

**Developing an Institutionally -Funded  
Publishing Channel:  
Context and Considerations for Key Issues**

A Report Prepared for the  
Creating an Open Access Paradigm for Scholarly Publishing  
Project

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## **Abstract**

Cornell's Internet First University Press (IFUP) seeks to explore the practical viability of an open access publishing model as the principal model for scholarly communications. As part of that effort, this report reviews the projects, initiatives, and literature relevant to developing an open access publishing model supported predominantly by direct institutional funding. To effect fundamental change, such an institutional funding model must disaggregate and restructure the academic publishing value chain to separate the services that facilitate publication from monopolistic control of the material published. To attain this goal in practical terms, any alternative publishing system must demonstrate a sustainable economic model and guarantee author autonomy in the choice of publishing venue. Therefore, the Cornell project proposes a shift to an open access model that would coexist with current publishing models and involve collaboration with traditional publishing channels and providers of publishing services. This report reviews past and current academic publishing initiatives that provide context and practical insight into how an institutionally sponsored publishing model might be designed and implemented to satisfy these essential requirements. While it provides an overview of the relevant contextual and practical issues, it does not propose specific solutions or provide financial analyses in support of a particular model.

## Introduction

The “Creating an Open Access Paradigm for Scholarly Publishing” project, sponsored by Cornell University, seeks to explore the practical viability of an open access publishing model as the principal model for scholarly communications. Specifically, the project explores whether the resources that institutions currently devote to purchasing, processing, and maintaining scholarly publications would be sufficient to sustain an open access model<sup>1</sup> were each institution to assume direct responsibility for funding publication of the research generated by its own faculty. Such a direct institutional funding model would provide one strategic response to the rising cost of supporting scholarly publishing, while increasing the reach of an institution’s research output by making the content universally available without access barriers. Universities would assume direct funding responsibility for faculty publications, irrespective of the publishing channel used, in order to realize the benefits that would accrue from free and universal access to the institution’s scholarly output.

To be viable, such direct institutional funding must be more cost effective on a systemic basis than the current subscription-based system. The mechanism proposed by the Cornell project for applying a direct institutional funding model is a decentralized network of collaborative publishing partners. This collaborative network would provide a practical mechanism through which to apply direct institutional funding and to effect incremental systemic change in scholarly publishing, while at the same time preserving the essential functions of the system. The publishing channels supported by the network would coexist with traditional publishing channels and publishing services.

Any alternative model must continue to serve the essential functions of the current scholarly publishing system in order to satisfy the requirements of its principal stakeholders. Critical to the viability of a direct funding model is that faculty retain the freedom to publish their research in whatever publishing venue they choose. Publishing venue autonomy presupposes both an editorial and a financial component. In terms of the former, the author must be free to select where to submit for publication and the publisher must be free to determine what to publish. From a financial perspective, one or more mechanisms must be developed to effectively and equitably channel financial resources to the agents performing the various tasks required for publication.

Achieving publishing venue autonomy, in an academic publishing marketplace driven by direct institutional subsidies, would also require maximizing the

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<sup>1</sup> Defined here as immediate, universal, online access to research without payment of an end-user fee.

network of participating publishers to provide sufficient publishing options. While the participating network of publishing venues would probably never be universal and offer complete autonomy across all fields, the range of choices must be sufficiently broad to offer a viable alternative for publishing faculty. Therefore, the viability of a direct funding model — at least in the near- and mid-terms — requires that it can integrate with existing publishing channels. This approach also has the merit of avoiding the scholarly legitimacy issues that would arise were entirely new publishing channels proposed.

The Cornell project explores the viability of a direct institutional funding model for serial and monographic publication of faculty research from two complementary perspectives. As part of the project's research, an economic analysis prepared by Malcolm Getz supports the hypothesis that academic research institutions would be better served financially by adopting a direct funding model as opposed to the prevalent subscription-based model.<sup>2</sup> However, the issue remains of how that funding might be practically applied to support the publication of faculty research. Therefore, the project commissioned this report to review past and current academic publishing initiatives that provide context and practical insight into how an institutionally funded publishing model might be designed and implemented via a decentralized network of collaborative publishing partners. Such a network would allow institutions to directly fund the publication of their faculty research through articulated publishing channels that offer a variety of parallel paths linking multiple discrete partners.

### ***Report Structure & Scope***

Both a conceptual and practical disaggregation of the publishing value chain appears central to the effective and efficient application of direct institutional funding.<sup>3</sup> This disaggregation would allow alternative publishing channels to be articulated within a network of collaborative partners. Therefore, we will use the components of the publishing value chain as a conceptual framework within which to identify and review relevant initiatives and potential network partners.

Academic publishing comprises four functions — registration, certification, dissemination, and preservation — that serve the needs of authors and researchers. In practice, these functions manifest themselves as a multiplicity of constituent components performed in the actual publishing process. These components of the publishing value chain — including acquisition, editorial

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<sup>2</sup> Getz (2004).

<sup>3</sup> A value chain is the collection of activities that combine to design, produce, and deliver a product or service to satisfy a particular market need.

processing, production, and distribution —have a significant impact on the costs of scholarly publishing for both journals and monographs.

Publishers have historically played a role facilitating and integrating these functions. This vertical integration has several implications. First, bundling individual functions in the value chain —each having different economies of production, scale, or scope —compromises the market efficiency of each component individually. Deconstructing such a vertically integrated value chain makes the discrete value added by publishers more apparent and separable and helps eliminate inherent systemic inefficiencies.<sup>4</sup>

While the integration of the essential functions —and of the publishing services they comprise —was perhaps inevitable in a print regime, digital publishing technologies and the ubiquitous networking of the Internet now allow the functions to be practically separated.<sup>5</sup> Digital publishing technologies and extensive global networking facilitate change in the fundamental structure of scholarly publishing by allowing its various components to be de-linked, both functionally and economically. When the functions are unbundled and begin to operate separately, each can operate more efficiently and competitively. This can yield a structure that integrates a system of cooperating distributed agents, responsible for various aspects of the registration, certification, awareness, and archiving functions.<sup>6</sup>

As noted above, any alternative funding mechanism must be as efficient and cost effective as the current subscription-based system. The disaggregation of the academic publishing value chain should increase market competition and drive down the cost for value-added services. Further, to effect fundamental change and realize economic improvement, an institutional funding model must restructure the academic publishing value chain to separate the value-added services that facilitate publication from monopolistic control of the material published. In this way, facilitating publishing services can be provided without assuming ownership of the content itself.

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<sup>4</sup> Evans and Wurster (1997) described how the changing economics of information act to undermine established value chains in many sectors of the economy, and J.W.T Smith (1999), Van de Sompel (2000), and Ginsparg (2001) have applied the same logic to scholarly communication, arguing that scholarly publishing needs to move beyond a digital analog of print publishing to a new paradigm of a global interoperable network.

<sup>5</sup> See Willinsky (2003a) and Velterop (2004).

<sup>6</sup> See Harnad (1995), J. Smith (1999), and Van de Sompel (1999). On the decoupling of peer-review certification from the publishing process, see Phelps (1998).

Figure 1: Academic Publishing Value Chain – Publishing Agents by Function

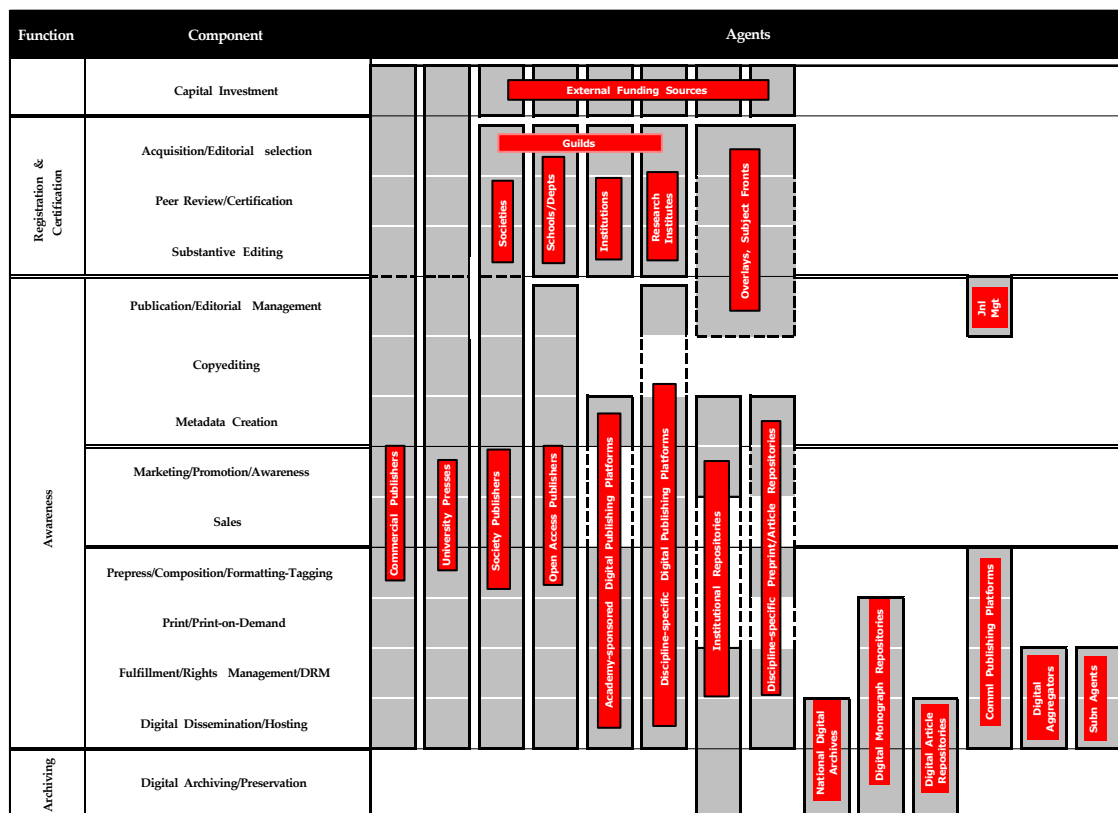


Figure 1 provides a breakdown of the academic publishing value chain that we will use as the basis for presenting an environmental scan of initiatives relevant to a direct institutional funding model. To provide a broad conceptual anchor, the left-hand column (“Functions”) reflects the four essential functions of scholarly publishing, as defined by Roosendaal and Geurts.<sup>7</sup> These functions include:

- Registration – establishing the intellectual priority of an idea, concept, or research;
- Certification – certifying the quality of the research and/or the validity of the claimed finding;
- Awareness – ensuring the dissemination and accessibility of research, providing a means by which researchers can become aware of new research; and
- Archiving – preserving the intellectual heritage for future use.

<sup>7</sup> Roosendaal and Geurts (1998).

To serve the needs of authors and researchers, these general functions must be fulfilled by any system of scholarly communication. Surveys of authors and researchers provide some insight into which components of the publishing value chain authors and researchers consider most important in fulfilling these functions. An initiative designed to implement a direct institutional funding model through articulated publishing channels should accommodate these market demands.<sup>8</sup>

The “Components” column breaks the value chain into its practical components. The exact composition of these components is a matter of perspective. For example, fee-based models include components (for example, digital rights management) that might not be required in an open access model. In any event, this general breakdown should prove sufficient for the purposes of this report.<sup>9</sup>

The remainder of *Figure 1* arrays the various “agents” in the publishing process. These have been arranged to reflect, as accurately as possible, the components in the value chain for which they typically assume responsibility. These agents include traditional integrated publishers, such as commercial publishers, professional societies, and university presses, as well as agents that provide specialized services and functions along the continuum of publishing components. Some of these agents have long histories, especially in the editorial arena. Others have proliferated with the advent of digital publishing technologies and the Internet. We will describe each of these agents in the context of discussing specific services and initiatives relevant to a direct institutional funding model or the collaborative network capable of supporting such a model.

A number of projects—in both the sciences and humanities—are exploring the manner and extent to which digital media can extend and transform the scholarly serial and monograph or that explore the impact of technology on scholarly and scientific publishing.<sup>10</sup> Such innovations will attract authors seeking to communicate their research findings in rich and compelling ways, and as such they complement the goals of the Cornell project. However, this review concentrates on initiatives that provide insight into the potential structure and operation of a network of collaborative publishing partners.

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<sup>8</sup> See Institute for the Future (2002); Rowland (2002); Rowland *et al* (2004); Key Perspectives, Ltd. (2004); Kiernan (2004); van Bentum (2000); and ALPSP (2002).

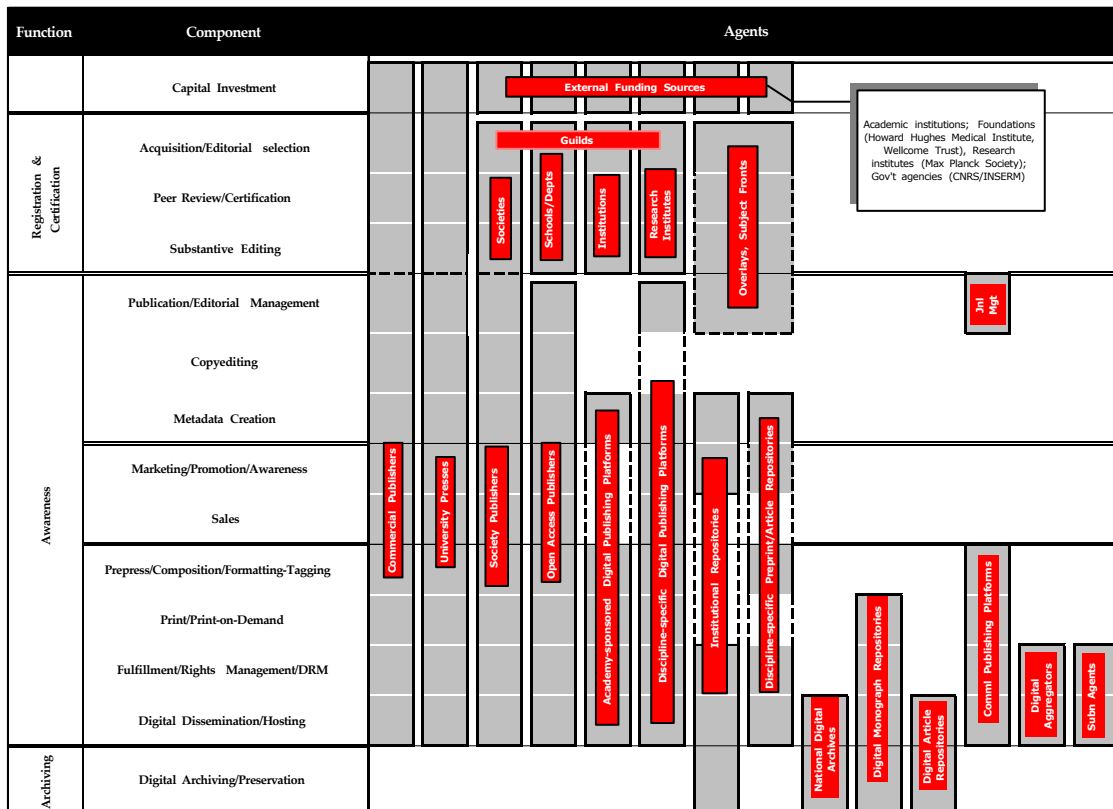
<sup>9</sup> We have listed the components in roughly serial order, although that is not entirely possible—or necessary—for our purposes.

<sup>10</sup> For a broad review of the literature, see Friedlander and Bessette (2003).



## Capital Investment

Figure 2: External Funding Sources



### External Funding Sources

Figure 2 includes funding and capital investment as one component of the publishing value chain. Integrated publishing operations, including both commercial and nonprofit publishers, typically provide the capital investment for their publishing operations out of their operating budgets. Much of this funding derives from self-generated revenue (for example, from subscription income, monograph sales, member dues, etc.). Additionally, external funding sources – including government agencies, foundations, research institutes, and universities – already provide some funding for the publication of research they fund or otherwise subsidize.

Regardless of whether they are self funded or externally funded, the agents shown in the publishing value chain map reflect a wide range and combination of business motives and transaction models. Operating motives include profit maximization, controlled surplus, cost recovery, and gift exchange, while transaction models include fee-for-service, profit sharing and royalty

arrangements, in-kind contributions, member dues allocations, and institutional standing budgets. As these motives and models can occur in virtually any combination in transactions between partners in a publishing network, a direct institutional funding model will need to accommodate this variety.

Academic publishing will continue to operate under multiple business models, and no single model needs to support the entire system. While externalities might render a particular business model untenable for an individual publisher or class of publishers, no single model needs to scale to the system overall.

Direct institutional funding might replace or complement self-funding for publishing agents participating in a collaborative network. Several foundation and governmental funding sources have been exploring how they might accelerate open access availability to the research they fund. As these organizations face many of the same practical issues as a direct institutional funding model, a direct funding initiative should take them into account:<sup>11</sup>

#### *Howard Hughes Medical Institute*

In 2003, the Howard Hughes Medical Institute (HHMI)<sup>12</sup> informed its investigators that it will reimburse the costs of publishing in open access journals. The HHMI will cover each author's publication charges up to a maximum of \$3,000 per year, as long as the publication complies with the definition of open access set forth in the "Bethesda Statement on Open Access Publishing."<sup>13</sup>

#### *Inserm & CNRS*

CNRS, a multidisciplinary research organization, and Inserm, the French government agency responsible for biomedical and health research, together account for over 70% of French scientific research, representing approximately 5% of the world's scientific literature. Both Inserm and CNRS are signatories to the "Berlin Declaration on Open Access."<sup>14</sup> While neither organization yet mandates that the research it funds be made available open access, both organizations actively encourage the open access availability of their publicly funded research by promoting publication in open access journals, funding

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<sup>11</sup> Suber (2004) has developed an example version of an open-access policy for foundation research grants, and has explored some of the issues that need to be considered in developing such policies.

<sup>12</sup> <[www.hhmi.org](http://www.hhmi.org)>

<sup>13</sup> See <<http://www.earlham.edu/~peters/fos/bethesda.htm>>.

<sup>14</sup> See <[http://www.zim.mpg.de/openaccess\\_berlin/berlindeclaration.html](http://www.zim.mpg.de/openaccess_berlin/berlindeclaration.html)>.

publication fees through institutional memberships in BioMed Central, and establishing digital repositories of CNRS and Inserm research.<sup>15</sup>

#### *Wellcome Trust*

In 2003, the Wellcome Trust,<sup>16</sup> the U.K.'s largest funder of biomedical research — the trust plans to distribute over \$650 million in funding in 2004 — announced that it would allow trust-funded researchers to meet the cost of open access publication charges by allowing them to use grant contingency funds. The decision followed the results of a study<sup>17</sup> commissioned by the Trust that concluded that the current market structure does not operate in the long-term interests of the research community. The Trust states that it is committed to ensuring that the free dissemination of the research it funds.

#### *DARCOF*

While the funding agencies described above have endorsed open access principles and have committed to making funds available to defray publication charges, the Danish Research Centre for Organic Farming (DARCOF) mandates that the research it funds be available open access and has established its own open access repository to facilitate dissemination of the research it funds.<sup>18</sup>

#### *Discretionary Open Access*

As noted above, publishers and providers of publishing services use a variety of business models. One model relevant to implementing a direct funding model for publishing journal articles is discretionary open access. In this model, authors have the option of paying a publication fee to make their articles immediately available to all without end user fees. Articles in the same journal for which authors do not pay the fee would be embargoed or would remain available only through subscription access. Such a hybrid model provides one mechanism by which direct institutional funding could be applied to the publication of journal articles.

An increasing number of publishers now offer such an Open Access option (some on an experimental basis) including society and other nonprofit publishers, university presses, government research organizations, and large commercial publishers. They include:

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<sup>15</sup> For an Inserm statement regarding open access, see <[http://www.zim.mpg.de/openaccess\\_cern/presentation-andre.pdf](http://www.zim.mpg.de/openaccess_cern/presentation-andre.pdf)>.

<sup>16</sup> <<http://www.wellcome.ac.uk/>>

<sup>17</sup> See SQW Ltd. (2003).

<sup>18</sup> See <<http://orgprints.org/>>.

- American Physiological Society<sup>19</sup>
  - ◇ *Physiological Genomics*
- American Society of Limnology & Oceanography<sup>20</sup>
  - ◇ *Limnology & Oceanography*
- Company of Biologists<sup>21</sup>
  - ◇ *Development*
  - ◇ *Journal of Cell Science*
  - ◇ *The Journal of Experimental Biology*
- Entomological Society of America<sup>22</sup>
  - ◇ *Annals of the Entomological Society of America*
  - ◇ *Environmental Entomology*
  - ◇ *Journal of Economic Entomology*
  - ◇ *Journal of Medical Entomology*
- National Academy of Sciences<sup>23</sup>
  - ◇ *Proceedings of the National Academy of Sciences (PNAS)*
- Oxford University Press<sup>24</sup>
  - ◇ *Journal of Experimental Botany*
- Springer<sup>25</sup>
  - ◇ *Library "Open Choice" Program*

The optional open access charges typically range from \$500 to \$3,000 per article, reflecting (presumably) the cost structures and profit/surplus requirements of

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<sup>19</sup> <<http://www.the-aps.org/publications/pg/interest.htm>>

<sup>20</sup> <<http://www.aslo.org/lo/information/freeaccess.html>>

<sup>21</sup> <<http://www.biologists.com/web/openaccess.html>>

<sup>22</sup> <<http://www.entsoc.org/pubs/>>

<sup>23</sup> <<http://www.pnas.org>>

<sup>24</sup> <[http://www3.oup.co.uk/exbotj/open\\_access.html](http://www3.oup.co.uk/exbotj/open_access.html)>

<sup>25</sup> <[www.springeronline.com/openchoice](http://www.springeronline.com/openchoice)>. The Springer program imposes limitations on fair use beyond those adopted by most definitions of Open Access. While Springer will make Open Choice articles available to users for free, the company will require standard consent-to-publish and copyright transfer agreements from authors. The program also prohibits copying, reproducing, distributing, or posting of the publisher's version of the article on a third party server. *Library Journal Academic Newswire*, July 8, 2004.

each publisher. Some society publishers (for example, Entomological Society of America<sup>26</sup> and the American Society of Limnology and Oceanography<sup>27</sup>) position the fees to authors as an effective substitute for paper reprints. Most of the publishers—including the commercial publisher Springer—have expressed a commitment to reducing future subscription rates at a level commensurate with the income derived from the open access publication fees.

### *Publishing Subventions for Monographs*

From the perspective of monograph publishing, several proposals have called for implementing system-wide programs to subsidize the publication of scholarly monographs, particularly author first books. For example, in 2002, an *ad hoc* subcommittee of the MLA's Executive Council proposed that all tenure-track positions in language and literature, and in other disciplines where a book is expected for tenure, be supported by a book subvention of \$5,000 to \$7,000. The subsidy would be available only after a book had been subject to the standard scholarly review processes and accepted for publication. While it was recognized that the subvention amount proposed would be insufficient in itself to cover all the costs of publication, it was seen as assisting junior faculty in getting their works published.<sup>28</sup> The American Historical Association and other scholarly societies have floated similar proposals.<sup>29</sup>

Several objections are sometimes raised against institutional publication subventions. One asserts that such subventions will impugn the impartiality of the publishing process, creating the reality and/or perception that such funding influences publication decisions. However, by virtue of being universally available, institutionally funded publishing subventions should not taint the impartiality and objectivity of the current acquisition and vetting systems. Moreover, allocating the subventions based on the merit of the manuscript itself—for example, through an institutional interdisciplinary review process—would help obviate this perception. Further, making such a review and funding transinstitutional, engaging learned societies and professional organizations,

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<sup>26</sup> See Walker (2004), and <[#http://www.entoc.org/pubs/PUBLISH/esa\\_publish.htm](http://www.entoc.org/pubs/PUBLISH/esa_publish.htm) # Publication%20Charges>

<sup>27</sup> ASLO describes the Open Access publication fee as the equivalent of 500 print reprints. See <<http://www.aslo.org/lo/information/freeaccess.html>>

<sup>28</sup> See Chow et al. (2002).

<sup>29</sup> See below and Darnton (1999).

would help overcome the inequities of wealth between private and public institutions.<sup>30</sup>

Still another objection is that such funding might stimulate over publication. However, publication subventions are unlikely to provide sufficient funding to publishers to stimulate over publication. Setting subventions at a level that covers reasonable fixed and overhead costs in support of a cost recovery or modest surplus publishing operation would eliminate any volume-generated revenue incentive for publishers.

In part, the appeal of direct publication subventions for faculty authors lies in their addressing some of the economic issues troubling scholarly and scientific publishing without disrupting the interdependent editorial, institutional, and other collateral mechanisms of the current system. Therefore, translating a direct funding concept into practice will require the development of mechanisms — both organizational and economic — that protect the legitimacy that has accrued over time to the current system of academic credibility and professional advancement.

#### *Cooperatives and Journal Publisher Indemnification*

At least one writer has proposed a cooperative arrangement between large academic research institutions and society publishers whereby the institutions would support the societies' journal publishing in exchange for the publications being made available via open access.<sup>31</sup> While no study appears to have yet examined such a concept in practical detail, this approach merits further exploration as one possible approach to implementing a direct funding model.

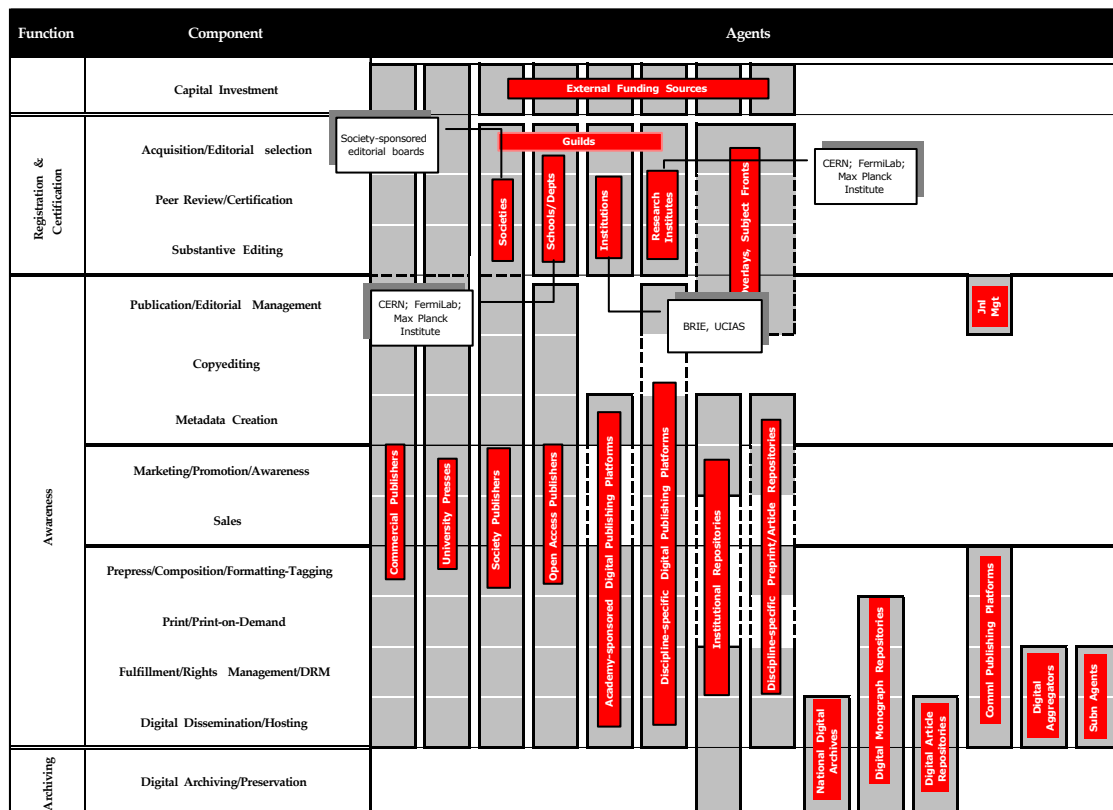
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<sup>30</sup> The potential impact of publication subventions on perceived scholarly legitimacy are touched on by Alonso (2003), who also outlines how such a review committee might work in the context of the MLA. On local institutional subsidies, also see Unsworth (2003).

<sup>31</sup> See Willinsky (2003b).

## Editorial Agents

Figure 3: Editorial Agents



As Figure 3 illustrates, editorial boards and similar entities provide registration, certification (e.g., peer review), and related publishing functions. This includes the acquisition and review staff functions within traditional publishers, as well as a wide range of editorial groups, including “guild” publishers (see below), that provide various types and degrees of certification.

While publishers typically have their own in-house acquisition and editorial staffs, university presses and other publishers often collaborate with learned and professional societies and other independent editorial groups. University or commercial press production of society journals provides one common example of this collaboration, wherein the society provides the content acquisition, peer review, and substantive editing, and the publisher handles the back-end production and distribution. A similar model also applies to monographic publishing, where university presses and other publishers sometimes delegate

their acquisition and certification proxy to external editorial boards for specialized publication series.

This model allows participants to focus on areas of core competence and to collaborate cost effectively. For example, societies can often provide acquisition, editorial vetting, and substantive editing more cost-effectively than higher overhead publishing operations, such as large university presses, while university presses can often realize scale economies in providing business management expertise, print and digital production services, and fulfillment and distribution services.

### *Guild Model*

Kling *et al* describe the “guild publishing model,” based on the existing practice of academic departments, laboratories, and research centers, and other coherent groups (guilds) publishing their own locally controlled series of working papers, technical reports, and occasional papers.<sup>32</sup> The guild publishing model recognizes that disciplines vary in their scholarly communications practices.<sup>33</sup> While this type of publishing has a long and varied history, the possibilities of extending this existing model in the context of a collaborative network model merit greater attention.

As alternative parallel editorial channels in a network model, guild publishing offers several advantages. As it is based on local activity, guild publishing programs can be implemented unilaterally, grow incrementally, and if appropriate, scale to an expanded definition of the sponsoring guild (for example, to a group spanning multiple institutions). Further, guilds of sufficient standing and prestige can serve as front-end editorial bodies in cooperation with university presses and other traditional publishing channels.

Just as the quality of traditional peer reviewed literature can vary significantly between publications, so the quality associated with guild published research varies as well. The scholarly legitimacy of guild published content relies on the reputation of the sponsoring organization and its membership requirements. For example, in a working paper series, the legitimacy ascribed to the content is based on the authors’ affiliation with a particular university or research program which itself represents a selective field of membership. The department’s

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<sup>32</sup> Kling *et al* (2002). See also Edmonds (2000) for a description of a system that could provide independent certification review within a guild-based model and J.W.T. Smith (2003) for the application of “deconstructed” journals in such a model.

<sup>33</sup> For an examination of the differences in scholarly communication practices between disciplines. See Kling and McKim (2000).



reputation is a function of this selectivity, which in turn correlates to the assumed quality for the department's publications.<sup>34</sup>

The wide range of examples of guild publishing programs (see *Figure 3*) include the arXiv high-energy physics repository,<sup>35</sup> the UCIAS program at the University of California,<sup>36</sup> the Harvard Business School research working papers,<sup>37</sup> the Berkeley Roundtable on the International Economy (BRIE),<sup>38</sup> and the CERN document server.<sup>39</sup> Already well established and widely practiced across a range of disciplines, guild publishing could be expanded in volume and extended in scope to other disciplines. Often localized and small scale, the model could provide one channel for direct institutional funding, serving as an adjunct to existing models.

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<sup>34</sup> See Kling *et al* (2002).

<sup>35</sup> See below and <<http://arxiv.org/>>.

<sup>36</sup> See below and <<http://repositories.cdlib.org/uciaspubs/>>.

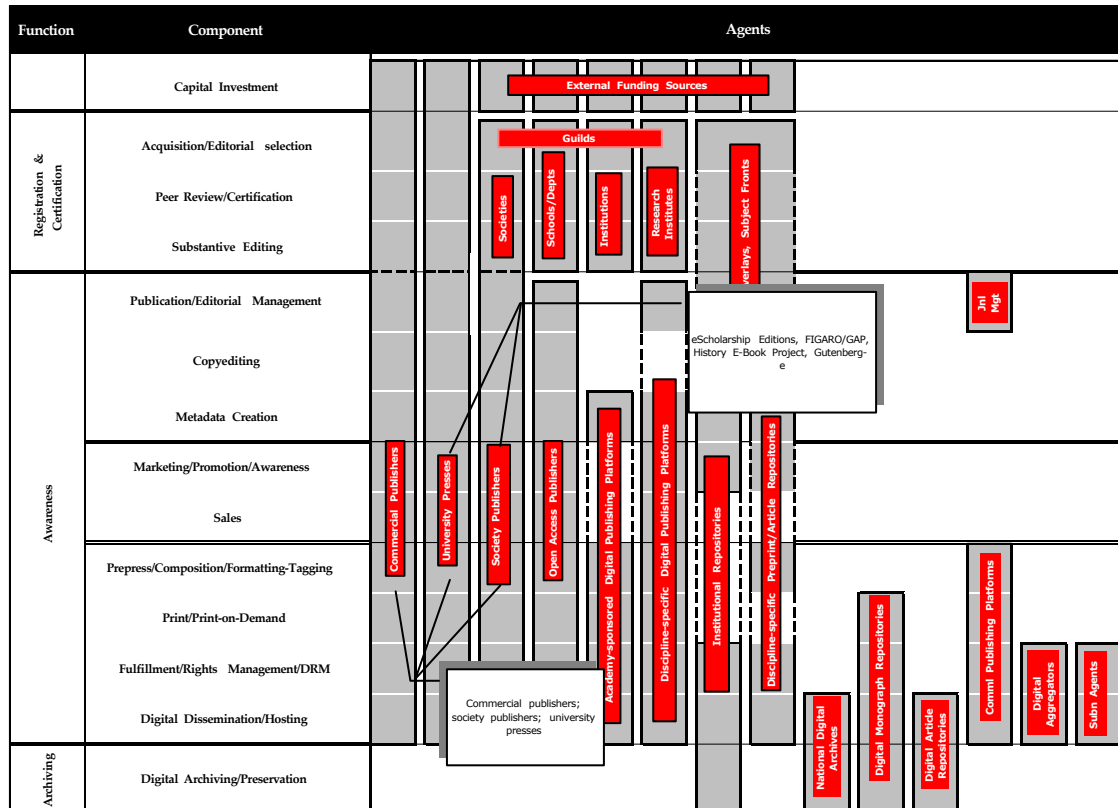
<sup>37</sup> <<http://www.hbs.edu/research/workingpapers.htm>>

<sup>38</sup> <<http://brie.berkeley.edu/~briewww/>>

<sup>39</sup> <<http://cds.cern.ch/>>

## Collaborative Publisher Initiatives

Figure 4: Publishers & Collaborative Publisher Initiatives



### Publishers

As discussed above, many academic publishers integrate all or most of the components of the publishing value chain in one organization. However, such publishers often work with external editorial groups in a manner that leverages the principal competencies of each organization. Before discussing collaborative initiatives that bring together university presses, commercial publishers, learned societies, and publishing service bureaus, we will review issues germane to the participation of society publishers and university presses within a cooperative publishing framework.

### Society Publishers

Academic journal publishing began in scholarly and scientific societies, and these associations continue to play a central role in the publication of serial and monographic literature. However, society publishers face mounting challenges on several fronts, including market pressure on their subscription-based journal

publishing models, that is leading some to abandon self-publishing and to contract with a commercial publisher.

Society publishers, most of which are small- to mid-sized publishing operations, face increasing market pressure under the current subscription model. The major commercial publishers control large shares of the market. With dominant market shares the cumulative effect of commercial price increases, coupled with bundled subscription offerings from the same large publishers, has reduced the library budgets available for journals from smaller publishers and squeezed them out of the market. Whatever their legitimate reservations about yet unproven business models to support open access, many society publishers recognize that the current subscription models are increasingly untenable. For many, institutional subscription bases are declining, and it is difficult to offset this lost income through price increases without engendering further cancellations.

While some societies may have experienced slight erosion of their membership bases with the advent of electronic distribution of their journals, there does not appear to have been wholesale membership cancellations. As Willinsky notes, this suggests two things: 1) that scholars and scientists join learned societies for reasons other than access to the society's journal (for example, conference attendance; guild membership; professional community; etc.); and 2) that open access — whatever its impact on subscription income — would not have a catastrophic impact on society membership.<sup>40</sup>

As Willinsky's review of a small group of society publishers has shown, on average institutional subscriptions cover approximately 75% of those societies' publishing costs. In other words, in the absence of institutional subscription income, on average a society publisher would need to offset 75% of its publishing costs — either through reducing costs and/or identifying new non-subscription income streams — to leave its operating budget unchanged while making the journal available via open access.<sup>41</sup>

As society publishing programs vary — by business model, financial success, staff depth and expertise, and management sophistication — their readiness to respond to these market challenges will vary as well. Large, surplus-producing

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<sup>40</sup> See Willinsky (2003b). Respondents to the Stanford eJUSurvey (Institute of the Future (2002)) of electronic journal users indicates that the most frequent motivation cited for joining a society was to support the society's mission, while the second and third most cited reasons were the economic benefits of free or discounted subscriptions and reduced society meeting fees. Many societies, membership is a prerequisite for presenting at the society's annual meeting, itself an important aspect of professional advancement.

<sup>41</sup> Willinsky (2003b).

association publishing programs may find it difficult to shift to an open access model if that model must subsidize non-publishing related association activities. Smaller publishers may not have the resources to support the shift to an open access model where such a model requires resources incremental to the existing editorial staff.

In this challenging market environment, more society publishers can be expected to contract with commercial publishers to publish their journals. In some disciplines, the shift from society and other nonprofit publishers to commercial publishers has been dramatic. This shift has several implications: 1) the move from society self-publishing to contracting with a commercial publication frequently comes with a significant increase in price to offset the publisher's profit (and, sometimes, additional costs incurred) and to allow the commercial publications to return a royalty (and sometimes an editorial stipend) to the licensing society; and 2) once locked in commercial contracts, these society journals become largely unavailable for participation in an academy-friendly model.

#### *University Presses*

University presses are at the cutting edge of electronic publishing, often working in collaboration with each other, with their university libraries, and with scholarly societies. In a statement on "The Value of University Presses" commissioned by the Association of American University Presses, a committee of university press publishers enumerated the things that university presses contribute to society, to scholarship, and to the university community in an open access environment.<sup>42</sup> The list includes:

- administering an online authoring and peer-review environment that encourages authors to produce content in forms that lower library costs for collection and preservation;
- normalizing content produced outside that environment, to lower the cost of collection and preservation;
- producing standard metadata for digital information, to make it more searchable;
- providing print on demand for users of free electronic resources in library collections, and managing the income from that activity;

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<sup>42</sup> See <<http://www.aaupnet.org/news/value.html>>. Cited in Unsworth (2003). See also Committee on Institutional Cooperation (2002).

- licensing scholarly work for commercial purposes, and managing the income from that activity;
- marketing online scholarship to maximize its impact and its audience; and
- determining when the size of the audience merits more expensive editorial and production work, and when that work should be handled by the scholar or scholarly project or scholarly society.

In addition to these roles, several initiatives (see *Figure 4*) bring together society publishers and university presses in ways relevant to implementing a practical direct institutional funding model. Notable examples of such initiatives are reviewed below.

### ***FIGARO & German Academic Publishers***

FIGARO,<sup>43</sup> a collective of European universities and publishers,<sup>44</sup> sought to create a European network of institutions providing electronic publishing support to the European academic community. FIGARO was not intended to serve as a publisher itself, but to provide a technical and organizational infrastructure to support academy-friendly publishers.

The program, which was launched in 2002 with €1.4 million in funding from the European Union, was an extension of the Dutch Roquade project<sup>45</sup> and the German Academic Publishers (GAP) Project.<sup>46</sup> Additional participants included European university presses and other academic publishers, academic libraries, and publishing software developers from Germany, the Netherlands, Italy, Poland, Belgium, and Sweden.

Several of FIGARO's objectives are relevant to a direct institutional funding model based on a collaborative network of publishing partners, including:

- establishing a collaborative business model for electronic publishing within a network of academic institutions and other stakeholders; and
- building a networked organization and publishing platform that integrated a technical production infrastructure and a community of participants.<sup>47</sup>

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<sup>43</sup> See <<http://www.figaro-europe.net/>>, Savenije (2003), and Waaijers (2002).

<sup>44</sup> FIGARO was an initiative of two Dutch universities (Delft and Utrecht) and two German universities (Hamburg and Oldenburg).

<sup>45</sup> <<http://www.roquade.nl/>>

<sup>46</sup> <<http://www.dl-forum.de/Foerderung/Projekte/germanacademic/>>

<sup>47</sup> See Savenije (2003).

FIGARO aimed to support a variety of publishing models with a single organizational and technical infrastructure. The infrastructure's flexibility was intended to facilitate a gradual transition from traditional integrated publishing channels to disaggregated models integrating multiple participants. Given the relevance of the project's objectives to the design of an institutionally funded publishing network, we describe the project in some detail below.

### *FIGARO Organization*

FIGARO sought to develop a non-hierarchical, network organization without a controlling intermediary organization. The rationale behind this networked organizational design was to create value by integrating the core competencies and specializations of participating partners. As these various participants had their own business models and operational workflows, FIGARO sought to connect them in a flexible network organization that promoted partner collaboration and best practices.

FIGARO's network organization included three categories of partners:

- Service Providers — Service providers would provide the technical infrastructure, including a publishing infrastructure created by the FIGARO project itself, as well as partners providing print on demand, digital rights management, micropayment processing services, and other publishing related support services. The service providers might or might not choose to coordinate and cooperate with each other.
- Front Offices — “Front offices” constituted the publishing agents, including university presses, society publishers, academic institutions, and other publishers for the academic research content. The front offices could make use of any or all of the “back office” service provider infrastructure. There would be no central branding, with front offices and/or content providers retaining their own brand identifies. The main function of the front offices would be the provision of content quality control and certification and business management. To participate in the FIGARO federation, publishing agencies would need to meet defined quality standards and to adhere to protocols and best practices for content discovery, interoperability, and archiving.
- Coordinator — The coordinator's role was to ensure that the activities of the various partners integrated to create a whole greater than the sum of its parts. The coordinator would recruit other front offices, refer content providers to participating front offices, and monitor standards, best practices, and network dynamics. Although theoretically decentralized, the project posited a legal

administrative entity that would manage transactions between the participants and the publishing infrastructure.

By design, FIGARO would allow considerable latitude in the manner in which these various network partners would work together.

#### *FIGARO Financial Model*

As a nonprofit enterprise, the FIGARO technical publishing platform was to operate on a cost recovery basis and function as a financially and organizationally independent entity serving the federation of participating publishers. In this way, since variable costs were low, the greater the number of participating partners, the lower the average cost to use the FIGARO infrastructure. While FIGARO included profit-seeking partners, such entities were to make a profit directly from the value they added to the publishing process, not from their use of the FIGARO infrastructure or from monopolistic control of the content itself.

Similarly, FIGARO was indifferent to the business models applied by the front office publishing organizations. Participating publishers could finance their publishing activities through traditional subscription models, institutional funding, or business models that served their needs. Philosophically, the project encouraged open access business models.

Unfortunately, given the difficulties inherent in implementing such an ambitious project, the FIGARO initiative never emerged from the development phase. After approximately a year of formal planning, one of the founding institutions pulled out of the project, leading the European Union to withdraw its support. While the FIGARO project teams developed use cases, defined technical specifications and workflows, and identified standards, protocols, and tools to support the electronic publishing platform envisioned, the collaborative publishing business model and the actual legal and economic framework to support the network organization structure never materialized.

The project offers some insight into the risks inherent in a large-scale collaborative project. FIGARO sought to bring together not only disparate organization types (nonprofit and commercial; publishers, vendors, societies, and academic institutions), but culturally diverse organizations as well. The project expended considerable time and energy trying to accommodate the diversity of potential partners. Additionally, although the network organization was intended to make the project flexible and dynamic in responding to the technical requirements of partners, FIGARO also attempted to develop its own technical infrastructure.

A similar open access cooperative supported by academic research libraries and university presses continues as the German Academic Publishers Project.<sup>48</sup> The project seeks to support open access publication of German academic journals through a centralized cooperative management and shared publishing infrastructure. The experiences of GAP should inform future implementations of cooperative publishing networks designed to support direct institutional funding.

### **History E-Book Project<sup>49</sup>**

The History E-Book (HEB) Project provides another example of collaboration between societies, university presses, and publishing service providers. The project provides practical insight into how these organizations can work together to offer parallel publishing channels.

Launched in 2002 by the American Council of Learned Societies, HEB is a collaborative venture that includes eight learned societies,<sup>50</sup> ten university presses,<sup>51</sup> and the University of Michigan's Scholarly Publishing Office. The project aims to promote electronic publishing of high-quality works in history and to explore the intellectual possibilities of innovative digital authoring techniques. HEB encourages the production and acceptance of peer reviewed e-books by scholarly publishers and by the discipline. This includes the development of standards and a cost effective scholarly e-book publishing platform.

The History E-Book project currently hosts almost 800 titles, constituted primarily of a backlist featuring titles of enduring interest to historians. HEB aims to add an additional 250 backlist titles per year. During the first five-years of the project, HEB intends to produce 85 new history titles in digital format.

Development of the ACLS project was funded in June 1999 by a \$3-million, five-year grant from The Andrew W. Mellon Foundation, with additional funding from the Gladys Krieble Delmas Foundation.

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<sup>48</sup> Braun (2003).

<sup>49</sup> <<http://www.historyebook.org/index.html> >

<sup>50</sup> For a list of societies, see: <<http://www.historyebook.org/societies.html> >.

<sup>51</sup> Participating university presses include the University of California Press, Columbia University Press, Harvard University Press, Johns Hopkins University Press, University of Michigan Press, The MIT Press, New York University Press, University of North Carolina Press, Oxford University Press, and Rutgers University Press. For a list of presses, see <<http://www.historyebook.org/publishers.html> >.



### *Collaborative Model*

Participating university press or scholarly society publishers identify titles that lend themselves to the mission and capabilities of the History E-Book project. Additionally, authors can contact the project themselves in order to identify a potential sponsoring publisher. From an acquisition and editorial perspective, the sponsoring publishers typically approach potential History E-Book titles as they would any other publication.

If a title proves acceptable to a publisher through its regular review process, the publisher might tender a letter of intent or a publishing contract that stipulates the conditions under which the publisher and author agree to publish the work. All contractual arrangements remain the responsibility of the author and the sponsoring publisher. Once a sponsored title is accepted for inclusion in the History E-Book Project, the project licenses electronic publishing rights to the work.

Recognizing that print editions continue to play a role in professional advancement, sponsoring publishers can publish print editions of new titles that appear in the History E-Book series. As HEB strives to publish titles that encourage digital authoring that exploit the capabilities of the medium, print editions of series titles may differ substantially from the electronic version.

### *Business Model*

The History E-Book project offers its aggregation of e-books on a subscription basis to libraries and library consortia. Individuals can gain access to the collection as a benefit of society membership for participating societies. The fee structure is based on the modified Carnegie Classification scheme developed by JSTOR.<sup>52</sup>

Publishers participating in the History E-book Project derive revenue from print and digital sales of titles that they sponsor, supplemented by royalties from online subscriptions to the HEB-sponsored aggregation. Additionally, publishers might realize cost savings by using the digital publication master created for the HEB project for developing their own print and/or electronic editions of sponsored titles.

In exchange for the electronic publishing rights, the ACLS pays a licensing fee to the sponsoring publisher. Additionally, the project pays a “materials fee” for

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<sup>52</sup> The subscription fees range from \$1,300 per year for very large institutions to \$300 per year for very small institutions. The project currently has approximately 200 subscribers from a wide range of institutions, both large and small. See <<http://www.historyebook.org/pricingsubscriptions.html#anchor193500>>.

each title, based on the complexity of the work and compliance of the publisher's electronic file with the tagging, coding, and other standards established by the project.

The ACLS and the History E-Book Project act as electronic co-publishers and sublicensors of a title's electronic distribution rights. In addition to the electronic licensing fee and the materials fee, the ACLS pays the publisher a royalty based on each title's online use through the project's subscription-based aggregation service.<sup>53</sup> ACLS pays publisher royalties determined by a use-based algorithm applied to 50% of the revenue pool generated by the project's online service. Participating publisher satisfaction with HEB's overall financial arrangements will provide one data point that future collaborative models should consider in assessing publisher expectations and in developing their own networked publishing models and terms.

The History E-Book Project has worked with Michigan's SPO to develop e-book production standards and guidelines. Adopting or modifying such standards for future initiatives might facilitate cooperation and partnering across the participating societies and publishers. Further, university presses and society publishers that participate in the History E-Book Project might make logical partners in a collaborative alternative scholarly publishing network.

### **Gutenberg -e<sup>54</sup>**

Gutenberg-e provides another university press and learned society initiative that might inform the development of a collaborative publishing network.

Gutenberg-e is joint project of Columbia University Press, the American Historical Association (AHA), and the Electronic Publishing Initiative at Columbia (EPIC),<sup>55</sup> with funding from the Andrew W. Mellon Foundation.

AHA acts as the agent for a rigorous academic review process and Columbia University Press provides the digital publishing expertise. The manuscripts are selected by an annual national competition sponsored by the AHA to attract the best dissertations in history. Six prize-winning history manuscripts each year are awarded grants to turn these monographs into multi-media e-publications.

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<sup>53</sup> Online usage is monitored by the University of Michigan's Digital Library Production Service, which serves as the online host of the Project's aggregation.

<sup>54</sup> <<http://www.gutenberg-e.org>>

<sup>55</sup> The Electronic Publishing Initiative at Columbia (EPIC) is a digital publishing initiative comprising the Columbia University Press, the Libraries, and Academic Information Systems. EPIC seeks to create new kinds of scholarly publications through the use of new media technologies. See <<http://www.epic.columbia.edu>/> and Wittenberg (2001).

The project derived from a proposal by then AHA president Robert Darnton that sought to address the problem of high production costs for scholarly monographs and the resulting impact on the ability of junior scholars to publish the monographs needed for tenure and professional advancement.<sup>56</sup> Gutenberg-e was conceived to:

- legitimize electronic publications in the tenure review process by maintaining high peer review standards;
- promote innovation in the electronic publication of peer reviewed scholarly writing;
- directly fund publication of first scholarly monographs (via foundation grants and society awards); and
- encourage university presses to publish in areas that are intellectually valuable, but economically unprofitable.

As with the History E-Book Project, Gutenberg-e is made available via low-priced institutional and individual subscriptions.

### **Oxford Scholarship Online**

Oxford Scholarship Online<sup>57</sup> includes full texts of over 700 Oxford University Press titles in the economics, political science, religion, and philosophy. Oxford intends to add an additional 200 new titles to the service each year. The service offers digital monograph packages that include chapter-level abstracts, metadata, and access. Material from the service can be downloaded into course packs.

The service is available on a subscription model. Although any user can freely search the site, and view the abstracts and keywords for each book and chapter, access to the full text of books within the service is only available to users with a valid license. Although it is a subscription-based service, Oxford Scholarship Online might provide another potential partner for a network of publishing channels for digital (and dual media) monographs.

### **University of California Press eScholarship Editions**

The University of California Press<sup>58</sup> E-Editions program represents a partnership between the Press and the California Digital Library's eScholarship program.<sup>59</sup>

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<sup>56</sup> See Darnton (1999).

<sup>57</sup> <http://www.oxfordscholarship.com/oso/public/>

<sup>58</sup> <http://www.ucpress.edu/>

<sup>59</sup> <http://texts.cdlib.org/escholarship/>

The program currently includes almost 1,400 Press digital texts and monographs.<sup>60</sup> The collection represents about a third of the Press's books in print, plus another 300 out-of-print titles. More than 400 of the titles are available online to the general public, with access to the remainder limited to University of California faculty, students, and staff.

The print version of the books can be purchased online from the Press or via e-book distribution services. Additionally, some of the titles are available in downloadable formats (including the Adobe Acrobat eReader format and the Microsoft Reader format). Interestingly, providing free and open access online to the titles appears to have no impact, either positive or negative, on sales or revenues of the print editions of the titles.<sup>61</sup>

The eScholarship Editions program's willingness to experiment with innovative electronic and print distribution models should yield valuable information on the potential financial and market impact of dual media monograph publishing. Additionally, eScholarship Editions, along with the History E-Book and Gutenberg-e initiatives described above, should provide practical insight on crafting working financial and contractual relationships between university presses, learned and professional societies, and third-party publishing services.

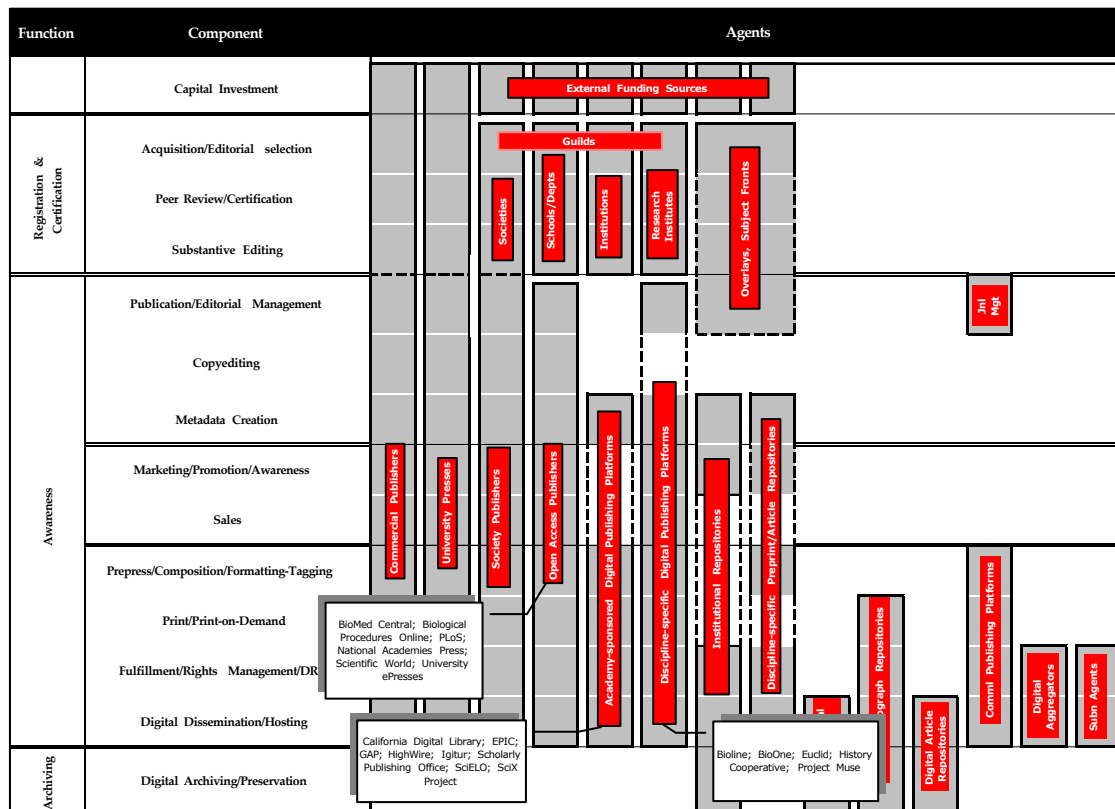
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<sup>60</sup> <<http://texts.cdlib.org/ucpress/>>

<sup>61</sup> California Digital Library Press Release. November 24, 2003. <[http://www.cdlib.org/news/press\\_releases/ucpress\\_editions\\_20031124.pdf](http://www.cdlib.org/news/press_releases/ucpress_editions_20031124.pdf)>

## Open Access Publishers

Figure 5: Open Access Publishers & Publishing Platforms



In addition to traditional publishers, alternative publishing channels continue to proliferate facilitated by the Internet, digital publishing technologies, and enabling technical standards and protocols. These channels include various types of open access publishers and academy-sponsored digital publishing platforms, as well as discipline-specific publishing initiatives. As these parallel publishing options provide potential partners for an articulated publishing network to support direct institutional funding, we will describe several of them below.

### *Australian University e-press initiatives*

University-sponsored digital publishing initiatives range from electronic imprints of existing university presses to new electronic presses that share considerable similarities in terms of intent and design with the Cornell project's Internet First University Press initiative. Several Australian university initiatives are relevant in this regard, as they seek to focus their activities on publishing monographs and articles generated by their own faculties.

Within the broad context of the ARROW initiative (described below), though operating independently, several Australian universities have established electronic presses. The e-presses sponsored by Australian universities vary in business model—some are subscription and/or fee-based; others are open access—and in the nature of the material they include.<sup>62</sup>

The Australian university e-presses offer services and functionality similar to those provided by traditional print publishers, but in a manner more sympathetic to the missions and objectives of their institutional sponsors. The Australian e-presses that might make logical partners in a global network of university-sponsored digital publishing channels are described briefly below.

*Australian National University E Press*<sup>63</sup>

The Australian National University (ANU) E Press seeks to support new types of scholarly publication within a digital repository environment, including:

- digital editions of academic monographs;
- web-based dissemination of digitally reformatted publications; and
- interactive digital publications and teaching materials.

The ANU E Press intends to make all its titles available via open access. The initiative is in its initial stages of development, and plans to publish its first works in 2004.

The project received funding of AUD 1.5 million for the project's first three years. Funding of the ANU E Press by the University's vice chancellor was driven by the desire to provide a vehicle for the global distribution of ANU research, especially in the social sciences and humanities, in an environment of declining production of university press scholarly monographs. The tacit long-term funding model may be to demonstrate the viability of the E Press as an alternative publishing channel within the three-year timeframe, and then appeal for ongoing operational funding based on the proven value of the service to the University. In this sense, the ANU E Press is being framed as a logical response to the existing mission and core responsibilities of an academic research institution, rather than as a new initiative requiring incremental funding.<sup>64</sup> The ANU E Press project also provides potential models for content policies,

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<sup>62</sup> For example, the digitization of material originally produced in print and the publication of content designed and produced solely for digital dissemination.

<sup>63</sup> <<http://epress.anu.edu.au/index.htm>>.

<sup>64</sup> Steele (2004).

submission guidelines, rights statements, and other administrative support documents.<sup>65</sup>

### *Monash University ePress*

An initiative of the Monash University Library, Monash University ePress intends to publish monographs, conference proceedings, working paper series, and digital journals in underserved areas. The ePress will publish primarily in the humanities and social sciences, and will consider both unpublished and previously published material for publication, whether originally published in print or electronic format.

Monash's goals for its e-press include:

- increasing the visibility of the university's research activities and intellectual capital to enhance the university's brand;
- establishing a self-sustaining electronic publishing business model that includes commercial activities;
- building technological, economic and programmatic partnerships with other entities pursuing similar objectives; and
- using innovative information technology to capture, publish, retrieve, read and present scholarly material.<sup>66</sup>

The ePress intends its editorial policies to support publications that will confer Department of Education, Science and Training (DEST) research credits, a key component of Australian academic professional advancement decisions. The quality control the ePress will exercise over the journal and monograph titles selected for publication will include peer review processes, independent review assessments, editorial boards, authoritative university academic sponsors, and formal approval of publication proposals by a press advisory committee.

While the Monash ePress may also carry some open-access material, the ePress intends to offer a variety of business models to support publication, including fee-based, subscription, pay-per-view, and other transaction-based models, and input side publication charges. The ePress is also planning a print-on-demand function, with costs borne by the requestor.

The ePress intends to delegate responsibility for submission and acquisitions processing, refereeing, and editing to the journals or, in the case of edited collections, to the collection editor. The ePress will have minimal direct contact

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<sup>65</sup> See: <http://epress.anu.edu.au/policies.htm>, Graham (2003), and Kanellopoulos (2003).

<sup>66</sup> See Harboe-Ree (2003).



with submitting authors—limiting support primarily to technical format and submission procedures—and will accept only final, publication-ready articles and publications.

The Monash University administration has committed AUD 700,000 to fund a two-year trial program. The Monash electronic press business plan calls for the e-press to be sustainable, though not fully self-funding, within five years.

### *The National Academies Press*

The National Academies Press (NAP)<sup>67</sup> has a long-standing program that offers digital open access to the monographs it published as an adjunct to traditional print sales. NAP's program and similar initiatives—including CDL's eScholarship Editions and the History E-Book project described above—will provide valuable market experience on the relationship between free digital availability and print sales.

### *BioMed Central & Public Library of Science*

Several open access publishers use publication charges as the means by which to support their operations, and these models and their variations provide another means by which direct institutional funding can be applied to fund an institution's faculty research.

BioMed Central (BMC),<sup>68</sup> an independent commercial publishing company, uses publication fees to provide immediate open access to peer reviewed research in over 100 journals in biology, medicine, and the life sciences. Besides publication fees, other sources of revenue include subscription access to commissioned articles, print copy sales, reprint sales, advertising and sponsorship, and subscription-based value added services. Public Library of Science (PLOS) currently publishes one journal (*PLoS Biology*) with a second journal (*PLoS Medicine*) due out in late 2004. Both publishers immediately archive their articles in PubMed Central and encourage authors to archive their articles in institutional and disciplinary repositories as well.

Both BioMed Central and PLOS provide a variation of publication fees, in the form of institutional memberships, that essentially pre-pay all or part of the open

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<sup>67</sup> See <<http://www.nap.edu>> and Pope (1999).

<sup>68</sup> <<http://www.BioMedCentral.com>> Another publisher, Biological Procedures Online (BPO), publishes open access peer reviewed reports on research techniques and methods in the medical and biological sciences. BPO's business model is similar to BioMed Central's without the supplementary revenue from advertising and other models, and without an institutional membership component. See <<http://www.biologicalprocedures.com/bpo/general/home.htm>>



access publication fee for an institution's authors. BioMed Central pioneered the institutional membership approach and now has over 1,000 institutional members using this model. With BioMed Central, an institution pays a membership fee, typically based on the size of the institution's or consortium's researcher population. The membership fee allows authors at that institution to publish in a BMC journal without paying an additional fee.

PLoS has implemented a similar model whereby an institution receives a discount on all researcher submissions depending on the amount of a prepaid fee. PLoS's tiered system ranges from a low of \$2,000 fee for a 10% discount on all publication charges to a \$100,000 fee for a 75% discount. Another variation, supported by the U.K.'s Joint Information Systems Committee (JISC), provides a grant pool to pay for 50% of the publication fees until the fund is drawn down. The PLoS models do not provide for total fee coverage, as PLoS does not want to pass the full publication cost on to the libraries that typically pay the fee.

Significantly, several large research funders—including the Wellcome Trust, JISC, the Max Planck Institute, CNRS and Inserm in France, the OhioLink consortium in the U.S., and several others—have negotiated such institutional membership fees with BMC and PLoS.

The variations on the BioMed Central and PLoS's institutional membership programs provide options through which institutions can directly fund the publication of their faculty research. These types of programs, expanded to other publishers, could increase the number of publishing venues participating in a collaborative network supported directly by institutional funding.

### **Academy-sponsored Digital Publishing Platforms**

A number of universities and university libraries have developed digital publishing platforms and service bureaus to support digital publication via academy-friendly business models. These ventures range from technical infrastructures that support faculty and/or third-party digital publications to comprehensive digital publishing programs that also provide editorial, marketing, fulfillment, and other publication support.

Many of these initiatives operate on cost recovery models that might readily lend themselves to integration with an institutional funding model. While there are too many of these initiatives to describe exhaustively here, reviewing several should indicate the role these services might play in an articulated network model.

### *California Digital Library eScholarship Program*

An initiative of the University of California (UC) President's Office, the California Digital Library eScholarship program<sup>69</sup> seeks to develop financially sustainable models for alternative scholarly publishing channels and to improve all areas of scholarly communication, including its creation, peer review, management, dissemination, and preservation.

The CDL eScholarship represents the fullest implementation to-date of a publishing platform integrating an institutional repository, electronic publishing services, and both print and digital publishing services of a university press. Further, by providing services that help coordinate scholarly publishing activities across ten University of California campuses, the program provides a simultaneous example of an intra- and inter-institutional organizational structure.

CDL's eScholarship program has several components relevant to the conception and development of a collaborative publishing network, including the eScholarship repository itself, eScholarship publication support services, and eScholarship Editions, a cooperative program with the University of California Press (described above).

#### *eScholarship Repository*

The eScholarship Repository integrates an open access digital repository, a web site, and a suite of digital support services (including peer review administration tools) to support and disseminate a full range of scholarly output from University of California faculty.<sup>70</sup> The eScholarship Repository offers UC departments, institutes, and research units direct control over the creation and dissemination of a full range of scholarly output, including preprints, conference proceedings, peer reviewed journals, publication series, and other research output. Responsibility for approving the deposit of content is delegated to the research communities themselves. To date, nearly 130 research units within the UC system have agreed to participate in the project.<sup>71</sup>

#### *eScholarship Publications*

The eScholarship Repository provides the enabling infrastructure to support faculty-driven publications, including interactive publications, legacy online

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<sup>69</sup> <<http://www.cdlib.org/programs/escholarship.html>>

<sup>70</sup> The CDL system uses the web-based Bepress proprietary system to manage paper submission, processing, and dissemination.

<sup>71</sup> Misek (2004).

journals, and monographs.<sup>72</sup> While CDL provides the infrastructure and a suite of publishing support services, the faculty unit is responsible for selecting, reviewing, approving, and depositing the content, including editorial and production support for peer-reviewed journals and series. Journals or series hosted by the eScholarship Repository must be sponsored by a UC academic department, institute, or research unit; be available without fee via the Internet; be in digital format only, without a print component; and use the repository's existing technical infrastructure.<sup>73</sup> The California Digital Library reserves a non-exclusive right to store, disseminate via open access, copy, and preserve all eScholarship Repository content. Faculty retain copyright for materials they deposit, and they may post or publish them in other venues as well.

The eScholarship program also provides an example of content, technical, and administrative policies to support peer reviewed journals, technical reports, working papers, and peer reviewed series within an institutional repository context.<sup>74</sup>

*University of California International and Area Studies (UCIAS) Digital Collection*<sup>75</sup>

One example of a peer reviewed electronic publishing program supported by the eScholarship Repository is the University of California International and Area Studies (UCIAS) Digital Collection. A partnership of the University of California Press, the CDL, and internationally oriented research units on eight UC campuses, the UCIAS Digital Collection draws on pre-peer reviewed materials deposited as preprints and working papers deposited by participating UC research units in the eScholarship Repository. The UCIAS Digital Collection publishes articles, monographs, and edited volumes that are peer-reviewed according to standards set by an interdisciplinary UCIAS Editorial Board and approved by the University of California Press.

All materials in the UCIAS Digital Collection are joint publications of UCIAS and the University of California Press. UCIAS makes digital versions of the works available without charge via the Internet. The University of California Press also

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<sup>72</sup> The eScholarship Repository supports peer reviewed journals and series using the Bepress Edikit software, which manages the peer review process online. Additionally, the Repository hosts some journals that use technical production infrastructures developed by the UC faculty and staff at local UC campuses. See <[http://repositories.cdlib.org/escholarship/peer\\_review\\_list.html](http://repositories.cdlib.org/escholarship/peer_review_list.html)>.

<sup>73</sup> For a full list of eScholarship Repository policies, see <<http://repositories.cdlib.org/escholarship/policies.html>>.

<sup>74</sup> See <[http://repositories.cdlib.org/escholarship/peer\\_review.html](http://repositories.cdlib.org/escholarship/peer_review.html)>.

<sup>75</sup> <<http://repositories.cdlib.org/uciaspubs/>>

publishes some of the UCIAS titles in hard copy. The program provides a working example of the institutionally funded guild publishing model discussed above. CDL's experience with the model may help other institutions establishing similar programs. The program may also shed light on transinstitutional guild publishing programs.

### *University of Michigan, Scholarly Publishing Office*<sup>76</sup>

The University of Michigan Scholarly Publishing Office (SPO), a unit within the University Library, develops tools and methods for the electronic publication and distribution of scholarly content. The SPO supports the digital dissemination of traditional journal and monographic publications, as well as the online publication of scholarly work that takes fuller advantage of the capabilities of digital media. SPO currently provides free support for eight open access journals. While SPO continues to serve the needs of the students, faculty, and staff of the University of Michigan, it has also extended its services and expertise to support scholarly communication and digital library projects beyond the Michigan community.

### *Roquade*<sup>77</sup> & *Igitur*<sup>78</sup>

As noted above, several predecessor initiatives survived the collapse of the FIGARO project. These include the German Academic Publishers project, which seeks to provide an academy-friendly publishing infrastructure for university faculty and university presses, and Roquade and Igitur.

A collaboration of the Utrecht University Library, Delft University of Technology Library, and the Netherlands Institute for Scientific Information Services between 1999 and 2002, the Roquade project's mission was to:

- establish a digital publishing infrastructure to support both individual and faculty authors and editorial bodies; and
- collaborate with empathetic organizations –including learned societies and academic publishers –to develop innovative traninstitutional publishing programs.

Launched by the University of Utrecht Library at the end of the Roquade project, Igitur provides an electronic publishing and archiving service to support electronic publishing initiatives, including journals and publication sites. As with

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<sup>76</sup> <<http://spo.umdl.umich.edu/>>

<sup>77</sup> <<http://www.roquade.nl/>>

<sup>78</sup> <<http://www.igitur.uu.nl/en/default.htm> >

the University of Michigan's Scholarly Publishing Office, Igitur would provide a logical academy-friendly publishing service bureau within a cooperative network.

### *SciELO*<sup>79</sup>

SciELO (Scientific Electronic Library Online) is a model for cooperative electronic publishing of online scientific journals conceived to meet the scientific communication needs of developing countries, particularly in Latin America and the Caribbean.<sup>80</sup>

SciELO comprises three components:

- a digital publishing infrastructure, both technical and administrative, which supports the electronic publication of scientific journals, the organization of searchable bibliographical and full text databases, the preservation of electronic archives, and the production of statistical indicators of the literature's usage and impact;
- the application of the SciELO infrastructure to support online aggregations of journals, including both subject-based and national collections; and
- the development of partnerships among national and international scientific publishing stakeholders –including authors, editors, scientific and technological institutions, funding agencies, universities, libraries, and scientific and technological information centers – aimed at disseminating, improving, and sustaining the SciELO model.

The development of a proposed SciELO network of Latin America and Caribbean scientific journals over the next several years will provide a regional publishing network analogous to the articulated network of publishing partners posited by the Cornell project. SciELO would then provide a potential partner for a North American network, as well as a source of experience on developing international collaborative publishing systems.

### *SciX*<sup>81</sup>

The SciX Project, a European initiative with eight university partners, aims to demonstrate that digital publishing via the Internet will support more cost efficient business models. The project intends to systematically analyze current

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<sup>79</sup> See <<http://www.scielo.org>> and Marcondes and Sayao (2003).

<sup>80</sup> SciELO represents a partnership among FAPESP (<http://www.fapesp.br>) –the State of São Paulo Science Foundation, BIREME (<http://www.birem.e.br>) –the Latin America and Caribbean Center on Health Sciences Information, and other organizations.

<sup>81</sup> <<http://www.scix.net/>>

publishing practices to assess cost structures and develop alternative business models. To that end, researchers from Finland's Swedish School of Economics have developed a detailed formal process model of the scientific publishing life-cycle to provide a basis for further analysis of costs and models.<sup>82</sup> This modeling might well inform detailed design of a collaborative publishing network.

### **Discipline-specific Digital Publishing Programs**

There are many nonprofit discipline- and subject-specific electronic publishing services—including such prominent initiatives as Bioline International<sup>83</sup> and BioOne (biological sciences),<sup>84</sup> Euclid (mathematics and statistics),<sup>85</sup> the History Cooperative (history),<sup>86</sup> and Project Muse (social sciences and humanities)<sup>87</sup>—that represent partnerships of society and nonprofit journal publishers and academy-sponsored aggregation platforms. While most of these services use traditional subscription-based aggregation models, they are also revealing—not always by design—some of the issues that society publishers and aggregation services must confront when trying to work together to deliver academy-friendly service and pricing models.

Several of these services are working with their participating society publishers to assess the impact of electronic availability on print subscriptions and society membership.<sup>88</sup> These types of collaborations should yield important insights into the real and perceived market apprehensions of society journal publishers, and

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<sup>82</sup> See the various work packages available at <<http://www.scix.net/>> and Bjork and Hedlund (2004).

<sup>83</sup> <<http://www.bioline.org.br/>>

<sup>84</sup> BioOne, which currently aggregates 70 journals from 54 publishers, was established in 1999 by five collaborating organizations: The American Institute of Biological Sciences (AIBS), SPARC (the Scholarly Publishing & Academic Resources Coalition), The University of Kansas, Greater Western Library Alliance (formerly Big 12 Plus Libraries Consortium), and Allen Press, Inc. See <<http://www.bioone.org/bioone/?request=index-html>>.

<sup>85</sup> Project Euclid is a partnership of independent publishers of mathematics and statistics journals based at Cornell University Library. See <<http://projecteuclid.org/>>.

<sup>86</sup> Launched by the American Historical Association, the Organization of American Historians, the University of Illinois Press, and the National Academy Press, the History Cooperative provides both open and subscription access to society-published history journals, as well as open access to selected monograph series. See <<http://www.historycooperative.org/home.html>>.

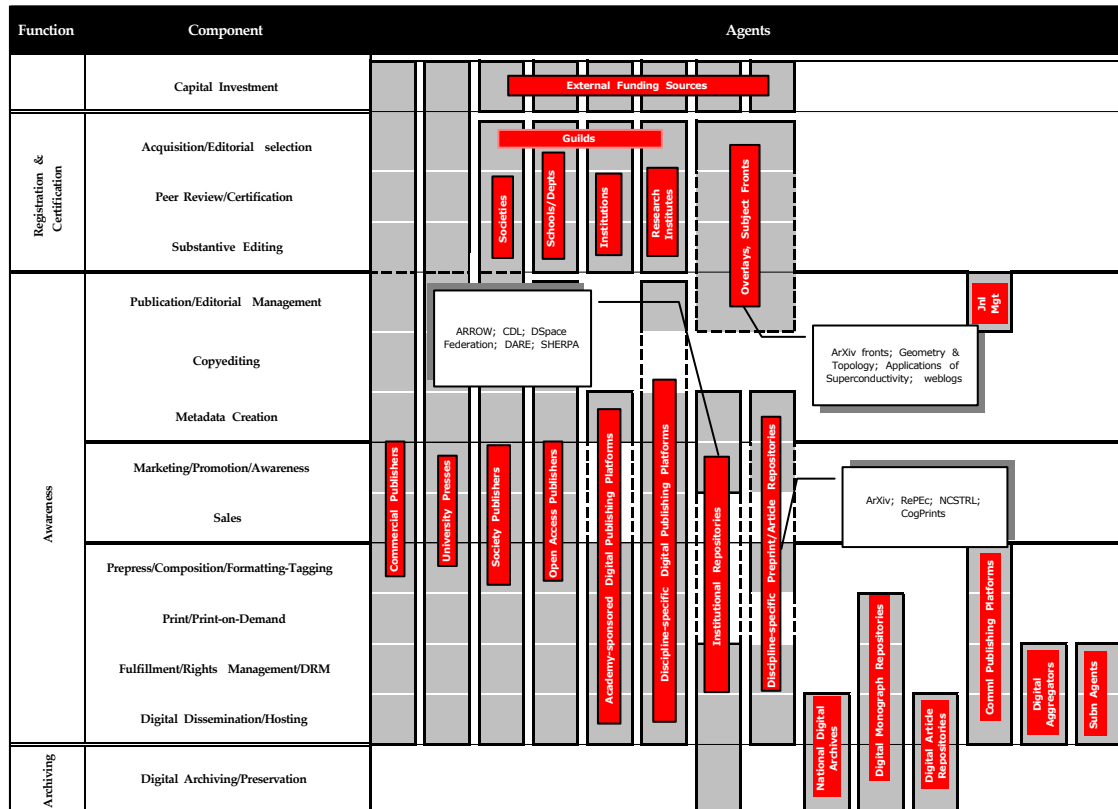
<sup>87</sup> Established in 1995 by the Johns Hopkins University Press and the Milton S. Eisenhower Library, Project Muse now has almost 30 publisher participants. Project MUSE provides online access to the full text of over one hundred scholarly journals in the arts and humanities, social sciences, and mathematics. See <<http://muse.jhu.edu/>>.

<sup>88</sup> See, for example, Carpenter, Joseph, and Waltham (2004).

this understanding may prove important in gaining society participation in a institutionally funded publishing collaboration.

## Institutional & Discipline-specific Repositories

Figure 6: Institutional & Discipline-specific Preprint & Article Repositories



### *Institutional Repositories, Discipline-specific Repositories & Overlays*

#### *Institutional Repositories*

Institutional repositories, variously conceived and implemented, continue to proliferate throughout North American and the world. Some of these repositories accommodate publishing capabilities layered over an underlying content repository. The various publication initiatives of the California Digital Library’s eScholarship program, described above, illustrate the potential for publishing services overlaid on a repository.

In 1998, David Shulenberger, provost of the University of Kansas, proposed that all research published by U.S. faculty members be maintained in a national digital repository (NEAR —National Electronic Article Repository). Institutions would retain the a non-exclusive right to archive the material. Publishers’ financial investments in first publication would be protected by a 90-day embargo. This embargo was considered of sufficient duration to protect



publisher investment while moderating journal prices by eliminating the publishers' perpetual *de facto* ownership of the content.<sup>89</sup>

Several other national repository initiatives —including ARROW in Australia,<sup>90</sup> DARE in the Netherlands,<sup>91</sup> and SHERPA in the U.K.<sup>92</sup>—recognize the need to develop coordinated solutions that provide an integrated institutional repository framework —in terms both of software systems and coordinated management procedures —that support digital and university presses, as well as institutionally-generated research and curriculum support material.

These national initiatives share goals relevant to establishing a transinstitutional publishing network. Their objectives include:

- developing national infrastructures of interoperable services across multiple institutions and across functional operating units, including libraries, university presses, and academic research units; and
- effecting cultural change amongst key stakeholders.

These open access digital repositories, as an adjunct to existing publishing models, may provide a sustainable infrastructure to support both traditional and emerging publishing channels.<sup>93</sup>

#### *Discipline-specific Repositories*

Some academic disciplines with established preprint traditions have developed electronic mechanisms to facilitate the sharing and storage of research preprints. Discipline-specific digital repositories for high-energy physics and mathematics (arXiv);<sup>94</sup> economics (RePEc);<sup>95</sup> cognitive science (CogPrints);<sup>96</sup> astronomy, astrophysics, and geophysics (NTRS and ADS);<sup>97</sup> and computer science (NCSTRL)<sup>98</sup> evolved within those specific research communities as digital

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<sup>89</sup> See Shulenberg (1999) and (2003).

<sup>90</sup> On ARROW (Australian Research Repositories Online to the World) see Harboe *et al* (2003).

<sup>91</sup> On DARE (Digital Academic Repositories) see van der Vaart (2003) and <<http://www.surf.nl/en/actueel/index.php>>.

<sup>92</sup> On SHERPA (Securing a Hybrid Environment for Research Preservation and Access) see MacColl and Pinfield (2002); Hubbard (2003); and <<http://www.sherpa.ac.uk/news/index.html#thesstory>>.

<sup>93</sup> See also Houghton, Steele, and Henty (2003).

<sup>94</sup> See <<http://arxiv.org/>> and Luce (2001) and McKiernan (2000).

<sup>95</sup> <<http://netec.mcc.ac.uk/RePEc>>

<sup>96</sup> <<http://cogprints.soton.ac.uk>>

<sup>97</sup> NASA Technical Reports Server (<[techreports.larc.nasa.gov/cgi-bin/NTRS](http://techreports.larc.nasa.gov/cgi-bin/NTRS)>) and the NASA Astrophysics Data System (<<http://adswww.harvard.edu/>>).

<sup>98</sup> National Computer Science Technical Reference Library (<<http://ncstrl.org>>).

extensions of existing peer-to-peer research communication practice. As such, these repositories have enjoyed high rates of participation within their respective fields.

Guild-type editorial entities use these discipline repositories as the archival and (sometimes) dissemination components for alternative open access publishing channels. As such, these repositories —coupled with overlay certification and discovery services —already play a role in an articulated publishing network.

#### *DINI-Certificate Document and Publication Repositories*<sup>99</sup>

DINI, the Deutsche Initiative für Netzwerkinformation (German Initiative for Networked Information), has established a certification program to ensure that institutional repositories and other scholarly publication repositories meet international standards. DINI certifies the interoperability and compatibility of the infrastructures of local digital content repositories within an international network. The DINI certificate criteria include: content and operator policies; author support; legal aspects; authenticity and data integrity; indexing (subject indexing, metadata supports; user interfaces); logs and statistics; and long-term availability.

Some of the program's criteria (for example, required author support and content policies) might prove too specific and intrusive on local autonomy to export on an international basis. However, the quality control imposed by such a certification program may prove essential to the acceptance and long-term success of an international network of local scholarly publication systems and institutional and discipline repositories.

#### *Overlays*

Overlays to institutional and discipline-specific repositories provide another publishing option in a disaggregated network of publishing channels.<sup>100</sup> An overlay is a web site that organizes links to articles and preprints stored on one or more digital repositories, including discipline-specific and institutional repositories. Overlays comprise a variety of forms, including electronic journals, departmental working paper series, and monographs.

An overlay journal certifies articles deposited in a repository. Typically, authors deposit their articles in a discipline-specific repository as part of the journal's article submission process. In most cases, such journals store copies of their articles on servers outside the repository or repositories they overlay, but the

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<sup>99</sup> <[http://www.dini.de/zertifikat/dini\\_certificate.pdf](http://www.dini.de/zertifikat/dini_certificate.pdf)>

<sup>100</sup> See P. Smith (1999); J.W.T. Smith (1999); and J.W.T. Smith (2003).

long-term preservation of the content typically falls to the repository. Most submissions to overlay journals result from direct author submissions, although a journal could mine archives for existing preprints and certify them after the fact. Examples of overlay journals include *Geometry & Topology* and *Algebraic and Geometric Topology*.<sup>101</sup>

Academic departments, research institutes, learned societies, and similar organizations can also provide overlays to preprints and/or published papers produced by affiliated researchers. These overlays provide the organizations with a means to assemble and promote their research output.<sup>102</sup> Examples include academic department working papers,<sup>103</sup> society-sponsored series<sup>104</sup> and research institute series.<sup>105</sup> As noted above, some nonprofit publishers also publish monographs and edited volumes in digital repositories.<sup>106</sup>

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<sup>101</sup> See <<http://www.maths.warwick.ac.uk/gt/gtp.html>>.

<sup>102</sup> For example, as a component of the guild publishing model, described above.

<sup>103</sup> For example, the University of California, Davis Mathematics arXiv preprints (<<http://www.math.ucdavis.edu/research/preprints/>>) and the University of Vienna Institute of Mathematics preprints (<<http://www.mat.univie.ac.at/~arxiv/>>).

<sup>104</sup> For example, the AIM preprint series (<<http://www.aimath.org/preprints.html>>).

<sup>105</sup> For example, at Duke (<<http://www.cgtp.duke.edu/preprints/>>) and SUNY Stony Brook (<<http://www.math.sunysb.edu/preprints.html>>).

<sup>106</sup> For example, the Geometry and Topology monograph series (<<http://www.maths.warwick.ac.uk/gt/gtmono.html>>).

## Other Repositories & Channels

Figure 7: Other Repositories & Channels

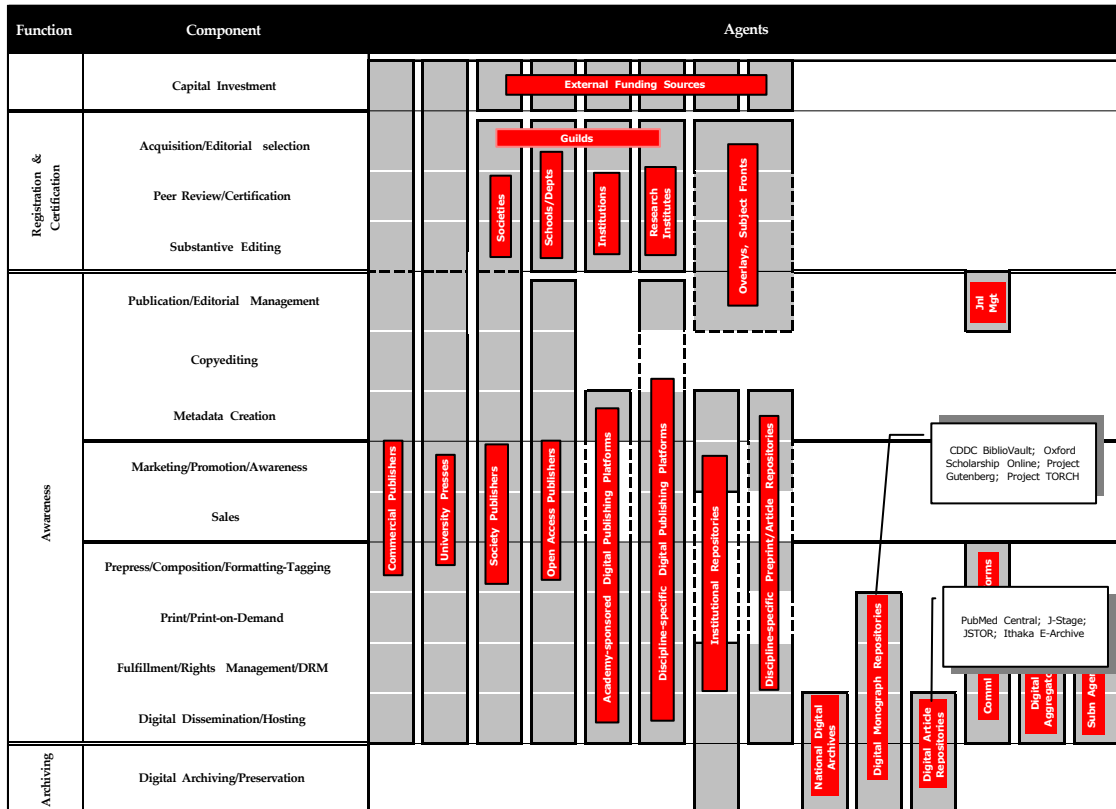


Figure 7 lists some additional potential participants in a distributed network of publishing services. These include national digital archives, digital article and monograph repositories (in addition to the cooperative university press initiatives described above), commercial publishing technical platforms and journal management systems, digital aggregators, and subscription sales agents. While all of these organizations have a stake in the evolution of scholarly publishing models, a comprehensive review of all the fee-based services in these categories lies beyond the scope of this report. However, several nonprofit and government initiatives merit mention by virtue of the roles they can play in a collaborative model across organization types.

## Digital Monograph Archives

### *The Chicago Digital Distribution Center & BiblioVault*<sup>107</sup>

The University of Chicago Press launched the Chicago Digital Distribution Center (CDDC) in 2001 with grants from the Andrew W. Mellon Foundation. The CDDC comprises both a short-run digital printing center and the BiblioVault, an electronic repository for digital files for backlist and current university press titles.<sup>108</sup> The electronic repository allows full-text searching and browsing of the digital monographs. The CDDC provides distribution and business services for university presses and a number of other small presses.

The CDDC enables university presses to manage the lifecycles of their books, improving the financial viability of participating scholarly monograph publishers. The digitization program, electronic monograph repository, and digital printing services allow university presses to keep small volume titles in print and to reissue out-of-print titles. By helping university presses manage the life-cycles of their titles and cost-effectively publish digital and print monographs, the CDDC and similar initiatives could provide an important component in a distributed publishing network supporting direct institutional funding.

### *Project TORCH*

Oxford University Press (OUP) has announced Project TORCH (The Online Resource Center in the Humanities), an initiative that will explore the viability of an online distribution center for backlist university press scholarly monographs. Project TORCH, funded by the Andrew W. Mellon Foundation, remains a year or two away from introducing a new model. The project, a collaboration among university presses, libraries, and academic authors seeks to create a searchable integrated database of scholarly monographs.

Oxford University Press is leading the initiative, which apparently will be available via a fee-based model and managed by OUP as an independent entity. The project intends to ease some of the economic problems plaguing the scholarly monograph and to expand the reach and impact of scholarly monographs in a digital environment.<sup>109</sup> The project may eventually play a role in a global publishing network similar to that of the Chicago Digital Distribution Center.

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<sup>107</sup> <<http://cddc.uchicago.edu>>

<sup>108</sup> A Mellon grant is funding the digitization of 5,000 titles from the participating presses.

<sup>109</sup> *Library Journal Academic News Wire* (April 22, 2004).

### *PubMed Central*<sup>110</sup>

PubMed Central (PMC) is a digital archive of the life sciences journal literature, developed and managed by National Center for Biotechnology Information (NCBI). PMC, launched early in 2000, currently contains more than 100,000 articles from over 120 life science journals.

Journals participating in the archive—largely from society publishers—may embargo access to their content for up to one year after publication, beyond which time it is freely available via open access. The full text of some articles in PMC is viewable only at the journal's own site, even though the journal has deposited the full text in PMC. These journals make the same commitment to providing permanent open access to all content they have deposited in PMC.

To ensure that journals included in PMC exercise some degree of editorial oversight, NCBI enforces participation criteria that journals must satisfy. To participate in PMC, a journal must either be covered by a major indexing service (such as MEDLINE, Agricola, Biosis, or EMBASE) or have three editorial board members who are principal investigators on research projects funded by major nonprofit agencies (such as NIH). Additionally, a journal must satisfy technical standards and formatting requirements established by PMC.<sup>111</sup>

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<sup>110</sup> <<http://www.pubmedcentral.gov/>>

<sup>111</sup> See Sequeira (2003).

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