A Framework for Support of Expansive Digital Publishing

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By the late 1990s, digital projects like *Valley of the Shadow* had dramatically changed the world of humanities scholarship. Such projects became a favored means of communication among scholars because of their ability to reach broad and diverse audiences, weave together primary and secondary sources, and efficiently connect whole bodies of scholarly discourse. In response to these developments, university libraries invested heavily in staff and infrastructure; they hired web developers, publishing consultants, and technical editors. Promotion and tenure committees revised their standards to account for the special characteristics of digital humanities scholarship. University presses developed a digital publication peer review network and began to publish digital projects along with traditional monographs and journals.

Actually, most of that didn’t happen. Producing digital scholarship is still difficult and risky. Presses usually do not publish it, and there are no well-developed peer review networks. Promotion and tenure committees may consider digital scholarship part of a faculty member’s review portfolio, but they don’t do so consistently or with clear guidelines. Libraries have invested in expertise, but not at the level needed to produce more than a handful of *ad hoc* projects per year.

There are good reasons why digital humanities publishing did not develop as quickly as it might have. The digital humanities themselves were, and in some ways still are, technically and academically experimental. But they have now matured; barriers to entry have lowered, and technical experimentation is evolving toward routinization. Given these developments, we now find ourselves at a critical juncture, trying to identify how to encourage maturation in a way that encourages thoughtfulness about publishing practices and efficiency in their implementation?

This report aims to help libraries—working with a network of presses, humanities institutes, and foundations—embrace their role in this maturing space. More specifically, it aims to offer a set of considerations that can help libraries offer a cohesive framework of support

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1 Significant supporting materials, an annotated bibliography, and additional ideas are available at XXXXXX.org
for the publication of what we call “expansive digital publishing projects.” We use the term "expansive" to characterize challenging projects that often span disciplinary and institutional boundaries; use many different technologies; aim to engage with multiple audiences; and, in general, use digital tools and methods to overcome the limitations of traditional scholarly publishing formats.

Before jumping into the substance of these, some important notes on our scope:

Why focus on these “expansive digital projects”? In our view, these projects embody many of the best characteristics of networked digital scholarship. They open new possibilities for engaging in conversation with a broad set of readers--both peer scholars and publics--and, simultaneously, revising and expanding knowledge based on this engagement. Their multi-format, multi-audience, multi-output orientation makes publishing more like a polyvocal scholarly discourse and less like a one-to-many imparting of fixed wisdom in a linear text. Secondly, we believe others have already begun to address the challenges of publishing projects that have clear analogues or precedents in printed media. For example, digital scholarly editions and monographs have received significant attention. We aim to build on such work to untangle the knottier problems of “expansive” digital projects.

Why use the term “publishing”? In the context of digital scholarship, we believe publishing remains important because of the traits that give meaning to the idea of publication: peer review, editing, design, citability, wide dissemination, preservation, and the imprimatur of a publisher, which confirms that all of these challenges have been addressed. Furthermore, it’s important for scholars to have their work recognized and rewarded as a contribution to their field--both through the promotion and tenure process and through building a positive reputation among peers. For digital projects to flourish, they must retain their expansive qualities and also embody these characteristics of existing scholarly publication.

Finally, why limit the scope of our study to the role of libraries? Libraries are central in both the scholarly communications ecosystem and the university campus. Their institutional position is ideal for building partnerships across campus units, university presses, and external vendors or organizations, and their staff expertise corresponds to many of the needs associated with expansive digital publishing. Libraries are well-placed to be drivers of positive change in several dimensions of digital publishing, including infrastructure, resource allocation, assessment, and long-term sustainability.

Of course, there are challenges to creating robust support frameworks for expansive digital publishing projects. They can involve significant effort learning, building, and sometimes inventing tools and processes. The costs of funding and supporting such projects over the long term are not well understood; they can vary greatly from project to project, making it difficult to budget for development and ensure long-term sustainability. Reviewers often are not aware of the efforts needed to develop such projects, so they often underestimate and under-reward them.
Background & Principles

This project grew out of an effort to support a series of “expansive”-like projects at Duke University Libraries (see Figure 1). As we grappled with some of the challenges detailed below, we came to more clearly define and understand the broad scale of the challenges and the need to address them with collective input from across the academic community. With support from the Andrew W. Mellon Foundation, we invited a wide range of stakeholders in digital scholarly publishing\(^2\) to workshop these ideas and help us articulate and think through many of the problems outlined in this report. We augmented these discussions by interviewing other faculty, staff, and administrators. Additionally, we reviewed literature and existing practice in an attempt to develop a framework for the support of expansive digital publishing. The key areas of our exploration included *Planning and Resource Allocation; Discovery; Evaluation; and Preservation and Sustainability.*

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\(^2\) Participants included faculty, library and university press staff, representatives of scholarly societies, university administrators, and technologists. We ultimately engaged with nearly 100 experts from around the United States and Canada, and several from other parts of the world. We did so through a two-day workshop at Duke University and group discussions at the Coalition for Networked Information and Library Publishing Forum.
In this report, we aim to share what we learned about each of these topics and to provide the beginning of a framework for universities--and libraries in particular--to improve their support for expansive digital publishing. This report is not meant to be a comprehensive review of the challenges and solutions. What we focus on are the key issues, some of the practices have worked in other contexts, and suggest what library and external support might look like.

We entered into this project with some assumptions or basic principles, which we refined throughout the course of our work:

- Traditional scholarly publishers, such as university presses, have many of the skills and much of the expertise to support expansive publishing, but the financial models that support scholarly publishing are not well suited to expansive projects. Libraries have planning and funding models that could support such projects, but they often lack the staff and infrastructure to support more than a few of them at once.
- Incentives and financial models should align with broadly useful infrastructure and support. Most financial support and rewards currently go toward well-established publishing models (or innovative experiments). Fewer resources are invested in translating successful innovations into sustainable infrastructure and processes, or in rewarding those who establish useful patterns rather than building one-off projects.
- The reputation of a publisher is critically important in the current tenure and promotion process. If established, reputable publishers are able to support them, expansive publishing models will more quickly gain traction and acceptance.
- Like all scholarship, expansive projects exist in a context, and that context must be kept in mind in all stages of planning and development. A scholarly monograph looks like a self-contained, standalone object, but it exists in and is built upon a network of scholarship, and it lays a foundation for others to build on. It is produced through a process that involves many contributors beyond the author, and it passes through many hands, networks, and infrastructures as it makes its way from a press to an audience. Expansive digital projects must have similar networks--and, ideally, established pathways for traversing these networks--to avoid establishing new paths for each project.
- Engagement with readers and contributors is essential. In traditional publication models, the scholarly argument and subsequent discussions about it are usually not well connected--for example, the argument in a monograph and the discussion of that monograph at conferences. New technologies make it possible to integrate these contexts, or at least more explicitly connect them, thereby allowing discussion in context. Expansive publishing projects should aim to foster these connections, and financial and infrastructure models should support them.
- Pay attention to needs of audiences, not just authors. In some programs that support digital publishing, the balance of resources and effort implicitly favors the author's
vision over the reader’s experience. Support for expansive digital publishing should acknowledge the experience of potential audiences in addition to the desires of the author.

- Recognize and reward the labor of all who contribute. Most scholarly publishing privileges the faculty author, with others who contribute to the work (editors, designers, technologists, etc.) recognized only in a “support” role, if at all. In expansive digital publishing, many kinds of expertise and effort are essential to the success of the work, and these contributions should receive appropriate rewards.

- Filtering and selection are important. Organizations supporting expansive publishing have to be able to say “no” to certain projects—partly because it’s impossible to do them all, but primarily because selection improves reputation. Selection should depend on clear processes and criteria. These criteria include quality and importance, of course, but may also include alignment with institutional priorities that allow concentration of resources and effort in areas where scholarship can make a significant impact.

We conclude the report with recommendations about how libraries and universities can improve their support and reward structures for expansive digital publishing. In building this kind of support, they will better serve their community of scholars, foster engagement with broader publics, and guide the evolution of the scholarly record. Our goals are to stimulate exactly this kind of evolution, not revolution, to encourage institutions and scholars to expand practices of publishing and, simultaneously, to create rewards and incentives for expansive digital publishing. This incremental development of practices and rewards will help to create a positive feedback loop that stimulates further evolution.

1. Planning for Expansive Digital Publishing Projects

Expansive digital publishing projects are complex. They can span many years, audiences, formats, and technologies; they can involve many creators from a variety of different institutions. Furthermore, in contrast to traditional scholarship, the processes and responsibilities for creating expansive digital projects are often unclear. This lack of clarity is particularly challenging as we attempt to “publish” these projects in a meaningful way; exactly which production processes belong to the scholar, the publisher, and other support units (e.g., libraries, humanities institutes) is not well defined. Yet planning is critical if expansive digital projects are to evolve from "projects" to “publications” that have the attributes of accepted scholarship.
Challenges and approaches to planning expansive digital projects

We know project planning is important, but a significant lesson from our research, workshops, and interviews is that good project planning often doesn’t happen or isn’t followed through on. Why? We believe some of the most significant reasons why are:

**Late-stage intervention.** Because of their projects’ size and complexity, stakeholders often come to library and other support units with wheels already set in motion, meaning that significant (but possibly misguided) design and resource decisions have already been made.

**Mistaking unique substance for unique process.** Some challenges of expansive digital publishing arise because of misperceptions among stakeholders about the uniqueness of their projects. Workshop participants confirmed this widespread belief, noting that creators--for whom digital projects are often a new experience--tend to view all aspects of their projects as *sui generis*, including such activities as technology selection, design, project management, and preservation and sustainability. While it’s true that many expansive digital projects are breaking new ground and deploying technology in new ways, the fundamental hazard of regarding each project as distinctive is that most aspects of support become non-scalable. Instead, they are necessarily *ad hoc* and opportunistic, with standards, plans, and guidelines created (and recreated) along the way.³

**Shifting goals and visions.** Expansive digital projects often evolve over time: researcher plans may change, interests may fade, and individual involvement isn’t necessarily secure. Workshop participants noted that this instability means, among other things, that project creators sometimes add content that isn’t well matched to the original structure of their project. This mismatch is a problem because infrastructure and organizations may not be able to evolve flexibly. And as the project expands in unexpected ways, editorial oversight may not be sufficient (or even available) to manage the scope or quality of the work.

Library Support for Planning

In light of these challenges, how can libraries encourage good planning practices early in project development? Some strategies below will be familiar because they apply to digital project planning generally, but we believe they’re critical for developing and ultimately publishing expansive digital projects.

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³ Some institutions have developed good workflows for handling ingest and planning. See [http://digitalscholarship.emory.edu/partner/projects/index.html](http://digitalscholarship.emory.edu/partner/projects/index.html)
Outreach and communication. Cultivating faculty awareness of relevant library services, as well as services offered by other campus units, helps to signal that expansive digital projects are a distinctive category of publishing with special support needs. As mentioned above, many creators see their projects as one-of-a-kind and believe that few other scholars are doing such projects. For these creators, the assumption that universities have no systematic support structure for their work seems a logical conclusion. The truth is that libraries and other support units regularly encounter these projects; we just need to do a better job of formalizing and communicating about the ways we work with them. For example, in addition to expansive digital projects as a general category, there may be subcategories of projects that should be documented. Such a taxonomy would allow institutions to develop and communicate specific support structures around different project types. Clear categorization also indicates that libraries know something about how projects will develop and, as a result, understand appropriate ways to support their success.

Libraries and other campus support units also need to coordinate their outreach efforts so that they achieve clear, coherent communication to faculty about the goals of their services. Working in concert to highlight sample projects and tools—and to connect these examples to specific services at different parts of the project lifecycle—helps to discourage the view of each project as a unique undertaking. By indicating that the university in general is supportive of expansive digital projects, this kind of communication dispels some of the perceived risk of undertaking digital scholarship.

Finally, libraries should build relationships around digital publishing with other campus units. In particular, partnerships with humanities institutes, offices of sponsored projects, and information technology divisions ensure that libraries become known points of contact for developing expansive digital projects—and have a seat at the table for discussions of university-level support.

Incentives. Libraries and universities can create incentives to drive good project planning. For example, grants provide opportunities both for awarding support and for requiring compliance with local infrastructure and processes. Libraries and other campus units might award mini-grants (including both monetary and in-kind support) to incubate projects or facilitate planning meetings. For larger external grants funding expansive digital projects, tying project review to a requirement that PIs consult with appropriate campus units can help to encourage good planning and sustainable local support. Ideally, funding organizations could also encourage good planning by asking PIs for an explanation of how their work will articulate with local or consortial support structures; this requirement could be analogous to the data management plans that are part of many grant applications.

Planning and guidance. Libraries can help streamline support and ensure scalability by creating tools or checklists to ensure good planning at all stages of project development, from proposal to preservation. Likewise, memoranda of understanding (MOUs) can be important tools for establishing expectations of support and preservation. For both checklists and MOUs, there are good examples that might suggest possibilities for the development of local resources, but it’s important to tailor such materials to specific institutions.\(^5\) It’s also important to understand the scope and use of MOUs: they are valuable for clarifying goals and formalizing agreement among stakeholders, but they should follow from--not precede or establish--a relationship between creators and libraries.

Project selection and support tiers. This kind of good planning is always desirable, but the reality is that not all institutions will be able to handle all projects. To distribute resources fairly and protect staff from overcommitment, libraries should clarify what their institutional goals are, and actively solicit projects that align with those goals. Like scholarly presses, libraries could maintain a “list” of areas in which they are willing to support expansive digital projects. Lists could be based on available technology, subject matter expertise, or desired outcomes--e.g., reaching K-12 or international audiences.

There is an inherent tension between this kind of selectivity and the mission of academic libraries. The service culture of libraries, combined with their mandate to support all researchers, means that any kind of “selection” process may seem difficult to justify. One way to do so may be to create and communicate tiers of service for different projects. In this model, all projects would receive some support, but the most significant investment of resources would be directed toward projects aligned with local publishing goals and capabilities:\(^6\)

- **Level 1:** basic consultation support at any stage of the project;
- **Level 2:** ongoing consultation and development, but no long-term commitment to hosting, support, or preservation by the library;
- **Level 3:** consultation, development, and long-term preservation and sustainability commitment.

Opportunities for Partnership

Early in the planning stages, libraries should identify publishing partners who make the most sense for a given project. Creating partnerships among such partners would require significant preliminary digital work to develop a network of publishers who are willing to engage

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\(^5\) For example, see [http://digitalscholarship.emory.edu/partner/projects/index.html](http://digitalscholarship.emory.edu/partner/projects/index.html) and [https://rc.library.uta.edu/uta-ir/handle/10106/25646](https://rc.library.uta.edu/uta-ir/handle/10106/25646).

\(^6\) The model for tiered digital scholarship support developed by Jennifer Vinopal and Monica McCormick (2013) could be easily adapted to address digital publishing.
on different types of expansive digital projects. That work is beyond the scope of this proposal, but we believe a joint clearinghouse should be developed to help libraries, humanities institutes, and presses identify projects of joint interest to pursue together. For example, the Mellon-funded project Publishing Without Walls offers one model for a developmental pipeline for scholarship.

2. Allocating Resources

Total levels of funding for expansive digital projects is a critical question, but one likely to involve deeply idiosyncratic and local considerations that we cannot address here. But whatever the total amount devoted to these projects, we start from the premise that funding in any organization is not unlimited and so libraries and their institutions must think carefully about how to allocate scarce resources. For expansive digital projects, that raises hard questions about what resources are needed, and when, so that we can help these publications realize their potential without undercutting other important work. Yet the resource requirements for digital publications are not well understood, so it’s difficult to decide which large-scale projects to take on, assess their short- and long-term resource needs, and determine appropriate levels of financial and staff support. Simultaneously, we need to understand and articulate the value of these projects in order to justify those costs.

Challenges and approaches to allocating resources

Far and away, the most significant challenge we identified in allocating resources for expansive digital publishing is not knowing what they actually cost. Our conversations with experts and practitioners helped explain why these costs are often opaque or unreported, and we arrived at some clear recommendations for better ways forward:

**Encouraging transparency of cost, especially labor.** The resources required to produce expansive digital publications often go unrecorded. Voluntary contributions of labor, by librarians as well as scholars, do not require funding requests or effort reporting. Workshop participants and interviewees noted insufficient tracking and reporting of time from full-time staff tasked with this work.\(^7\) In academic culture, where such activities as peer review, curating, mentoring, or networking are considered a normal part of one’s work, this opacity is unsurprising. It may also reflect an unwillingness to translate intellectual work into monetary equivalents and thus encourage a return-on-investment mentality in which

\(^7\) Maxwell et al (2017) noted that even in the well-established realm of scholarly monograph publishing, estimates of costs and resources involved varied widely. One constant was the high allocation of staff time as part of this process, particularly the editorial work of determining what works were worth pursuing.
projects must demonstrate immediate, visible impact in proportion to resource investment, regardless of their intellectual value or potential.

**Leading with our values and our value.** Clearer communication about the general value of these projects, especially those that may take years to realize their potential, can help to discourage an ROI approach to funding and instead promote a “fund to mission” mindset. Defining value solely on a project-by-project basis misses the broader aims of expansive publications, such as cultivating a more diverse scholarly community, changing the curriculum for a discipline, or defining a new area of research. These goals take more than a single project to realize. Yet knowing actual costs is fundamental to building a sustainable approach to support and thus to fulfilling a loftier mission. The challenge, then, as articulated by workshop participants, is to both “lead with our values and our value.”

**Saying “no.”** A fund-to-mission mindset, in particular, was seen as one way to address another challenge in allocating resources for expansive digital publishing projects: the lack of existing criteria defining which projects to support. Workshop participants noted that there is often a disinclination, particularly among libraries, to say “no” to projects. Perhaps this reflects libraries’ service orientation— all patrons must be helped—but it could also reflect a lack of strategic focus regarding what the library can (and wants to) take on. Not all projects are within an institution’s ability to support, particularly over a long period of time. Greater transparency around costs can help answer whether there is capacity for these projects; but greater clarity regarding an institution’s mission is also key.

**Allocating resources within libraries**

The challenges described above offer some possible areas of focus for libraries wanting to support expansive digital publishing projects. Below, we outline a few solutions that libraries are well positioned to implement.

**Proposal process for start-up and development funding.** A proposal process helps address the challenge of what to fund and might also establish regular practices for documenting resources, disseminating lessons learned, and conducting peer reviews. With a clearly defined mission driving this funding process, libraries can position themselves to justify project exploration or development and, crucially, to decline projects that don’t align with their goals. A proposal process for receiving start-up funds, in addition to providing a first round of peer review, helps set time and resource boundaries for establishing the project’s potential. Determinations about whether to continue development can go through a subsequent vetting process, which offers another opportunity for documenting effort, success, and lessons learned. Following the start-up phase, these projects may also have a better sense of resource needs.
**Time for (and documentation of) librarians’ work on projects.** Giving staff the freedom to contribute a percentage of their time to projects can help them to expand their own skills and expertise, while also helping jumpstart new ideas. Sanctioning open project time in exchange for more data on what librarians’ work actually involves can further clarify and make visible the value that they contribute, as well as the time that can be allotted in the future for similar work. Borrowing from legal practice, it is easier to agree to “pro bono” jobs when the cost of the work is clear.

**Publishing consultation services, including project planning and referrals.** Platform and tool choice, team membership and development, and tracking and reporting outcomes can have tremendous resource implications over time, yet scholars and teams do not always recognize the need to carefully plan these dimensions of their projects at the outset. Publishing consulting services can provide that advisement. They can be a way to document and communicate existing interest in publishing (thereby helping advocate for more institutional support), or the services themselves may follow from and be justified by a mini-grants program that surfaces interest and helps build demand.

**Opportunities for partnerships**

A number of recent projects funded by the Mellon Foundation have tested and demonstrated the potential for building publishing capacity through partnerships. Key to the success of these endeavors is greater awareness of the actual costs involved as well as the value different contributors bring to the process. Leading with our values as well as our value can also help us build a more reliable infrastructure for developing and sustaining expansive digital publications.

**Community-managed resources.** Workshop participants encouraged seeking out or building services developed through community rather than exclusively by commercial vendors. Stakeholders who believe in the mission of an organization and the value of the projects it supports, and feel like they’re part of a community, are more likely to continue to support the mission of the organization and to understand its value in relation to the costs. Conversely, in purely commercial vendor/client relationships where the interaction is primarily transactional and the emphasis is fundamentally financial, the vendor will seek primarily to maximize profit and the client to minimize costs. In this kind of relationship, both value and values are more likely to be obscured.

**Fee-for-service resource-sharing.** Sharing services, however, introduces more variability than circulation of static resources. A fee-for-service model could be another way to leverage shared resources while explicitly acknowledging the costs (and value) that libraries bring to the publication process. Although libraries have not historically paid each other for services, the recently funded Data Curation Network may provide a test case for
how such a model might work. In this initiative, the eight participating institutions contribute 5% of their own staff time for a data-curation consultation and support service, which any researcher at the member institutions can use. Making this network a fee-for-service system requires predictable, quantifiable workflows.

**Differentiated roles and phases in digital publication development.** Building capacity for expansive digital publishing projects requires us to recognize the different stages of “publishing” and the unique value publishers, university presses, and libraries bring to this process. In particular, we may need to re-inscribe the traditional view of publishing as a formal and vetted process. Doing so will help ensure that the work produced by publishers and university presses can be better distinguished from that produced by libraries or academic institutes and appropriately assessed. For instance, at the University of Illinois at Urbana-Champaign, the library is working with scholars to publish interim work that may eventually transition into more formal, vetted publications produced by a press. In this way, the library plays a key intermediary role, helping authors to develop their ideas, with the flexibility to recommend and implement the form that best matches the goals of the project. In addition to helping authors implement and potentially demonstrate a publication’s innovation, audience, and impact, the library can also connect authors with presses.

### 3. Making Expansive Digital Publications Discoverable

Discoverability is one of the most complex issues in digital publishing for several reasons. First, the nature of the objects to be discovered presents new challenges: unlike books, digital projects can be fluid, and their open-ended quality can make them difficult to classify within existing taxonomies. Second, discoverability relies on chains of decision in which both humans and machines play a role, but current information infrastructure is not always able to handle information about expansive digital projects. Finally, the audience for expansive digital projects is often different from that of traditional scholarly outputs. Understanding these broader audiences and learning how they discover digital projects are aims of ongoing research⁸; here, we offer a summary of the major challenges to discoverability, as well as possible solutions that were discussed during the workshop.

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⁸ User studies in the digital humanities is a growing field. For an introduction see: Warwick, Claire, Melissa M Terras, and Julianne Nyhan (2012). Walsh, David, Paul Clough, and Jonathan Foster (2016) is an useful attempt to categorize users’ typologies of digital cultural heritage.
Challenges and approaches to discoverability

Gaps in traditional scholarly discourse. While traditional scholarship relies on journal reviews and professional associations to help with diffusion and discoverability, digital projects lack comparable infrastructure. Some major journals, such as The Journal of American History, regularly review digital projects, but many do not. Scholars themselves, furthermore, show hesitation in citing digital projects in their work. All of these behaviors negatively impact the diffusion and discoverability of digital projects.

The shortcomings of library catalogues. Not only are digital projects underrepresented in scholarly literatures, they also are difficult to find in library catalogs and registries. Interviewees lamented that libraries are not well equipped to manage digital objects. “Unlike with a purchased physical book,” explained one interviewee, “there is no ‘trigger’ for getting scholarship on the open web into a cataloging workflow.” Without the creation of a protocol for library cataloging, digital projects can easily become silos that fail to connect with other existing materials, both digital and analog.

Beyond the library catalogues: commercial discovery tools. Many workshop participants pointed out that while library catalogues are important, they are not the starting points of discovery for many users (including scholars). Therefore, it is crucial to develop strategies that can make digital projects discoverable on the open Web. Describing content with open schemata, such as those expressed by Schema.org vocabularies, can improve machine discoverability beyond the library catalogue with tools like the Knowledge Graph.

Other commercial platforms are less suited to discovering expansive digital publishing projects. For example, librarians and communications experts express skepticism regarding Google Scholar. They lament that Google Scholar “is much more trouble than it’s worth. They dictate to publishers how to design article pages; they won’t index you unless you follow very specific rules. Google Scholar has become a set of cuffs around our hands.”

While there is consensus about the importance of integrating digital outputs into popular discovery tools, there is also skepticism about the difficulties this work entails. Users tend to use platforms like Amazon and the Apple Store as discovery tools, yet these platforms “don’t consider themselves [as such].” Therefore, in order to fit digital projects into these “traditional” channels (Portico, Amazon, Gobi, etc.), the project needs certain trappings of traditional publications, such as a stable container, a price, etc., and may also need to meet further requirements specific to the platform.

Project creators’ approach to discoverability. Poor discoverability may also stem from shortsighted design. As indicated in some of our interviews, creators of digital projects (especially scholars) rarely consider their audience and how this audience will discover a potential project when they begin the planning process. One possible explanation for
this problem is a lack of incentives for considering discoverability. In some cases, projects go through review processes (for example, when applying for grant funding) that force them to take the issue of audience into account from an early stage. In the absence of these external mechanisms, however, scholars have little incentive to change their approach to design planning to reflect on their target audience. As pointed out in the discussion during the workshop, “authors are creating these [projects] for themselves because they aren’t going through any review or editing process.”

“Like describing a moving train”: citation issues in the age of expansive digital projects. The scholarly practice of citation is a key component of improving discoverability: more citations lead to greater visibility for digital projects. Yet the people we interviewed agreed that citation of digital projects is a very thorny issue. Scholars need a persistent identifier/locator (such as a DOI) in order to cite digital projects. Unfortunately, the creation of DOIs is expensive, since it forces libraries to rely on the services of providers such as CrossRef, HighWire and SilverChair. Libraries need to develop a plan that balances the costs of creating DOIs with their benefits.

As pointed out by the participants in our workshop, the creation of a unique identifier can also become a trap: “Should we assign DOIs or ARKs or ONIX metadata to everything to make them all citable and more discoverable? Therein madness lies. Some things may not deserve DOIs or ARKs because they may be too atomic and not worth it,” said one participant. Thus, another aspect that needs careful consideration is the “unit of discovery” and the level of granularity. In other words, what is the basic unit of a project and how can it be discovered on its own? On this topic, some of our interviewees asked, “How about description and discoverability for components of projects instead of attempting to preserve and discover everything?”

Beyond the issues of granularity and units of discoverability, there is the difficulty of coping with the dynamic nature of the projects. During the workshop, some librarians asked: “How do you ensure discovery and usability of a form that’s continually mutating, that isn’t stable?” Unfortunately, the question remained unanswered.

Summary and future directions: Library support for discoverability

As the data collected during our study confirms, the discoverability of expansive digital projects is still characterized by gaps and loose ends. Libraries can play a crucial role in imagining ways to improve the discoverability of digital projects while strengthening their credibility and worth. Drawing insights from our study, we suggest that libraries can contribute in several areas.
Introducing "design thinking" in the planning process. Libraries can help creators to integrate discoverability into the design of their projects from the outset. They can provide research services to help creators develop a clearer sense of their potential audiences, effectively use metadata, and adopt sustainable systems for DOI or similar forms of identifiers. By harnessing design thinking as a method that considers users’ needs, librarians can offer project creators a useful framework for achieving this goal.9

Managing social media outreach. By offering workshops and technical support, libraries can help creators make their project more visible online. Libraries can also facilitate the creation of a new professional figure, the “social media editor,” who would work within digital project teams to develop marketing strategies that give visibility to the project.

Making the research process discoverable. Libraries can help authors document and demonstrate their research workflow, exposing the many steps and various components (articles, websites, publications, etc.) that often comprise an expansive digital project. By revealing a digital project’s multiple components, libraries can offer audiences a behind-the-scenes look at the construction of digital scholarship and open new avenues for scholarly conversations.10

Opportunities for partnerships

Toward a taxonomy for digital projects. Libraries should foster a holistic dialogue amongst scholars, indexers, and cultural institutions (e.g., NISO) to define an overarching taxonomy for digital projects that can effectively describe the landscape of digital objects. This taxonomy can become the basis for developing functional descriptive metadata requirements that will lead to improved discoverability for individual digital projects.

Bridging the gap between project creators and academic publishers. Libraries are not always in the best position to help creators increase the visibility of digital projects to a larger public. Indeed, academic libraries are often focused on serving their home institutions and tend to be less focused on outreach beyond the immediate community. However, they are well positioned to connect project creators with academic publishers, who possess the expertise to create marketing strategies intended to reach new audiences, and can serve as valuable partners.

Keeping tool providers in the loop. Encouraging cooperation with programmers and tool designers was another theme that emerged repeatedly during our discussion. Tool providers are essential collaborators in the search for better forms of citation and implementation of DOI in digital projects. By incorporating feedback from digital project creators, libraries, and funders, programmers can develop better discoverability features for existing platforms as well as encourage better practices for improving discoverability and diffusion.

9 For an introduction to design thinking see: Cross (2011).
10 Some workshop participants mentioned the SHARE project as a promising attempt in this direction.
4. Evaluating and Understanding Impact

Questions regarding an expansive digital publication’s impact and value often arise in tenure or promotion reviews. Beyond any individual’s career advancement, though, expansive publications must also be understood in terms of how they contribute to the field of inquiry in which they are produced. What may be remarkable and pivotal in one field may be commonplace in another; evaluation of digital work, as for any scholarly product, is contextual and must consider how the project is situated in its discipline as a whole.

Expansive digital publications must also be evaluated in terms of their broader impact. Such projects imply an audience beyond the typical readership of scholarly journals and presses. Given their potential to engage wide and diverse audiences, expansive digital publications need useful ways to capture reach and impact. And as other sections of this report describe, assessment may also provide key data for decisions about funding, resource allocation, and long-term support.

Challenges and approaches to assessing impact

In order to address the challenges of evaluating expansive digital publications, we must clarify the intent of assessment: what purpose and audience does it serve?

- Highlighting a faculty member’s effort as part of the promotion and tenure process?
- Identifying how the publication contributes to a discipline?
- Tracking the publication’s influence more broadly?
- Justifying a program or a project for continued funding?
- Making visible the labor and other resources required for its production?

All of the above (and more) may be involved, and each of these concerns may implicate the others. Noting these different aims of assessment, however, calls attention to the fact that conversations about assessing expansive digital publications may unintentionally assume that the only use of assessment is to advance a scholar’s career. Yet the nature of these projects—interdisciplinary, collaborative, resource-intensive, public-facing and public-engaging—means that there are multiple stakeholders keen to measure impact for different purposes. While this section will primarily consider assessment as part of tenure and promotion, it will bring these other considerations to bear on that process.

**Whether to assess.** As part of their process of development, expansive digital projects can go through multiple stages of peer review (e.g., various members of the project critiquing and contributing to a grant proposal; proposal review and acceptance as a condition of funding; community feedback on the digital work through blog posts, comment forums,
and social media). Before asking how to evaluate a digital project, we must first recognize and give weight to the evaluative aspects inherent in producing them.

**What to assess.** Promotion and tenure committees have asked for, and scholars have voluntarily submitted, précis describing the scholarly value and impact of their digital work. Such documents assist committees with gauging the intellectual value of scholarly works while also allowing authors to direct attention to those salient aspects. Yet this approach puts a greater burden on scholars, who essentially must produce another scholarly work for assessment, used to justify the digital work’s merit. Additionally, this approach risks undervaluing or ignoring entirely arguments specific to the digital form. As has been argued elsewhere, a summary cannot substitute for evaluating a work in its original form.\(^{12}\)

Lacking such a document, however, it may be difficult to discern a scholar’s contribution to an expansive digital publication, particularly when collaboration is involved. Expansive projects can involve multiple people (e.g., graduate students, programmers or other technical experts, community collaborators), whose contributions may not be explicitly defined or understood and subsequently may be unacknowledged or misattributed.\(^{13}\) If their work is confused with the scholar’s contribution, what credit should the scholar claim for the work? Evaluating an expansive digital publication in terms of a single individual’s rewards works against the principles underlying such collaborative projects. Setting apart one individual’s contribution and value serves the current academic reward structure but does not reflect the scholarly values and aims that drove the work in the first place.

**Who will assess.** When review committees lack members who can effectively evaluate aspects of a digital work (e.g., data structure, user interface, codebase), such aspects run the risk of being underestimated or overlooked. This problem is of particular concern when such components help move the academic field into new areas of inquiry. Including reviewers with appropriate expertise helps ensure that a digital work is accurately evaluated.\(^{14}\)

**How to assess.** There is no standard set of criteria for evaluating expansive digital projects across disciplines. Different scholarly societies (such as MLA, AHA, CAA, etc.) offer different recommendations, and despite some commonalities, their guidelines vary in scope and emphases. This lack of uniformity places a burden on the scholars who create and evaluate these works by forcing them to decide which standards of evaluation might apply.

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\(^{11}\) See example of McKenzie Wark’s 2006 book *GAM3R 7H30RY (Gamer Theory)*, initially published serially online to receive critiques and comments and so successful that it was eventually published by Harvard University Press in 2007, including many of the comments from the online forums.


\(^{13}\) See Anderson and McPherson (2011) on improving assessment of collaborative humanities work.

\(^{14}\) See Fitzpatrick (2011) on the importance of rethinking peer review, especially by focusing on reviewers who are able to accurately review the work and not just focusing upon impartiality.
Furthermore, the nature of expansive projects requires an evaluative approach that takes their distinctive aims and potential impacts into account.

For example, while the potential of open-access digital publications to attract broad audiences is widely recognized, the methods for measuring those audiences and gauging impact have yet to be codified and accepted. This is unfortunate since, through Web analytics and other alternative metrics of reception, digital publications can provide far more insights into readership, use, and impact than are possible with print.

Library support for evaluating and understanding impact

Here we offer a few low-barrier approaches to improving assessment of expansive digital works, ranging from early involvement in project planning to late-stage contributions.

Support promotion and tenure committees. In order to ensure that the promotion and tenure review process fairly evaluates digital scholarly work, libraries should look to establish relationships with the promotion and tenure committees and offer support with staff who are fluent in the technologies and publication types under consideration. This inclusion could also mean asking P&T committees to look outside their department and could involve librarians (particularly in cases where librarians hold faculty appointments), especially if they were part of the work’s development and are able to provide more insight into how to evaluate the work and its impact.

Advising on metrics for evaluating impact. Scholars may view their project as so unique that there is no clear model for evaluating it. Libraries, though, have a broader view of the publication landscape and can help scholars identify the generic qualities of their work and appropriate assessment methods. Through integration of discoverability tracking tools, and other basic tools such as Altmetric Explorer and web analytics, libraries can advise scholars on ways to assess the reach and impact of their projects and effectively communicate this evaluation to reviewers.

Helping to plan and document assessment as part of project development. Scholars working on digital projects have identified the value of building in phases, with article writing and other forms of peer review as part of that phased work. As partners in planning expansive projects, libraries can help define the assessment strategies for critical phases of the project to help ensure that scholars collect the data necessary to document impact. As project participants, they can help document key information relevant to assessment (e.g., who worked on the project and what they contributed; formal reviews of the project at different stages of development).
Opportunities for partnerships

Digital publication peer review network. While libraries can assist in providing incremental review of publications as they work upwards from experiment to full-fledged publication, input and assistance from academic societies and presses is necessary for credentialing and for ensuring that these works are valued outside a scholar’s home institution. Academic societies, such as AHA and MLA, have established guidelines for promotion and tenure committees who may be evaluating digital works; these must also be paired with external mechanisms for vetting and acknowledging the excellence and impact of expansive digital publications, such as the acquisition of such works by a university press.

Liaise with presses to take incubated projects further
Assuming that libraries are willing to help incubate projects (as they have been doing for decades now), a better working relationship with presses would help to move projects into a broader sphere of access.

Preserving and Sustaining Digital Projects

Preservation and sustainability may seem to be secondary concerns for expansive digital publishing projects. After all, these projects can evolve quickly and in unpredictable ways; they often appear to prioritize flexibility and agility over permanence; and their nontraditional elements can be difficult to capture for preservation. Yet these qualities are exactly why the preservation and sustainability of expansive digital publishing projects require thoughtful planning and, in many cases, a willingness on the part of libraries to accommodate the outputs of digital projects that do not fit easily into existing workflows.

To be clear about the ways preservation and sustainability take shape for expansive publishing projects, we should first be explicit about the key terms. Our understanding of preservation aligns with the concise definition put forth by the National Digital Information Infrastructure and Preservation Program (NDIIPP): "digital preservation is the active management of digital content over time to ensure ongoing access." Likewise, we understand sustainability as the qualities of a project that allow it to continue under conditions that differ from those in which the project was initiated. Sustainability may also refer to (or depend on) extrinsic factors that encourage this kind of persistence -- the kinds

of library service models described, for example, by Vinopal and McCormick. Indeed, both sustainability and preservation extend beyond technological properties. They are "socio-technical," as Brian Keith et al point out, for "they include concerns related to people, policies, communities, technologies, and financials." Across these various domains, the common goal of preservation and sustainability is to ensure the longevity and future accessibility of digital scholarship.

At first glance, these processes would seem to be desirable for all digital scholarship. If the mission of a library is, in part, to maintain a durable record of scholarship, then the library should find ways to sustain and preserve expansive digital publishing projects, even when those projects consist of elements that do not articulate with local infrastructure or that resist traditional preservation workflows. We would argue, however, for a more flexible view: while many expansive digital publishing projects should enjoy both long-term sustainability and full preservation, others should be seen as ephemeral by design.

To cultivate this view among faculty and librarians, it's necessary to effect a cultural change in the way researchers view expansive digital publishing projects. If these projects are understood to be analogous not to a codex but to museum exhibits, for example, or the performing arts, then ephemerality becomes not an undesirable accident but an essential quality of the project. This configuration runs counter to a view of libraries as permanent repositories of information but, we feel, aligns with the evolving role of research libraries as collaborators in digital scholarship.

The need to engender a cultural shift toward “thoughtful ephemerality” is important, but we don't mean to suggest that every expansive digital publishing project should be ephemeral. On the contrary, even as we acknowledge that some projects should be undertaken with the expectation of a limited lifespan, we also believe that libraries should understand what qualities of preservation and sustainability are particular to expansive digital publishing projects.

Challenges to Preservation and Sustainability

Preservation can be complex and involve many different types of media, including dynamic or interactive content. Preserving a digital monograph or website is not difficult from the perspectives of technology or workflow: a preservation copy of a text or a static capture of a website is usually adequate to represent the work. However, the preservation


of expansive digital projects may be more complex. Dynamic or mixed-media content can require representation beyond a simple static capture, and it may be difficult to separate data from user interface for preservation (for example, in the case of data visualizations).

Expansive digital publications are not just a "product"; they often include communities, workflows, and records of communication among project contributors. Because expansive DH publishing projects often involve many stakeholders, a collaborative development process, and a community of users, there is more to preserve (and sustain) than a single public-facing product. It's important to think about how preservation will represent community and process. For this reason, a community outreach coordinator can be a crucial collaborator with library staff.

That kind of partnership is just one example of how expansive digital publishing projects require continuous, focused collaboration to ensure preservation and sustainability. While "sustainability" suggests an ongoing project and "preservation" suggests a completed one, both terms necessarily refer to continuous processes. The potential complexity of an expansive digital publishing project requires that stakeholders collaborate to ensure sustainability and preservation throughout the lifecycle of a project.

Key Issues Affecting Preservation and Sustainability

Because preservation and sustainability should be ongoing processes rather than reactive procedures at the end of a project’s lifecycle, they encompass a number of interrelated problems, and those problems are themselves multidimensional (social, scholarly, and technological).

Who decides what to preserve? Does an institution have a rubric for determining the value of a project, or a documented process for assessing that value? Developing such a rubric is itself a key issue; it may encompass the separate but interrelated tasks of identifying and engaging stakeholders, achieving faculty buy-in, and ensuring transparency about the evaluation process. In a practical sense, these kinds of preservation and sustainability decisions may also need to correspond to institutional priorities and strengths (e.g., specific library collections). Institutional priorities provide a legible rationale for triage or selection and help faculty understand why resources are aligned with certain projects.

Should projects be ephemeral? Even when expansive digital publishing projects do warrant the investment of resources, sometimes the answer is “yes.” A rubric or process for determining preservation status implies that not everything should be preserved or, for that matter, sustained. Faculty, project team members, and support staff should agree on preservation plans, which may include an agreement that allows a project to discontinue sustainability or preservation support under certain conditions (a "digital DNR" - Do Not Resuscitate).
Which project components get preserved, and how? For the purposes of preservation, it’s often best to break projects into components. Project teams and library staff should document how the components fit together or how they once fit together. Decoupling database from application -- or application from user interface -- helps to ensure that projects can be preserved and, if necessary, recreated at a later date. Intentional modularity also minimizes future time investment in terms of reuse or reconstruction. As such, it’s also important for libraries and presses to encourage modularity.

However, it’s not always clear that user interface, for example, can be meaningfully decoupled from the underlying data or application. In the case of interactive publications or complex visualizations, it may not be possible to preserve the "whole experience." Forms of preservation including screen captures or videos may be necessary. Likewise, it can be difficult to disentangle, articulate, and plan for complex software dependencies: a missing component of a software stack or an incorrect version of a library may render a "preserved" project unusable.

Library Support for Preservation and Sustainability

Expansive digital publishing projects, because of their scope and complexity, invite both continuation and extension of existing library services around sustainability. At minimum, this support entails "discussions with librarians and preservationists to ensure that there is a clear understanding of what can and should be preserved" (Guidelines 10). There are several opportunities for partnership and instruction throughout the life of an expansive digital publishing project:

Education and outreach. Much of the conversation about preservation and sustainability should take place at the beginning of projects, and subject librarians are well positioned to communicate with faculty about these issues. This kind of basic support could range in scope from individual consultations to regular instruction or workshops, depending on staff expertise and availability. Libraries might encourage professional development around issues of digital sustainability in order to meet emergent needs among researchers.

Incentivizing a focus on preservation and sustainability. Libraries are also well-positioned to encourage good practices relevant to sustainability. For example, preservation services may be contingent upon project documentation that meets certain criteria.

Leading periodical reviews of the project. Library staff might convene regular project

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reviews among contributors, PIs, and preservation staff to discuss how (or whether) to continue supporting a project.

**Offering tiered preservation for expansive projects.** Libraries might offer different levels of preservation to expansive digital publishing projects, depending on the technology, user community, and the enduring scholarly value of the project. For example, a basic level of preservation may include only screenshots of a project or a static version of a site, while a more complete type of preservation may include a comprehensive software stack to allow for a full recreation of the project and its user-facing components.

**Consulting on legal issues.** Issues of copyright may affect what parts of a project are suitable for preservation, and intellectual property law may determine who makes decisions about sustainability. For these reasons, library staff with expertise in the legal dimension of scholarly communications are valuable consultants on expansive digital publishing projects.

**Collaborating with other campus units to ensure sustainability and preservation.** Libraries occupy a central place in both the scholarly communications ecosystem and the university campus; they are ideally located to identity and cultivate potential collaborations with IT departments, presses, and other academic support staff. By working with faculty and IT staff, for example, librarians can help foster sustainability by ensuring that projects articulate well with local technology infrastructure.

**Conclusion**

Ultimately, all of the above relies on organizations developing infrastructures to support these processes and outcomes. This report is being written by people who work in university libraries, in collaboration with colleagues similarly situated in academic departments, support units, university presses, and other organizations within universities. Our primary goal is to understand how expansive publishing programs can exist and be sustained in this context, and our underlying assumption is that situating these programs close to the home of scholars themselves is the best way to ensure that they are guided by the values of scholars and their institutions.

Based on our investigations over the course of this project, we make the following recommendations about how to develop an institutional framework for support of expansive publishing programs:

- Make the institutional case by finding analogous programs that are already supported or that decision makers can envision supporting, and use language that fits into an existing category in the minds of decision makers and funders. For example, rather than using the term “project” to refer to a generalized continuum of
traits, group the processes, efforts, expertise, and funding needed into different phases of activity, such as:

- **investigation** (early stage efforts that don’t imply a commitment to moving forward, but that do have the time and resources to explore new approaches)
- **project** (efforts toward clear goals with the resources to achieve them during a specified timeline, but not necessarily a commitment to long-term support)
- **published** (a project that carries all the traits typically associated with published scholarly works, e.g. selection for importance and quality, peer review, editorial oversight, citable units, expectation of longevity, wide availability, etc.)

This final category is especially important because it connects with existing reward structures, which are essential to providing incentives for scholars to engage in expansive publishing projects. Reputation for importance and quality is a strong motivator, and reputation for sustaining scholarship over time builds confidence that scholarly works will not be short-lived. As such, it’s best to establish support programs for expansive publishing in organizations that already have established reputations—i.e., libraries and university presses—rather than creating organizations that would need to cultivate reputations from scratch.

- Seek partnerships, and hook institutional efforts into a broader network, including commercial partners who may have different motivations but might be able to move faster because of their differing economic incentives and support models.
- Think globally, and act locally. Connect your local efforts into a broader ecosystem that they can integrate with, interplay with, get support from, and help support. Stand-alone projects are vulnerable to single points of failure and are more likely to become ephemeral. Integration within a network can help with sustainability.
- Understanding the workflows and true costs of emerging publishing models is key to running a sustainable, realistic program that compensates participants’ efforts fairly. However, one should start by making a case for the value of such projects to the faculty, institution, the public, and scholarship in general before outlining all the costs and processes. If there’s no clear reason to do it, it won’t really matter how you plan to do it.

None of the recommendations above is a turn-key to achieving the goals outlined in the beginning of this report, of course. It’s not even clear that doing all of these things in a cohesive way will themselves move scholarly publishing forward and expanding the scope of how scholarship is communicated and whom it engages. But these are, we believe, important components of a forward looking solution.

The ecological metaphor remains useful: by changing aspects of the scholarly publishing process incrementally and testing them without exposing the whole enterprise to risk, scholars and their institutions can help the ecosystem evolve. There are many pressures and
precedents that are slowing this evolution, and this report aims to highlight some areas of opportunity where these pressures can be circumvented, creating space for positive change.

We hope readers of this report will take these opportunities. We hope, too, that they will share their successes and failures with the broader community to help all of us learn and advance the state of scholarly publishing.

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