

OPEN REVIEW: A STUDY OF CONTEXTS AND PRACTICES

The Andrew W. Mellon Foundation White Paper

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EXECUTIVE SUMMARY

Over the course of the 2011-2012 academic year, MediaCommons and NYU Press jointly undertook a study of technologies, practices, and desires for open, online peer-to-peer review in humanities-based scholarly communication. We assembled an advisory panel that met three times over the course of the year to discuss:

- the merits and pitfalls associated with open review,
- the desirability of open review for certain types of communities and works,
- criteria and parameters needed to organize and conduct successful open review,
- technological requirements for meeting open review criteria, and
- technologies currently available that can help meet criteria set forth by scholarly communities.

The advisory panel we assembled consisted of six scholars with divergent interests and investments in the digital humanities, including both champions of open review and skeptics of these online processes. The members of the panel also represented diverse disciplinary backgrounds within the humanities:

- Cheryl Ball, associate professor of new media studies, Illinois State University;
- Dan Cohen, associate professor of history and director of the Roy Rosenzweig Center for History and New Media, George Mason University;
- Cathy Davidson, Ruth F. DeVarney Professor of English, Duke University;
- Lisa Gitelman, associate professor of media and English, New York University;
- Nicholas Mirzoeff, professor of media, culture, and communication, New York University;
- Sidonie Smith, professor of English and women's studies, University of Michigan.

In addition, meetings were led by MediaCommons' co-creators Kathleen Fitzpatrick and Avi Santo as well as by NYU Press editor-in-chief, Eric Zinner and NYU Digital Scholarly Publishing Officer, and liaison between NYU Libraries and NYU Press, Monica McCormick.

Our hope as we began these meetings was that they would help us articulate a set of community protocols and technical specifications in order to help systematize open peer review practices. Creating such a systematic approach to open peer review, we hoped, would ensure that these practices would meet academic expectations for rigor while nonetheless embracing the openness made possible by social networks and other digital platforms. We discovered, however – and perhaps unsurprisingly

– that different publications and different knowledge communities have strikingly different goals for the review processes that they put in place, as well as different norms for collegial interaction around scholarly work.

As a result, the outcome of our meetings – this white paper – contains fewer answers than it does questions. We consider the critical questions raised in this document around shifting peer review norms and strategies for moving forward with open peer review to constitute important progress in both delineating the core debates as well as fleshing out specific areas within them that require more nuanced assessment modes. Fitzpatrick and Santo drafted the white paper after the meetings were concluded, and subsequently posted it as a shared Google Drive document for discussion with and editing by the advisory group. The edited version of the white paper draft was then posted at MediaCommons Press for open discussion and review with a broader range of interested scholars, publishers, librarians, and others.¹ The white paper was finally revised with attention to the concerns raised in the online comments, all of which pointed toward the growing range of interests in open review processes.

Our role in this process has not been advocating for the acceptance and adoption of open review; despite our obvious investments in these developing processes, we have instead understood our goal as being the development of a set of “best practices” for those interested in implementing open online review as a component of a scholarly publication series or community. Over the course of our discussions, however, we came to believe that no single set of best practices could suffice to cover all of the potential concerns and needs of diverse scholarly communities, even within the comparatively restricted set of fields that comprise the humanities. As a result, our conclusions and recommendations focus on ways that communities might begin to determine for themselves what their best practices might be, and how they might put them into practice. We thus argue that:

a) Open review is not a radically new scholarly practice driven by technological innovation; rather, it has developed out of a long history of humanities-based scholarly endeavors, taking forms including the presentation of conference papers, the formation of working groups, and other forms of process-oriented scholar-to-scholar communication.

b) However, the treatment of such scholar-to-scholar communication as part of a formalized mode of peer review changes the audiences for and the stakes of such

1 “Open Review: A Study of Contexts and Practices,” MediaCommons Press <<http://mediacommons.futureofthebook.org/mcpres/open-review>>.

communication, and accounting for these changes will be crucial for the success of any open review process.

c) The form and function of open review practices, like any peer review process, should be dictated by community goals and needs, which should in turn determine the technologies employed.

d) No single set of tools or rules for open review can meet the diverse needs of all scholarly communities. Imposing any single system or mode would be detrimental to the ethos of “openness” that is one of open review’s primary strengths.

e) Instead, parameters and platforms for open review must be developed with an eye toward “structured flexibility,” allowing communities of practice to set and communicate their own standards for review, depending on the desired outcome of their work. These standards might be established by working through a set of questions about process, review criteria, and community interactions, and then selecting platform functionalities that allow those standards to be applied.

f) Open review’s “rigor” comes in part from an assessment of the scrupulousness with which community members, including editors, authors, and reviewers, engage with and adhere to the community’s expressed standards.

g) Open review practices can be applied successfully to a range of kinds of scholarly production, including monographs, journal articles, multimedia essays, archival projects, and more. Just as communities of practice will differ in their needs and desires for open review practices, however, different modes of scholarly production will call for different forms of reviewer engagement. There are numerous open review models that have emerged over the past decade or so (and continue to emerge) that different scholarly communities can latch onto, build upon and learn from. Each new model must be assessed in relation to the pre-established goals and needs of the scholarly communities engaging in open peer review.

In arguing for “structured flexibility” in open review practices and tool development, we hope to indicate that the conversations that produced this report are far from finished; indeed, like the review processes that we have sought to study, our own process remains open-ended. This invitation to ongoing dialogue characterizes the best kinds of humanities scholarship, and so we hope that this report, and the kinds of review processes that it might inspire, will work to promote further critical discussion among communities of practice. We recognize that by embracing flexibility and open-endedness we are advocating for something far more complex than would be available in a centralized or monolithic system. Yet only such complexity can provide for the nuance that we believe functional open review systems will require.

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PREFACE

This white paper focuses on the ways that networked environments might incorporate and adapt the processes of scholarly peer review in the humanities. It is meant to help authors, editors, reviewers and other constituencies define for themselves the best practices they might follow in designing an open review process. In this focus on the process of developing best practices, we hope this document will serve not as a set of answers, but rather as a set of questions that groups of scholars might use to help clarify the stages of their review processes, the parameters for each of these stages, and the purposes and values that they serve. We hope in this sense to follow in the paths laid out by the Society for Cinema and Media Studies' fair use policies,² the College Art Association's guidelines for faculty in new media,³ the Modern Language Association's guidelines for evaluating work in digital humanities and digital media,⁴ and the Conference on College Composition and Communication's promotion and tenure guidelines for work with technology,⁵ as each of these statements reveals a humanities field in the process of incorporating and accounting for the digital, recognizing the increasing complexity of the landscape for contemporary scholarship.

The meetings and discussions that we held in working toward this white paper were not characterized by uninterrupted agreement on all issues. We uncovered strikingly different viewpoints among the members of the advisory group about some key terms and issues, and accordingly some of our expectations for a clear, unanimous set of recommendations were confounded by the complexities we unearthed.

2 Society for Cinema and Media Studies, "Fair Use Policies" <http://www.cmstudies.org/?page=fair_use>.

3 College Art Association, "Guidelines for Faculty Teaching in New-Media Arts" <<http://www.collegeart.org/guidelines/newmedia07>>

4 Modern Language Association, "Guidelines for Evaluating Work in Digital Humanities and Digital Media" <http://www.mla.org/guidelines_evaluation_digital>.

5 Conference on College Composition and Communication, Promotion and Tenure Guidelines for Work with Technology <<http://www.ncte.org/cccc/resources/positions/promotionandtenure>>.

These complexities, however, are very much to the point: open review processes are unlikely ever to produce unanimity about any given piece of scholarly work, assuming that scholarship is engaged with by a diverse set of scholars with equally diverse interests. Similarly, no one-size-fits-all process could be designed that could account for the needs of all scholarly communities. Rather than producing unblemished consensus, the best open review processes will work to bring diversity of opinion, interpretation, and experience to the surface. In order to do so, those processes must themselves be flexible enough to work with many different communities of practice with many different requirements.

This document, as a result, reflects the sum of our thinking over the course of a year's worth of discussion and exploration. It represents not a singular path, but a range of possibilities and some recommendations for future exploration, experimentation, and study.

CONTEXTUALIZING QUESTIONS

Our work on open review drew on the existing context of humanities scholarship, leading us to begin our deliberations by considering a number of grounding questions:

What Is Peer Review?

This seems a very simple question with a very simple answer: peer review is the review of scholarship and other forms of scholarly activity by one's peers. The foundational role that peer review plays in the determination of scholarly authority indicates that it is "the primary avenue of quality assessment and control in the academic world."⁶ Yet many scholars, across many fields, are today raising questions about the purposes that peer review serves, and whether those purposes, particularly with respect to new forms of digital scholarly communication, are being served as well as they might be by our current review systems.

Peer review is meant to accomplish a number of things: for instance, it provides a means of critical feedback for scholars in the development of their work, and it provides a means for selection among the work of many scholars. At times review processes are meant primarily to serve one or the other of those purposes, but most often peer review is intended to serve both, simultaneously helping individual

6 Diane Harley and Sophia Krzys Acord, "Peer Review in Academic Promotion and Publishing: Its Meaning, Locus, and Future." University of California, Berkeley: Center for Studies in Higher Education, 2011 <<http://escholarship.org/uc/item/1xv148c8>>.

scholars improve their work and enabling the selection for quality in publications, fellowships and grants, and employment.

Peer review is meant to represent the best of scholarly values as they ought to be espoused. Blind peer review, for instance, has historically served as an instrument of meritocracy, cutting across divisions of rank, gender, class, and race in order to enable communities of practice to discover the best new knowledge being created in their fields. Peer review in the humanities, in particular, functions to forward the values of humane letters in producing original thought located in and against relevant existing literatures. In contrast with peer review in the sciences, which ostensibly serves as a means of verification of results or validation of methodologies, peer review in the humanities often focuses on originality, creativity, depth and cogency of argument, and the ability to develop and communicate new connections across and additions to existing texts and ideas.

However, scholars in a number of different fields have levied several important critiques of conventional peer review processes, including the degree to which anonymous reviewers are granted “power without responsibility”⁷ and the potential failures of reviewer and inter-reviewer reliability.⁸ Moreover, several core assumptions about peer review and its function have been allowed to remain unquestioned, assumptions that limit the role that peer review can play even despite the admirable motives behind it. The idea of the “peer,” most notably, has in recent decades been restricted to credentialed scholars, and even further, to those credentialed in one’s specific field or subfield, a very narrow and usually vertical community organization in which junior scholars must prove their worth to those who precede them. As a result, fields can often become self-replicating, as they limit the input that more horizontally-organized peer groups – such as scholars from related disciplines and interdisciplines, and even members of more broadly understood publics – might play in the development of scholarly thought. In the age of the internet, however, as authors including Chris Anderson⁹ and Kathleen Fitzpatrick¹⁰ have argued, the definition of a “peer” is shifting from the meritocratic notion of

7 Fiona Godlee, “The Ethics of Peer Review,” in *Ethical Issues in Biomedical Publication*, ed. Anne Hudson Jones and Faith McLellan. Baltimore: Johns Hopkins University Press, 2000, p. 65.

8 See Douglas P. Peters and Stephen J. Ceci, “Peer Review Practices of Psychological Journals: The Fate of Published Articles, Submitted Again.” Reprinted in David Shatz, *Peer Review: A Critical Inquiry*, 191–214. Lanham, MD: Rowman and Littlefield, pp. 191–214.

9 Chris Anderson, “Wisdom of the crowds,” *Nature Peer Review Debate* <<http://www.nature.com/nature/peerreview/debate/nature04992.html>>.

10 Kathleen Fitzpatrick, *Planned Obsolescence: Publishing, Technology, and the Future of the Academy* (NYU Press, 2011), p. 32.

“credentialed colleague” to a more technically-derived sense of a peer as any node on a network.

This is not to say that, in the age of open networks, a “peer” is becoming “just anyone”; rather, it indicates that peer status might only emerge through participation in review processes. A peer in this new form has the potential to *become* a peer through the quality of his or her participation in networked knowledge exchanges. Given this potential, as Peter Frishauf has noted, peers can and should be selected on the basis of “expertise and trustworthiness, not credentials,” allowing communities to develop “a trustmark for every editor, author, and reviewer based on expertise in the subject matter under consideration, and on their actual work as a reviewer” rather than assuming expertise based on particular credentials.¹¹ This shift in the understanding of the “peer” points to the need to rethink the dominant practices of peer review, particularly with respect to scholarship that originates or is published online.

Why Open Review?

In exploring the possibilities for what we originally thought of as “peer-to-peer review” – review practices and tools that would enable the direct communication among a network of existing peers around scholarly publications – we began to focus on the ways that opening up review practices to new kinds of peers might further some crucial values and goals in the humanities. We aspire, as scholars, to engage our students, our colleagues, and a range of broader publics in exploring aspects of our complex histories and cultures. We also seek to model the emergence of critical thinking and intellectual pursuit through Socratic forms of inquiry, stressing the essential role played by discussion and debate in knowledge formation.

Much of this work is already done with varying levels of publicness; we present work at conferences, discuss it in workshops, share it with our colleagues, and so forth. But typically our publication processes have operated off-stage. In recent years, however, more and more important new work in the humanities is simply being published online, without the presumed benefits of pre-publication review; scholars are keeping individual blogs and participating in group blogs, and more and more conference presentations and working papers are being posted online. Further, many scholars are finding that the feedback they receive through these formats is as substantive and productive as traditional peer reviews have been. Given the ways that open practices are enabling scholars’ work to develop, it seems

¹¹ Peter Frishauf, “Reputation Systems: A New Vision for Publishing and Peer Review,” *Journal of Participatory Medicine* 1.1 (Oct 2009)

increasingly important for the humanities to take account of such practices, and to explore the possibilities that they present for our fields more broadly.

What do we mean by our use of “open” in thinking about open review, however? Must everything be fully open to everyone, or are there degrees of openness that might be useful to different communities of practice at different times? Might, for instance, a frank discussion among a defined cluster of scholars be particularly important at certain times, while a discussion opened to broader publics would be crucial at others? Are there instances in which a review process might be open to volunteer participants while nonetheless being conducted in private? Must all reviews be submitted under reviewers’ real names, or are there situations in which some degree of anonymity or pseudonymity remains useful? Moreover, are these two forms of openness – openness of access to the review process and openness of reviewer identity – related, or are they separable? We do not want to conflate distinct functions or formations in the scholarly communication process, nor do we want to foreclose choices that particular communities of practice might find beneficial. At root, we value openness as a default value, which might at times be overridden, for the ways that it can enable the members of a community of practice to perform and develop in collaboration with one another, rather than to assume or prescribe pre-existing standards for contribution.

Open processes such as those we explore in this document can go badly, of course, or they can go well – but of course the same is true of traditional, closed review processes. Open processes require careful cultivation within a community, as well as careful attention to the heterogeneity of that community. A well-crafted open review process, however, can turn the “problem” of a diverse community into a value, creating a self-consciousness within the community about its presuppositions and assumptions, and facilitating the development of a range of new perspectives and voices.

What Experiments Have Been Conducted in Open Review?

Publishers, scholars, and academic collectives have conducted a number of recent experiments with open review practices, with a range of results. Perhaps the best-known of these experiments was that conducted by *Nature* in 2006, an open review trial that has become famous for its public declaration of failure. However, as Fitzpatrick has argued, it is likely that the experiment’s design made its failure inevitable¹²; the journal proposed a system in which there were no perceived benefits to be derived from participation. Other scientific journal editors, however, posted descriptions of more successful open review processes in the forum that was posted

12 Fitzpatrick, *Planned Obsolescence*, pp. 25-26.

alongside the open review trial, and numerous other publishers have long used hybrid or fully open review processes.¹³

Several experiments with open review in the humanities have received both scholarly and journalistic attention. The Institute for the Future of the Book worked with McKenzie Wark to post the draft of his book, *Gamer Theory*, online in commentable form; though this experiment was not explicitly part of a peer review process, it nonetheless resulted in substantive feedback that Wark employed in his revisions.¹⁴ The modifications that the Institute engineered into WordPress for *Gamer Theory* were later generalized and released as a plugin, CommentPress¹⁵; CommentPress was in its early stages employed by Cathy Davidson and David Theo Goldberg in the process of reviewing and revising their MacArthur report, “The Future of Learning Institutions in a Digital Age,”¹⁶ as well as by Noah Wardrip-Fruin, in seeking feedback on his manuscript for *Expressive Processing*.¹⁷ Further such experiments in open review have been conducted at MediaCommons Press, including the open review of Kathleen Fitzpatrick’s *Planned Obsolescence* and the two open review experiments conducted in collaboration with *Shakespeare Quarterly*.¹⁸

All of these texts were at the stage at which they would be submitted for traditional peer review, but were in these experiments opened to community discussion. The discussion of *Planned Obsolescence*, like that of *Expressive Processing*, took place

13 See, for instance, Sandewall, “Opening up the process” <<http://www.nature.com/nature/peerreview/debate/nature04994.html>>, on the hybrid process employed by *Electronic Transactions in Artificial Intelligence*; Koop and Pöschl, “An open, two-stage peer review journal” <<http://www.nature.com/nature/peerreview/debate/nature04988.html>>, on the process used by *Atmospheric Chemistry and Physics*; Koonin et al, “Reviving a culture of scientific debate”

14 See McKenzie Wark, *Gamer Theory Portal*, Institute for the Future of the Book <<http://web.futureofthebook.org/mckenziemark/>>.

15 Institute for the Future of the Book, “CommentPress” <<http://www.futureofthebook.org/commentpress>>.

16 Cathy N. Davidson and David Theo Goldberg, “The Future of Learning Institutions in a Digital Age,” Institute for the Future of the Book <<http://www.futureofthebook.org/HASTAC/learningreport/about/>>, later released in print and PDF form by MIT Press (2009), as well as in an expanded book form, as *The Future of Thinking: Learning Institutions in a Digital Age* (2010).

17 Noah Wardrip-Fruin, “Expressive Processing: An Experiment in Blog-Based Peer Review,” *Grand Text Auto*

18 See MediaCommons Press <<http://mediacommons.futureofthebook.org/mcpres>>; Fitzpatrick, *Planned Obsolescence* <<http://mediacommons.futureofthebook.org/mcpres/plannedobsolescence>>; and the *Shakespeare Quarterly* review processes conducted for SQ 61.3, “Shakespeare and New Media” <http://mediacommons.futureofthebook.org/mcpres/ShakespeareQuarterly_NewMedia> and SQ 62.3, “Shakespeare in Performance” <<http://mediacommons.futureofthebook.org/mcpres/shakespearequarterlyperformance>>.

alongside traditional peer reviews, while the *Shakespeare Quarterly* reviews took place as the central part of a multi-stage process. In each case, the texts were read and commented upon by many of the same scholars who would have been called upon to conduct traditional reviews, but also by readers whose expertise might have been overlooked in such a process (librarians, in the case of *Planned Obsolescence*; performers and directors in the case of *Shakespeare Quarterly*). The locally targeted, threaded commenting facilitated by CommentPress, along with the underlying social features of WordPress, resulted in robust discussions aimed at helping the authors involved revise their work before final print publication. Moreover, the CommentPress format allowed reviewers and authors not simply to respond to the text but to respond to one another as well, and the authors have reported on the helpfulness of having a context within which to understand and interpret reviewer comments.¹⁹ The open review process thus served a developmental editing role, but in the case of *Shakespeare Quarterly*, the discussions also helped the editorial board make final decisions about whether to accept the articles for inclusion in the print journal.

Jack Dougherty and Kristen Nawrotzki similarly used CommentPress to facilitate the open review of the essays contained in their forthcoming volume, *Writing History in the Digital Age*, using the platform in order to help make “the normally behind-the-scenes development of the book more transparent.”²⁰ Matt Gold likewise used CommentPress in the review process for the essays in *Debates in the Digital Humanities*, as did Louisa Stein and Kristina Busse for *Sherlock and Transmedia Fandom*. In these two cases the review process was primarily communally organized, with essay drafts opened to the authors included in the collections for comment; in this way, the authors worked together as a community to improve the volume as a whole.²¹

Beyond these CommentPress-based projects, however, a number of humanities publications have put various kinds of open review processes into practice. The journal *postmedieval* conducted a crowd review for its special issue entitled “Becoming Media,” using WordPress to present a blog-like structure for its discussions, with the articles appearing at the top of each page, and the comments below each

19 See Wardrip-Fruin, “Blog-Based Peer Review: Four Surprises,” *Grand Text Auto* <<http://grandtextauto.org/2009/05/12/blog-based-peer-review-four-surprises/>>; Fitzpatrick, *Planned Obsolescence*, pp.189-90.

20 Jack Dougherty and Kristen Nawrotzki, “Introduction,” *Writing History in the Digital Age* <<http://writinghistory.trincoll.edu/introduction-2012-spring/>>.

21 Stein and Busse also invited two external, non-anonymous readers to participate in the review process for *Sherlock and Transmedia Fandom*, engaging directly with the authors as they discussed the volume’s essays.

article.²² The journal *Kairos* uses an extensive multi-tier editorial review process, which includes several phases of open communication amongst editorial board members and between editors and authors.²³ The site *Digital Humanities Now* uses PressForward's combination of crowd- and editorial-filtering methods to highlight some of the best work being done in digital humanities across the open web; those highlights are then reviewed for republication in the *Journal of Digital Humanities*.²⁴ Publications such as these are using open commenting at a range of stages within the review process and with a variety of degrees of publicness.

Determining whether a review process has been “successful” presents certain challenges, which may highlight unspoken assumptions about traditional peer review: we assume that a review process has been successful – that reviewers responded to the texts under consideration in a forthright, scrupulous, critical manner, and that authors made use of this criticism in revision – when good work results from it. In an open review process, we have that same marker available – is the work resulting from the process good? – but we also have the history of the process itself available for examination. That availability creates a number of complications in assessing the success of a review process, as we're suddenly able to ask more questions: How many comments would be “enough”? How many commenters? Are the commenters established or prestigious enough? Is the critical discussion in which those commenters engage sufficiently rigorous? Beyond the quality of the end-product, open review processes also raise questions about the value we assign to the review process, which may result in important scholarly discussions among reviewers, authors and other participants that do not make it into the “final” product, but nevertheless contribute to scholarly discourse (as well as possible future writings).

If we focus on whether the processes described above produced good work, it is clear to see that all were successful: all of the projects that resulted from these processes are well-thought-of. Examining the review processes themselves demonstrates that the reviewers and authors involved commented seriously on the work under review, and that the review processes in almost all cases helped to make the work better. However, publishers and authors engaging in open review processes may need to develop more particular criteria for assessing their processes on an

22 *postmedieval*, “Crowd Review” <<http://postmedievalcrowdreview.wordpress.com/>>.

23 *Kairos*, “The *Kairos* Editorial Review Process” <<http://kairos.technorhetoric.net/board.html>>.

24 See *Digital Humanities Now* <<http://digitalhumanitiesnow.org>> and *Journal of Digital Humanities* <<http://journalofdigitalhumanities.org>>; see also PressForward <<http://pressforward.org/>>

ongoing basis, to ensure that blind spots do not arise; as an example, one might see the six-month review of *Digital Humanities Now* conducted by PressForward.²⁵

However, these examples we have gathered suggest that there is no singular path to success; successful review processes may differ from one another in a number of ways. Some may be entirely open, while others may be only partly so; some may be single-stage processes while others use multiple stages of review; some may be wholly open while others are open within a community; some may entirely eschew anonymity while others permit it. What all such successful experiments bear in common, however, is a self-conscious consideration of the values of the community that the review process is meant to serve, and a flexible but nonetheless rigorous attempt to reflect those values in the mechanics of the process itself.

Who Else Is Exploring These Issues?

In addition to the web forum held alongside *Nature's* 2006 open review experiment,²⁶ much has recently been written about open review practices and related issues. Diane Harley, Sophia Krzys Acord, and the Center for Studies in Higher Education at UC Berkeley have published an extensive report on the uses of peer review in the academic publishing and promotion processes.²⁷ While the report's focus is on the practice of peer review in general, thus only treating open review processes as a small subset,²⁸ it includes a substantial assessment of the difficulties presented by current peer review practices. Other publications have focused more explicitly on open review, including the possibility that new alternatives could uphold quality control and support better scholarly communication while more visibly and equitably distributing the burden of peer review under which scholars

25 "Six Month Review of *Digital Humanities Now*," *Digital Humanities Now*, Roy Rosenzweig Center for History and New Media <<http://digitalhumanitiesnow.org/2012/05/six-month-review-of-digital-humanities-now/>>.

26 *Nature's* peer review debate <<http://www.nature.com/nature/peerreview/debate/index.html>>.

27 Diane Harley and Sophia Krzys Acord, "Peer Review in Academic Promotion and Publishing."

28 Where Harley and Acord do discuss those processes, their discussion at moments takes for granted the conventional wisdom, as communicated by the scholars with whom they conducted interviews, that open processes are less rigorous than traditional peer review, and that they run the risk of devolving into popularity contests: "This model suggests (in the extreme) that we should abandon formal publishing venues completely and simply allow scholars to publish anywhere – from personal webpages to blogs to institutional repositories – and let the 'market' begin to rank and comment on the non-peer-reviewed publications to determine their impact and popularity and attention-grabbing nature" (Harley and Acord 39); see also pp. 45-48, which discusses the potential for open review, but focuses on resistance to it in greater depth. A forthcoming paper, "Credit, Time, and Personality," (*New Media and Society*) will explore open commentary systems in greater depth, in the context of the many ways that scholars have long shared pre-publication work with one another.

labor. Peter Frishauf, founder of Medscape, has written extensively about the benefits that open review might provide in the medical sciences.²⁹ Kathleen Fitzpatrick has written about the history and future of peer review, arguing for the development of new open review practices, in *Planned Obsolescence*.³⁰ Fitzpatrick has also co-written an article with Katherine Rowe exploring the process and results of the *Shakespeare Quarterly* open review experiment,³¹ which has been covered by the *Chronicle of Higher Education*, the *New York Times*, and *University Affairs/Affaires universitaires*.³² More recently, the journal *postmedieval* published an open web forum to discuss open review processes,³³ and Jack Dougherty, Kristen Nawrotzki, Charlotte Rochez, and Timothy Burke published a thoughtful conclusion to their online review process for *Writing History in the Digital Age*.³⁴ Discussions such as these are not universally laudatory; their frank evaluations of open review processes identify both strengths and challenges in ways intended to provoke careful deliberation by other editorial and collaborative groups considering conducting their own experiments with open review.

Additionally, a number of efforts related to open peer review are underway, including projects such as the Open Annotation Collaboration (OAC), an effort to create technical standards and tools to enable the creation of web annotations that can be shared in multiple contexts, and the Open Researcher and Contributor ID project (ORCID), which is working to develop a standard for the unique identification of scholarly authors; both projects intersect with work being done by those seeking alternative means of accounting for the impact of scholarly research, such as the altmetrics group.³⁵ Projects such as ImpactStory and Hypothesis seek to bring these

29 See Frishauf, "Reputation Systems"; see also "A Troubled Trifecta: Peer Review, Academia, & Tenure," e-patients.net <<http://e-patients.net/archives/2010/08/a-troubled-trifecta-peer-review-academia-tenure.html>> and "The End of Peer Review and Traditional Publishing as We Know It," *Medscape Journal of Medicine* 10.11 (2008): 267.

30 Fitzpatrick, *Planned Obsolescence*, pp. 15-49.

31 Kathleen Fitzpatrick and Katherine Rowe, "Keywords for Open Review," *Logos* 21.3-4 (2010): pp 133-41.

32 Jennifer Howard, "Leading Humanities Journal Debuts 'Open' Peer Review, and Likes It," *Chronicle of Higher Education* (26 July 2010) <<http://chronicle.com/article/Leading-Humanities-Journal/123696/>>; Patricia Cohen, "Scholars Test Web Alternative to Peer Review," *New York Times* (24 August 2010) <<http://www.nytimes.com/2010/08/24/arts/24peer.html>>; Rosanna Tamburri, "Opening up peer review," *University Affairs/Affaires universitaires* (5 March 2012) <<http://www.universityaffairs.ca/opening-up-peer-review.aspx>>

33 *postmedieval Forum*, "Forum II: The State(s) of Review" (March 2012) <<http://postmedieval-forum.com/forums/forum-ii-states-of-review/>>

34 "Conclusions: What We Learned from *Writing History in the Digital Age* (Spring 2012)," *Writing History in the Digital Age*. <<http://writinghistory.trincoll.edu/conclusions-2012-spring/>>

35 Open Annotation Collaboration <<http://www.openannotation.org/>>; Open Researcher and

kinds of information together, linking open web annotation with reputation management, in ways that might be useful to open review.³⁶ PressForward will provide tools through which groups of scholars can capture the best work being published across the open web, through a combination of crowd-sourcing and editorial management.³⁷ Social reading platforms like BookGlutton and SocialBook connect texts and readers in flexible, community-oriented discussions.³⁸ And sites such as Academia.edu are working to create communities of scholars sharing their work with one another.³⁹ In addition, our work with open review bears much in common with that of other groups seeking to introduce other forms of openness into scholarly research such as the open access and open data movements. The recommendations that we develop below presuppose that open review projects will learn from and collaborate with projects such as these in the coming years.

RECOMMENDATIONS

In the course of our examination of the contexts into which open review practices enter, as well as the existing examples and studies of these practices, we developed a cluster of recommendations for the academic and editorial systems that might best facilitate open review, as well as for the technological systems that might best support it.

Recommendations for Communities of Practice

Though discussions about open review typically revolve around technological innovations, one of the key observations repeatedly made by the advisory board was that human systems were primary in developing criteria for successfully carrying out any review process, closed or open. By human systems we mean the recognition that real people need to work together toward a common purpose within established institutions and organizations, and with defined roles and objectives, in order to undertake an evaluative and critical engagement with scholarly work, regardless of platforms or tools. Moreover, human relationships and investments – more than technologies – are essential for attracting participation in open review processes, for developing and modeling norms for participation, for teaching and practicing principles of mutual responsibility and good citizenship, and for enacting a participatory ethos, all of which are essential to a successful open review.

Creating a successful open review process begins with clearly establishing roles and expectations for participants. Such roles and expectations must be communicated

Contributor ID <<http://about.orcid.org/>>; altmetrics <<http://altmetrics.org/manifesto/>>.

36 ImpactStory <<http://impactstory.org/>>; Hypothesis <<http://hypothes.is/>>.

37 PressForward <<http://pressforward.org/>>.

38 BookGlutton <<http://www.bookglutton.com/>>; SocialBook <<http://livemargin.com/>>.

39 Academia.edu <<http://academia.edu>>.

repeatedly, in order to ensure that all parties work in concert throughout a process. Moreover, a working open review process requires labor from organizers, editors, authors and reviewers. Even enthusiasts must be mobilized to participate. Despite utopian rhetoric about collective intelligence and cultural convergence, open review processes cannot rely on virality or buzz to sustain community engagement any more than they can be successfully carried out through pure crowd sourcing. Instead, open review processes require dedicated guides – likely assuming the roles of editors – who act as stewards for a project, leading potential participants to and through the open review process. Developing a clear set of expectations of what “participation” entails is essential for procuring and retaining participants, though even this is not a guarantor of participation. Further, adequate incentives for participation must be created and maintained.

Though the likelihood of participation is greater when participants share common interests and affinities, such commonalities do not assure a successful open review process, as pre-existing communities can sometimes reproduce a form of “group-think” that limits how a work can be evaluated. As one reviewer of the draft of this white paper noted, open review projects may need to “consciously stage confrontation across community boundaries” in order to ensure that competing perspectives speak to one another.⁴⁰ However, open processes have the potential to reveal the fault lines that otherwise exist unremarked within a field. Of course, a community made up of individuals with divergent and incongruous disciplinary and scholarly backgrounds can frustrate a review process, producing competing evaluatory practices that speak past one another. Stewards for open review processes must act as translators across communities, helping participants recognize affinities in spite of institutional or rhetorical differences.

From the outset, stewards must work with community members to establish mutually-agreed upon criteria for conducting open peer review. These criteria need to be both flexible and rigorous. Due to the many possible desired outcomes and modes of review available, a rigid set of rules would not only be impossible to develop without severely limiting the possibilities for open peer-to-peer review, but would actually be detrimental to the process. At the same time, rigor is essential precisely because the flexibility open review requires can quickly devolve into ad hoc, unruly, or uncritical forms of assessment and feedback. Open review is too often assumed by skeptics to produce inferior quality evaluations derived from lax and/or non-existent standards; clear statements of a community’s standards and expectations for

40 Ted Underwood, untitled comment, “Open Review: A Study of Contexts and Practices” <<http://mediacommons.futureofthebook.org/mcpress/open-review/recommendations/recommendations-for-communities-of-practice/#comment-105>>.

its open review practices may help to alleviate this assumption. (It should be noted, of course, that closed peer review processes can also suffer from all of the above and are equally dependent on human agents investing in a rigorous evaluation system.) A healthy open review process is one in which peers model and thereby reinforce salient, productive norms for participation.

While flexibility necessitates that each open peer-to-peer review undertaking establish and follow its own rigorous evaluation criteria, there are some identifiable parameters applicable to all open review communities and contexts that should guide criteria determinations:

1) **Desired outcomes:** As described above, different forms of peer review can serve different purposes, from gatekeeping and credentialing to promoting dialog and offering advice, from critical engagement to evaluation to improvement of ongoing work. It can be both macro and micro in scope, addressing conceptual, organizational, evidentiary, attributional, methodological and stylistic matters at levels that range from completed work (and, in the case of promotion and tenure, across completed works) all the way down to individual words and sentences. It is both a mechanism for authenticating products and a process of intellectual collaboration (though one that is rarely visible). Peer review is often all of these things at once, though certain goals might take precedence over others.

With this in mind, open review communities must be very clear about the goals and desired outcomes of any undertaking in advance of the process: How are works selected for evaluation (through open submission or vetting by editors or community, etc.)? What is being evaluated (an essay, a monograph, a blog post, a multimedia project, a tenure file, the review process itself, etc.) and for what purpose (for eventual publication in either traditional or emerging publication forms and venues; for a work's scholarly, pedagogical, analytical, prescriptive, polemic and/or creative/innovative/experimental merit; for the purposes of brainstorming, fostering dialog within a community or between a community and a work's author(s); for credentialing, etc.)? What aspects of a work are to be evaluated (ranging from quality of argument to ability to engage imagined audiences), at what level(s) and through what means (ranging from holistic evaluation of a completed work down to the chapter, section, paragraph, sentence and even word level, taking forms ranging from copy editing a document to embedding comments to "liking" or "disliking" various components)? Determining the means of evaluation requires open

peer-to-peer review communities to reach consensus about the types and degrees of openness they wish to embrace.

2) **Openness:** As previously stated, openness can take several forms. Options include public access to and participation in the review process; removing the anonymity amongst authors and reviewers; establishing a means of greater back-and-forth between authors and reviewers and amongst reviewers. Each option presents benefits and challenges. For example, making the review process public can help render scholarly processes transparent, but may also blur distinctions between peer groups, as individuals with varying degrees and forms of expertise become participants. Of course, the latter is only a “downside” if this is not a desired outcome of openness. Ultimately, open review communities must determine the types and degrees of openness they will pursue in relation to the desired outcomes of the peer review process. Broadly, decisions about openness encompass: the choice between anonymity, pseudonymity, and transparency in representing reviewer and author identities; the choice to open up the review process to public viewing and/or participation; and the choice to allow and encourage reciprocity between authors and reviewers, as well as amongst reviewers.

3) **Etiquette:** Extending the choices made with regard to openness, open review communities must also lay out ground rules when it comes to expectations of civility, reciprocity, and revision when it comes to providing and responding to constructive criticism.⁴¹ Such norms for participation are commonplace in every type of review process, blind or open, though there are sometimes concerns raised about open review’s ability to both maintain civility and offer substantive feedback. In actuality, blind review also requires participants to learn and practice proper norms of engagement and, unfortunately, unhelpful, dismissive, and mean-spirited feedback can proliferate just as frequently as constructive criticism through the closed review process.

One of the concerns repeatedly raised about open peer review is that reviewers may be less likely to offer candid assessments or harsh critiques when their names are attached to their evaluations. This problem is seen as particularly acute for junior scholars wary of upsetting senior colleagues. Concerns such as these are not easily overcome and might contribute to a community adopting an ethos of openness that embraces either anonymity or pseudonymity. We believe, however, that a clearly

41 Andy Famiglietti has explored a related set of norms for participation with respect to what he calls the “moral economy” of Wikipedia’s famous NPOV or neutral point of view rule. See “Negotiating the Neutral Point of View: Politics and the Moral Economy of Wikipedia” <<http://vimeo.com/10799887>>.

established set of norms for acceptable and unacceptable modes of discourse offers a community grounds for addressing, managing, and policing uncivil behavior. It also establishes mechanisms for mediating harsh criticism, including, for example, the ability to switch between public, semi-public, and private channels depending on the severity of the critique or the ability to have editors act as intermediaries between authors and reviewers when conflicts arise.

Beyond concerns about civility, open review raises unique challenges for community etiquette when it comes to interactions between authors and reviewers, as well as amongst reviewers. In a traditional review process, authors have no role in soliciting reviewers for their work, but in an open review, creating a successful process often requires authors take an active role in encouraging discussion, thus placing the neutrality of the author under a certain degree of pressure. Such active solicitation of reviewers is a comfortable process for scholars who are accustomed to interactions with their peers via social media forms such as blogs and Twitter, but for scholars with less experience in online communication, requesting comment may feel indiscreet. Moreover, open discussion between authors and reviewers may not come naturally to those accustomed to traditional processes.

In trying to create an environment conducive to the greatest possible comfort with the mutuality of participation fostered online, an open review community may wish to determine: (a) what the role of authors in encouraging discussion should be, (b) whether authors and reviewers should be allowed to interact either directly or indirectly, (c) whether interaction is required or merely encouraged, (d) what response time for interactions is appropriate, (e) whether all reviewer feedback must be acknowledged, and if so, in what manner; or if not, how choices should be made about which comments must be addressed, (f) how disagreements amongst reviewers should be resolved in the revision process, and (g) when scholarly conversation has strayed too far off topic to be considered part of the review process. It should also be kept in mind that if commenting guidelines are too restrictive, elaborate, or predetermined, this too might dissuade potential participants. Commenting guidelines must strike a balance between identifying desired objectives and providing flexible means for participants to achieve those objectives through their comments.

4) **Labor/Reward/Authority:** The work involved in traditional peer review has often been invisible, but it has never been insubstantial. Editors must mobilize reviewers. Reviewers evaluate and make revision recommendations. Authors either revise according to reviewer feedback or address their decision to set aside certain suggestions. Editors decide whether or not authors have sufficiently addressed reviewer concerns and requests before accepting or rejecting a work. In the tradi-

tional process, reviewer labor can be most intensive but it is also the least visible. In opening the peer review process, we have the opportunity to make them more transparent, thus making this labor and the contributions that it makes to the development of scholarly thought more visible.

Reviewing the work of colleagues, whether formally (for a journal or press submission) or informally (as part of a writing group) is considered part of the academic gift economy, a service performed with minimal reward, save possibly an anonymous thank you when a work is eventually published (assuming the reviewer recommends “accept”) or a request from an editor to review another work as acknowledgement that previous efforts are indeed appreciated. Scholars review one another’s work for a variety of reasons, ranging from the desire to be good citizens to the wish to stay on top of (and possibly shape) new scholarship emerging within their fields. While anonymity may permit reviewers the ability to occasionally offer necessary harsh critical feedback without fear of repercussion, it also allows some reviewers to offer unconstructive and uncivil responses that neither help authors to improve their work nor forward scholarly discourse.

In an open review, the work done—and not done—by reviewers is visible (even if the reviewers remain anonymous). More than this, the work of review may also become the *subject* of review, as editors and authors can call upon a review community to affirm or dismiss particular recommendations, deliberate on contradictory revision requests, or socialize participants into community etiquette. At the same time, the visibility of review can become the means by which reviewers attain peer status, garnering recognition for both the substance of their contributions and their investment of time, energy and thought in the process. Finally, the visible contributions that reviewers can make to both a work-in-progress and to scholarly discourse can clarify the origin and development process of scholarly ideas, highlighting the collaborative nature of all scholarly work.

Given the potential weight that such reviews might thus carry, open review communities might decide in advance how reviewer contributions are to be “counted” and evaluated. The former can range from having each comment posted constitute its own unique citation (which the technical work of the Open Annotation Collaboration is designed to enable) to granting a form of co-authorship in the overall work. Whatever decisions are made with respect to the relationship between reviews and authorship, open review communities should nonetheless have policies in place that account for the potential value of ideas shared within a field that rewards intellectual capital. This may include the use of Creative Commons licenses allowing reviewers and authors to define terms for incorporating reviewer sugges-

tions into a revised work, or a collectively accepted statement about participation in an open gift economy. Alternately, recognition of reviewers can simply take a similar form to traditional print publications, through footnotes or acknowledgement pages. Again, the specific forms of recognition are ultimately less essential than the community's clear understanding and agreement on a standard for recognition prior to commencement of the review.

Similarly, evaluating the work done by reviewers can take many forms, ranging from simple voting mechanisms that upgrade or downgrade the status of particular comments, to mid-tier systems that allow members to mark a post's recommendations as "required/recommended/provocative/to be disregarded," to the use of more substantive meta-commenting tools that allow communities to assess reviewer posts in much the same manner that they assess the original work under review. Whatever option is decided upon, open review communities must have criteria in place for evaluating both a work under review and the reviewers participating in the process. While criteria for evaluating reviews and reviewers will vary across communities and projects, broad areas for consideration include: tone, contribution to improving work under review (whether at the macro conceptual level or the micro organizational/grammatical level), contribution to furthering scholarly discourse, and good citizenship. That latter consideration might raise questions about how active and engaged a reviewer is, how willing a reviewer is to share resources, and so forth. Finally, open review communities may also wish to establish where authority ultimately resides in making final decisions about reviewer recommendations and status. Is the process consensus-based, or do editors (or a pre-selected subgroup of peer evaluators) take community suggestions into account when making decisions about the review process?

While the publish-the-filter mode fostered by open review processes can certainly speed up the time between the completion of scholarly work and its reception by an audience, it does not eliminate the labor involved in review. Indeed, when the review process is opened, labor is not only made more visible, it can also become more laborious, particularly for authors trying to respond to multiple asynchronous revision requests and seeking consensus approval on a work's progression through the publication process. While openness can produce a broader and richer review, it can also produce a longer one, as an expanding middle forestalls finality. The value of ongoing revision can be progressive, allowing arguments to be rethought and re-presented in relation to emerging discoveries while privileging the process of intellectual engagement over its end product. However, within an academic system that still uses publication as a measuring stick for tenure and promotion, and within an environment in which scholars are always pursuing multiple

projects, finality also has its merits. Hence, open review communities need to have protocols in place for moving a work forward in the review system, potentially including time limits on the review process, filtering mechanisms that allow authors to prioritize revision recommendations, distinctions between pre-and-post-revision assessment criteria, and easily recognizable differentiations between stages of review.

Finally, open review communities must make determinations about archiving or documenting the review process in a manner that preserves and demonstrates the labor involved in moving a work through various stages. The latter is particularly important when presenting openly reviewed works to skeptical colleagues, whose assumptions about lack of rigor are often used to dismiss such works' merit. However, decisions about the persistence of a review process bear importance for the scholarly record. Authors may have an interest in ensuring that only the final, revised version of their work is accessible, but the erasure of commenter labor should not be undertaken lightly, as it can create a negative incentive for participation in open review processes. Scholarly communities must together decide about the balance between the persistence of the review process and the desires for a clear "version of record" of scholarly work.

Weathering the Current Climate for Open Peer Review

While the parameters listed above are intended to ensure that all open peer reviews adopt a rigorous and structured – if also non-standardized – set of norms for participation that guide how a given community goes about its tasks, none of these ideas will necessarily ensure that an open review process will be viewed by skeptics as a viable alternative to a closed system. While we do not see the purpose of this document as offering strategies for combating skeptics, we do recognize the importance of having open peer review count as a legitimate mode of evaluation for scholarly, pedagogical and other forms of academic work. This requires striking a balance between, on the one hand, meticulously documenting the process for moving (and not moving) a work through publication stages (as well as the process for defining and refining the peer review criteria) and, on the other, articulating a vision for peer review that recognizes the degree to which fluidity in critical engagement, debate, discussion, and dialog are central to producing better humanities-based scholarship. In other words, proponents of open peer review must move beyond claims that such processes are either *just as* rigorous as traditional blind review or intended to accomplish different results, and instead must highlight the ways that open peer review adopts and enhances the best aspects of humanities-based scholarly practices. As Jack Dougherty has noted, open review processes have the potential to document their success; "by making drafts and commentary

visible, we can trace how different author-reader exchanges influenced the final manuscript.”⁴²

The “openness” of open review can prove daunting, however, when it comes to evaluating scholarship for the purposes of tenure and promotion, where even the slightest hint of criticism can sink a scholar’s chances.⁴³ It has become something of a rueful in-joke to acknowledge that almost every tenure review letter ranks candidates among the top 5% of scholars in their field – and that any deviation may be regarded as a “red flag” by review committees. While unrelated to the actual practices of open review, such an inflation in standards for evaluating scholars can have a chilling effect on participation in a process that makes critique and disagreement visible. Personnel review processes will need to acknowledge that what John Guillory has referred to as the immanent scene of judgement⁴⁴ is one of debate and disagreement, and that this dissent is a sign of engagement in a field – that the more engaged an open review community is with a member’s work, the greater its significance. While open review communities must adopt protocols for distinguishing between engaged debate and “rejection” in these environments, concerns over how open review will be perceived by tenure and promotion committees suggest that the work currently being done to value open peer review must be made part of a larger process of reforming academic standards for evaluation. Proponents of open peer review must take a holistic view, situating arguments about openness in relation to broader questions about the future of scholarly discourse and the roles of the 21st century academic. We thus feel an imperative to acknowledge the context in which open review currently occurs and recognize that discussions about open review should ideally be part of a broader conversation (one beyond the scope of this project) about reforming other academic practices and procedures.

While technology can be a tool in helping to accomplish many of these philosophical and pragmatic goals, this section has highlighted some of the core concerns and

42 Jack Dougherty, untitled comment, “Open Peer Review” <<http://mediacommons.futureofthebook.org/mcpress/open-review/recommendations/weathering-the-current-climate-for-open-review/#comment-86>>; see also Dougherty, et al, “Conclusions: What We Learned from *Writing History in the Digital Age*,” in which the project editors explore the data from their review process in arguing for its success <<http://writinghistory.trincoll.edu/conclusions-2012-spring/>>.

43 Our discussion here is specific to the dominant tenure practices and policies in the United States; European and other national systems are quite different, of course, and present their own unique challenges.

44 See John Guillory, “Evaluating Scholarship in the Humanities: Principles and Procedures.” *ADE Bulletin* 137 (Spring 2005): 18–33.

desires that must drive technological innovations. In the next section, we discuss technological systems that can be deployed or designed to accomplish these ends.

Recommendations for Technological Systems

Given the desire for flexibility that our discussions unearthed, as well as the recognition that different communities of practice will have not only different goals for their review processes but also fundamentally different ways of working, we are not led to propose the development of a new, monolithic platform or review tool. Developing from the ground up a platform with the robustness and ease of use of WordPress, the flexibility of Drupal, the possibilities for multimodal publishing of Omeka or Scalar, and the workflow management of Open Journal Systems would not only be an inordinately expensive proposition, and would not only have to fight the already extensive buy-in that those platforms have developed, but it would also present requirements for ongoing support that are unlikely to be met in the current environment.

We thus intend in what follows to identify a suite of possibilities, an “ecology” of tools that can work together in different combinations. Much of what follows is drawn from work done for the advisory group by Dan Visel and Peter Brantley; their full reports are included as appendices to this paper.

Open review tools need to serve a number of basic functions, including but not limited to the following:

1. User management

- a Identity: A flexible open review system must allow for anonymity or pseudonymity and for self-identification, and must allow a particular publication or community of practice to determine whether to enforce a real-name policy, or whether anonymous commenting is desirable, and in what circumstances.
- b Roles: An open system should allow for the creation of different user types with different privileges and permissions, such as Editor, Moderator, Author, Reviewer, and so forth, and those roles must be connected to the context of a particular publication
- c Aggregation: An open review system must be able to gather and display the complete contributions of an individual user.
- d Reputation: This system should permit the assessment not just of primary texts, but of the quality of contributions of individual reviewers.
- e Moderation: The system should allow both spam prevention and for comments to be voted down (when unhelpful) or deleted (when trolling).
- f Nuance: While a reviewer should be able to register lightweight approval or

disapproval of content (“likes” and “dislikes”), an emphasis should be placed on more qualitative assessment.

- g Community norms: The system should provide means to address score-settling behavior and to keep any given user from dominating a conversation, among other such issues.

2. Content management

- a Media: The system should provide the option to embed or upload image, audio, or video comments; similarly, the system should permit commenting on media objects.
- b Mobility: The system should permit reviewers to read the published content in their preferred interface, even if commenting must be undertaken in a particular site.
- c Granularity: The system should permit comments to be attached to the page/paragraph/sentence/word level of a text, as well as to the entirety of a text.
- d Versioning: The system should ideally allow a text to be revised, and should account for multiple editions of texts and comments. Readers and reviewers should be able to compare drafts (via a “track changes” mechanism).
- e Citation: The system should allow the lineage of ideas to be traced both forward and backward in time through both texts and comments, using links that function in both directions (that is, a citation of text A in text B should not only result in a link from B to A, but also a corresponding link on A to B).
- f Filters: The system should allow an author or editor to customize the kinds or quality of comments they see at any given time. Reviews might be filtered by their focus (argumentation, evidence, style), for instance, or by the community’s rating of their helpfulness, by the identity of the reviewer, or by other factors.

3. Workflow management

- a Reviewer selection: The system should allow editors to solicit specific reviewers from an available pool, while not excluding others from the process; it could also allow authors to recommend particular reviewers whose feedback would be particularly desirable.
- b Notification: The system should alert members to the presence of new texts available for review, especially where new texts speak to declared member interests, and should alert authors to new comments on their texts.
- c Prompts: The system should allow editors to create specific and easy prompts to guide reviewers in their tasks while also encouraging best practices.
- d Privacy: The system should allow both public and private conversations to take place around texts, in keeping with community preferences and policies.

- e Closure: The system should permit review periods to have a fixed term where desired, as well as permitting open-ended conversation.
- f Export: The system should allow reviews (including aggregations and filters for nuance, granularity, reputation, and so forth) to be collated and remixed in ways useful to editors, authors, and readers.

Building a platform from the ground up to support such a wide range of author, editor, reviewer, and reader needs would be a complex and costly process, and would run the risk of producing a fragile, difficult to support piece of software. Far more productive would be to work with existing platforms, to see what can be done with combinations of existing tools, and to explore how ongoing project developers might be led to incorporate the needs of open review into their project roadmaps.

While there are many content management systems on top of which a robust open review process might be developed, for purposes of example, to convey how one system might function, we will focus in this section on the possibilities presented by WordPress, which has a robust plugin architecture, a relative ease of use, and a vibrant, organized developer community. WordPress's core architecture includes a number of features that are useful to formal publications, including the ability to support multiple sites within one installation, built-in versioning that includes the editor who made the revisions, customizable user roles, threaded comments, and the like. An installation of WordPress might be combined with a number of plugins to serve many of the open review functions named above; such plugins include:

- BuddyPress (<http://www.buddypress.org>): a social-network plugin that facilitates the formation of and communication within groups formed in a larger network.
- CommentPress (<http://www.futureofthebook.org/commentpress>) and Digress.it (<http://digress.it>): facilitate paragraph-, page-, and document-level commenting.
- Annotum (<http://annotum.org/>): a plugin designed to extend WordPress as a platform for scientific publishing, by adding support for multiple authors, citations, versioning, and revision comparison, among other features.
- Edit Flow (<http://editflow.org/>): an editorial workflow plugin facilitating editorial team collaboration, review tracking, reviewer notifications, and more.

Of course a number of the functions desired in an open review platform remain unserved by these plugins; while CommentPress and Digress.it both provide commenting of a greater granularity than does WordPress out of the box, each is restricted to the paragraph or page level, and revisions to an underlying text can

break the relationships between that text and its comments. Similarly, while BuddyPress facilitates the creation of community member profiles and captures a member's participation within a network, it doesn't currently provide a means to review or rate that activity, or to transform those ratings into some measure of reputation. Needs such as these will have to be met by extending the features of existing plugins or creating additional plugins.

The complexity of such a plugin architecture offers some reason for caution; given the many dispersed developers working independently on these components, there is cause to expect that certain plugins might not interoperate well with others, that updates to the WordPress core may break some plugin functions, and that some projects may cease to be updated as their developers move on to other projects. However, working together, a consortium of interested parties (which might include publishers, libraries, scholarly societies, individual scholars, and funders), with an appropriate agreement on a set of centralized or standardized processes, could assemble an easily installable package of plugins and commit to the development and maintenance of that package on behalf of its user base; the CUNY Academic Commons's Commons-in-a-Box project might provide a model, and in fact such an open review platform project might be imagined as a fork of this project.⁴⁵

There are, of course, other notable platforms that might be built upon or learned from, including other content management systems such as Drupal and Joomla, as well as platforms designed specifically for scholarly communication, such as Open Journal Systems from the Public Knowledge Project, or Ambra, the platform on which the PLoS journals are published. An ideal scenario would of course be the development of an open review architecture that could be implemented in a platform-agnostic fashion, allowing reviewer comments to be aggregated across the web, regardless of the system hosting the primary text. (Services such as Disqus provide such a comment-aggregation function, but some concerns about their business models and proprietary data structures make them less-than-ideal as solutions.) The crucial element in any case is flexibility; in order to meet the very different requirements that different communities will bring to open review, and in order to remain sustainable as technologies change, the systems that support such practices will require significant malleability.

45 See Matthew K. Gold, "The CUNY Academic Commons Announces the Commons in a Box Project" <<http://news.commonsgc.cuny.edu/2011/11/22/the-cuny-academic-commons-announces-the-commons-in-a-box-project/>>.

CONCLUSION

What you have just read is a preliminary set of suggestions for ways that open peer review in the humanities might be organized around a series of human interactions and technological specifications that promote both flexibility and rigor in the review process. The next steps are to test these recommendations. Throughout this document, we have suggested that no single set of tools or rules can work for all open review, but rather that the process must be subject to structured flexibility whereby each community first establishes criteria based on the needs of particular projects and then selects platform functionalities that allow them to realize those criteria. To further that, we propose that various communities of practice begin to work with technologists to map out an array of tools or tool options that might be deployed, adapted, or built and that can provide a healthy range of review settings and templates. Bringing together scholarly and developer communities to customize existing tools like Drupal, WordPress and OJS would provide alternatives for open review that neither require a re-invention of the proverbial wheel nor force academics to simply make do with what is already out there regardless of how well it meets community parameters. While different tools will be needed and used to meet different community objectives, if a consistent set of questions is asked about each review process, then the technological developments would remain bound by a flexible - but not infinite - range of options, rather than existing as self-contained and disparate experiments.

Though more experimentation is needed before any conclusions might be drawn about the effectiveness of the flexible parameters and technical specifications we've proposed, we nonetheless believe that open review is essential for modeling a conversational, collaborative discourse that not only harkens back to the humanities' long investment in critical dialogue as essential to intellectual labor, but also models a forward-looking approach to scholarly production in a networked era. Moreover, we firmly endorse the notion that open review can and should facilitate the best kinds of humanities scholarship by virtue of its focus on the *process* of scholarly review as much as its end product. Indeed, in the Socratic tradition, open review models the degree to which process is integral to product, demanding a level of accountability and reciprocity typically obscured by traditional review practices. In opening up not only the review process but also the processes for cultivating and recognizing "peers," open review also holds the potential to expand knowledge nodes horizontally (as opposed to traditional review's penchant for vertical peer

conferral), encouraging greater interdisciplinarity and greater public engagement, which, again, are central to the values of humanities-based scholarly practice.

While ideas about open review are steeped in a humanities tradition, we contend that new review practices might also contribute to a redefinition of the role of the humanities scholar in the 21st century as well as of the nature of scholarly publishing. Open review's embrace of transparency and dialogue can potentially transform scholars from knowledge purveyors to facilitators, by placing equal importance on the (normally either invisible or devalued) "scribbles in the margins" – the discussions around a particular work. In turn, open review can help validate new types of scholarly output, as annotations, comments and other short-form posts become both cited and citable, while written works go through multiple pre- and post-publication iterations with versions replacing numbered editions. Finally, open review can help re-conceptualize the ways that scholars are trained and mentored, widening the community that junior scholars can learn from while promoting an ethos of openness and transparency when it comes to participating in collaborative forms of intellectual labor. The ripple effects of such transformations would be felt well beyond the review process, possibly contributing to a rethinking of other academic gold standards and rites of passage, from how graduate seminars engage with scholarly works to how dissertations are written and defended, from the materials evaluated by promotion and tenure committees to the very process of evaluating tenure files.

Before such transformations can occur, however, we must first find a way to strengthen the open review processes for humanities scholarship. We believe that the parameters laid out in this document are important first steps toward achieving that goal.

APPENDIX 1

Open Peer Review software: a report

by Dan Visel

22 January 2012.

(modified 6 June 2012)

o. Overview: What this report covers

1. The problem to be solved

- 1.1. Dealing with users
- 1.2. Dealing with content: basics
- 1.3. Creating an editorial system
- 1.4. Dealing with intellectual property

2. Models for what could be done

- 2.1. Moderation: useful models
- 2.2. Sites based around commented reading or presentation
- 2.3. Sites based around collaborative writing
- 2.4. Other sites
- 2.5. Prior online experiments with peer review

3. Potential pieces of an implementation

- 3.1. Commenting plugins
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4. Suggestions for a solution

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- 4.4. What's not in software

O. OVERVIEW: WHAT THIS REPORT COVERS

Application	URL	Current status	Type of system	Primary value
Slashdot	http://slashdot.com	Publicly available	Commercial installation of open source CMS	Model for moderation
Digg	http://digg.com	Publicly available	Commercial installation of proprietary CMS	Model for moderation
Reddit	http://reddit.com	Publicly available	Commercial installation of proprietary CMS	Model for moderation
Disqus	http://disqus.com	Publicly available	Commenting plugin for different CMSes	Model for moderation
Hacker News	http://news.ycombinator.com	Publicly available	Commercial installation of proprietary CMS	Model for moderation
Metafilter	http://metafilter.com	Publicly available	Commercial installation of proprietary CMS	Model for moderation
Yahoo! Answers	http://answers.yahoo.com	Publicly available	Commercial installation of proprietary CMS	Model for moderation
StackOverflow	http://stackoverflow.com	Publicly available	Commercial installation of proprietary CMS	Model for moderation
Quora	http://quora.com	Publicly available	Commercial installation of proprietary CMS	Model for moderation
Facebook	http://facebook.com	Publicly available	Commercial installation of proprietary CMS	Model for moderation
Book Glutton	http://bookglutton.com	Publicly available	Web application for annotating documents	Model for commented reading
Now Comment	http://nowcomment.com	Publicly available	Web application for annotating documents	Model for commented reading
Eli	http://www.elireview.com	Publicly available	Web application for annotating documents	Model for commented reading
Highlighter	http://www.highlighter.com	Publicly available	Web/mobile application for annotating documents	Model for commented reading

Social Book	http://livemargin.com	Private beta	Commercial publishing and annotation platform	Model for commented reading
Google Docs	http://docs.google.com	Publicly available	Web applications for editing documents	Model for collaborative writing
Apache Wave	http://incubator.apache.org/wave/	In development	Document-based discussion environment	Model for collaborative writing
ScholarPedia	http://scholarpedia.org	Publicly available	Wiki based around scholarship	Model for collaborative writing
Academia.edu	http://www.academia.edu	Publicly available	Document-sharing social network	Model for document sharing
Scribd	http://scribd.com	Publicly available	Document-sharing social network	Model for document sharing
O'Reilly Rough Cuts	http://	Publicly available	Online publishing platform	Model for document sharing
PeerEmed	http://peeremed.com	Publicly available	Peer-reviewed journal	Example of online peer review
Philica	http://philica.com	Publicly available	Peer-reviewed journal	Example of online peer review
CommentPress	http://www.futureofthebook.org/commentpress	Publicly available	Wordpress theme/plugin	Plugin that could be useful
Digress.it	http://digress.it	Publicly available	Wordpress plugin	Plugin that could be useful
Document Revisions	http://wordpress.org/extend/plugins/wp-document-revisions/	Publicly available	Wordpress plugin	Plugin that could be useful
Annotum	http://annotum.org	Publicly available	Wordpress theme	Plugin that could be useful
Open Journal Systems (OJS)	http://pkp.sfu.ca/?q=ojs	Publicly available	CMS for journals	Dedicated CMS for journals
Open Annotation Collaboration	http://www.openannotation.org	Publicly available	Framework for sharing annotation	Useful frameworks & ideas
Hypothes.is	http://hypothes.is	Announced	Distributed open source annotation layer for web	Useful frameworks & ideas
PressForward	http://digitalhumanitiesnow.org/	Publicly available	Information source	Useful frameworks & ideas
PLoS article-level metrics	http://blogs.plos.org/plos/2009/09/article-level-metrics-at-plos-addition-of-usage-data/	Publicly available	Feature of proprietary CMS	Useful frameworks & ideas

1. THE PROBLEM TO BE SOLVED

This report is looking at current (and near future) tools and platforms that could be used for online peer review with the long-range goal of making a sustainable open source system.

There are a number of criteria and questions that need to be addressed or answered by any solution.

1.1. *Dealing with users*

These questions are common to any social network. The examples of the link aggregators described in section 2.1 might provide useful examples for the design of this system.

- A successful system must allow anonymity (or pseudonymity) as well as self-identification. While a real name policy might be used, there are cases where anonymity is required.
- There should be a way to see in a single page what a user has contributed across the site.
- The quality of reviewers must be assessed. This could be tied to the quality of their contributions; it might also be a separate field.
- A successful system must adequately moderate new content, preventing trolls and spam. It should be possible to down vote unhelpful comments so that they become invisible.
- Reviewing needs to be linear, not binary: while a reviewer should be able to say that something is good or bad, more nuance is also needed.
- How does the system manage score-settling, or the problem of the person who shouts loudest getting the most attention?

1.2. *Dealing with content: basics*

These questions are focused on the content that's in the system: the "texts" to be reviewed and the reviews themselves. Section 3 of this report deals with software that could be useful in managing content.

- Does the system enable embedding/uploading video or audio reviews?
- Does the system allow for commenting at the page/paragraph/sentence/word level? on audio, image or video files?
- Versioning needs to be accommodated and easily accessible: multiple editions of texts (and comments) need to be accounted for. The system should allow readers and reviewers to compare drafts before and after review.
- What kinds of citation practices or other means of tracing the lineage of ideas

does the system allow for? Are there means available of citing or linking to individual comments?

- Can filters be customized by author/editor? Can the system filter reviews by categories (i.e., distinguish between reviews dealing with different facets of the project (argument, evidence, writing style, etc.) or different levels of revision suggestions (recommended versus required revisions, etc.)?

1.3. Creating an editorial system

The questions in this section are less technical and more dependent upon how the system is implemented for ease of use. A basic editorial workflow will need to be imagined to construct a system

- What kinds of prompts are available to guide reviewers?
- What options does the system provide for both public and private discussion?
- Does the system offer mechanisms for alerting members to materials in need of review? Can such mechanisms be customized based on tagging, key words, or author/editor “invitation”?
- How are questions of “finality” addressed within the system: does a review ever end?

1.4. Dealing with intellectual property

Finally, some questions about intellectual property need to be spelled out as part of the editorial process.

- What are the understandings under which users contribute to the site? How are those understandings spelled out in the terms of use?
- Who “owns” the comments made within the system? What terms of use or other provisions are made for intellectual property and the reuse of material produced within the system?

2. MODELS FOR WHAT COULD BE DONE

A number of models for what could be done with online peer review already exist. While the majority of what’s described in this section are proprietary (and thus not suitable) solutions, these examples are worth learning from.

2.1. Moderation: useful models

A number of proposed systems aren’t directly useful as a solution to the problem, but may provide useful models for how commenting and/or moderation could work. These include, in order of discussion:

- ☛ **Slashdot** (<http://slashdot.org>; the CMS has been released as an open source project called Slash (<http://www.slashcode.com>).
- ☛ **Digg** (<http://digg.com>)
- ☛ **Reddit** (<http://reddit.com>)
- ☛ **Hacker News** (<http://news.ycombinator.com>)
- ☛ **Disqus** (<http://disqus.com>)
- ☛ **Metafilter** (<http://www.metafilter.com>)
- ☛ **Ask Yahoo!** (<http://ask.yahoo.com>)
- ☛ **StackOverflow** (<http://stackoverflow.com>)
- ☛ **Quora** (<http://quora.com>)
- ☛ **Facebook** (<http://facebook.com>)

Slashdot is the oldest of these sites, having been around since 1997; it pioneered many of the basic ideas used in commenting and moderation on the web. Slashdot is essentially a blog that presents tech news; most posts are approximately a paragraph long and based around a link. To fully use the site, users must have an account. Posts are user-submitted, though editors choose which posts appear on the site. Slashdot's moderation has changed an enormous amount over time (largely on account of increased volume of users), but it became notable for a system which allowed users to up- and down-vote articles and comments. This was originally designed to highlight the most interesting comments; as volume grew, the task of moderation increasingly became one of hiding spam and trolls. Each comment has a numerical score from -1 to 5; comments start out at 1, though if other users mark them as insightful, informative, or funny, they receive more points and if users mark them as unhelpful or junk they lose points. Higher-scored comments are shown by default; lower-scored comments are hidden. In addition, the scores of comments are tied to the trust metric of users, called karma (the term originated here and has been picked up by other platforms): if you submit comments or posts that others judge to be good, your karma score goes up. Posts or comments by users with higher karma start with higher scores than posts or comments by users with low karma.

While Slashdot has declined in popularity over time, in part because of a perceived drop in quality (the “[Eternal September](#)” problem), the central idea is in use by most blog-like sites with large readerships. **Digg** might be seen as a stripped-down iteration of the Slashdot concept that arrived in 2004: users could submit links, comment on them, and vote the links or comments up or down. There's no editorial layer. Until a redesign in 2010 (based on a perceived drop-off in quality), karma was extremely important, which led to the emergence of a class of power users who could essentially control what appeared on the site with their up and

down votes. **Reddit**, founded in 2005, presented a more refined version of Digg's approach: there's more of an emphasis on sub-communities and comments. User karma seems to matter less than it does on Digg; there are also more clearly defined cultural norms for what makes a good (as opposed to a simply funny) comment. At the moment, the site is more successful; a good deal of anti-SOPA activism, for example, came from the Reddit communities. **Hacker News**, started in 2007, works the same territory that Slashdot did; however, the interface is much more stripped down. Posts can only be voted up; if users have enough karma, they can vote comments down, but the site generally works on promotion. Hacker News is generally successful at fostering smart conversations, although much of this may be due to its comparatively small user base.

Disqus is a plugin for most content management systems that allows commenting using relatively similar features to these sites. In general, Disqus's features are better than the commenting systems that come with most CMSes out of the box; they allow users to be signed into a single commenting system across multiple sites, which tends to encourage more commenting because there are fewer barriers to entry. Karma operates both inside a site that's using Disqus and across all sites that the commenter is commenting on, reducing spam.

A different approach to the problem of fostering smart conversations is the route taken by **Metafilter**, which presents links and comments, like Slashdot, Digg, Reddit, and Hacker News. Founded in 1999, it takes a different approach to the problem of discourse quality: from 2004, new users have been charged a one-time \$5 registration fee. This weeded out a great deal of the trolling that other sites have to deal with; because the users are self-selected, there's less problem with trolling and poor-quality commenting. Social norms and peer pressure tend to keep things clean here (as is the case with Hacker News), though there are human moderators as well. Metafilter notably differs from the above sites in that it uses no karma system. Because of the registration fee, however, it's operating at a much lower volume; as with Hacker News, this might make it a more useful example.

All of these sites, of course, require an account; purely anonymous comments aren't allowed, although there's nothing to stop people from creating anonymous accounts.

A small jump over from the links-and-comments sites are question-and-answer sites. (A number of links sites also host questions in various forms – **AskSlashDot**, **Ask MetaFilter**, etc.) A basic template of this sort of site might be seen at Yahoo! Answers, started in 2005, which allows users to ask and answer questions; however,

there's no metric for authority, and the content isn't especially good. **StackOverflow** began as a more specialized site, based around computer programming questions, in 2007; since then, it's grown and begun to cover other areas. StackOverflow uses a reputation score: a good answer to a question (or other actions that affect the community and content positively) results in more reputation points. This has generally been successful. **Quora** is a more recent question-and-answer site; it's similar to StackOverflow, but emphasizes real-world names and qualifications as experts (taking advantage of users' social networks from Facebook or Twitter). It's too soon to say whether this reputation model will be successful outside the technology/Silicon Valley world that is currently its primary focus; within that limited community, it seems to work.

Finally, it's hard to avoid **Facebook**, which has liberally borrowed from all of these sites and introduced some of its own innovations in moderation. Users on Facebook can choose who of their friends they want to see more or less of; Facebook is internally using its own karma system which determines how important particular users' updates are, though this is almost entirely opaque to the end user. Comments on posts don't currently receive any internal moderation, though this seems like it may change so that the most liked or shared comments are shown most prominently.

What's worth taking away from these examples? A couple of key points might be usefully remembered:

- Volume. The problems of moderation are directly related to the problem of site volume: a site with a million users has very different problems from a site with a thousand users. What works on Facebook isn't likely to work on a site designed for 10,000 users. Smaller communities tend to have better conversations because users tend to know each other; this declines as the size of the community increases.
- Reputation. The problem of reputation is one that needs to be dealt with: not all commenters are equal. Karma might be part of a solution to this, though it tends to lead to users gaming the system; in the academic world (where the number of potential commenters is finite), there are probably more useful solutions.
- Identity. Quality in moderation and community appears to be directly correlated to consistent use of user accounts, though those may be comparatively anonymous. Recently a move has been made to correlate quality of commu-

nity to lack of anonymity, but this correlation is more ambiguous.

2.2. Sites based around commented reading or presentation

- **Bookglutton** (<http://www.bookglutton.com>)
- **NowComment** (<http://nowcomment.com>)
- **Eli** (<http://www.elireview.com>)
- **Highlighter** (<http://www.highlighter.com>)
- **Social Book** (<http://livemargin.com>)

A number of sites have been constructed around the idea of social reading, generally without the concept of peer review. **Digress.it**, discussed in section 3.1, is primarily a WordPress plugin, but also functions as a platform for the distribution of commented texts; it could be seen as being part of this group.

Bookglutton was one of the first of the dedicated sites out of the gate, in 2008; it allows users to upload documents and to comment on them on a granular level. A social network allows for groups to be constructed around texts; integration with Facebook is also present. Books can be embedded in other sites (like blogs) as widgets. Rudimentary peer review might be possible with Bookglutton by constructing a group for reviewers and giving out anonymous accounts as necessary; no one seems to have done this yet.

Bookglutton only works with simple text files, which might rule out academic documents; this is also a downside to **NowComment**, a very similar project. NowComment seems to have more educational users than BookGlutton; BookGlutton's interface is much better than NowComment's. Both are self-contained sites, which complicates the possibility of extending them. While these sites function similarly to plugins like CommentPress, the modular nature of plugins means that they can be used in radically different environments; users of BookGlutton or NowComment need to use the site.

Eli works very similarly; the platform is tightly tied to the idea of teaching writing and teachers giving writing feedback to students. **Highlighter** takes the same idea and moves it to a predominantly mobile platform; there's something more of a focus on analytics, so that publishers can see what readers are most interested in. Highlighter is also interesting in that they provide code that can be added to any website adding a social annotation layer. Neither of these is an especially good fit for peer review, though Highlighter seems to have more funding than the other

sites and a bit more drive; they might be worth keeping an eye on. (Worth noting: they've hired people from the Sakai project.)

SocialBook is Bob Stein's new platform for social reading, which hasn't yet been released; it's a publisher-centric model, allowing the sale of group access to texts. The focus is strongly on how different groups can use the same text; it seems possible that with some editorial structures, online peer review could be done using the software. This is not, however, something that it is designed for out of the box.

2.3. Sites based around collaborative writing

- ✦ **Google Docs/Drive** (<http://docs.google.com>)
- ✦ **Google/Apache Wave** (<http://incubator.apache.org/wave/>)
- ✦ various wikis, including **Scholarpedia** (<http://www.scholarpedia.org>)

Collaborative writing environments might present a path forward; it's possible to imagine, for example, using **Google Docs** for rudimentary peer review. A document could be forwarded to a reviewer who adds comments to it; these come back to an editor, who could forward them. One problem is the lack of a way to anonymize comments; and while Google Docs does track changes, the user interface for this is too poor to consider as a serious solution. (It's also difficult to tell what Google's long term plan is for Google Docs, which they seem to be de-prioritizing.)

Google Wave presented what might have been a solution: as initially presented, it was an environment for conversations around documents. While full of promise, it was confusing, users were slow to pick it up, and Google killed the project; it's been picked up by the Apache Software Foundation and rebranded Apache Wave. Scheduled for release in 2011, it is still not out. It seems possible that this could work as an environment for online peer review, but this can not be determined until release.

Google/Apache Wave is reminiscent of wikis in that it allows for the editing of documents by many users over time. While the use of wikis in peer review has been tried – **Scholarpedia**, based on MediaWiki, is an example – the form is hard to use and requires a great deal of editorial self-discipline to be useful.

ICE, a WordPress plugin, makes collaboration possible in editing WordPress content; it is discussed below.

2.4. Other sites

- ✦ **Academia.edu** (<http://www.academia.edu>)
- ✦ **Scribd** (<http://scribd.com>)

- ☛ **Curēus** (<http://www.cureus.com/>, formerly Peer Emed)
- ☛ **O'Reilly Rough Cuts** (<http://my.safaribooksonline.com/roughcuts>)
- ☛ **Philica** (<http://philica.com>)

Academia.edu is a social network founded in 2008 based around the unit of the academic paper. Users can create accounts and follow each other like any social network; they can also upload papers. Despite the domain name, this is a for-profit corporation. There are currently no facilities for detailed commenting on documents; this probably isn't that useful.

Scribd is immensely popular; the site allows users to upload text in a variety of formats (Word, PDF, EPUB) to be viewed online. While it's not inconceivable that Scribd could move in the direction of collaborative reading (by allowing targeted comments, for example), this hasn't happened so far. Users can comment on documents, but there's only a single comment stream for documents. Scribd is notable in its integration into other social networks (especially Facebook) and its attempts to build communities around texts, but this hasn't gotten far.

It is worth taking a look at **PeerEmed**, an attempt to make an online peer review system for medical papers based on the Scribd engine. This doesn't seem to have much traction despite being started in 2010; peer review is limited to a single stream of comments and a single numeric score. The most interesting element of this is the editorial layer, which doesn't seem tremendously engaged; it does point to the idea that a simple peer review system could be set up using a blog and embedding documents from somewhere like Scribd. (PeerEmed is currently in the midst of rebranding itself as **Curēus**; it's difficult to tell where they'll end up.)

O'Reilly's Rough Cuts is an online book reading environment from O'Reilly, the technical publisher; it is designed to get books on new or developing subjects to readers before they have been thorough edited. Readers – who pay to use the service – are invited to leave comments on what works and doesn't work. Commenting is granular, so readers can highlight passages for commenting. On the whole, however, this doesn't seem to have taken off online, even though this is aimed at a highly technical audience; most books have few if any comments. The same books are available in less interactive formats (EPUB, PDF), which may be compromising the online environment.

Philica is a somewhat quixotic attempt to make an online peer reviewed journal; articles are accepted on any topic. Qualified experts are allowed to write reviews for submitted articles. Comments aren't granular. It's a somewhat interesting imple-

mentation – they have specifically tried to reimagine peer review for the online world – but it’s hard to imagine this being more generally used or gaining much traction.

2.5. *Prior online experiments with peer review*

Plenty of these exist. A detailed list is outside of the scope of this report, but important for any consideration of the subject.

3. POTENTIAL PIECES OF AN IMPLEMENTATION

Nothing off the shelf is going to provide a perfect solution for the problem at hand. But some existing content management systems & plug-ins could conceivably be part of a solution. Both **Drupal** and **WordPress** are robust enough that they could perhaps be used as a basis for this project. Both are open source and have fairly robust communities; in general, WordPress is easier to use, while Drupal’s architecture is more powerful. It’s also worth keeping in mind **Open Journal Systems**, a CMS based around journal publication.

For both WordPress and Drupal, any solution is going to involve *plugins* (WordPress) or *modules* (the word Drupal uses for the same thing), chunks of code that enable new functionality. Plugins are available to do almost anything conceivable for this project. However, plugins can also complicate the development process: generally they’re made by different programmers and may not be updated as frequently as the main CMS is. Getting plugins to work together can also present problems: adding a new plugin can cause new problems which will need to be debugged.

For any one of these systems, user accounts are going to be important: the CMS needs to function like a social network, so that individuals using the site have an easily accessible history of their contributions. Drupal handles this out of the box; WordPress can be turned into more social software using BuddyPress, a popular plugin.

3.1. *Commenting plugins*

- ✦ **CommentPress** (<http://www.futureofthebook.org/commentpress>)
- ✦ **Digress.it** (<http://digress.it>)

CommentPress is a WordPress plugin developed by the Institute for the Future of the Book; **Digress.it** is a forked version of the project by original developer Eddie Tejada that works similarly. Both allow paragraph-by-paragraph level commenting on text in WordPress. Digress.it also offers a hosting platform, so that potential us-

ers don't need their own installation of WordPress; CommentPress is a pure plugin that the user must install on a WordPress installation. Both have been used online extensively (Cornell's Regulation Room project is probably the most serious install of Digress.it); the differences between the two pieces of software aren't extremely serious.

Either of these plugins could function as part of a peer review service. One drawback is the backend of these projects: getting text into them requires the editor to understand WordPress management. A better backend would be a useful avenue for further development. Versioning is also a problem: if a comment suggests a change in the text, the editor changes the text; there's no way of marking the suggested change as having been done (or pointing back to the version of the text that the comment referred to). In addition, it's difficult for reviewers to edit comments that they've made. These problems can be solved, possibly by using other plugins.

3.2. *Revisioning & document management plugins*

- ✦ Document Revisions (<http://wordpress.org/extend/plugins/wp-document-revisions/>)
- ✦ Edit Flow (<http://wordpress.org/extend/plugins/edit-flow/>)
- ✦ Annotum (<http://annotum.wordpress.com>)
- ✦ ICE (<http://nytimes.github.com/ice/demo/>)

Document Revisions is a WordPress plugin designed to allow multiple revisions of files being used in WordPress. This is not, however, designed to be used with text entered directly in WordPress. Rather, it will work with documents (like PDFs or Word documents) that are being managed by WordPress. This could be used as part of a rudimentary peer review system if the documents being used were in Word format; Document Revisions can also be used in conjunction with **Edit Flow**, which is designed for collaborative editing and management of a WordPress site. Edit Flow allows internal editorial comments on different versions of documents; it brings fuller control over versioning to WordPress. It's possible to imagine these two plugins being used together to make a peer review system, although the editors would be working on the backend of the system, not publicly, which seems like a drawback. These plugins are designed for web magazines, not really for peer review on journals; however, they could probably be put to use.

Annotum is a new WordPress theme (which includes a variety of plugins) designed to function as an open-access scholarly publishing platform, coming from the science world. It's too early to say much about how well Annotum will work, as it doesn't seem to have much actual use; however, it is designed to support an article

review workflow and version comparison, as well as structured documents and smart citations. This is a project that should be kept in mind.

ICE is a new WordPress plugin developed by *The New York Times* that enables collaborative editing of posts akin to TrackChanges in Microsoft Word. This could provide basic versioning for editing.

3.3. *Dedicated journal content management systems*

✦ **Open Journal System** (<http://pkp.sfu.ca/?q=ojs>)

Open Journal System is a CMS for online journals, released by the Public Knowledge Project, a consortium of the University of British Columbia, Simon Fraser University, and Stanford, under the direction of John Willinsky. The software is open source and dedicated to open access; over 5000 journals use OJS. A variety of modules exist, among them one dedicated to publishing monographs (Open Monograph Press).

OJS does support online peer review, though not in an especially automated fashion. The submitter sends a Word file or PDF to the editor; for a blind peer review, the editor removes the submitter's name and sends it (through OJS) to the reviewer. The reviewer edits the document in Word and sends it back; if approved, final changes are made in Word and the piece is published through OJS.

One strength of OJS is that it's essentially a framework and is content agnostic. OJS can be used with something like CommentPress as a display front end; it's conceivable that a module for more interactive peer review could be built on the OJS format.

A distinct advantage of OJS is how widely it's used. There does not appear to be a huge number of OJS developers (as there are for Wordpress or Drupal); however, the Public Knowledge Project will do work for hire. It's worth keeping Open Journal System in mind.

A current weakness of OJS is that it is not particularly social: user accounts don't form a major part of the interface, although it is possible that more development (or integration with another CMS) might solve this problem.

3.4. *Other frameworks & ideas that could be useful*

✦ **Open Annotation Collaboration** <http://www.openannotation.org>

✦ **Hypothes.is** <http://hypothes.is>

- ☛ **PressForward** <http://pressforward.org>
- ☛ **PLoS article-level metrics** <http://blogs.plos.org/plos/2009/09/article-level-metrics-at-plos-addition-of-usage-data/>
- ☛ **DocumentCloud** <http://www.documentcloud.org/>; example use: <http://www.propublica.org/article/why-cant-linda-carswell-get-her-husbands-heart-back>

Open Annotation Collaboration is developing a framework for sharing annotations across the web. While this isn't specifically focused on the problem of peer review – and is generally operating at a fairly deep level – development of a system for open peer review should take this system into account.

Hypothes.is is a new and relatively prominent attempt at adding a reputation layer to the web, similar to the old semantic web idea. It is very hard to tell if this will get anywhere; historically, this sort of idea fails quickly and ignominiously, though the slate of people involved is impressive. The project essentially seeks to bring open peer review to the entire web; expertise and reputation factor into it. It might be worth meeting to see if there's an intersection with the academic problem of peer review.

PressForward's critical work on the peer review process (including sites like Digital Humanities Now) should certainly be taken into account.

PLoS provides article-level metrics for every article published in their journal; this is an example that should be taken into account. These metrics allow readers to see who's cited the article and where mentions have been made. This is worth doing; if a new system is being built, building this in would not be especially tricky.

DocumentCloud is a new project for journalists based around the idea of making primary sources more accessible. As demonstrated at ProPublica, it enables dynamic linking to the documents that were the original sources for information used in news reports. It's imaginable that a similar system, put into use the academic world, might function as a way of making citations more immediate. While such a system might be desirable, it is probably outside the scope of this project.

4. SUGGESTIONS FOR A SOLUTION

No perfect solution currently exists for comprehensive peer to peer review. However, the number of tools and platforms that could be used for more limited implementations is growing fairly rapidly. An increasing number of these tools and

software are for-profit, limiting their utility in the academy; and none bring to bear everything that would be needed.

A handful of different strategies might be employed.

4.1. Building from scratch

It would be possible to build a bespoke platform for online peer review. This isn't quite the immense job it would have been a few years ago; libraries exist for most of the major functionality that would be needed (a social network component, commenting, versioning, moderation). This would provide the benefit that all of the code could be managed by a single team, making changes relatively simple.

The downside, however, is when the software requirements change: the programmers who developed the system would be the ones most competent to make changes, which might lead to bottlenecks. Development time in general would be likely to take much longer than any other strategy.

A number of components of this project – for example, an automated system that will issue invitations to reviewers when a piece is ready to be reviewed, which then creates semi-anonymous accounts for them – will certainly need to be built from scratch, just because nobody is currently doing anything like this. This will be true in the next two scenarios as well.

4.2. Building from little pieces

A number of pieces are currently available that could be cobbled together to create a workable system. One can imagine, for example, a WordPress-based system that uses BuddyPress to provide a social network, Annotum to provide an article review workflow, CommentPress to enable paragraph-by-paragraph level commenting, and Disqus for superior comment moderation powers. Additional plugins might handle bibliographic citations (like Mendeley), audio or video content (like PodPress), or versioning (Document Revisions).

There is a large potential downside to this strategy: if many different pieces of software (eight, in this example) are being used, the system is dependent upon many different code bases. Updates to WordPress, for example, might break something in CommentPress. If relatively standard plugins are being used, it won't be hard to find a programmer who knows what needs to be changed; but more obscure plugins may require dealing with the people responsible for their development. A competent WordPress programmer might be able to handle these changes over time; however, this is going to be an ongoing task, as software on the web is rarely

static. (While Drupal is more protean than WordPress, using it is likely to exacerbate this potential problem: a Drupal installation will almost certainly need more modules than a WordPress installation will need plugins.)

It is also worth remembering that plugins almost certainly won't work nicely together out of the box: some tweaking by a programmer will be necessary. This means that a programmer staffing the project is likely to be necessary. In addition, of course, designers will need to make a custom user interface that makes the editorial structures clear.

This strategy is worth considering.

4.3. Building from big pieces

A third strategy might be to split the difference between the first two by creating a system that uses existing software along with a fair amount of custom coding. For example, we might take Open Journal Systems, which takes care of most of the problems of editorial management for journal content as the back end, and use WordPress as a front end, to display the content and allow reviewers and authors to interact. This will require a fair amount of programming work: these systems are very different, and a good deal of custom functionality must be added. But this strategy does not have as many dependencies on other code bases as 4.2 does; and it would be considerably less work than 4.1. Because what is being done is very specific, forking the OJS codebase might be a reasonable solution, removing that dependency entirely; in effect, that would make this a separate piece of software.

4.4. What's not in software

Finally, some words should be said about what software won't do by itself. While software can certainly go a long way towards easing workflow, it won't make this problem go away entirely. Nor is the role of the editor going to disappear. Editors will need to know how to guide content through the system; reviewers are going to need some instruction in how to interact with the system. And while automatic moderation can deal with spam, dealing with trolls will require the good will of the community. Dealing with score-settling is likely to still be the job of the editor.

It's also worth noting that deploying this software is likely to be iterative: when it's actually being used, editors and reviewers will find that some of the software doesn't work the way they'd like, and that changes should be made.

If the system is to be installed by other people, detailed instructions on both installing and maintaining the system will have to be provided; there will also need to be

coordination on updating the system or plans to add new functionality. This work is crucial if the system is to be broadly used; without it, plenty of open source projects have foundered even though the software was suitable.

APPENDIX 2

Functional requirements for an open peer review system

by Peter Brantley

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BASICS

Any open peer review (OPR) system will present a set of compromises in design and functionality. Difficulties arise not only in technical capability but also in the heterogeneous nature of workflow preferences across a wide range of scholarly communities, with varying choices for participation, editorial function, and publication goals.

In any consideration of appropriate choices for software implementation, it is critical to distinguish between and prioritize different functions for the software platform; persona administration; and workflow management.

Examples of persona administrative options include support for reviewer profile attributes (anonymous or authenticated); management of reputation metrics; identity management for authors, editors, and reviewers; and the ability to manage user accounts for privileges, inappropriate behavior, and other purposes. Examples of workflow characteristics include the relative degree of openness for solicitation of reviewers; origins of review solicitation (author, editor, or open); comment and annotation moderation; revision control support; progression tracking; scheduling requirements; group-based permissions, and so forth.

Considerations for software platform choice include the preference for distributed installation, such that each journal or work team has its own local instance of the OPR software; hosted, such that individual projects can be spawned from a common software base at an organizational level, which might be optimal for a publisher or publishing services provider; cloud-based, in which the software is resident on the network and is capable of supporting varying size projects and work groups; or some hybrid of the above. It is worth noting that on this factor, Wordpress software has an admirable structure, replicating its core functionality across a variety of modalities, including locally hosted and cloud-based.

MECHANICS

Authoring, editing, commenting, reviewing, revising, and publishing all seem to be vital elements of what we must incorporate. Yet some of these describe *what* we seek to accomplish – e.g., peer-reviewed, published material – and some describe

how it is we might ultimately accomplish it. Authoring, reviewing, and publishing are discrete, essential processes that help us achieve our goal, whereas editing, commenting, and revising describe the functions that enable that goal to be obtained.

When we consider functional requirements for a software system, we must be clear on the distinction between the processes we are trying to automate and the functions through which we achieve them. For example, in most variations of OPR, it is vital that we manage reviewers adroitly and facilitate their commenting and annotating, as well as summarizing and coalescing their output; reviewing comprises all of these. Each of the activities that comprise the *how* of any OPR process is characteristically small and discrete. One of our key design goals is to assemble these functions without inducing extraneous complexity through their compilation.

A member of the committee noted in the January 2012 meeting that the primary work focus would have to be book chapters (vs. an entire book), or discrete articles. Absorbing the management of something greater into a reasonable review process would be too easily daunting for both reviewers and editors. However, this does not yield a summary perspective of the larger work: who reviews the manuscript, when online commentary is couched only at the chapter level?

This nexus between our ability to attend and focus, combined with how we desire to do the work at hand, must be reflected through the lens of software engineering. Software should not ask more of us than we are capable of. A simple and imperfect solution is preferable to an attempt to articulate a more complex and full-featured software system that will be infinitely more fragile. In sum, OPR systems must be able to segregate their inevitable design shortcomings into arenas where they can be capably handled through separate human or machine interventions. Let the machine handle what it can best handle; the rest will require human intervention.

Being wise about where failure is permitted is a critical component of design. If it is too much to assume that OPR software systems could reasonably effect the review of both chapter and book as a whole, then the review of the greater manuscript can either take place in a wholly separate workflow, or be conducted out of band of the software itself. Inelegant, yet functional, such an approach permits us to incorporate as much robustness as possible into the OPR system itself.

Designing for flexibility is fundamental. It is conceivable that one could architect a superbly working system for one functional goal, e.g., a system that would provide for the submission and review of manuscripts geared toward promotion and tenure. But there will be myriad goals for OPR, and many different kinds of work-

groups. The use cases enumerated range from evanescent work teams assembling only to deliver a one-off product, to mid-duration projects such as processing book manuscripts, to longer-term endeavors such as open journal publication or deposit. We are better off restricting the goals of our software rather than the purposes to which it may be put.

REQUIREMENTS

A set of core requirements is identifiable; taken from Dan Visel's document on software review.

1.1. *Persona Management*

- ✎ The system must allow anonymity (or pseudonymity) as well as self-identification;
- ✎ The system should permit the toggling of various levels of identification depending on participant role and review context;
- ✎ There should be a way to examine a user's contributions globally across the site for site owners; depending on permissions, editors should have commensurate access to user contributions;
- ✎ The quality of reviews must be capable of assessment to aid the evaluation of any given reviewer;
- ✎ The system should permit assessment of reviewer qualifications to aid the evaluation of any given review;
- ✎ The ability to adequately moderate new content, preventing trolls and spam, is essential;
- ✎ The system should make it possible to down-vote or deprecate unhelpful comments, and to up-vote and "praise" helpful ones.

1.2. *Content Management*

- ✎ The system should be able to manage in-text conversations among authors, editors, and reviewers in a manner allowing for varying degrees of public/ private/ or mediated access among any combination of the parties.
- ✎ The system should permit commenting at the page/ paragraph/ sentence/ or word level;
- ✎ Versioning needs to be accommodated and easily accessible—multiple drafts and editions of texts and comments need to be maintained;
- ✎ The system should allow readers and reviewers to compare drafts pre- and post- review, or based on versioning;
- ✎ The system should support the citation or linking of individual comments;
- ✎ The editing or deletion of reviewer comments should be gracefully handled;
- ✎ The system should be able to categorize and filter reviews by primary type (i.e.,

content vs. editorial), and by subcategories, such as argument, evidence, citation, or grammar;

- The system should be able to distinguish between reviewer suggestions or recommendations, and required revisions.

1.3. *Editorial Basics*

- The system should have easy prompts to guide reviewers in their tasks;
- The system should enable both public and private discussions;
- Editors should be able to “enlist” reviewers out of an available pool;
- If the platform permits, authors should be able to recommend reviewers;
- Reviewers should be able to receive notifications of new tasks;
- The system should be able to accommodate both closed and open-ended (evergreen) publication.

1.4. *Intellectual Property*

- The system should permit the application of Creative Commons licenses to individual content items.

OBSERVATIONS

Core components of workflow management are subject to nearly infinite customization. In many scenarios, editors will have access to reviews and reviewer commentary. Depending on whether these contributions are considered to be part of the final published work, and whether the work is actually left in any kind of final state itself, editors may have the ability to edit, annotate, or censor. It is also possible to establish byzantine levels of required authorization for certain activities, such as post publication removal of comments, or the blacklisting of a specific reviewer.

Software is infinitely malleable. Much more thought must be placed on policy and procedure than software requirements. Rather than over-specify preferred functionality, it is far better to be quite clear about what the publishing goals are, and the policies and procedures around submissions, reviews, and publication.

Most aspects of publishing management have little to do with the nature of peer review. A robust publishing platform is likely to support sophisticated content management, revision control, and some aspects of task assignment. Married to a realistic understanding of the publishing venture’s goals, an appropriate platform will make peer review more straightforward and easy to manage. In contrast, building an entire publishing platform from the ground up in order to support a new open peer review system puts an enormous obligation on software engineering; it’s a bit like building a skyscraper in order to obtain a new marble bathtub.

SAMPLE WORK STREAMS

A few sample work streams help elucidate the range of functions for reviewers, editors, and other roles.

Two phase open review. In a two-phase review, an initial group of “close readers” annotates particular passages or paragraphs (or groupings of these). A second group, such as journal editors, would then write a set of reviews that synthesize and extend the observations of the close-reader group.

As an example of contributed workflow, the secondary review group could also evaluate the first group’s work by recording the contributed value of each close reading to the higher-level review. Tags could include terms like ‘formative of,’ ‘exemplifies,’ ‘elicits refutation,’ or other terms that characterize the influence of first-round comment on higher-level review. This process would enable commentary on first-stage reviewers: e.g., ‘User X’s comments have elicited 100 direct refutations’; ‘User Y’s observations have made significant contributions toward development of scholarship on topic Z,’ etc.

Three phase open review. In a three-phase review, a preliminary gating appraisal of submissions by the house editors takes place. Upon provisional acceptance, the submission is released for an open peer review process to the community of reviewers who have registered with, and been accepted by, the publisher. After the review period closes, the authors re-submit their paper to the publisher who then undertakes a final acceptance review of the work. In the large majority of cases, most papers successfully transiting the open peer review process would be accepted.

Scoring review. In one possible single step review scenario, journal submissions flow automatically into a pool, perhaps categorized by metadata such as subject classifications; these could be derived through machine analysis without the need for manual intervention. Reviewers can “check out” or register for any submission of their choosing, annotating and rating the document. Site thresholds determine the visibility of the paper, or alternatively, if it receives enough voting points, it is automatically approved and “published”.

Gating review. Some online publishing forums may have very low criteria for acceptance, e.g. incorporating rules against inappropriate narrative profanity, defamation, or other personal attacks; proper citation of literature; originality; and general awareness of the domain. In such a case, the editorial function may be limited to designating or soliciting a threshold number of reviews that evaluate these

criteria without paying significant attention to the content. Disagreements would have to be mediated by editors but otherwise reviewer approval would elevate the submission on the publishing site into a publicly accessible status.

Commentary review. In some publishing streams, the desired outcome is to create a publication combining expert commentary with a submitted, often requisitioned, narrative. In such a case, the submitted work will need an initial review pass to evaluate rhetorical strength and structure, and to elucidate useful edits. This initial analysis could be performed by appointed “pool” reviews. In the second stage of the process, intellectual peers of the submitter would then overlay or integrate their informed commentary and critique into the structure of the work, constructing a new integrated whole. In a potential third stage, this work package would itself potentially be available to a second open review, if desired.

Monograph review. A monograph will need parallel and possibly multi-staged review. In one track, readers must be assigned to perform a comprehensive and holistic critique of the entire work. These reviewers must include subject matter experts capable of placing the work in its larger context; their reviews would potentially be available for secondary open comment. In parallel, manuscript chapters would have to be pulled off for individual review and comment. Authors will need to accommodate and merge both discrete and holistic comments. It is likely that this will require support for a two-pass review process, with a final curatorial decision by house staff.

NEXT STEPS

Peer review is a fast moving area in scholarly publishing, and there is substantial institutional interest in software platforms that support its functions. One of the crucial challenges is that every editorial group or publisher is certain to have its own preferred workflow steps, both in the specifics and in higher-level functions as well. For a software tool to be widely utilized, it will have to support a disparate range of flexible configurations. For it to fit a single purpose, it can be narrowly defined.

Any new open peer review project will have to make a decision whether to support an already active effort or to synthesize its own. At the point where this decision needs to be made, engagement with groups building out software platforms such as Annotum, Open Journal Systems, and PLoS’ Ambra must be made in order to consider the potential for meeting project aims. Ideally, a new effort could join with the

aims of an existing one and integrate its requirements into the parent's engineering workplan.

The alternative – to build out a new software platform – should be approached with caution and trepidation. It is not trivial to design from scratch a complete, robust, scalable publishing system that supports open peer review, content management, versioning, and other features. It certainly can be built – but it would need to be constructed by a competent engineering team. Partnering with an existing development-ready shop, such as George Mason's Center for History and New Media, would be an option.

In either path, an open peer review project would need to acquire a product manager with sufficient technical skill to be able to represent project goals while interacting competently and critically with external software engineering teams.

An open peer review project would also have to be very clear in its own aims: whether to launch a proof of concept journal of its own device, or to RFP or support an existing online journal seeking a more robust platform or greater functionality. Too much dispersal of goals at too early a stage would be disastrous. For this reason, it would be wise to avoid having full-time academic professionals with the capacity to revise project aims in a supervisory capacity unless project outcomes carried direct career consequences.

In sum, an open peer review project will need to scope its desires tightly; perform an environmental scan; and proceed on the least expensive path possible in terms of engineering outlay and maintenance.

Open peer review is a not a revolutionary idea; it is a reaction to how things have been done in the past, recast in the die of distributed, web-based technology. It is a reasonable supposition that the ongoing redefinition of academic publishing's purpose and operational mechanics will manifest itself quietly but inexorably. This dictates: don't create something too ambitious, because the future will make it obsolete.