Designing scholarly communications

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Abstract This paper presents suggestions for the design of a scholarly communications system for the IFIP Working Group 8.2 (WG8.2) community. Learned societies such as IFIP have long been important in the system of scholarly communications. With the affordances of the Internet, WG8.2 can play a larger role in promoting scholarly communications to achieve multiple goals: dissemination and archiving of quality research, but also supporting the development of scholars and the research community. A particular goal of this paper is to take a design perspective to suggest new systems to fit the emerging system and to assess the role that WG8.2 might play in deploying them.

1 Introduction

The goal of this paper is to contribute to the design of the emerging future system of scholarly communications and in particular, to examine the role of International Federation for Information Processing (IFIP) Working Group 8.2 (WG8.2). By scholarly communications, we mean the broad process by which academics share research findings with the larger community. This paper is distinctive in taking a design perspective to identify opportunities for contribution for a particular learned society, namely WG8.2. By a design perspective, we mean an analysis with a focus on "ways to achieve human goals" [6, p. 254] rather than on understanding or explaining the phenomenon.

Learned societies—i.e., organizations that promote a particular academic discipline, such as IFIP—have long held an important place in the system of scholarly communications. In the earliest days of science, results were communicated in the form of letters to peers discussing research findings, establishing priority for dis-

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coveries and inviting critique in return. However, such practices do not scale well as the number of researchers increase. Results were also presented to meetings of colleagues, leading to the founding of learned societies. A few years after its founding in 1660, one early society, the *Royal Society of London for the Improvement of Natural Knowledge*, began publishing collections of letters received (the *Philosophical Transactions of the Royal Society*). Such publications were intended to "encourage research and facilitate the flow of information about research and scientific thought" [8]. These publications evolved into the journals we have today (indeed, *Philosophical Transactions* is still published as a scientific journal). This evolution was facilitated by the increased emphasis on experimentation, requiring description of experimental approaches and results to be shared with a research community [8].

Of course, scholarly communications involves more than just journals. An important way for authors to gain visibility and feedback is through presentation to peers at conferences and workshops, many sponsored by learned societies. Informal social networks are also important. [4] noted that researchers "often learn about new studies and results in their immediate areas well before they are published—through collegial conversation, conference presentations, attending invited seminars, acting as journal editors and reviewers, and receiving manuscript drafts or preprints from close colleagues." Learned societies and their journals and conferences thus serve an important role as an intermediary between researchers, bringing together researchers with similar interests, sponsoring meetings, filtering research results for significance and offering economies of scale in dissemination to interested readers.

Today we are in the midst of a profound change in the socio-technical system of scholarly communication driven by the affordances of the Internet. The system of scholarly communications has long been influenced by the institutions and economics of publishing. The Internet is disruptive to this system because it changes the cost of access to information and to people. Furthermore, dissatisfaction with the current system is increasingly expressed. For example, [11] noted complaints about "rapidly rising subscription prices, concerns about copyright, latency between results and their actual publication, and restrictions on what can be published and how it can be disseminated". However, the complexity of the system complicates analyses of the possible effects of the Internet and resolution of these issues. Indeed, it would be a mistake to adopt a technologically deterministic view, as competing actors in the system are actively adopting the technologies to serve their own interests.

A particular goal of this paper is to take a design perspective to suggest how new technological systems can fit the emerging system and to assess the role that WG8.2 might play in deploying them. In terms of [6]'s framework for design science research outputs, we focus in this paper on constructs and models to describe the domain and problem and possible solutions. The complexity of the setting though means that implementation and evaluation are long-term projects for the community.

2 Theory: Socio-technical interaction networks

As a framework for analysis, we draw on [5]'s framing of the system of scholarly communication as a socio-technical interaction network (STIN). A STIN is "a network that includes people (including organizations), equipment, data, diverse resources (money, skill, status), documents and messages, legal arrangements and enforcement mechanisms and resource flows" [5, p. 48]. The relations amongst elements of the network can include social, economic and political interaction. To map a system as a STIN requires identifying the people involved (or excluded), their communication fora and resource flows, and their incentives for participation. Finally, there may be choices of systems architecture that map to features of the STIN, making different configurations of technology and systems more or less compatible, viable or sustainable.

Applying this perspective, [5] emphasized that journals and other scholarly communications venues do not function independently, but rather are part of a larger system. For example, journals survive because of the incentives of authors that derive from the universities or research centres that employ them, rather than from the journals themselves. Indeed, journals depend largely on voluntary contributions of articles, editorial work and reviews. Their analysis of the arXiv.org system, a large and successful preprint collection primarily in the physical and mathematical sciences, showed how its success depended in part on its relation to a network of other services, such as the SPIRES-HEP (Stanford Public Information REtrieval System—High Energy Physics) bibliographic database [9], and cataloguing work done by the Deutsches Elektronen Synchrotron (DESY) library staff. arXiv.org complemented these efforts by providing access to the full text of some papers. The absence of a similar well-used infrastructure for cataloguing and organizing in other disciplines arguably makes it harder for preprint collections to take hold elsewhere.

To present one more example, it would seem to be a straightforward and cost-effective technological substitution to replace a paper newsletter with a website containing the same kind of information: articles about recent conferences, announcements of upcoming events and so on. Indeed, WG8.2 has such a site (http://ifipwg82.org/). However, a newsletter physically pushed to members on a regular schedule motivates and attracts a different kind of attention than a website that is always available. Without the rhythm [7] of issuing a periodic newsletter, new articles may not get regularly written; without the prompting from the arrival of a new issue, a reader may never think to read the articles. To successfully implement such a technological innovation thus requires a careful analysis of the STIN surrounding the newsletter/website: who is involved (authors, readers, society officers and so on), how resources flow amongst them and what they are motivated to do (or not do). Such an analysis and accompanying design suggestions for the broader system of scholarly communications is the purpose of this paper.

3 Scholarly communications and the WG8.2 community

As a basis for making informed design suggestions, we start by assessing current system of scholarly communications surrounding WG8.2. An implication of [5]'s model is that the institutional details of the system matter, so we will focus our attention on the system surrounding WG8.2 in particular. The scope of the WG is given on the group's web site:

> Working Group 8.2 is concerned with the generation and dissemination of descriptive and normative knowledge about the development and use of information technologies in organizational contexts, both broadly defined. By information technology (IT), we mean technologies that can be used to store, transfer, process or represent information. By organizational context, we mean the institutional arrangements in which information is used or created.

Less formally, the WG has long been known for providing a home for alternative philosophical perspectives and methodological approaches. The WG currently has about 250 members and many more friends, though not all are currently active. The vast majority are faculty at universities, mostly in information systems or similar disciplines. The WG thus represents a particular research community within the larger field of information systems research. However, the WG is an appropriate context for our analysis because its topical focus implies that members will have some interest in each others' work (akin to the small group mentioned by [4] above). By contrast, the entire field of information systems is too large for such an analysis as it represents a collection of communities that hardly overlap in interests and interact politically rather than intellectually.

Following the STIN model, we next identify the people and organizations involved and their interests and motivations, the resource flows amongst the actors and the current functions of technological support. Addressing the first point, we can identify at least six sets of actors involved in scholarly communications around WG8.2. Although there is substantial overlap in the composition of some of these groups, we separate them here as they serve distinct roles in the system.

1. **Authors.** The first group are researchers with results to share, who we will refer to as authors. In the case of WG8.2, these are primarily university faculty concerned with publishing their research findings to establish their own reputations and careers, which are based to varying degrees on the volume and quality of publications. (Indeed, a common complaint about modern scholarly communication is that the goal of getting published has replaced the goal of communicating.)
2. **Employers.** The second group are the colleagues and administrators at the universities or research centres that employ the authors. These are concerned with the reputation of their institutions and how it is enhanced by the authors' publications. For example, in the United Kingdom, academic departments are regularly assessed based on the publications of the members of the department (the Research Assessment Exercise, http://www.rae.ac.uk/), and these assessments have serious implications for funding (the RAE website states, "the quality profiles... determine their grant for research to the institutions"). The link in other countries between publications and resources is less explicit but no less real. As well,

administrators often use individual publication records as a basis for assessment for hiring, compensation, promotion or tenure. Because these evaluators are often not knowledgeable about the information systems field in particular, their evaluations may have to be based on proxies for research quality, such as the selectivity or reputation of the venues in which the author has published.

3. **Editors and reviewers.** The third group are editors and reviewers who act as gatekeepers for publication, nearly always drawn from the same community of researchers. Editors and reviewers are generally paid only a nominal fee (if at all) by the publishers to whom they contribute. The motivation for participation is instead a mix of interest in the topic, a desire to shape the field and generalized reciprocity (reviewing in return for getting reviews). Editors may gain further rewards from employers for taking on visible leadership roles in the community.
4. **Publishers.** The fourth group are the academic publishers, a mix of for-profit companies and not-for-profits such as university presses and learned societies. Publishers provide services such as production, distribution and marketing to potential authors and readers (indeed, these functions could be analyzed separately). To support costs of publishing requires a revenue stream. As a basis for this revenue, publishers need scholarly publications and an interested audience willing to buy them. Learned societies that lack publishing expertise often form alliances with publishers. IFIP, for example, has an agreement with Springer by which Springer publishes book on behalf of IFIP. Springer brings expertise with book production and marketing, while IFIP provides a steady stream of books and a (decreasing) stream of buyers. In the current system, WG8.2 primarily acts as an arm of IFIP as a publisher of conference proceedings.
5. **Libraries.** The fifth group are the academic libraries. Libraries are important to the system for two reasons. First, libraries often act as an intermediary between publishers and readers, buying published works and making them available to affiliated readers. Few academics could afford to subscribe to a full range of potentially relevant journals found in an academic library. Second, libraries historically perform the function of archiving scholarly works, thus preserving access, and cooperate amongst themselves to make work accessible.
6. **Readers.** The final group are the intended consumers of the research outputs, namely those who might be interested in the research results. In the current system of scholarly publishing, most scholarly communications venues emphasize the novelty of research findings (rather than utility or integration). As a result, readers are nearly always other researchers who are interested in tracking the development of the research area in order to inform their own research. The increased specialization of science and the emphasis on novelty of research findings means that research results are generally incomprehensible to the general reader [8] and indeed, to researchers outside the specialized area.

Having identified actors and motives, we next identify major flows of resources amongst them. These were alluded to above and are shown graphically for journal publication in Figure 1. First, research results, mostly in the form of research papers, flow from authors to publishers to readers. In scholarly communications in university settings, this flow is often mediated by libraries that hold subscriptions to

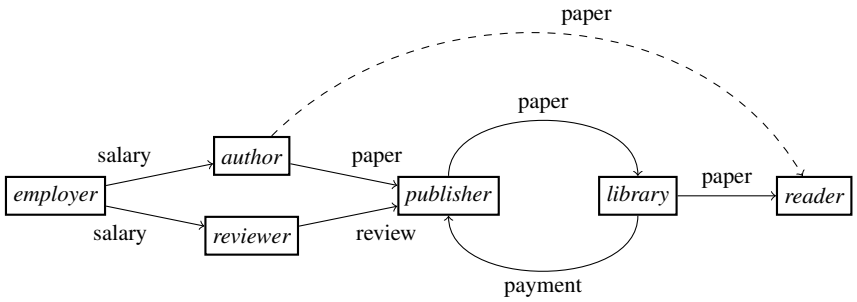

Fig. 1 The network of scholarly communications.

publications. In limited cases, readers may obtain papers directly from authors, e.g., on request or through informal circulation, as shown by the dashed line. Second, payment for the publications (i.e., subscription fees) flow from readers (or more commonly, their libraries) to publishers. Note that it is not typical for publishers of scholarly journals to pay authors for their contributions. Indeed, in some cases, page fees flow from authors to publishers, though this is not common in our field. Finally, employers support and reward authors, based at least in part on their success in publishing, as well as editors and reviewers. The flow for archived conference proceedings is roughly comparable, though papers also flow directly to conference attendees and perhaps not to libraries. Each stage of the process outlined above takes time and effort: for example, the flow of papers from authors to readers is delayed by the review and publishing processes at the publisher.

We next consider the "systems architecture" of scholarly communication and how this may serve the interests identified above. To do so, we first identify the functions served by scholarly communication and map these to individual interests and to the particular communications fora that comprise the system of scholarly communications. Rowland [10] state that:

> four main functions of the scholarly literature are dissemination of current knowledge, archiving of the canonical knowledge base of a field, quality control of published information, and assignment of priority and credit for their work to authors. [10]

This identification of functions stresses the function of disseminating finished research results. However, to fully understand the functions of scholarly communications, we must go beyond just focusing on work outputs. We draw here on Hackman's [3] team model, which states that a work system, in addition to producing valued outputs, must also ensure that the individual needs of those in the system are satisfied in order to keep them involved. In part, this satisfaction can come from employment, but to keep authors, reviewers and readers involved in the WG8.2 community also requires feedback and support from the community. An additional important outcome is that the community as a whole (in this case, the research community of WG8.2) continues to function, which requires the maintenance of the

personal relations on which community is founded [2]. In summary then, we can identify the following functions of the scholarly communications system:

1. Disseminating research results to interested readers.
2. Archiving findings for future access.
3. Ensuring the quality of disseminated or archived findings.
4. Assigning priority and giving credit for findings to authors.
5. Providing feedback and encouragement to authors.
6. Supporting and developing the research community.

The first several of these functions (1–3) can be seen as serving the interests of readers, by allowing them to keep up to date on findings and to access quality results. Assignment of priority and credit (4) serves the interests of authors and indirectly the institutions that employ them, while function 5, providing feedback, helps the authors to develop their research. Finally, function 6, supporting the community, indirectly helps all members who benefit from interactions with others and from support from the community.

These functions are served by a diverse set of scholarly communications venues. Journals serve the functions of filtering and disseminating articles. The editorial process filters papers to ensure quality and may also provide some feedback to authors through the review process [10]. University libraries are a critical element in the process, as their subscriptions to journals allows both dissemination and archiving of findings. Libraries cooperate through inter-library loan (ILL) agreements to make resources accessible to the research community more broadly, further supporting the system. Conferences and workshops also play an important role in disseminating results and providing feedback.

The focus above has been on creators of knowledge, the authors, but the STIN perspective suggests considering the other end of the flow. For example, authors want to disseminate knowledge, but readers then have problem of locating relevant works. Privileged readers may benefit from limited or early distribution if their access provides them an advantage over other researchers. Archiving research findings implies the needed ability to search and retrieve from archives. Improving work by getting feedback implies the need to consider the motives for individual reviewers and editors to provide that feedback. Finally, conferences provide a venue for personal interactions and public ceremony to support the development of individuals and the community [2].

4 Tensions and contradictions

To understand how the system of scholarly communications might evolve, we examine first various tensions in the current system that might serve as drivers for change. We then examine how the technological affordances of the Internet impact underlying assumptions about the system for scholarly communications.

We start with tensions. Some tensions are inherent in the conflict between the various goals of the system, which have different metrics for evaluation. For example, to best achieve the goal of dissemination of current knowledge and establishment of priority, results should be recorded quickly and disseminated broadly. On the other hand, to achieve the goal of ensuring quality of results before dissemination and archiving implies the need for selectivity to be sure results are noteworthy, and the needed quality control (e.g., the reviewing and editing process) slows down dissemination. In the case of conferences, speed of publication is often offset by a lack of opportunity to revise and develop papers [2].

Others tensions arise when a single venue attempts to achieve conflicting goals [2]. For example, conferences face a conflict if they simultaneously adopt the goals ensuring the quality of findings and of supporting and developing the research community. The first goal suggests that conference organizers should be highly selective and publish only the best papers submitted. The second goal suggests that conference organizers should strive to bring members of the community together to interact and develop ties that will sustain the community and collaborations. These conflict because to attend conferences requires funding for travel and the policies of many universities require an author to have a paper accepted to be funded. Therefore, a highly selective conference will lose potential attendees, thus hampering the goal of community development. Potentially worse, after several rounds of rejections, authors may conclude that their efforts should be directed to a more welcoming community. [2] also pointed out that a highly selective conference discourages interdisciplinary work: researchers from related fields find it hard to get their papers accepted, especially those who view conference publication as a step to a journal rather than a final publication. Practitioners may similarly be selected out.

Furthermore, publishing a proceedings, necessary for the goal of archiving research results, has several possibly undesirable implications for the motives of authors. First, if a paper is published in a proceedings, it generally needs revision before it can be published in a journal. Since many fields give more weight in evaluation to journal publication than to conference papers, having an excellent paper appear as a conference publication may be undesirable. Second, the time required to prepare a proceedings can interfere with the goal of timely dissemination of findings. Alternately, a compressed production cycle may make revision impossible, reducing the value of feedback to authors. Finally, if the proceedings are available only to conference attendees, papers may in practice hardly be disseminated at all, which is a concern if the conference organizers gave up other goals in favour of dissemination.

The International Conference on Information Systems (ICIS) provides an example of one approach, with an acceptance rates in 2008 of 24% and a published proceedings currently available only to AIS members and subscribers (proceedings from 1989 and 1997–2000 are available in the ACM Digital Library). The argument for this approach is that ICIS is a premier conference that accepts only the best papers, potentially sacrificing community building. However, the conference does not fully achieve the goals of dissemination and archiving, as papers are available only to AIS members, or even credit, as many evaluators do not rank conference papers

on par with journals, arguments that selectivity merits a higher rating notwithstanding. A counter-example is the Academy of Management Conference (AoM), which is 2009 had an acceptance rate of 55% in the Organizational Communications and Information Systems (OCIS) division (the division most closely aligned in interest to WG8.2). AoM does not view the conference as an archival publication: indeed, only a select few papers are included in the *Best Papers Proceeding*, which is distributed to attendees but not otherwise archived. The conference is rather viewed as an opportunity to develop ideas and the community. WG8.2 presents a mixed picture in this analysis. While acceptance rates do encourage participation, our working conferences still publish a proceedings as a paper book through Springer. Producing the proceedings add approximately US$100 to the cost of registration and 3 months to the paper production cycle. Recent proceedings are available by subscription in Springer's on-line database, but older proceedings are nearly inaccessible.

Of course, tensions can also arise in venues that are highly non-selective, such as workshops. A workshop should be a vehicle for achieving the goal of providing feedback and encouragement to authors, but if it includes many short presentations, it is impossible for authors to get much feedback, and if papers are on too diverse a set of topics, the audience will have difficulty staying engaged.

Finally, some tensions arise when a venue brings together actors with competing goals. For example, journals are collaborations between publishers and scholars. To support their operations, the publishers typically need to sell subscriptions to the journal, which implies restricting access to the papers. However, restricting access conflicts with the authors' goal to have an impact by making their work better known, to the point where it is not uncommon for authors to subvert publishers by posting their copyright articles on their own websites. Even the not-for-profit Association for Information Systems (AIS) restricts access to its self-published journals, *Journal* and *Communications of the AIS*, in order to be able to sell copies and memberships. *JAIS* is available from mid-2005 through ABI/Inform, but previous years seem to be available only to AIS members and direct subscribers. As a result, papers published in these journals are less available to other researchers (particular those in other fields) and to practitioners, a policy that seems likely to suppress the impact of IS research. A counter-example is the Internet-only open access journal *Journal of Computer-Mediated Communications*. In part due to its open availability, it is widely read and cited: for example, a search in ISI Web of Science turns up nearly six times as many citations for *JCMC* than *JAIS*. (*JCMC* started publication 5 years before *JAIS* and has published about twice as many articles, accounting for some of this difference, but the average *JCMC* article is still cited more often.) More generally, [1] found that open access articles were 2–3 times more likely to be cited, were cited more quickly and more often.

5 Technological impacts on underlying system assumptions

As noted above, a main goal of this article is to suggest new technological systems for scholarly publishing given the affordances of the Internet. The Internet is important because it enables new modes of access to information, thus making it easier to access and distribute information. We can identify possible changes to the assumptions about difficulty of access or the cost of distributions on which the current system is based. However, the STIN analysis makes it clear that we should not think about simple substitution of technologies, but rather consider the effects of the changed access on the whole network and on the motivations of actors.

A first change is in the simple cost of publishing. Prior to the Internet, mass dissemination of research papers required printing and mailing, which were expensive and complex procedures requiring considerable expertise. The Internet has made dissemination at least much cheaper, though expertise is still required in editing and text formatting, and servers and Internet access do cost money to maintain. Nevertheless, achieving the first goal of scholarly communications, dissemination, no longer requires traditional paper publication. For example, many journals provide web access to articles, at least for subscribers, and take advantage of low cost of email to send tables of contents to alert readers to new works.

Search engines and article databases have had as significant an impact on scholarly publication. As [2] put it, research is shifting from "reading, analyzing and writing" to "searching, synthesizing and constructing". The use of search engines to locate articles as part of a literature review process means that readers can find potentially relevant articles (at least those that are indexed) without having to regularly read particular journals. While some indexes (e.g., ISI's Web of Science) are restricted to particular journals, others (e.g., Google Scholar and Citeseer) index more broadly. Indeed, reliance on these tools may drive out non-indexed publications. [2] warned, "if a paper culture within a field finds itself with digital competitors, it is likely to disappear if it does not rapidly develop an accessible digital form".

On the other hand, electronic distribution negatively impacts other functions of the system of scholarly communications. For example, a shift to electronic distribution complicates the ability of libraries to archive journals. Indeed, in many case, access is lost if the subscription is not renewed, directly contradict the functions of archiving. Furthermore, licensing restrictions on electronic publications may limit libraries' ability to share documents via ILL, further hampering the goals of dissemination and preservation of knowledge.

As second change is in the cost of storage. When archiving involved paper, libraries faced substantial costs in space and employees to catalogue and store volumes of journal. As a result, archiving implied the need for filtering to assess what was worth keeping and what was not. However, if articles are digital, storage is cheap. It is technically and economically feasible to keep not only final journal papers but also working papers and conference papers; indeed, the cost of manually filtering out papers greatly exceeds the cost of the technology to keep everything. [2] noted that the entire ACM Digital Library—including journals, proceedings, newsletters and magazines—fit on a $100 disk drive. On the other hand, the cost of

readers' time has not changed. The question then is how reader can identify what is worth reading and to learn about relevant new work without becoming overloaded.

A final change is in the flexibility of publishing. The limitations of ink on paper limited scholarly communications to text and simple graphics (usually black and white). The cost of ink and paper led to limitations on page lengths for articles, which have in many cases persisted. However, a shift to digital publishing with the ability to distribute machine-readable formats and limitless publishing space invites us to consider scholarly communication through the full range of scholarly process—theorizing, data collection and analysis as well as final presentation of results. As a result, we can consider publishing "new units of scholarly communication" [11], such as datasets, compound documents, instruments or analysis approaches. However, the STIN analysis suggests the need to work on motives for sharing such documents, examining their ties to scholarly reward system. Tenure committee understand how to evaluate journal articles, but may have more difficulty when faced with a published data set.

6 Conclusion: Design suggestions for the future role of WG8.2

I conclude with suggestions for possible activities for WG8.2 to undertake in the changing world of scholarly communications and for further research. The recommendations are intended to move this work beyond models and constructs to methods and instantiations [6]. The main design principle is to identify functions for which particular venues are well suited and to attempt to design those venues to achieve that function as best possible, minimizing the tensions and contradictions noted above as much as possible. Accordingly, this discussion is organized around the traditional venues for scholarly communications.

My first recommendation regards journals: I suggest that WG8.2 investigate the possibility of sponsoring its own open access journal, or lending its reputation to improve reputation of an existing open access journal. Above we noted the conflict between the authors' goal of dissemination and the publisher need to restrict access as a basis for making money. Open access journals resolve this conflict in favour of the author, by allowing publications to be accessed by any reader without restrictions, leading to greater levels of citation [1]. The shift to open access recognizes that the main costs of a journal are now in authorship and reviewing, which have historically been given by the community for free. Rather than subscription, necessary income for the journal is instead obtained from author page fees, advertising, sponsorship or other sources.

The journal should be rigorously reviewed to ensure high quality and visibly sponsored to ensure that it is perceived as high quality. To be credible, the journal will need a strong editor and substantial board of reviewers. These roles could potentially be open to anyone, e.g., by enabling comments on posted articles as on many blogs. Indeed, some authors have suggested such an approach as a replacement for peer review. However, given that there is not much motivation to do the necessary

work of reviewing even in the current system, it seems unlikely that there will be a sufficient stream of suitable volunteers. As a result, a journal will still likely need formally appointed editors and reviewers who get institutional credit for doing the job. However, it might be worth experimenting with explicit rewards for reviewers. On-line publication can be faster than paper, but given the emphasis on quality, the journal should not necessarily prioritize quickness over quality. Finally, being on-line, the journal can also accept submission of scholarly products other than articles. Providing a home for these resources will accomplish the same archiving functions as for papers: making them citable and thus providing intellectual credit.

Second, the possibility for face-to-face interaction at WG8.2 conferences makes them unique venues for community development, particularly for enabling new members of the community to establish relationships with others. The importance of this goal implies that conferences should be selective enough to be credible, but not overly so, to ensure that those in the group and those who wish to join have the opportunity to attend. To motivate and reward submission of good papers, [2] suggested that conferences identify a selection of "best papers". Emphasizing community development also suggests reducing the emphasis on other functions of scholarly communications that are better accomplished by journals, specifically broad dissemination and archiving. Dissemination might be addressed by encouraging those who present papers at the conference to seek to publish further and by not publishing a proceedings that hampers further publication. The conference could focus on providing useful feedback for authors and connecting them to the interested community of scholars. Finally, WG8.2 should use conferences as a venue to solidify the community. For example, awards for contributions to the community should be given publicly at the conference.

Third, WG8.2 workshops that piggyback on other gatherings, such as the Oasis workshop at ICIS, are and should be seen as venues to provide early feedback on research in progress and to help maintain the group. A secondary goal should be attracting new members to the community. To accomplish this goal requires adopting interaction formats that provide increased engagement by the audience leading to better feedback for authors. One format that might be explored is small group discussions of papers that are read ahead of time. Hybrid face-to-face/on-line interaction might also be useful, e.g., posting papers on a wiki for comment before or after the workshop. To be successful at the group maintenance goal requires encouraging members of the group to attend and to provide feedback to others. Additional small incentives might help, such as awards to best reviews or acknowledgement of contributions from the workshop and workshop attendees in final papers.

Fourth, WG8.2 should explore the potential of new modes of scholarly communication enabled by the Internet to achieve the functions identified above. The on-line newsletter can help with knowledge dissemination by promoting the work of group members to the community. The website currently allows members to post new articles when they are published or working papers when they are ready to receive comments, but could do more to encourage interaction. For example, distributing TOCs periodically will remind member to check for new papers. A working paper archive should prioritize quickness of dissemination over quality from filtering.

Nevertheless, it will benefit from features for easy searching and some kind of rating to help with finding interesting materials. It would likely be beneficial for WG8.2 to take advantage of the economies of scale in running systems and to achieve critical mass by cooperating with others doing the same thing, such as the AIS Sprouts Working Paper Archive. [2] suggested a more radical shift of the publication cycle to a Wiki-like model, in which papers can be developed over time with feedback from an increasingly large set of reviewers.

Finally, the constructs and models developed in this paper should be examined for validity through future natural-science research. For example, above I hypothesized that search engines have impacted the research process by making the specific journal in which a paper was published less salient for researchers looking for related work. The impact of these technologies might be tested empirically by assessing whether recent papers cite a broader set of publication outlets than earlier papers. Such research would provide a stronger basis for further redesign of the system of scholarly communications.

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