenable, a society might solicit voluntary contributions from individual, institutional, and corporate members. This approach is described in greater detail in the sections on Sponsorships (see above) and Gifts and Fundraising (see below).

2.4.2 *Dues Surcharge Examples*

- BioMed Central’s membership program allows societies to offer the right to publish without article processing fees as a member benefit. In this case, the society pays the publisher’s charge, in full or in part, out of membership dues.

2.4.3 *Cross Subsidies*

Some society publishers subsidize the operation of one or more open-access journals from the surplus generated by the society’s subscription-based journals. Although this approach would not support migrating all of an organization’s journals to Open Access—that would require cross-subsidies from other types of society programs—it would increase the society’s open-access content overall.

³⁴ The Kaufman-Wills survey suggests that 25-30% of societies allocate member dues to offset publishing costs. See Kaufman-Wills Group (2005), 43, Table 29.

Several aggregators of peer-reviewed journal content—including BioOne in biology and Euclid in mathematics—have provisions for hosting open-access content alongside gated content. In these cases, the aggregators provide online hosting services as part of their mission and as a *quid pro quo* for the journal’s open-access content. Integrating relevant open-access content increases the convenience and overall value of the aggregation, thus providing a benefit to the gated journals in the collection by enhancing its appeal to subscribers. As the value added by the open-access content—for example, in attracting subscribers—may not fully offset the associated costs, the viability of this approach will sometimes rely on the mission of the organization(s) offering the aggregation.

2.5 External Subsidies

2.5.1 Foundation Grants & Corporate Funding

Grants from foundations and other philanthropic organizations can cover one-time costs that may attend the transformation of a subscription-based journal to Open Access. Grants typically support development projects and specify a finite grant amount for a set period of time. Although less common, some foundations will also fund ongoing journal operating costs.³⁵ Depending on the grantor, a publisher might seek a grant to mitigate the financial risk that a journal might incur during conversion to a new business model capable of supporting Open Access. The financial risk of such a conversion can be quantified and limited to a specific time period, and the social return on the granting agency’s investment can be clearly articulated.

Possible grant sources include:

- *Private foundations:* Private foundations are nonprofit, non-governmental organizations with an endowment (typically donated from a single source) and grant-giving program managed by trustees or directors. Such foundations are established to aid educational, social, religious, or other charitable activities. Obviously, the most important criterion is that a foundation has a philanthropic mission that supports scholarly communications initiatives in the same subject area as the journal.
- *Corporate funders:* Corporate funding can come from corporate foundations or from corporate giving programs. A corporate foundation is a private, company-sponsored foundation that obtains its assets from a for-profit enterprise. While a corporate foundation is an independent entity, with its own endowment and organization, it may maintain close ties with the company that created it. Corporate giving programs are grant-making programs administered from within a for-profit business. Some companies make charitable contributions through both types of programs. When dealing with corporate foundations or corporate giving programs, a publication should develop and apply underwriting policies (such as those described above for

³⁵ Operating support from foundations is relatively rare (less than 3%) for society-sponsored journals, but more common (approximately 15%) for the open access journals listed in the *Directory of Open Access Journals*. See Kaufman-Wills Group (2005), 43, Table 29.

sponsorships) to ensure that it avoids any real or perceived conflict of interest between the journal's editorial integrity and the granting corporation.

Two other types of grant-making organizations—public charities (non-governmental charitable organizations that support grants programs) and community foundations (charitable organizations that serve a specific community or region)—often have philanthropic missions that support social relief and other special programs. Where a journal's editorial focus aligns with a charity's mission and giving programs, the journal may be able to secure full or partial operating support. For example, foundations with giving programs in international health provide operating support for several open-access journals. A variety of sources can help a publisher identify private or corporate foundations with subject domain interests similar to its journal's (see Appendix E: Resources for Grant Seeking & Fundraising).

Identifying an appropriate foundation and applying for a grant can be a time-consuming task. University-based publishers might seek assistance from their institution's development office. These offices may have existing relationships with corporate or private foundations that might meet a journal's funding profile. Further, these offices have experience that can help a publisher position its journal project to appeal to various grant-making organizations. Tapping into such a resource can also bring additional skills and visibility to both the grant request and the journal business case itself, and it makes sense to contact and/or coordinate grant-seeking efforts with this office. The resources that a development office might have available to provide such support will often depend on the university's own development campaign schedule; more assistance may be forthcoming between such campaigns.

2.5.2 Foundation Grant Examples

- *The Ecology of Games*, published by MIT Press and subsidized by the MacArthur Foundation.
- *Journal of Neglected Tropical Diseases*, published by PLoS and funded in part by the Bill & Melinda Gates Foundation (<http://www.plosntds.org/>).
- *Filariasis.net*, funded by the U.K. Department for International Development, GlaxoSmithKline, and the Bill & Melinda Gates Foundation (<http://www.filariasis.net/>).
- *Krisis*, a Dutch philosophy journal subsidized, in part, by the Prins Bernard Cultuurfonds (http://www.krisis.eu/index_en#htmlpart=content/sponsors_en.htmlpart)

Corporate Subsidy Examples

- *Evidence-based Complementary and Alternative Medicine*, published by Oxford University Press, was subsidized by the Ishikawa Natural Medicinal Products Research Center for the first four years after launch. (http://www.oxfordjournals.org/our_journals/ecam/about.html)

2.5.3 Institutional Grants & Subsidies

If a journal's publisher, or a key sponsor, is affiliated with an academic or research institution, formal and informal subsidies from the institution can defray operating expenses. The journal may be able to make a case for such an institutional subsidy based

on the prestige and increased visibility that the publication brings to the host institution, research center, or academic department.

While an institution might provide a cash subsidy, such support will often take the form of non-cash in-kind contributions. For campus-based publications, the college or university library will sometimes allocate library staff resources to assist in the design and implementation of indexing, metadata tagging, and/or digital formatting, as well as providing technology services, such as online hosting.

2.5.4 Institutional Subsidy Examples

- *Electronic Transactions on Numerical Analysis*, Kent State University (<http://etna.mcs.kent.edu/>)
- *Journal of Insect Science*, University of Wisconsin (<http://www.insectscience.org/>)
- *Journal of Physical Studies* (<http://www.ktf.franko.lviv.ua/JPS/index.html>)
- The eScholarship program of the California Digital Library supports several open-access journals sponsored by UC departments and research programs, including: *Berkeley Scientific Journal*, *California Agriculture*, *Electronic Green Journal*, *InterActions: UCLA Journal of Education and Information Studies*, *Learning through the Arts: A Research Journal on Arts Integration in Schools and Communities*, *San Francisco Estuary and Watershed Science*, *Technology Innovations in Statistics Education*, *The Western Journal of Emergency Medicine*, and *World Cultures eJournal*. (http://repositories.cdlib.org/escholarship/peer_review_list.html)
- *Philosophers' Imprint*, University of Michigan ()
- Purdue University Press publishes five open-access journals with support from the university library, which hosts the journals online as part of its digital repository: *CLCWeb: Comparative Literature and Culture*, *First Opinions—Second Reactions*, *The Interdisciplinary Journal of Problem-based Learning*, *The Journal of Problem Solving*, and *The Journal of Terrestrial Observation* (<http://docs.lib.purdue.edu/thepress/>).

2.5.5 Government Funding

For the most part, government agencies tend to fund the conduct of project- and subject-specific research, not its dissemination. However, grants from government funding agencies may—depending on the country in which a publisher operates—provide a source of funds to develop and/or sustain an open-access journal.³⁶ Several large-scale, long-term projects sponsor online journals that publish research results related to the project. Similar projects might negotiate terms in a government research grant that extends beyond research support to provide a venue to disseminate the project's research results.

2.5.6 Government Funding Examples

The journals below provide examples of direct government subsidies for open-access journals. Indirect government subsidies for open-access journals—for example, grant

³⁶ Operating support from government grants is relatively rare (less than 4%) amongst society-sponsored journals, but more common (approximately 20%) for the open access journals listed in the *Directory of Open Access Journals*. See Kaufman-Wills Group (2005), 43, Table 29.

funds directed to paying article processing fees, or support for open-access journals published via government-funded servers—are described elsewhere (see Article Processing Fees and Appendix A).

Open-access journals published by government agencies include:

- *Air and Space Power Journal*, published by the United States Air Force (<http://www.airpower.au.af.mil/>)
- *Alcohol Research & Health*, published by the U.S. National Institute on Alcohol Abuse and Alcoholism (<http://www.niaaa.nih.gov/Publications/AlcoholResearch/default.htm>)
- *Emerging Infectious Diseases*, published by the Centers for Disease Control and Prevention, U.S. Department of Health and Human Services (<http://www.cdc.gov/ncidod/eid/index.htm>)
- *Environmental Health Perspectives* is a peer-reviewed open-access journal published by the U.S. National Institute of Environmental Health Sciences (<http://www.ehponline.org/>)

Open-access journal publishing programs supported by government grants include:

- “Aid to Open-Access Research Journals,” an initiative of Canada’s government-funded Social Science and Humanities Research Council, offers non-renewable, one-year grants to support the development of open-access journals in the humanities and social sciences. (http://www.sshrc-crsh.gc.ca/site/apply-demande/program_descriptions-descriptions_de_programmes/open_access_journals-revues_libre_acces-eng.aspx)
- The Institut des sciences humaines et sociales of France’s Centre national de la recherche scientifique provides subsidies for open-access journals. (<http://www.cnrs.fr/inshs/recherche/soutien-revues.htm>)
- SciELO provides cooperative electronic publishing of scientific journals in developing countries, particularly in Latin America and the Caribbean. It is a partnership among the State of São Paulo Science Foundation, the Latin America and Caribbean Center on Health Sciences Information, and Conselho Nacional de Desenvolvimento Científico e Tecnológico. (<http://www.scielo.org>)

2.6 Donations & Fundraising

Fundraising programs to support open-access journals assume a variety of forms. They include concerted, one-time campaigns, designed to cover initial development costs or to fund an endowment, and ongoing, low-intensity programs, where the income generated supplements more stable income streams. A campaign may solicit small gifts from individual donors or seek larger donations from corporations, foundations, institutions, and high net worth individuals.³⁷ The gifts may be anonymous donations, processed through online gift processing services, or named gifts.³⁸

³⁷ Gift and fundraising support for society journals is relatively rare (less than 3%), but is more common (approximately 12%) for the open-access journals listed in the *Directory of Open Access Journals*. See Kaufman-Wills Group (2005), 43, Table 29.

³⁸ As donors are often attracted by an opportunity to be recognized in perpetuity through the activities funded by their endowment, or other long-term support commitment, open-access journals—by design, both perpetual and public—would seem to be candidates for named gift opportunities. However, we have not yet come across any journals named in honor of an individual donor.

In the context of peer-reviewed journals, donation-based models typically work better as appeals to individuals than to institutions. Some academic libraries, especially those at public institutions, operate under purchasing policies that preclude their support of eleemosynary models. Their role is as purchasing agents, and many are prohibited from making charitable contributions.

2.6.1 *Donations from Individuals*

Appeals for donations will likely prove more successful if the journal makes it as easy as possible for readers to contribute. Some journals solicit donations from individuals through links from their main pages or via pop-up screens that appear after a reader selects a link to an article. Soliciting donations need not be disruptive or disproportionately time-consuming. Journals can manage donations using programs offered by online vendors, such as PayPal, Google Checkout,³⁹ NetworkforGood,⁴⁰ and JustGiving.⁴¹

Such services can lower a journal's costs and risks for a donation program by providing donors with a secure online transaction. Google's Checkout service provides free donation transaction processing to U.S. nonprofits participating in its Google Grants program.⁴² All other 501(c)(3) organizations are charged 2% + \$0.20 (USD) per transaction, with no monthly or setup fees. The PayPal Donations service charges the same rate as standard commercial transactions, that is, 1.9% to 2.9% + \$0.30, and JustGiving assesses a 5% transaction fee.

Use of these services is insufficient in itself. A publisher needs to encourage individual donations through a specific campaign or membership program that reaches out to a journal's audience and cultivates a relationship with the donor. Without such a communication strategy, a click-through donation button provides a passive solicitation approach, capable only of generating incidental income.

2.6.2 *Donations from Institutions*

Soliciting philanthropic funding for peer-reviewed journals from academic libraries confronts several obstacles, including library purchasing policies and free-rider issues. A subscription journal seeking to convert to Open Access may try to overcome such obstacles by making open-access distribution contingent on the publisher securing a specified level of financial commitment. This approach introduces the social dynamics and incentives needed to surmount free ridership.

One donation model uses a gift-gauge approach to releasing content via Open Access, basing access to content on achievement of specified giving thresholds. In this approach, embargo length or the rights level of the Creative Commons license applied to the content is determined by the giving level reached. As this approach would require a recurring

³⁹ <http://checkout.google.com/seller/>

⁴⁰ <http://www.networkforgood.org/>

⁴¹ <http://www.justgiving.com/>

⁴² <http://www.google.com/grants/>.

campaign (the frequency of which would depend on the publisher's income requirements) to fund a serial publication, it would work better for one-time programs (for example, for a campaign to establish an endowment; see below).

As with any income-generating activity, the cost of a fundraising program needs to be carefully weighed against the potential return. Sometimes a publisher may be able to work with a university or society development office in implementing such a program, both to gain from the office's expertise and to coordinate efforts to avoid competing for the same donors.

2.6.3 Donations & Fundraising Examples

Examples of peer-reviewed journals soliciting individual donations via Google Checkout, Paypal, and credit cards include:

- *Contemporary Management Research*, from the Academy of Taiwan Information Systems Research (<http://www.cmr-journal.org/>)
- *Esoterica: the Journal of Esoteric Studies*, Michigan State University (<http://www.esoteric.msu.edu/Support.htm>)
- *Journal of Buddhist Ethics* (<http://www.buddhistethics.org/dana.html>)
- *Journal of Medical Internet Research* (<http://www.jmir.org/payment/paypal/donation>)
- *Journal of Virtual Worlds Research* (<http://www.jvwresearch.org/donate.html>)
- *McGill Journal of Education*, from McGill University (<http://mje.mcgill.ca/index>)
- *Neurology, Clinical Neurophysiology and Neuroscience* (<http://www.neurojournal.com/>)
- *Open Government Journal*, from the University of Alberta (<http://www.opengovjournal.org>)
- *Other Voices: the (e)journal of Cultural Criticism*, from the University of Pennsylvania (<http://www.othervoices.org/donate.php>)
- Public Library of Science (<http://www.plos.org/support/index.html>)

Examples of voluntary subscriptions and donations via credit card:

- *Americana: the Journal of American Popular Culture*, from the Institute for the Study of American Popular Culture provides an example of a tiered donation model with a private benefit (a monthly newsletter). (<http://www.americanpopularculture.com/endowment.htm>)
- *Voices: A World Journal for Music Therapy*, published by The Grieg Academy Music Therapy Research Centre, University of Bergen in affiliation with the *Nordic Journal of Music Therapy*. (<http://www.voices.no/info/infosub.html>)

For an example of a law journal that systematically cultivates alumni, see:

- *Indiana Law Journal's* Board of Editors Honor Roll Program, which appeals to past members of the journal's Board of Editors. (<http://www.law.indiana.edu/ilj/about/benefactors.shtml>)

For an example of a journal that has established a corporate giving program that appeals to a specific market (in this case, a legal practice area), see:

- *Michigan Telecommunications and Technology Law Review* (<http://www.mttl.org/html/donors.html>)

An interesting example of a contingent access model, though not applied to a journal, is “ThenYouWin,” an initiative to release documentary films under Creative Commons licenses. (<http://theyouwin.yooook.org/content/>)

2.7 Endowments

Fundraising provides a means to endow a capital fund, which generates interest to support a journal’s ongoing operations. It is difficult to assess the number of open-access journals supported by endowments, as such funding is frequently channeled through the society, institute, or foundation publishing the journal. However, some independent open-access journals do promote contributions to their endowments. When soliciting such contributions, it is important to indicate how the endowment is managed, to ensure donor confidence that their contribution will be responsibly managed.

An endowment’s capital base should typically be large enough to generate a return sufficient to provide a sustainable income stream, thus obviating recurring fundraising efforts. Fundraising is a particularly challenging and competitive pursuit, but it represents just one way to endow a capital fund. Several of the other income models (corporate sponsorships, for example) discussed here could be applied to the same purpose. In most cases, the publisher should acknowledge that support has been provided by a third-party endowment, or a major donor to an endowment, following underwriting and disclosure guidelines similar to those described for sponsorships (see Appendix D).

2.7.1 Endowment Examples

Several journals use donations to fund an endowment:

- *Nineteenth-Century Art Worldwide* (http://www.19thc-artworldwide.org/how_to_support.shtml)
- *Americana: the Journal of American Popular Culture* (<http://www.americanpopularculture.com/endowment.htm>)
- Though not journals, the *Stanford Encyclopedia of Philosophy* (<http://plato.stanford.edu/fundraising/>) and the *Thesaurus Linguae Graecae* at the University of California at Irvine (<http://www.tlg.uci.edu/about/history.php>) provide examples of concerted attempts at collective action to fund an endowment.⁴³

2.8 In-kind Support

Some nonprofit publishers enjoy in-kind contributions (whether explicit and implicit) from academic institutions, sponsors, and other organizations. Most in-kind contributions come from the institutions, societies, and other organizations with which a publication or project is affiliated. Well over one-half of open-access journals receive

⁴³ See Edward Zalta. “The Stanford Encyclopedia of Philosophy: A University/Library Partnership in Support of Scholarly Communication and Open Access.” *C&RL News*, Vol. 67, No. 8 September 2006.

some level of in-kind university support and almost one-fifth receive some support from one or more learned or professional societies.⁴⁴

In-kind support can assume many forms, including office space and facilities, administrative support, student labor, development/fundraising support, and/or the provision of faculty time⁴⁵ (from a host institution); voluntary labor (from the social network for the journal's discipline); digital conversion, formatting, and metadata tagging (from an institution's library); free or discounted computers, equipment, and software licenses (from a host institution or corporate sponsor); digital archiving (from national libraries and nonprofit initiatives); and online publishing technology and hosting services (from a host institution or publishing partner).⁴⁶ These in-kind contributions effectively offset costs that would otherwise be incurred by the publisher, lowering the cost hurdle that must be cleared to sustain a journal financially.

As with other forms of subsidies, a journal's business model should explicitly account for in-kind contributions. This is necessary to:

- provide a basis for demonstrating the return that the journal delivers to the contributor (often measured in terms of reputation-building or social value), in order to help ensure the continuity of the contribution; and
- allow an accurate understanding of potential replacement costs in the event the in-kind support is withdrawn.

The detail and sophistication of this accounting will depend on the type and scale of the in-kind contribution(s) that the journal receives, and on the nature of the publisher's relationship with the contributor.⁴⁷

In-kind subsidies require resources to administer and maintain, just as self-generated income models do. Ideally, the terms of significant in-kind arrangements should be explicitly articulated and agreed to by the journal and the contributing entity. A publisher should recognize implicit in-kind arrangements, even those of long-standing, as financial risks and should develop contingency plans in the event of their discontinuation.⁴⁸

Sustaining a journal over time requires that the publisher continues to demonstrate the value being delivered to in-kind contributors, even though this value may be self-evident to the publisher.

2.9 Partnerships

While not an income model *per se*, partnerships can play a significant role in the business model for an open-access journal. It makes sense to discuss partnerships separately as

⁴⁴ Based on an analysis by the author in 2003 of the *Directory of Open Access Journals* (<http://www.doaj.org/>).

⁴⁵ Where the time of a faculty publisher/editor is contributed (wittingly or otherwise) by the host institution, rather than bought out by a grant or other income source.

⁴⁶ For information on online publishing and hosting services for open access journals, see Appendix A.

⁴⁷ For example, in-kind contributions from an academic institution that is home to the journal's publisher will typically be more stable, and require less effort to maintain, than contributions from third-parties.

⁴⁸ Although the current administration of a university supports the journal and authorizes an in-kind contribution, changes in that administration may result in a down-scaling or elimination of the support.

they often represent subcomponents of other types of income models. Publishers of open-access journals may find it productive, even essential, to partner with other organizations with related missions and complementary strengths. Partnerships can provide access to resources that might otherwise require a significant outlay of cash.

Partnerships with scholarly or scientific societies and/or academic libraries can be especially effective because of a shared commitment to supporting scholarly communication. The society represents the interests of its discipline, and may also command expertise in journal editorship and publishing. A university library may bring to the partnership such complementary resources as digital content formatting and mark-up, Web dissemination infrastructure, and online hosting. Such partnerships can couple the relevant strengths of each organization.

Partners can also include organizations that provide open-access publishing services. Such service providers offer free or low-cost open-access publishing services either as part of their mission (in the case of nonprofit initiatives) or in exchange for the opportunity to develop a modest revenue stream (in the base of commercial enterprises) from article processing fees and/or the site traffic the open-access content generates. These services, some of which are described in Appendix A, allow journal editors to focus on editorial and content issues, without investing in a technical or business infrastructure.

2.9.1 Partnership Examples

For examples of journals that represent joint projects of multiple societies, see Peter Suber and Caroline Sutton, “Society Publishers with Open Access Journals” <http://www.co-action.net/projects/OAsocieties>.

III. DEMAND-SIDE MODELS

3.1 Demand-Side Models & Free Ridership

All demand-side income models intended to support open-access distribution confront a free-rider obstacle. Stated simply: If libraries contribute to provide a collective good, such as an open-access publication, some may fail to contribute, taking advantage of those that do provide financial support. If enough libraries follow the logic of trying to gain benefits without contributing to the costs, then the collective model will fail.

In analyzing the logic of collective action, Mancur Olson argued that the mechanisms available to overcome free ridership depend on the size of the group benefiting from the public good.⁴⁹ Members of large groups can only be motivated to collective action by coercion (for example, government taxation) or by the provision of a selective benefit (that is, a positive inducement offered exclusively to those who act in the collective interest) that effectively privatizes the return on a member's contribution. In the case of open-access journals, such privatized benefits can be difficult to implement: either due to the additional expense of creating a differentiated, value-added version that can command a fee, or because degrading access (for example, via content embargoes) runs contrary to the prevailing definition of Open Access as providing immediate, free availability.

The free-rider problem can be more easily overcome in intermediate- and small-sized groups, where the actions of group members are subject to coordination and made more visible to others in the group. In particular, free-rider tendencies can be reduced via a social network with a leadership that assures participants that their contributions will make a difference. In the context of open-access journals, identifying subsets of libraries that have demonstrated use of a given publication may make it easier to overcome free ridership by introducing the social dynamics of a smaller group.⁵⁰

The observations above inform our discussions below of demand-side income models (such as use-triggered licenses) designed to encourage library support of open-access publications.

3.2 Versioning

Producing various versions of digital information services, each with its own target market segments, perceived value, and willingness to purchase, is a well established method of maximizing the revenue generated by any given content asset. Such versioning requires an ability to manage the access to the various service levels. In their simplest form, open-access journals would not require such potentially expensive access management and control systems. In many instances, the costs incurred by implementing

⁴⁹ See Mancur Olson. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge: Harvard University Press, 1971.

⁵⁰ See Olson (1971), 53-65. The social incentives that operate in smaller groups—such as reputation and status—are, in fact, non-collective goods, and function as private benefits.

such a system, in order to facilitate purchased service offerings, would consume most or all of the incremental income that such offerings might generate. Therefore, the cost-to-benefits ratio for the approaches discussed below should be considered carefully.

3.2.1 *Offline Media*

Publishing a fee-based print edition (or, in some cases, a CD-ROM or DVD edition) that complements an open-access journal provides a way to serve the needs of individual and institutional users (as well as authors) that require a print edition. A publisher can provide such a complementary print edition in a variety of ways, including:

- *A cumulative print edition* that appears at the end of a volume year:

To address the needs of individual and institutional users that value print for archival and convenience purposes, a publisher can offer a print version that aggregates the papers published previously in digital format. How closely the print edition mirrors the online version will depend on the types of digital content a journal publishes, with large data sets, audio and video files, and three-dimensional modeling necessarily remaining exclusively digital. Although the total pages published during the year may prove less predictable with an electronic format, a cumulative annual edition allows a publisher to determine beforehand how many pages it will be printing, and to set the volume price accordingly.

Some publishers will want to price their print editions on a cost-recovery basis, covering the direct expenses relating to print production and fulfillment. Others will want to generate a surplus (that is, net income after direct expenses) with a print version, in order to partially offset the journal's overall operating costs. As these types of print editions often use print-on-demand technology, it is not necessary to project precisely the demand for such print units when establishing the per-unit price.

- *A simultaneous print edition* that may provide additional, non-research content not available via Open Access:

A publisher may be able to support demand for a subscription-based print edition by including content not available through the open-access version. The additional content could include correspondence, editorials, job postings, event calendars, and other information of value to a particular research community. In practice, this may translate into continuing an existing print journal while making only the research content available via Open Access. Examples of this approach include the journals of the Institute of Mathematical Statistics, which makes all of its research content available on arXiv simultaneous with print publication. In effect, journals participating in PubMed Central also operate under this approach, although typically in conjunction with a content embargo.

3.2.2 *Offline Media Examples*

A number of open-access journals that offer print subscriptions appear to fund the online availability through surplus income from the print sales. The extent of this practice is

unclear, as few journals state the funding relationship explicitly. In some cases, the content of the two editions may differ slightly (for example, with the open-access edition only including research articles); in others, the print edition takes the form of an annual print-on-demand volume.

Examples of priced print editions include:

- *ARKIVOC* (Archive for Organic Chemistry) (<http://www.arkat-usa.org/>)
- *Acta Mathematica Universitatis Comenianae* (<http://pc2.iam.fmph.uniba.sk/amuc/>)
- *Communications in Information Literacy* provides a print-on-demand option via Lulu.com. (<http://www.comminfolit.org/index.php/cil/index>)
- *Evidence-based Complementary and Alternative Medicine*, published by Oxford University Press, provides Open Access (without article publication fees) to original content, and applies a subscription model and discretionary open-access fees to other content (e.g., reviews, editorials, commentaries and all other articles besides original articles). (http://www.oxfordjournals.org/our_journals/ecam/about.html)
- Geometry and Topology Publications (<http://www.maths.warwick.ac.uk/gt/gtp-subscription.html>)
- Institute of Mathematical Statistics journals (research content available via arXiv) (<http://www.imstat.org/publications/>)
- *Postgraduate Medicine* makes most of its articles available Open Access, but requires a subscription to some articles, including original research articles. Commercial print and PDF reprints are available for a fee. (<http://www.postgradmed.com/>)

3.3 Use-Triggered Fees

As noted above, free-rider tendencies can be more easily overcome in intermediate- and small-sized groups, where the actions of group members are subject to coordination. Identifying libraries and other organizations that have demonstrated use of a given publication makes it easier to overcome free ridership by introducing the social dynamics of a smaller group.⁵¹

A use-triggered fee model supports open-access publication by imposing usage fees on a voluntary basis. Under the model, individual users, and users from less-developed countries, would have access to an online publication without charge.⁵² Additionally, occasional users at an educational institution would be able to use the service, on a limited basis, without charge.⁵³ However, once use from an institution reaches a specified threshold, the publisher would request the institution to pay an access fee for the service.⁵⁴

As Open Access, by definition, would prevent a publisher from blocking access to institutions that cross the use threshold yet fail to pay, a mechanism is required to

⁵¹ See Olson (1971), 53-65.

⁵² The model described here elaborates on the model developed by the Royal Anthropological Institute. For a description of the RAI approach, see <http://aio.anthropology.org.uk/aio/conditions.html>.

⁵³ Although the model could be applied to both nonprofit and commercial organizations, we have couched the concept here in terms of academic libraries. RAI's model requires commercial entities to pay a subscription fee, although there is no access control mechanism to enforce payment.

⁵⁴ RAI sets forth the conditions of use in an online license statement, and invoices institutions that cross the use threshold. As such a license has no legal force, RAI relies entirely on voluntary compliance.

encourage compliance.⁵⁵ Further, this mechanism needs to apply to institutions that operate under purchasing policies that prevent them from paying voluntary fees.⁵⁶

As described above, two of the principal approaches to overcoming the free-rider obstacle are the provision of selective benefits and an appeal to a social network. We describe two such approaches below in the context of a use-triggered fee.

3.3.1 *Selective Benefit*

As one technique to increase compliance with a voluntary license, a publisher could present users from institutions that decline to pay with a pop-up message asking them to urge their institution to comply with the license terms. The absence of such a nuisance notice would represent a selective benefit to a contributing library, thus encouraging participation.

The principal shortcoming of this approach is that the nuisance message would be delivered to the end user, not to the librarian responsible for licensing online resources. As a result, it would not provide a particularly effective mechanism for encouraging compliance.

3.3.2 *Social Network*

A publisher could secure provisional consent from an educational institution indicating its willingness to comply with the publisher's license in the event that the institution crosses a specified use threshold. This authorization would only obligate the institution to pay in the event that its usage triggered an invoice. Although the use threshold would be reset annually, the publisher could provide *pro forma* invoices that would allow institutions to pay the access fee as part of their routine acquisition process.

To leverage the small group dynamic described above, the pre-approval process could be centrally coordinated and target institutions for which prior use of the resource indicates that they would cross or approach the use threshold.

A program to coordinate the pre-authorization process could be sponsored by an organization with an interest in promoting alternative income models to support Open Access, such as a library consortium. The sponsoring organization could seek participation from its membership and from other libraries identified as significant users of a publication. The program could be constructed to make it easy to monitor the participation of others in the group in order to increase the effectiveness of social incentives.

⁵⁵ RAI claims (email communication from David Zeitlyn, editor of the *Anthropological Index*) that it has not experienced a significant free rider problem, and that institutions—when presented with evidence of substantial use—readily subscribe. On the other hand, RAI's use of a "do not use" message suggests that some free ridership does take place. RAI has the ability to block access from specified addresses, but has never used it.

⁵⁶ As noted above, some public institutions have policies that preclude the payment of voluntary fees. Further, a BioOne survey of its academic subscribers, conducted in 2007, indicated that fewer than 25% of the institutions maintain separate funds designated to support open-access publications.

For efficiency, the pre-approval program could accommodate multiple publications. If pilot programs proved successful, the solution would be scalable. (For a description of how such a program could be implemented, see Appendix F.)

3.3.3 Use-Triggered Fee Example

The use-triggered, open-access license was pioneered by the Royal Anthropological Institute for the *Anthropological Index Online*. (<http://aio.anthropology.org.uk/aio/conditions.html>)

3.4 Convenience-Format License

Open-access publishers that control significant bodies of content may be able to generate additional revenue by licensing content to third-party information aggregators and distributors. Although an open-access journal's content might be governed by a Creative Commons non-commercial license, the publisher might make the content available for commercial distribution under a separate license.⁵⁷ For example, a publisher of a law journal can make its content available Open Access while licensing the content for distribution to law firms and corporate legal offices via online legal content aggregators.

Some journal content may lend itself to repurposing for commercial licensing. For example, a publisher of scientific journals might license its content to a legal information service, which could provide access to the content for use in patent prior-art searches. Providing the data in a single file—either as is or in a distributor-determined standard format—could deliver convenience value to the aggregator. For their part, the aggregator's customers would perceive value in having convenient access to relevant content they would otherwise have to discover on their own (a convenience for which corporate or professional users may be willing to pay the aggregator, even when the same content is accessible via Open Access). With the right content and the right aggregator, a journal publisher could realize significant convenience fees.

While many small publishers may not control sufficient content to justify this model, they might collaborate with other publishers of similar content to aggregate files and offer them to specialized distributors.

3.4.1 Convenience-Format License Examples

Most of the journals that have signed on to the Science Commons Open Access Law Journal Principles (<http://sciencecommons.org/projects/publishing/oalaw/oalawjournals/>) also license their content to LEXISNEXIS and/or WestLaw.

3.5 Value-Added Fee-Based Services

There are a number of online features and functionality that publishers can provide to increase the usability and appeal of a journal's research content. Most publishers of subscription-based journals include such features as part of their online journal services. However, an open-access publisher may be able to charge for such features while keeping the research content available without gating.

⁵⁷ This assumes, of course, that the journal has secured such rights from its authors.

Examples of possible value-added features include:

- *Alert services:* Automated alert services allow users to establish profiles of research interests (based, for example, on the journal's article indexing scheme) and to receive e-mail notification when the journal publishes an article in their specified area(s) of interest. Such alert services are particularly useful for electronic journals that publish articles as they become available. Additionally, they allow researchers in allied fields, but from outside the journal's user community proper, to track research.
- *Site customization:* Besides custom alerts, journals can provide additional user-defined settings that allow a user to customize the journal interface or other aspects of their interaction with the journal.⁵⁸ Customization allows the user to configure the journal or site interface and create a profile manually, adding and removing elements in the profile. The control of the look and/or content is explicit and under the direct control of the user.⁵⁹ This type of user customization can feature other research support tools, including saved searches.

Further, the demographic information that can be gathered as part of the registration process for some of the services above might be used, on an aggregated basis, to support a journal's ad rates or sponsorship levels.⁶⁰

3.5.1 Value-Added Service Examples

- Although not a journal publisher, Flat World Knowledge publishes open-access textbooks, the publication of which is subsidized by the sale of value-added supplemental materials (for example, print, audio, and PDF versions; study guides; etc.) (<http://www.flatworldknowledge.com/>)

3.6 Contextual E-Commerce

Open-access journal publishers with goods and services to sell directly—their own and/or those of other parties—may choose to launch an electronic commerce operation. Online ordering using a credit card via a secure system and server enables the customer to purchase the goods, which are then physically shipped to the customer, or which, when a digital publication is the product, can be made immediately available to the purchaser.⁶¹ The critical issue for this type of contextual e-commerce will be the relevance of the goods and services offered to the journal's audience.

⁵⁸ A distinction is sometimes made between customization and personalization. While customization is user-driven, personalization involves an automated process of gathering user information during the user's interaction with a Web site; this information is then used to deliver appropriate content and services tailored to the user's needs. The services described here refer to user-specified customization.

⁵⁹ For an example of interface customization in an academic library setting, see North Carolina State University's *MyLibrary* initiative (see <http://my.lib.ncsu.edu/>).

⁶⁰ A publisher that chooses to gather demographic information should be explicit in its privacy policy that it is not using any of the data on an individual basis and that it is not revealing email addresses to third parties. Even with these caveats, academic users tend to be wary of providing such information to any but the most trusted sources.

⁶¹ For a practical guide to implementing an e-commerce component (from a U.S. perspective), see Gary M. Grobman. *The Nonprofit Organization's Guide to E-Commerce*. (Harrisburg, Pennsylvania: White Hat Communications), 2001.

There need be little financial risk inherent in a properly-designed e-commerce program. Physical goods need not be inventoried; rather, they can be drop-shipped to customers as ordered, particularly for products for which the site acts as intermediary but not the actual producer. The costs of mounting an e-commerce capability are relatively low and mostly variable; that is, after generally modest fixed costs, incremental expenses will increase only in proportion to sales. While supporting e-commerce increases the complexity of a site's operation, the technical infrastructure, including secure processing of credit card payments, can be outsourced. Many full-service vendors can perform all or part of the e-commerce solution, often at competitive rates.

The e-commerce in which a journal might engage to generate income may be substantial, such as an online bookstore, or relatively slight, such as T-shirts and coffee mugs. A number of open-access journals use Café Press to offer merchandise, including T-shirts, coffee mugs, tote bags, etc., imprinted with the journal's logo.

Whether an e-commerce program can be a viable component of a journal's business model will depend on a number of key factors involving the range of products and services that could be offered profitably and the willingness of the organization to undertake obligations and potential liabilities as a purveyor of goods and services (some or all of which may be produced by others). It is difficult to predict the financial contribution of e-commerce as a component to a journal's business model, and it will typically be prudent to be conservative in projecting both income and expenses.

3.6.1 Contextual E-Commerce Examples

Examples of journals using the Café Press service include:

- *Journal of Virtual Worlds Research* (<http://jvwresearch.org/>)
- *Libertarian Papers* (<http://libertarianpapers.org/shop/>)
- Priory.com (formerly Priory Lodge Education) provides an example of an online bookstore. (<http://www.priory.com/prbkshp.htm>)
- *Rejecta Mathematica* (<http://math.rejecta.org/supporting-rejecta-mathematica>)

APPENDIX A: PUBLISHING SERVICES FOR OPEN-ACCESS JOURNALS

As online publishing and hosting services can represent a significant portion of the costs of publishing an open-access journal, they merit particular attention here. Providers of free online publishing and hosting services explicitly intended for open-access journals include:

- eScholarship, California Digital Library
- Scholarly Exchange
- The Scholarly Publishing Office, University of Michigan

Each of the services above has its own business model: eScholarship is funded by the California Digital Library (and limits support to journals sponsored from within the University of California system), Scholarly Exchange uses advertising,⁶² and the Scholarly Publishing Office relies on an institutional subsidy and cross-subsidies from income-generating activities. While these platforms vary in the range of services they provide, they all provide a channel for open-access distribution without a direct cost to the journal.⁶³

Although it does not advertise itself primarily as a provider of open-access publishing services, PubMed Central provides a publishing venue for open-access journals in biomedicine.⁶⁴ A publisher might also elect to use an open-source publishing software solution—such as Open Journal Systems (<http://pkp.sfu.ca/>), epress (<http://www.epress.ac.uk/>), DPubS (<http://dpubs.org/>), and others—which requires some customization and maintenance on the publisher's part.

⁶² Scholarly Exchange offsets its costs by contextually appropriate on-screen advertising. Journals that do not want to participate in the advertising model may pay a \$1,500 fee.

⁶³ In addition to free services, there are also several low-cost providers of open-access publishing support, including Open Access Solutions (<http://openaccesssolutions.com/>) and Simon Fraser University support and hosting for journals using Open Journal Systems (<http://software.lib.sfu.ca/support.html>).

⁶⁴ See <http://www.pubmedcentral.nih.gov/about/pubinfo.html>.

APPENDIX B: COMPUTING ARTICLE PROCESSING FEES

Figure B-1, below, provides a simple method of how a publication fee might be computed for either all submissions or solely for accepted articles, assuming that the fee covers all processing costs. Obviously, were the fee applied in combination with one of the other funding components described in this guide, the article charges would decrease accordingly.

Figure B-1: Sample Article Fee Calculation

(a) Issues Per Volume	# a
(b) Articles Per Issue Accepted/Published	# b
(c) Articles Per Volume Accepted/Published	$a \times b = \#c$
(d) Articles Submitted	# d
(e) Acceptance Rate for Articles Submitted	$b \div d = e \%$
(f) Total Net Editorial Processing Per Volume	\$ f ¹
(g) Proportion of Cost Defrayed by Article Fees	g % ²
(h) Fee Per Submission	$f \div d = \$h$
(i) Fee Per Published Article	$f \div c = \$i$

Table Notes: ¹In local currency. Including costs incurred for both rejected and accepted submissions. ²Up to 100% (if no other funding components).

As the method in Figure B-1 suggests, if the journal charged a processing fee for every article *submitted*, and if that fee were intended to offset the entire editorial expense of the journal, then (h), the fee per submission, would need to be set at (f) total net expense divided by (d) the number of articles submitted. Were the journal to charge an article processing charge solely for *accepted* articles, (i) the fee per article, would need to be (f) divided by (c) the number of articles accepted and published.

Depending on the scholarly or scientific discipline of the journal (and receptivity to article processing fees and the availability of research funds to support such fees), such fee levels may prove too steep to be feasible. However, these fees can be lowered by using them in conjunction with other funding mechanisms.

For information on transitioning a journal to an article processing fee model, see Appendix C.

APPENDIX C: FINANCIAL FORECASTING TEMPLATES FOR TRANSITIONING TO DISCRETIONARY ARTICLE FEES

Figure C-1 presents a format for a multi-year spreadsheet forecast of the financial impact of a transition to discretionary Open Access via article processing fees. A publisher should consider at least two scenarios, each with its own set of assumptions and projections. One might represent a “best case”—with a gradual paid subscription loss and high author participation—and the other might be a “worst case”—with more rapid paid subscription loss and lower author participation.

Exhibit C-1: Financial Forecast Template for Discretionary Article Processing Fees

A) Year	Base Year	+1 Year	+2	Etc. for n years
B) Subscription Price	\$000	\$000	\$000	
C) Paid Subscription Base	000	000	000	
D) Articles per Volume (Year)	00	00	00	
E) Cost to Produce Journal	\$000,000	\$000,000	\$000,000	
F) Percent of Authors Paying Fee	00%	00%	00%	
G) Percent of Waived Charges	00%	00%	00%	
H) Computed Per-article Publication Cost	\$0,000	\$0,000	\$0,000	
I) Actual Article Processing Fee (+00%)	\$0,000	\$0,000	\$0,000	
J) Publication Charge Income	\$00,000	\$00,000	\$00,000	
K) Subscription Income	\$00,000	\$00,000	\$00,000	
L) Other Income (if any)	\$00,000	\$00,000	\$00,000	
M) Total Income	\$000,000	\$000,000	\$000,000	
N) Surplus or (Deficit)	\$00,000	(\$00,000)	\$0,000	
O) Cumulative Surplus or (Deficit)	\$00,000	(\$00,000)	\$00,000	
Repeat above template with alternative spreadsheet calculations for each scenario				

Notes and Assumptions for Figure C-1

- A) Year: Start the forecast with the base (current) year and project through whatever period may be necessary to achieve the full transition to Open Access.
- B) Subscription Price: The projected price is based on the subscription income necessary to approximately offset any shortfall in covering publication costs after income from authors paying publication charges and from other income. However, many organizations will want to moderate subscription price increases and cap them (e.g., at 5% or 10%) year-over-year, even if that results in a deficit in some years.

- C) Paid Subscription Base: This is a market performance estimate for the number of paid subscribers relative to price and transition to Open Access. For example, under one scenario, a publisher might assume that a journal's subscription base would remain unaffected until at least 50% of a volume's articles are available via Open Access, and then assume a 10% decline in subscription base for every 10% increase in authors paying publication charges. In another scenario, however, one might assume a more pronounced and rapid effect on cancellations. This dynamic between subscription base and Open Access availability will vary by journal and by discipline.
- D) Articles per Volume (Year): Input either the number of articles published each year or the number of submissions, depending on whether the journal intends to levy fees only on published articles or on all submissions. This template assumes that charges will only apply to published articles.
- E) Cost to Produce Journal: Input the projected annual cost of journal publication that needs to be recovered. This should take into account the possible effect on costs of lower quantities of the journal being printed and mailed.
- F) Percent of Authors Paying Charge and G) Percent of Waived Charges: Based on its understanding of author attitudes and anticipated behavior for its particular field, a publisher will need to project the percentage of authors that will pay publication charges in each year relative to those authors who will not or cannot pay. (This would need to include the impact of journal policies, such as waivers for authors from less developed countries, etc.) For example, in under one scenario, a journal might assume that in Year One, 20% of authors will pay and 80% will not, and then assume a gradual increase in author participation of 5% to 10% per year. In another scenario, however, the journal might assume a slower author participation rate and/or years in which the author participation percentage remains flat or declines slightly from the previous year.
- H) Computed Per Article Publication Cost: At its simplest, this is each year's estimated cost to produce the journal divided by the number of articles per volume (year). As the percentage of paying authors increases, the Percent of Waived Charges needs to be factored in as well.
- I) Actual Author Publication Charge: This allows a publisher to incorporate a surcharge to allow for the difference between paid and waived publication charges. For example, if the estimated percent of authors complying is 80%, the surcharge would be 20% (computed per-article publication cost x 120%; for example, \$1,750 computed cost x 120% = \$2,100 actual publication fee).

- J) Publication Fee Income: First calculate the number of paid publication fees—the articles per volume multiplied by the percent of authors paying a fee (F) (for example, $40 \times 80\% = 32$). Then multiply that number by the actual amount of the author publication fee (see I) to arrive at publication charge income (for example, $\$2,100 \times 32 = \$67,200$).
- K) Subscription Income: Multiple subscription price by the number in the paid subscription base.
- L) Other Income (if any): Enter the estimated income generated from other sources, such as advertising, sponsorships, etc..
- M) Total Income: This is the sum of J + K + L.
- N) Surplus or (Deficit): This is the “bottom line” for each year forecast. Deducting the total costs to produce the journal from total income yields the estimated surplus or deficit. A deficit represents the financial risk or shortfall the organization will face as it transitions to Open Access. One may need to use the spreadsheets to calculate a variety of estimated outcomes (all of which should be realistic to the degree possible) to develop a model that presents a risk outlook acceptable to the organization.
- O) Cumulative Surplus or (Deficit): A spreadsheet calculation of the cumulative amount.

APPENDIX D: JOURNAL SPONSORSHIP GUIDELINES

A journal that offers a sponsorship program needs to develop an “underwriting” or “sponsored publishing” policy to protect the journal’s integrity. These guidelines establish the general principles for determining the acceptability of sponsorship funders.⁶⁵

To determine the acceptability of funding, a journal will want to apply several tests to each proposed funding arrangement:

- **Editorial Control Test:** Editorial control must remain with the publishing society or journal editorial board. Sponsors/funders cannot be allowed to exercise any editorial control. Sponsorship agreements must clearly and explicitly articulate this point.
- **Perception Test:** Perhaps the most difficult issue is the possible public perception of editorial involvement and the direct interest of the funder in the editorial content. Therefore, a journal must guard against the public perception that editorial control might have been exercised by any journal sponsor. This perception will sometimes increase in direct proportion to the connection between the sponsor’s business interests and the subject matter of the journal (in other words, in proportion to the value of the sponsorship to the sponsor). Additionally, the perceived *character* of the sponsor’s interests is important. In order to help guard against the perception of editorial influence:
 - ⇒ Funding should be sought for the journal as a whole and on an on-going basis, rather than for individual articles or issues. This will help avoid situations where a funder seeks—or appears to seek—to fund only those issues of a journal in which it has a particular interest.
 - ⇒ In some cases, the joining of a problematic funder with one or more neutral funders may make the problematic funder acceptable, as any perception that it exercised content control would be mitigated by the presence of other funders.
- **Commercialism Test:** Sometimes there will be less concern that the funding might bring about actual sponsor influence, than that the reputation of the journal will suffer from a funding arrangement that is so self-serving that a reasonable audience could conclude that the journal is publishing largely to promote the sponsor’s products, services, or other business interests.

Once a journal approves a sponsor funding arrangement, it will want to ensure that the appearance and overall effect of the credit given to the sponsor is in keeping with the editorial integrity and noncommercial character of the journal. To this end, the journal may want to establish some simple rules governing the content and appearance of the

⁶⁵ Adapted from Crow, *Sponsorships for Nonprofit Scholarly & Scientific Journals*, 2005.

sponsorship credit (whether it appears online, in print, or both). Such rules could include:

- **Nature of acknowledgement/credit:** The nature of a sponsor acknowledgement may vary depending on the policies of the journal and the expectations of the sponsor. In some cases, the sponsor acknowledgement may be limited to a textual credit (e.g., Funding for the *ABC Journal* provided by Acme Corporation). In others, the acknowledgement will take the form of a banner graphic (adhering to guidelines the journal has established). Whether textual or graphical, the credit may be linked to a page providing a fuller explanation of the sponsorship terms. This can be especially useful in instances where a journal accepts multiple sponsors. In this way, the journal can acknowledge multiple sponsors without cluttering the journal's appearance. A publisher may wish to use the words "in part" to describe instances where the sponsor provides partial funding for the journal's operation (e.g., Open Access to this journal is made possible in part by Acme Corporation).
- **Sponsor Name and/or Logo:** All funders should be identified by their name and/or logo. If the logo does not adequately disclose the sponsor's identity, then the sponsor's name should be stated. In some instances, the name of a corporation and its brand name are the same. In other cases, however, brand names are neither the corporation's name nor the name of a division or subsidiary of the parent company. In such cases, the brand name could be used, but the accountable corporate entity should be fully and clearly disclosed in the sponsorship credit. The goal is to prevent turning the sponsorship credit into a product pitch, while clearly disclosing the funding source.
- **Use of service marks and slogans:** Slogans and corporate positioning statements may be acceptable to the journal as long as they do not include an explicit or specific:
 - ⇒ Call to action (e.g., "Buy . . .").
 - ⇒ Superlative description or qualitative claim about the company or its products or services or direct comparison with other companies' products or services.
 - ⇒ Price or value information or inducements to buy.
 - ⇒ Endorsement (e.g., "recommended by 4 out of 5 cell biologists . . .").

Of course, the sponsor could choose to include a message in support of the journal or its availability via Open Access (e.g., *ABC Journal* is sponsored in part by a grant from Acme Corporation, which supports Open Access to [name of discipline] research.")

- **Identification of products/services and product lines:** To identify a funder, a specific product or brand name may be identified in the sponsor acknowledgement graphic (e.g., Sponsored by Acme Optics, makers of the Z-17 microscope and other optical products for scientific research).
- **Use of Web addresses and toll-free numbers:** The journal may choose to allow sponsors to include either a Web address or telephone number on the secondary

page. Allowing only one would minimize screen clutter. The Web address or telephone number should not spell out a call to action (e.g., www.buyacmeoptics.com or 1-800-CALL NOW).

- In-kind contributions might be substantial enough to merit explicit online recognition. In such cases, the journal may elect to recognize such contributions in a manner that will credit the provider(s) without competing or conflicting with the sponsorship credit discussed here.

A journal will need to adapt the guidelines proposed above to its particular circumstances and requirements. Again, such guidelines are intended to protect both the journal's editorial independence and perception of the journal's integrity and quality.

APPENDIX E: RESOURCES FOR GRANT SEEKING & FUNDRAISING

The Chronicle of Philanthropy

A newspaper for the nonprofit world, including grant-seekers and makers.
<http://www.philanthropy.com>

Council for Advancement and Support of Education (CASE)

Resources and tools for grant development in education.
<http://www.case.org>

The Foundation Center

Information for grant- and support-seekers, with links to private foundations, corporate-giving programs and other sources of nonprofit funding. The Foundation Center publishes *The National Directory of Corporate Giving*, which lists corporate foundations by interest area, along with information on whether they support operating grants.
<http://www.fdncenter.org>

UK Fundraising

UK and international fundraising resources.
<http://www.fundraising.co.uk/>

APPENDIX F: USE-TRIGGERED LICENSING, IMPLEMENTATION STEPS

Implementation Overview

A publisher might test and implement use-triggered fees as follows:

- The pilot could include both subscription services willing to transition to Open Access, as well as open-access publications seeking a stable model.⁶⁶
- The publisher(s) would work with libraries to develop a suitable pre-authorization agreement and process.
- The publisher(s) would establish provisional fee levels and use-thresholds and analyze the potential revenue from adopting the model. (An example of how fees might be set is provided below.)
- The fee and use levels could be market tested on a sample of libraries.
- The publisher would ask its potential licensees to indicate their willingness to comply with the terms of the use-triggered license(s) by signing a pre-authorization agreement.
- Based on the initial response, publishers could elect to pursue the model, revise their offer, or remain with their current model.⁶⁷

Setting Use-Triggered Fees

The access fee for use-triggered fees would need to be relatively low and translate into a reasonable cost per use. A publisher could establish simple, tiered fee levels based on usage, if such an approach would not add a disproportionate administrative cost relative to the incremental revenue that it might generate.⁶⁸

To establish a fee level adequate to generate a sufficient revenue stream, the publisher would need to analyze its usage data to determine the number of institutions that would trigger a fee at various use levels. Depending on the publication's cost structure, this approach might not yield sufficient revenue to cover the publication's operating costs fully.

Although the extent to which libraries consider cost-per-use in making acquisition decisions is unclear, a publisher should consider how the per-article or per-download cost compares with similar services. For example, for a journal, the per-article cost should be compared against prices from similar journals offering per-article pricing. At the same time, although a publisher could lower the effective per-use cost by raising the usage threshold, this would reduce the number of institutions covered by the fee.

⁶⁶ A gated publication considering a transition to open-access distribution would have more leverage to secure compliance commitments than would an existing open-access publication.

⁶⁷ This pre-approval process would obviate the need for a reversibility or back-out provision, as publishers would know before adopting the model whether there would be sufficient compliance to support it.

⁶⁸ Additionally, under such pricing, there might be a disincentive for an institution to promote use of the resource.

Example

The table below illustrates the type of analysis that a publisher might perform to establish its usage threshold and project revenue. The example projects potential use fee revenue under the following assumptions:

- A fee threshold of 50 downloads per year, and an effective maximum cost to a library of \$5 per article, yielding an annual fee of \$250. (NB: This effective-cost metric would simply help a publisher compare the relative value of a fixed fee. The service would not be priced on a per-article basis.)
- 300 institutions from developed countries that use the publication or service 50 or more times per year. The table indicates the total number of institutions at use thresholds of 200, 150, 100, 75, and 50 downloads.
- The heaviest users of a publication will be more disposed to comply with a use-triggered fee, as suggested by the compliance rates for the use thresholds illustrated in the example.⁶⁹ In the type of pilot project described above, a publisher would be able to base its initial compliance rate assumptions on the number of institutions that pre-authorize compliance.
- An institution’s year-to-year usage of a publication or service remains relatively constant, and that, in practical terms, institutions will treat the fee as a serial obligation and will renew if invoiced. The terms of the pre-authorization agreement would need to address these issues.

Use-Triggered Fee Example, Assuming \$250 Fee

Institutions		Compliance		Gross Revenue
W/ Current Downloads	Subtotal	Projected Compliance Rate	Complying Institutions	
> 200	30	90%	27	\$ 6,750
> 150	45	70%	32	\$ 7,875
> 100	60	60%	36	\$ 9,000
> 75	75	40%	30	\$ 7,500
>50	90	20%	18	\$ 4,500
Total	300		140	\$ 35,625

Again, the example simply provides one model for setting fees and estimating potential gross revenue. A publisher would modify the assumptions, as appropriate, based on usage of its journal.

⁶⁹ Admittedly, this assumption introduces an ethical dimension to the libraries’ behavior. Strictly speaking, a heavy user would simply derive a greater benefit from free riding.

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ABOUT SPARC

SPARC, the Scholarly Publishing and Academic Resources Coalition, is an international alliance of academic and research libraries working to create a more open system for the exchange of scholarly research results. Developed by the Association of Research Libraries, SPARC has become a catalyst for change. Its pragmatic focus is to stimulate the emergence of new scholarly communication models that expand the dissemination of scholarly research and reduce financial pressures on libraries. Action by SPARC in collaboration with stakeholders – including authors, publishers, and libraries – builds on the unprecedented opportunities created by the networked digital environment to advance the conduct of scholarship.