Searching for Sustainability: Strategies from Eight Digitized Special Collections

A Report from Ithaka S+R and the Association of Research Libraries

Nancy L. Maron, *Ithaka S+R*
Sarah Pickle, *Ithaka S+R*

Preface by Deanna Marcum, *Ithaka S+R*

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PREFACE

Libraries and cultural institutions began digitizing their special collections in the mid-1990s, partly because technology allowed it, partly because these were the least accessible collections to external users, and, importantly, partly because these are the collections for which the institutions are more likely to hold intellectual property rights that allow for conversion to digital form. Digitization opened these "hidden" collections to a much broader audience, but the institutions undertaking the digitization projects quickly confronted a host a challenges. The cost of digitization is the most obvious, but there were also challenges related to creating metadata, integrating the digitized special collections into the legacy collections, understanding the needs of users who went well beyond the traditional user base of the institution, and satisfying the infrastructure requirements to maintain and update the digital files.

These new challenges for digitized collections led Ithaka S+R to study the sustainability of these resources in order to understand the plans libraries and cultural heritage institutions were developing to build strong audiences for their collections, while also managing to continue to fund the ongoing development of those resources. We fully understand that grant funds fuel creativity in the academy, and we applaud the efforts libraries and cultural institutions have made to find creative ways to fund the digitization of collections even as institutional budgets have flattened or even declined. Examining digitized special collections through the lens of sustainability strategies has been an excellent perspective for revealing how today's digital project leaders are addressing the challenge of making an impact on their potential audiences, while still finding creative ways to manage the ongoing costs these efforts can create.

Is Ithaka S+R holding digital collections to a higher standard, as these same guidelines are not generally applied to more traditional collections? Perhaps; but libraries, museums, and other cultural institutions are keenly aware that their collections can be more useful to many more people if they are available online. Digitizing existing collections to increase access—even when it means that the profile of the institution is higher and its impact is greater—also increases the financial burden for the host institution. The budget issues are different. Although physical storage costs are real, costs of analog collections are incurred at the time of acquisition; digital content requires annual maintenance expenses. Additionally, we have not considered the usability and impact of our analog collections, and perhaps what is most noteworthy in the digital environment is that new analytics permit these questions to now be asked. As cultural institutions of all types make the transition to the digital environment, new measures of assessment can be applied to development of collections.

As Ithaka S+R's work in sustainability has evolved, we have increasingly noted the deep reliance that many digital project leaders have on their host institutions; this reliance is evident in the cases we present here, as well. Libraries, museums, archives, and historical societies may be digitizing individual special collections, but often their main interest goes well beyond a single collection: they are concerned today with building digital "libraries" of their institution's holdings. The case studies we share in this report offer examples of sustainability, as demonstrated by audience engagement and other impact measures; by the financial stability the collections have established, often via integration into their host institutions; and by the fact that the collections are still around, often many years after they were first launched. These are not perfect examples of sustainability, but they have been selected from a large number of candidates because they highlight the possibilities for placing digitized collection into a larger context. Our hope for this group of case studies is that they will offer ideas for their peer institutions as the latter build their infrastructure to support the digital instantiation of their organizations.

Deanna Marcum
Managing Director, Ithaka S+R

EXECUTIVE SUMMARY

Over the past two decades, academic libraries and cultural institutions including museums, archives, and historical societies have begun to create digital copies of the rare and unique materials in their holdings. These institutions' desire to digitize their special collections is motivated by the twin goals of preserving these materials for future generations and providing greater access to them via the web, and their efforts thus far have been supported by an influx of public and private funding, though such funding is now beginning to wane. As a consequence, managers of digital collections may not be able to count on those revenue streams to support the ongoing care or development of their work or the creation of new collections. In the coming years, the ability to identify secure sources of support, and to demonstrate impact over time will undoubtedly become increasingly important to institutions with digitized special collections.

The current study is an examination of digitized special collections at eight institutions that have found ways not only to build, but to support and even grow the collections over time. The organizations represent academic libraries as well as cultural heritage institutions of varying size and scale. The resources profiled represent a range of sustainability tactics in action, from developing strong partnerships and building a supportive and large audience to generating revenue by subscription, membership, and licensing offers.

This work has been conducted by Ithaka S+R, in partnership with the Association of Research Libraries, funded through a cooperative agreement as part of the National Leadership Grants Program of the Institute of Museum and Library Services (IMLS). We hope that project leaders in the academic and cultural sectors will find the examples useful when considering digitizing their own rare and unique materials.

The eight digitized collections studied include:

- **American Antiquarian Society (AAS).** An independent, not-for-profit research library that collects documents of American history and culture through 1876, and since 2002 has forged partnerships with publishers to reissue AAS materials in digital form and provide sustaining revenue for the Society.

- **Biodiversity Heritage Library (BHL), Smithsonian Institution Libraries.** A collection of over 40 million pages of taxonomic literature provided by ten member institutions including natural history museums and botanical gardens that also provide dues and in-kind contributions to support the Library.

- **Florida Folklife Collection, State Library and Archives of Florida.** An online collection of audio, video, and photographs documenting folklife throughout the state of Florida that has benefited from a strong outreach program attracting over 5 million page views per month.

- **Grateful Dead Archive Online, University of California at Santa Cruz.** An archive including images, letters, fan art, and business records related to the Grateful Dead that actively seeks user-contributed content to grow its base.

- **Home Economics Archive: Research, Tradition and History (HEARTH), Cornell University.** Over 770,000 pages drawn from the core historical literature of the field of home economics, a focus which aligns the collection with its home library's mission.

- **Maine Memory Network (MMN), Maine Historical Society.** A public website that hosts images from over 270 cultural organizations throughout the state of Maine, whose aim of building capacity among its partners is served by extensive outreach efforts.

- **Quakers and Slavery, Haverford College.** A collection of letters, images, and other materials related to the role of Quakers in the American abolition movement whose viability is due in large part to the online platform Haverford shares with two nearby partner institutions.

- **Vanderbilt Television News Archive (VTNA), Vanderbilt University.** A collection of more than 40,000 hours of recorded news broadcasts collected since 1968 (digitally since 2004), which enjoys the support of major campus stakeholders who value the public importance of the collection.

Methodology

Between June 2012 and May 2013, the Ithaka S+R research team sought to identify digitized special collections with sustainable practices and then examine eight of them in great detail to understand the specific steps they have taken to implement the sustainability model currently in practice. In order to select examples that would be useful to others working in a range of institutional contexts, selection criteria included both institution type (academic library, cultural heritage organization) and size, based on operating budget. Collections were also required to have been available online for at least two years and to have demonstrated some measure of public impact and financial security, which Ithaka S+R's prior research has identified as markers of sustainability.

After reviewing 188 digitized special collections (109 at 66 academic libraries and 79 at cultural institutions), phone screening of the top 31 projects winnowed the list to 11 projects, which were presented to and discussed with the project's advisory committee.

The final eight case study subjects agreed to participate in onsite and phone interviews with the research team. Interviews covered the history of the projects and the ongoing systems and strategies in place to support them. In addition to speaking with project leaders, the research team interviewed several people with direct understanding of the projects, their history and their sustainability plan. In total, 58 people were interviewed as part of the case study phase.

Key Findings

While the institutions discussed in the following case studies may not represent the full diversity of the academic library and cultural heritage sector, they do reflect the variety of organizations in the sector that are undertaking digitization. Several shared themes emerged:

- **There is no one-size-fits-all definition of sustainability or success.** The meanings of both terms vary according to the aspirations of the project teams and of their home institutions. However, common to the digitized collections we examined were the ability to attract devoted users and stakeholders and the ability to attract resources that will permit the collections to persist and potentially grow over time.

- **Dedicated leadership can be the backbone of a project.** In addition to devoted leadership guiding the strategy of a project, with an eye to future directions, an impassioned champion—not necessarily on the project team—can be a vital source of support. This underlines the need for project leaders to stay connected to their institutional community, and key external stakeholders.

- **Scale solutions are needed and can come in many forms.** Whether a team of like-minded institutions working together to support a major aggregation of content, a few partners choosing to pool resources for a shared platform to host their collections, or a single institution building infrastructure to support its many digitized collections, looking for places to benefit from scale is an important step to reducing the burden carried by any single project.

- **Diverse funding sources may provide projects with greater long-term security.** Digital resources that rely on only one revenue source will find themselves in a tight spot if that funding line is ever compromised. This insecurity might, in turn, mean that project teams do not feel free to experiment or further develop their projects beyond their initial scopes.

- **A nuanced understanding of user and stakeholder needs may result in a more helpful and valued resource.** Knowing what drives the research of one's users and the mission of one's institution can help project leaders shape a resource to serve those communities better.

- **Articulating metrics of success and measuring progress toward goals can reveal strengths and identify areas for improvement.** The demonstration of achievements may also help in articulating the value of a resource for project teams in search of funding or other types of support.

- **Identifying needed expertise and established systems can help defray startup costs, increase efficiency, and make room for creativity.** Some projects rely on an already established technical platform, while others profit from the proficiency of an outside consultant. Both can provide a leg up to project teams, making it easier to start a project and, with all the pieces in place, easier to run it efficiently and keep it going.

In writing this study, we have sought to provide useful models and examples of good practices for project leaders to consider when digitizing their own materials. We hope that these case studies will encourage greater discussion among individuals in the academic library and cultural heritage communities about the reasons why they invest so much time and energy in the creation and ongoing management of their digitized special collections, the goals they set for them, and the planning needed to realize those aims.

INTRODUCTION

Since the 1990s, major academic libraries, museums, and archives have been digitizing the rare and unique materials they hold. In 2013, however, digitization of special collections and the creation of digital collections more generally is no longer the purview of just the largest institutions; research libraries and cultural heritage institutions of all sizes and types, including local historical societies and public libraries, have begun to digitize and share the physical materials they hold, providing virtual access to more of their collections than ever before.

Beyond the ad-hoc scanning driven by patron requests to view a particular document or object, libraries and cultural organizations have initiated the ambitious creation of digitized collections, taking a particular analog collection as a starting point, translating it into digital format, identifying or building the appropriate infrastructure or platform to support the content, and designing features and functionality intended to engage and assist users of the collection. These digitized special collections are often much more than just digital copies of rare documents; some seek to aggregate materials across institutions, to engage communities in contributing content, or to otherwise drive interest in the collections among new audiences. This larger-scale creation has frequently been funded through external grants from public and private funders. And yet these funding sources now show signs of slowing down, as the economic recession and recent governmental budget cuts have meant fewer funding programs for digitization and the threat of more cuts to come.[1] In the coming years, how will new projects be funded, and how will institutions that have already developed digitized collections continue to maintain and enhance them to keep pace with public expectations? Being able to identify secure sources of support and to continue to demonstrate impact over time will be increasingly important for all who manage digitized collections.

The current study seeks to uncover examples of good practice among those who are actively engaged in creating and sustaining digitized special collections. In 2010, the Association of Research Libraries (ARL) in partnership with Ithaka S+R was awarded a National Leadership Grant by the Institute of Museum and Library Services (IMLS) to explore, through detailed case studies, the strategies that libraries, museums, archives, and other cultural heritage organizations are implementing to create digitized special collections that continue to grow and develop with the aim of continuing to meet the needs of those who use and otherwise support them. The study included developing eight detailed case studies on the following digitized special collections:

- **American Antiquarian Society (AAS).** An independent not-for-profit organization that since 2002 has forged partnerships with commercial publishers to reissue AAS materials in digital form. The revenue AAS receives from its licensing agreements is an integral part of supporting the activities of the Society. The creation of an integrated digital workflow demonstrates how central the digital strategy is to AAS's mission.

- **Biodiversity Heritage Library (BHL), Smithsonian Institution Libraries.** Launched in 2006, BHL is home to 40.8 million pages of core taxonomic and other biodiversity-related literature from the libraries of natural history museums, botanical gardens, agricultural associations, and universities. It is supported in part by revenue and in-kind contributions from its member-contributors, and one of BHL's greatest achievements is the management of those partnerships.

- **Florida Folklife Collection, State Library and Archives of Florida.** Offering audio, video, and photographs documenting folklife throughout the state of Florida, this collection, launched in 2003, is part of the larger Florida Memory platform. The ongoing efforts of the team managing the collection to engage with users have contributed to the significant usage being made of the resource, which draws over 5 million page views per month.

- **Grateful Dead Archive Online (GDAO), University of California at Santa Cruz.** Created in 2011, this online archive includes images, business records, letters, fan art, and other materials documenting the history of the Grateful Dead. Given the band's large fan base, there is enormous potential for continuing to build the archive through user-contributed content.

- **Home Economics Archive: Research, Tradition and History (HEARTH), Cornell University.** This resource, which was launched in 2003 by staff at Cornell's Mann Library, shares over 770,000 pages from the core historical literature of the field of home economics. A clear connection to the mission of Mann Library, which serves the College of Human Ecology (previously known as the College of Home Economics), has helped to keep HEARTH a priority for the institution.

- **Maine Memory Network (MMN), Maine Historical Society.** Created in 2001, MMN provides a shared space for cultural organizations throughout the state of Maine to scan and host images from their collections. Participation by over 270 institutional contributors is a key asset of the resource.

- **Quakers and Slavery, Haverford College.** Launched in 2009, this resource shares letters, images, and other materials related to the role of Quakers in the American abolition movement. The continued viability of this digital collection is due in large part to the fact that the licensing and management costs of its platform, Triptych, are split evenly among Haverford, Swarthmore, and Bryn Mawr.

- **Vanderbilt Television News Archive (VTNA), Vanderbilt University.** Staff supporting this collection have recorded more than 40,000 hours of news broadcasts since 1968, and in 2004 they began to capture those broadcasts digitally. The public importance of this resource and the support it receives from major campus stakeholders have both been critical to the longevity of VTNA.

In examining the strategies that project leaders developed to support these collections, we hope to offer useful models for leaders of digital resources to consider when undertaking their own digitization projects and to spark dialog in the academic and cultural heritage communities about the motivations for creating digitized special collections, the goals set for them, and the planning necessary to achieve those goals.

Background

Special collections, according to ARL's Task Force on Special Collections (now the Transforming Special Collections in the Digital Age Working Group), are composed of "manuscript and archival collections unduplicated elsewhere and one-of-a-kind or rarely held books" and "items precious through their rarity, monetary value, or their association with important figures or institutions."[2] They hold a place of honor in many academic libraries, "encapsulat[ing] the essence of a research library" and offering the means to define those libraries' "uniqueness and character," and their significance is only growing as the use of library general collections has declined.[3] For some librarians, special collections have simply become "the distinction that will shape our future."[4] In other cultural heritage institutions, such as museums, historical societies, and archives, the entire collection may in a sense qualify as "special," representing a coherent set of rare and distinctive materials of value to scholars and the broader public.

According to a 2010 Online Computer Library Center (OCLC) survey, over two-thirds of U.S. academic and research libraries had undertaken one or more digitization projects.[5] Similarly, a 2006 report issued by IMLS demonstrated that by 2004, when the survey was conducted, digitization had also become increasingly common among two of the groups examined for the present study: almost 80 percent of museums and 94 percent of

archives indicated that they had performed some digitization in the prior twelve months.[6] Much of this digital creation has been funded by grants from public sources (the Department of Education, IMLS, and the National Endowment for the Humanities, among others) or private sources (The Andrew W. Mellon Foundation, the Alfred P. Sloan Foundation, and the Packard Humanities Institute, among others).

Libraries and museums that have already invested in creating digitized collections have begun to experience some of the challenges of supporting them over time. While many costs are estimated at the start of a project, others may emerge only once development is underway. Some of the work that needs to be done may draw upon the skill sets of existing library or museum staff; other tasks may require entirely new skills not native to the library. As the digital resources mature, will they need to keep growing? Will their audiences continue to grow or evolve? Will the ways in which those audiences interact with the content change? Project leaders face the challenge not only of determining how to secure the digitized special collections from a technological and preservation perspective, but also how to continue to develop the content and interface in ways that respond to users' needs and practices over time.

Recent studies have shown that while preservation remains an important motivator for digitization, increasing access to the materials has quickly grown in importance for museums and for academic and public libraries. The OCLC survey's findings are telling: whereas in 2001, only about 5 percent of museum and public library respondents and 17 percent of academic libraries had identified "increase access to collections/materials/files" as a goal of digitization, by 2004, the percentage had jumped to 56 percent of museums and almost 32 percent of public libraries and 43 percent of academic libraries, while over the same period, the proportion of institutions viewing digitization as a way to save physical space or minimize damage to originals had dropped.[7] A 2012 survey of ARL members conducted by Ithaka S+R in partnership with ARL also supports the notion that academic libraries are creating digitized collections with access and usage front of mind; when asked how motivating certain factors were in their decisions to digitize, 64 percent of respondents indicated that "collections strategy, based on prioritizing our strongest research subject areas" was highly motivating, and 59 percent indicated "user demand for the physical collection," whereas 54 percent selected "preservation, as a way to protect fragile originals."[8]

If an institution chooses to digitize in order to preserve fragile originals that are at risk of further wear and tear, then creating preservation-quality copies may be all that is needed. However, where digitization is seen as a means to achieve greater exposure of the collection, to enhance the reputation of the institution, or to support educational programs, sustainability activities may go beyond that and include ongoing editorial review, content curation, user interface development, technology upgrades to improve the user experience, and ongoing efforts to engage with the audience.

For several years, Ithaka S+R has been studying the strategies institutions have developed for sustaining the digital resources they are creating, where sustainability is defined as "the ability to generate or gain access to the resources—financial or otherwise—needed to protect and increase the value of the content or service to those who use it."[9] Sustainability and Revenue Models for Online Academic Resources presented a framework for thinking about the mindsets and cultural factors needed to create sustainable resources and included a high-level survey of different revenue models that support digital content.[10] Sustaining Digital Resources: An On-the-Ground View of Projects Today took this approach further, examining in detail twelve projects to understand how their leaders define and work toward sustainability and drawing out the lessons leaders of other projects might apply to their own work.[11]

While many costs are estimated at the start of a project, others may emerge only once development is underway

Those cases helped us to identify some important factors that many of the digital resources had in common and that seemed to have played an important part in the development of strong sustainability plans: dedicated and entrepreneurial leadership; a clear value proposition, based on a clear understanding of the needs of the resource's audience and stakeholders; the ability to creatively manage costs; diverse revenue streams; and a willingness to develop measurable goals and to regularly meet them. Subsequent research encouraged us to add a sixth element to the list: the importance of securing some degree of ongoing support from one's host institution.[12]

Several recent survey-based studies have begun to address the specific opportunities and challenges of creating digitized collections of rare and unique materials. Two surveys have collected data on the size of these collections, both physical and digital, digitization activities, and departmental attributes; they demonstrated that special collections in academic libraries and cultural institutions are rapidly growing and becoming more diverse, raising the question of whether these institutions' staff levels and skills are able to keep pace with this growth.[13] Other studies have addressed the demands arising around specific aspects of digital collections management, such as the preservation of these materials, revealing that most institutions hope to do more than they can comfortably manage with their current expertise and budgets.[14] Indeed, the financial aspects of digitizing collections have been addressed in different ways, documenting common sources of funding for digitization (mostly the base budget of the institution, but also external grants and gifts), how that money is allocated (primarily to activities supporting new digitization projects), and how staffing has changed and will change over the years to support work with digital collections (reallocation of employees to assist digital initiatives).[15] In addition to quantitative studies, there have been several case studies written, often by leaders of digital resources themselves, sharing their first-hand experiences in building and managing resources.[16]

While the efforts and activities needed to plan and build digitized collections have been addressed in a variety of ways, the set of activities that permit the digitized collection to remain vital and useful post-launch is less often addressed

While the efforts and activities needed to plan and build digitized collections have been addressed in a variety of ways, the set of activities that will permit the digitized collection to remain vital and useful post-launch is less often addressed. The current study focuses on how leaders of digitized special collections determine what activities are needed once the collection is already built in order to create valuable resources for their users.

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Although many individuals graciously offered their time and good will in support of our work, the responsibility for the contents herein is ours alone.

METHODOLOGY

This study was developed by Ithaka S+R in partnership with the Association of Research Libraries in order to help the greater research library and cultural heritage communities understand the strategies that some of their peers have developed to ensure that their digitized special collections will be permanent parts of their larger collections and accessible over time.

The case study approach offered the opportunity to understand the motivating factors and the strategic decision points of the leaders of these digital resources.[17] By having them and their colleagues speak candidly about challenges as well as successes, we hoped to learn not only about the tactics that worked, but also to learn how they were arrived at and the risks that may have been taken in order to draw some useful lessons for others undertaking similar projects.[18]

To this end, the Ithaka S+R research team developed a methodology that involved first identifying digitized special collections with sustainable practices and then examining eight of them in great detail to understand the specific steps they have taken to arrive at the current model in place. In so doing, we hoped to be able to identify the factors influencing this positive outcome and share examples of good practice.

Case Selection Process

In order to identify examples that would prove useful within a range of institutional contexts, we developed selection criteria to identify digitized special collections representing a variety of institutional *types* (academic libraries as well as public libraries, museums, archives, and historical societies) and *sizes*. After much investigation into the budgets of institutions that undertake significant digitization projects, the dividing line

between "small" and "large" institutions was drawn at different points for academic libraries ($8.5 million) and cultural heritage organizations ($5 million).

SIZE	TYPE		
		Academic library	Public library or museum
	Small	2	2
	Large	2	2

Additionally, digital special collections within each segment had to demonstrate evidence of being sustainable. To assess this, we developed markers based on Ithaka S+R's prior research on sustainability; we looked for (1) public benefit, i.e., whether the collection had achieved some degree of impact, as defined by the leader of the resource; and (2) financial sustainability, i.e., whether the collection had developed a reliable and recurring funding model. A final requirement was that the resource had to have been publicly available for at least two years.

Screening

The screening process took place from June through November 2012. An initial list of candidates was compiled from our advisory committee, funders, and others deeply engaged with digitized special collections, as well as from desk research into institutions that had received grants for digitization. Further desk research allowed the research team to examine resource websites in search of evidence of the agreed-upon sustainability markers. All resources examined were rated according to a rubric, on a scale of 1 to 5.[19] In total, the project team reviewed 188 digitized special collections: 109 at 66 academic libraries, and 79 at 55 cultural institutions.

Phone screens were then conducted with leaders from the top 31 digital collections, identified by the research team's rankings, to confirm the data gathered and determine whether the subject met the criteria concerning impact and financial sustainability.[20] The list of collections was narrowed down to 11. These were reviewed with the advisory committee in December 2012, and from that meeting, the final list of 8 was selected.

MUSEUMS, PUBLIC LIBRARIES, HISTORICAL SOCIETIES, ARCHIVES		
Large	Biodiversity Heritage Library (BHL), Smithsonian Libraries	Florida Folklife Collection, State Library and Archives of Florida
Small	American Antiquarian Society (AAS)	Maine Memory Network (MMN) Maine Historical Society

ACADEMIC LIBRARIES		
Large	Home Economics Archive: Research, Tradition, and History (HEARTH), Cornell University	Vanderbilt Television News Archive (VTNA), Vanderbilt University
Small	Grateful Dead Archive Online (GDAO), University of California, Santa Cruz	Quakers and Slavery, Haverford College

Research

Further research into these specific cases consisted of in-depth interviews, nearly all of which were conducted face to face. Each interview lasted approximately 60 minutes, followed a detailed interview guide, and covered the history of the digital special collection and the ongoing systems and strategies in place to support it.[21]

At the conclusion of the research phase, the Ithaka S+R team drafted the case study articles and met with members of the advisory committee to receive feedback on them and to discuss and debate greatest lessons and examples from the digitized special collections studied. Feedback from the advisory committee helped to shape the final form of the case studies and of this report.

Searching for Sustainability: Findings

Libraries and other collecting institutions have long been concerned with what is needed to protect and preserve the valuable objects they hold. However, the digitized resources they are now developing are fundamentally different from their physical ones in that the primary activities associated with them are not fixed, one-time efforts, as is the case with journals and books; rather, the activities are ongoing, as the digital resources themselves and the digital environment in which they live are more dynamic than the physical ones. What, then, is sustainability for a digitized collection?

Just as organizations have a range of reasons for undertaking digitization in the first place, sustainability may be measured in a variety of ways and may vary by collection, based on the goals and contexts involved. For a large, public-facing website, for example, sustainability may require attracting a greater number of users; for others, attracting just a few—but the right few—will suffice. Still others will measure their success by the value they deliver in teaching and learning or in a specific contribution to scholarship.

With every resource comes a specific set of circumstances, goals, and contexts, and these all play roles in determining what success will look like for the resource and what type of model will help it to endure

In other words, when measuring the sustainability or success of a digital initiative, there is no predetermined number of page views, downloads, or unique visitors that signals success; we are not looking for evidence that the digital resource can generate a lot of, or even any, revenue. Rather, we are hoping to identify a cycle of ongoing support, the ability of the leaders of resources "to generate or gain access to the resources—financial or otherwise—needed to protect and increase the value of the content or service for those who use it."[22] This definition of sustainability is intentionally flexible so that the ongoing strategies in place to support these resources are evaluated on their own terms, according to their own goals, be they grand or modest.

That said, within this broad definition, we have observed in previous research projects some traits that we will use as markers to indicate sustainability: the ability to attract devoted users and other stakeholders and the ability to attract resources that will permit the resource to grow over time. The third trait is in a sense the logical manifestation of the first two: longevity.

These three characteristics—longevity, public impact, and financial stability—were used in our research as indicators that a given digitized special collection was sustainable, and, thus, as selection criteria for the case studies.

Once the cases were selected, we looked even closer to understand in more detail how a given collection itself measured activity and progress in these areas and how it had been able to accomplish what it had achieved. Each case study, included in full at http://www.sr.ithaka.org/research-publications/searching-sustainability, outlines the history of the digital collection, its current status and achievements, and specifically its sustainability strategy, focusing on impact and funding measures. The case study outlines where the resource is today, how it got there, and what we (the research team) have identified as key factors that have contributed to its current success, as well as what we see as areas of concern that could be risks to its future sustainability.

1. Markers of Sustainability: Long-Term Public Benefit and Financial Support

Longevity

By selecting digitized special collections that have been in existence for at least two years, we hoped to explore how these projects have maintained themselves since their initial creation.[23]

Among the eight cases studied, the oldest came online in 2001 and the one created most recently launched in 2011, though the analog collections on which they are based are considerably older than that. The number of years a digital resource has been around and is still actively managed seems to indicate that the institution still sees some value in maintaining or developing it, which itself suggests that the resource is doing what was intended, whether serving as a resource for teaching, a dynamic site for researchers to explore and develop,

or attracting a community of interested participants willing to engage and participate in creating knowledge. However, the "age" of a digital collection is not necessarily an indicator of its future sustainability.

Public Benefit

In most of the cases we observed, an important reason the libraries and other institutions chose to digitize was **to provide greater access to a specific collection of content**. This is often evident in the language of the grant proposals: The Quakers and Slavery project at Haverford, for example, represents an attempt to "highlight the documentary resources of the libraries and to provide, for a range of users, direct access to selected collections through the Internet."[24] In some cases, the institution had had previous success with digitization and had seen the benefit of posting its content online. For instance, the Florida Folklife Collection is one part of the greater Florida Memory online platform, which, in various incarnations, has been an active digitization program since 1995.

Among the group of digitized special collections we studied, however, there were several other important motivating factors as well:

- **Interest in fulfilling the wishes of a donor.** In the case of the Grateful Dead Archive Online, the initial gift of the physical archive was made with the stipulation that the material would be made available online. At that time, the University of California (UC) at Santa Cruz had had modest experience in working with digitization and knew that it was taking on a project of significantly larger proportions, but it was keen to undertake this project.
- **Desire to build internal capacity for digitization work.** The project team at UC Santa Cruz was eager to take up the challenge of developing a large digital resource, and library administrators saw this as a unique opportunity to quickly develop skills among the staff.
- **Interest in building capacity among partners.** The Maine Historical Society, on the other hand, had other stakeholders in mind when it built the Maine Memory Network. The platform encourages participation of partner institutions—often smaller historical societies, libraries, and museums throughout the state. While the team managing the resource tracks usage, success is often expressed in terms of the ability to attract partner institutions, rather than success in building a large base of end users. Similarly, the team running the Biodiversity Heritage Library (BHL) sees itself as serving not just taxonomists but its member organizations as well, who contribute the content to be scanned. By making the content available under a Creative Commons license via APIs, the BHL offers others the ability to use and reuse the collection it has built. Additionally, by joining forces with other institutions, BHL has been granted a favorable rate for per-page scanning; contributing partners can combine their items to be scanned in bulk rather than each building in-house digitization programs.
- **Desire to generate needed revenue to support the parent institution.** The funding model used by the American Antiquarian Society (AAS) in its digitization effort involves creating partnerships with commercial publishers, who digitize its collection in exchange for time-limited, exclusive rights to exploit the digital content via their commercial fee-based websites. This offers the Society much-needed funding to maintain its physical collection, including the building that houses that collection and welcomes researchers from around the world. Director Ellen Dunlap sees the licensing of digital content for royalties as worthwhile, as it provides AAS with the funding the organization needs for its capital expenses.
- **Commitment to preserving the historical and cultural record.** The discovery that the major news broadcasters were reusing expensive tape, recording over evening news broadcasts rather than preserving them, was deeply disturbing to a Vanderbilt alumnus. He encouraged his alma mater to create a resource

that would ensure that news broadcasts would be preserved in the same way that daily newspapers were systematically preserved by research libraries.

Given these very different initial goals, below are some of the ways in which public benefit or, more generally, impact was defined and measured for the digital collections studied:

- **Public usage/volume.** This was often measured by unique users or page views. Some resources had significant usage figures; Florida Memory cited 48 million page views per year, and the Biodiversity Heritage Library reported over one million visits from 233 nations in just over one year (January 2010–March 2011). The Grateful Dead Archive Online (GDAO) also acknowledges the importance of sharing its collection broadly, as the world of "Deadheads" exists far beyond its campus and well beyond the academy in general. The GDAO has had 115,120 unique visitors since launching in 2012 but also gauges impact by the contributions that users send in, whether images of concert tickets, artwork, or reminiscences about the Dead.
- **Building capacity.** Maine Memory Network's (MMN) efforts support partners in a very direct way by having staff go into the field to work with staff members at smaller libraries and historical societies, training them in basic digitization skills and in the processes needed to upload digital content into the MMN system. They cite "number of content partners" as a key metric of success, one that is perhaps more important to them than the raw number of objects in the database or the number of viewers.
- **Contribution to teaching or research.** The digitized special collections created by the smaller academic institutions tend to be more clearly focused on serving the needs of a specific public: scholars and students. Quakers and Slavery serves a narrow population of those interested in the title subject, and the project team takes note of new publications that reference the collection and assists faculty in sharing the collection with students in courses on the topic. Quakers and Slavery also benefits students interested in developing new skills in scanning and transcribing documents, by employing them to work on the digital resource. The project team dedicated the project's entire budget for creation to supporting student labor on the collection, and they continue to use Quakers and Slavery as a tool for bibliographic instruction in the library.

Economic Models

In selecting the eight case studies, we made an effort to identify digitized special collections with reliable financial support and innovative revenue approaches. The resources we studied appeared to be financially sustainable in that none appeared to be at risk of stopping operation for lack of funds, and most could point to multiple sources of support; none was entirely dependent upon grant support to fund ongoing operations. Some were undertaking revenue generation on a cost-recovery basis, but none of them had found ways to generate enough funding to continue to significantly build or add to the resource without seeking outside support. Even the Vanderbilt Television News Archive, which has had a mandate since its inception to be self-sustaining, needed to rely on grants, a partnership with the Library of Congress, and occasional institutional support to meet that requirement.

That said, we observed several different strategies in action among the eight digital collections:

- **Keeping ongoing costs extremely low, so that they can be folded into daily operating activities.** Some digitized collections were developed so that they would require very little effort to support after the grant

period and so that the work they do require can be folded into the core operating budget of the host institution. In some cases, early investments in technical infrastructure were key to their efficiency.

- Cornell's Home Economics Archive (HEARTH) has created a robust yet simple backend to support the collection so that additions can be made by nonexperts such as students, who are inexpensive to employ, and the technical upkeep has been mainstreamed with Cornell's other digital holdings.
- Quakers and Slavery developed a simple digitization process that enables students already employed by the library to add to the collection when they have time, and the cost of the ongoing management of its platform is very modest, as it is shared between Haverford College and two partner institutions.

- **Securing grant funding for new, innovative development or enhancement**
  - Florida Memory's annual proposals for Library Services and Technology Act funding for the Florida Folklife Collection provide the team managing the resource with opportunities to seek new approaches to building its online collections.
  - Maine Memory Network has found success by expanding its program in stages. An initial grant developed the platform; subsequent grants have permitted MMN to take time to nurture partnerships around the state and to train local historical societies in digitizing and uploading content to the site.

- **Identifying partnerships that bring in financial and in-kind support**
  - Biodiversity Heritage Library has developed a network of partners, all of which have a stake in the success of the venture and who have agreed to pay annual dues. Each member institution contributing $10,000 per year participates in governance and helps guide the resource.

- **Running discrete campaigns to support specific initiatives**
  - In the case of the Grateful Dead Archive Online, the donor of the collection mandated that an archivist position be supported by the library, which has undertaken a fundraising campaign to endow this position.[25]

- **Generating revenue on a cost-recovery basis**
  - Vanderbilt Television News Archive charges institutions of higher education between $1,000 and $3,500 for annual subscriptions. Additionally, the VTNA typically earns about $180,000 each year from the fees it charges when loaning materials, as non-affiliated researchers may use the collection by paying a fee that covers Vanderbilt's staff costs for retrieving and duplicating the material. Together, this earned revenue comprises 59 percent of VTNA's budget.
  - Maine Memory has created Vintage Maine Images in order to offer revenue back to the content partners when high-quality print and digital images are sold. The partner earns 50 percent of the list price, and the remaining 50 percent goes to the Maine Historical Society to help cover the day-to-day operating costs of the enterprise.

What factors encourage sustainability?

Early in this project, we attempted to identify variables that might help to explain the ability of certain projects to prosper. We considered the type of host institution, size, and source of funding and included these among our selection criteria, hoping that some useful patterns and truths would emerge about the importance of certain characteristics in achieving sustainability.

In the end, the variety of definitions of "success" we observed made it impossible to point to institution type, size, or funding source as particularly critical to overall success. However, we did notice certain characteristics that seemed likely to influence or inhibit sustainability, so we offer these observations here for consideration:

- **Academic versus cultural institutions**
  We wondered if we might find differences between digitized collections at academic and cultural institutions, perhaps due to different organizational missions. While decades ago, academic libraries might have been content to serve only those who could physically visit their repositories, today many of them actively embrace the notion of an audience beyond their walls.

  Rather, both research libraries and cultural heritage institutions seem to have some important structural similarities. Management of digitized collections tends to be handled as part of a larger department; this gives the benefit of "scale" to the library, which can have a person or small team manage several digital resources. One major structural difference is that the academic libraries we studied are all part of a larger campus community, seeking budget allocations from the university itself. In the heritage sector, we studied some cases where there could be said to be a comparable structure (e.g., the Smithsonian Libraries, as part of the Smithsonian), but more often, the units we studied were responsible for covering their own costs year to year (AAS, the Maine Historical Society, and the State Library and Archives of Florida). This position of independence at the institutional level can sometimes lead to more ambitious fundraising and even revenue generation, as failing to meet budget targets is not an option.

- **Large versus small organizations**
  Are larger organizations better suited to digitizing special collections or maintaining them afterwards? Here again, it was difficult to point to size as a critical factor concerning the ability of a team to develop a sustainable digital resource. Among the small institutions studied, we saw a small organization building and developing resources (Maine Memory Project), as well as a library with little digitization experience using a first major digitization project as a means to "leapfrog" and quickly skill up their staff (GDAO).

  On the other hand, we saw other small organizations execute successful strategies, but at the scale that worked for their needs. The American Antiquarian Society, as an independent not-for-profit, chose not to invest in building its own digitized collection, but to exploit the value of its holdings by partnering with commercial publishers, in order to support the costs of the whole organization. The Quakers and Slavery project at Haverford does not have plans for rapid growth of content or usage, but delivers value as a teaching resource, supported by shared infrastructure for ongoing management and preservation at low cost. That said, the future risks for smaller organizations are clear: without "parent" organizations to fall back on, smaller institutions can find themselves without needed staffing and other critical resources.

- **Internal versus external funding**
  At the outset of this research project, we wondered if the source of funding would be a factor that influenced the long-term support of a digitized special collection, suggesting that, for example, internally funded resources might have, at the outset, a different set of expectations or perhaps a more integrated plan for creating and managing the work into the future. Externally funded resources, it was suggested, could be seen as a way to permit institutions to undertake work they could not otherwise accomplish, but may carry the risk of seeming grafted on, bringing with them staff who are never fully worked into the main operations of the institution. When the grant ends the staff are at risk of being forced to disperse, as has happened at

any number of resources in the past, including the GDAO, whose initial programmer left for a permanent position after the original IMLS funding ran out.

In practice, it was difficult to determine exactly how much ongoing funding comes from each source, given that, with the exception of BHL, "internal" funding is often offered in terms of people's time and is rarely quantified.

Perhaps the real issue here is not whether a digitization effort was begun with internal or external funding, but to what extent the resource has been successful at persuading its host institution to support key elements of its ongoing operation. If the idea, post-launch, is to develop a plan that the organization can support out of operating funds, the digital resource may be able to continue for a while; if any ongoing support will be grant-dependent, the resource's future is uncertain at best.

And perhaps there is a precondition that should be considered here: To what extent does the host institution have a clearly defined digital strategy, in which people in a range of roles are devoted to supporting this kind of work, from content, to technology, to outreach and promotion?

These original characteristics, therefore, did not turn out to be critical factors in and of themselves. Because the teams running each of the resources have significantly different objectives, the more salient matter became whether the strategies they had developed for ongoing support were helping them to achieve those goals. The following section outlines the characteristics we observed in the case studies that appeared to be vital to the success of the project leaders in securing needed financial and non-financial support, and for creating digitized special collections that have had the desired impact in their fields.

2. Characteristics of Sustainable Digital Resources: Examples of Good Practice

In Sustaining Digital Resources, Ithaka S+R highlighted five themes that were considered to be major factors in building sustainable digital resources.[26] Later we added a sixth, "the role of the host institution," to the list.[27] Here, we consider this particular set of cases—all cases of digitized special collections—in light of those six factors. In addition, we note several other factors that seemed especially important in developing the sustainability plans of these resources. Each topic below offers a general description of what we observed across the eight cases and highlights the good practices we found, illustrated with examples from the cases.

Six important factors

1. **Dedicated leadership.** Strong, dedicated leadership plays a key role in many large-scale digital resources. Sustainable resources studied elsewhere, such as the Stanford Encyclopedia of Philosophy and the Thesaurus Linguae Graecae, are led by people who devote their time to developing the digital resources, building their audiences, and securing needed funding.[28] However, most digitized special collections at research libraries, museums, and archives are not led by individuals who can devote full time to their digital resources; management is often shared across several departments and individuals. An initial grant may bring together people from several departments; in subsequent phases, there may be a project manager on a specific grant, but the resource is less likely to enjoy a full-time manager overseeing its daily operations or long-range strategy. Among the digital resources we studied, the only exceptions to this are the Biodiversity Heritage Library, which has a dedicated collections coordinator, and the Vanderbilt Television News Archive, whose entire staff is dedicated solely to the project. Often, however, one person may manage several digital resources. This is the case with HEARTH, whose primary leader oversees two additional digital resources and other initiatives in her library; with Quakers and Slavery, whose manager is

also the director of the Quaker and Special Collections at Haverford; and even with Florida Memory, which receives most of the time of the archives supervisor, but is considered one of several resources she oversees.

Whether or not there was a full-time manager overseeing strategy, we did observe several cases where the support of influential "champions," sometimes different people over time, was very important. Since its founding in 1968, the Vanderbilt Television News Archive has benefited from strong individuals energetically advocating for it at the highest levels of the university. This has been their situation. from the start, when a Vanderbilt alumnus lobbied his alma mater to take responsibility for recording the news and managing the resulting archive, and subsequently funded a three-month pilot project. Similarly, the path followed by the American Antiquarian Society to digitize its holdings by partnering with commercial vendors has had its detractors over the years, but the consistent vision of President Ellen Dunlap has kept the program delivering what she needs from it: digital files of her collection for the future, and a steady income stream in the present to support her organization.

In other cases, strong teams have proven to be the backbone of resources that have continued to grow and develop over time. This is true for the Florida Folklife Collection, whose team at the State Archives of Florida includes many of the same people who first developed the resource in 2003.

2. **Developing the value proposition through understanding the audience.** Although it can be a challenge for some of the individuals and teams managing digitized resources to develop a nuanced understanding of their users and their needs, several of the teams behind the collections we studied had done just that and had taken what they learned even further, allowing it to influence the future development of their resources and the services offered around them.

   The Biodiversity Heritage Library was created with the explicit mission of serving as a free resource for taxonomists throughout the world. BHL's partners provide open, harvestable data; and, in response to trends they observed in their user statistics, the project team has just received a grant from the NEH to develop support for mining illustrations in the taxonomic database.

   The Florida Folklife Collection enjoys in-house staff with strong technical expertise, which enables the resource to evolve and change through iterative design as feedback rolls in from users. Recent changes the team has made as a result include allowing audio to be downloaded rather than simply streamed, and optimizing the site for hand-held devices.

3. **Managing costs.** Determining the costs for running these digital resources is no simple task. In many cases, particularly when a digitized special collection is part of an institution that has chosen to support it, the full costs can be hard to tease apart from the rest of the managing unit's operating budget, or from a larger digital platform of which it is a part. Many libraries manage costs at the departmental level (e.g., "special collections" or a designated "digital" department) but rarely by the individual collection.[29] At the State Library and Archives of Florida, for instance, the Florida Folklife Collection is but one of several collections hosted on the Florida Memory website; staff are primarily assigned to Florida Memory, though some may spend more time on tasks related to the Folklife resource.

   Since Vanderbilt Television News Archive was expected to be a self-sustaining resource from the start, it has a completely separate budget, which amounts to $500,000 annually. This case is exceptional in this group and more widely, as well. The American Antiquarian Society is an independent, nonprofit organization, so it maintains an annual budget, and its revenues from license agreements are considered

part of its operating budget.[30] Managing a separate budget is not in itself a mark of sustainability, but it does signal that a resource has reached a level of significance within its institution, such that people's time and resources need to be accounted for. Additionally, if the resource is generating any revenue, it is important to be able to understand the cost base it may be attempting to cover.[31]

For many of the resources we studied, there were several basic activities—hosting the content on the platform, preservation, and perhaps some general technical support—that were often offered as part of the core services of the institution, with the understanding that any additional activities would need to be covered by an external funding source. In most cases, "additional" activities would include any major technical development, the digitization of substantial additions to the collection, or significant outreach efforts.

4. **Identifying diverse sources of funding.** The upfront costs of building a digitized collection may be extremely modest—for Haverford's project, these were only the costs of hiring student workers—or considerable, as in the case of more complex projects such as the BHL, which involved development of infrastructure and interface, as well as the nurturing of a network of partners. Many digitization projects are started with grant funding, which may be used to help support scanning of a new collection that will live on an existing platform, or may finance the creation of a new platform along with the collection. Among the cases we studied, all but two—AAS's digitization program and the Vanderbilt Television News Archive—were created with initial grant support, as follows:
   - Biodiversity Heritage Library: $2.5 million from the MacArthur Foundation, through the Encyclopedia of Life project
   - Florida Folklife Collection: $155,752 IMLS National Leadership Grant (NLG)
   - Grateful Dead Archive Online: $615,174 IMLS NLG
   - HEARTH: $277,311 IMLS NLG
   - Maine Memory Network: $220,000 from the New Century Community Program
   - Quakers and Slavery: $32,964 IMLS Library Services and Technology Act Grant

   Once the project is up and launched, however, grant funds can be harder to obtain. Most of the cases we studied draw some support from their host institution, and many benefit from in-kind contributions, whether from other institutional partners or volunteer contributors. Just a few have attempted to generate revenue—even as a cost-recovery measure.[32] While in the museum world, for example, it is common to see earned income via admission fees, image licensing, gift shop sales and the like, in the cases we studied, we saw just a few examples of this kind of enterprise, and most often on a very small scale.

   The following digitized collections engage in some revenue generation:
   - American Antiquarian Society: content licensing to third-party vendors.
   - Florida Folklife Collection: image licensing; cross-subsidy from the State Archives of Florida's records management. Although neither Florida Folklife nor Florida Memory generates its own revenue, the records management business run by the State Archives as a whole covers the Archives' costs; part of this revenue supports staff, some of whose time is spent on Florida Memory.
   - GDAO: donation campaigns; major fundraising to build an endowment.
   - Maine Memory Network: image licensing for personal and professional use. This operates on a cost-recovery basis, contributing less than $30,000 per year.
   - Vanderbilt Television News Archive: partnership model; pay-per-rental.

5. **Setting metrics for success…and assessing progress towards goals.** Being able to set specific impact-related goals and achieve them is a critical part of running sustainable resources; it permits the leadership of the resource to demonstrate progress, but perhaps most important, it permits them to see when things are not going as planned and to change course if necessary. Some of the digitized special collections we studied were able to use this to very good effect. The Florida Folklife Collection and Florida Memory more generally track usage monthly, and though they have struggled with finding the best means to accurately assess usage, they are well aware of the relative popularity of content types and subjects within the collections. They assiduously gather all press and mentions of the website, as well as awards, user comments, and any other measures of value. These are key documents for them when making an appeal for funding.

   For other resources, tracking progress can also lead to a moment of reckoning when original targets are not met, offering an opportunity to reassess plans and consider new directions. Maine Memory's initial goals for contributing partners were quite high; the project anticipated that it would have received 20,000 contributions within the first grant period. This did not come to pass, but the evaluation process helped the project team to reformulate their value proposition, as they realized just how important their training work with potential partners was. Rather than measuring the success of the project in terms of the number of items from partners that had been ingested, they began to think about the real value of the project in terms of the impact it was having on the partner institutions, many of which had had little training in scanning before and did not have alternative means to put their unique content online.

Once the project is up and launched, however, grant funds can be harder to obtain

6. **Aligning with the host institution's mission.** Whether or not it writes checks that explicitly and directly support a given digital collection created or managed under its roof, the institution that hosts that resource is likely providing support in the form of server space, outreach, or assistance with grant writing. The team that manages a digital resource is far more likely to enjoy assistance from their host institution when the goals and subject matter of the resource reflect the mission of the supporting institution. Such institutional buy-in can serve both as a safety net should external monies be difficult to come by, and as a ready-made channel for promotion.

   AAS made a decision to convert its entire collection to digital form, and carrying out that bold decision required much more funding than is supplied from its relatively small endowment and the annual contributions it receives. AAS turned to commercial publishers to form partnerships that would result in significant cash revenues for the Society over an extended period, and it developed the digital strategy that guides these efforts with the overall mission of the AAS, rather than a specific audience for its digital collection, in mind.

   HEARTH has also benefited from support from its home institution, Mann Library at Cornell University, which views the collection as a priority due to the fact that HEARTH reflects the core historical literature of the College of Human Ecology (once known as the College of Home Economics), which is served by Mann Library. The growth of the collection since the end of its initial grant has been accomplished thanks both to small gifts from discretionary funds held by Mann Library and by the College of Human Ecology and to the University Library's support for the digital collection's technical infrastructure.

   Like Cornell and AAS, many institutions have begun to make the support of digital resources a core part of their work, sometimes even budgeting for them separately or assimilating digital project development and

management into their regular workflows. In both cases, the institutions taking these steps demonstrate thoroughgoing commitment to their collections, integrating them in such a way that those resources are closely tied to the everyday activities and operations of their hosts and are unlikely to ever be forgotten or simply left behind.

Additional shared success factors

In addition to the characteristics mentioned above, which apply broadly to digital resources, several important themes emerged from these case studies that are particularly relevant to those running digitized collections in research libraries and cultural institutions.

Relying on an established technical platform (up-front considerations to smooth the way long-term). Among the highest costs in building digitized special collections—and in building other content-heavy websites, for that matter—are the costs of website development and design. Several of the resources studied benefited a great deal from earlier investments in technical platforms and systems made by the host institution. This alleviated the need for custom platforms, which are costly to build and to maintain.

- Triptych, a CONTENTdm platform developed in 2002 for digital collections and shared by Haverford, Swarthmore, and Bryn Mawr Colleges, is the virtual home of the Quakers and Slavery collection, launched in 2009. Because the project team had helped to build Triptych several years before and the three partner colleges had already assembled a team to support the platform, the team running Quakers and Slavery has never needed to devote much time to Triptych.
- Florida Memory, founded in 1995 as the Florida State Archives Electronic Imaging Project, serves as the platform for the Folklife Collection, digitized in 2003. That said, even when shared platforms offer certain efficiencies, development costs do not go to zero. The Florida Folklife Collection, initially supported by the Florida Memory platform, was not built using the same database as the other Florida Memory resources; a few years after its launch, it was necessary to migrate the data from each individual collection on the site into a single content management system.

For projects that undertake the building of a platform to host a digitized collection, such customization can afford benefits, while also posing risks. For Maine Memory Network, whose managing team created a proprietary platform and hired freelance web designers, there is a particular kind of threat: hosting costs, ongoing development costs, and preservation are all considered costs associated with maintaining the digital collection, meaning that, should a grant not come through, those activities cannot be continued.

Many institutions have begun to make the support of digital resources a core part of their work...in such a way that those resources are closely tied to the everyday activities and operations of their hosts and are unlikely to ever be forgotten or simply left behind

Gathering needed staffing expertise and creating cross-functional teams. While developing internal capacity has many clear benefits, there are times when bringing in expertise from outside the organization is critical to the success of a project. We noticed a few cases where the project team felt this was necessary: Florida Folklife Collection required the skills of a trained sound archivist; the Vanderbilt Television News Archive realized it would need to bring in a sales and marketing manager to grow its sponsorship business; and the American Antiquarian Society saw the value in hiring a licensing agent to structure and negotiate their licensing agreements with commercial vendors.

How to fund these specialized positions is not always obvious. In some rare cases, a specific donation will make a position possible, such as the Grateful Dead Archive Online; the original donation of the archive came with the stipulation that a full-time archivist be hired and an endowment created to fund the position. In the case of the AAS, the licensing agent is not full-time staff, but works on a commission basis. More common is weaving together pieces of several grants to collectively underwrite these positions, though this strategy can only go so far; we also heard project leaders report that a key team member had moved on or found more stable employment in the gaps between funded projects.

Developing strong partnerships. Both Haverford and Cornell have relied on partnerships with other libraries to assist with their collections. Quakers and Slavery is housed on the digital collections platform shared by Haverford, Swarthmore, and Bryn Mawr. Each college contributes equally to the platform's annual license and staffing for ongoing maintenance, helping to minimize what might otherwise be prohibitive costs for any one of these small colleges. The HEARTH team at Cornell's Mann Library has called on libraries with similar collections to help provide some of the more significant materials not held by Cornell, already identified as crucial to the HEARTH collection. Cornell assured the other institutions that scanning would not adversely affect the materials, and those libraries have lent books and journals to Mann Library free of charge.

BHL's partnerships are even more critical for the success of the resource. The team responsible for the collection has calculated that BHL members have contributed the equivalent of 14.2 FTE and $1,381,670 (covering staff and other costs) to support the resource, in addition to the grants the members are awarded to support their individual participation.

3. Ongoing Challenges to Sustainability

The eight cases we studied were selected for their success in certain ways: Some have been able to develop low-maintenance shared infrastructure, or interfaces that facilitate user contributions. Others have developed revenue models that are working to support their ongoing operations. Still others have been assiduous at building digitized resources that speak to the core mission of the institution that they are part of. In each case, the resource has found a way to support itself and to continue to be valuable to users and other stakeholders over time.

Of course, the environment of each institution presents unique opportunities for and obstacles to sustainability. Indeed, the teams managing the digitized collections we studied have all faced challenges as they have striven to maintain and develop these resources. While not all eight faced the same challenges, the following are some themes that emerged across the group:

- **Assessment measurement.** Several of the resources studied had some degree of difficulty in supplying quantifiable measures of success. In some cases, the data existed, but was not top-of-mind for our primary contacts. In other cases, technical challenges made arriving at precise numbers difficult. Few of the teams we spoke with mentioned setting specific targets for usage. AAS, because it began receiving predictable digital royalties from Readex, was able to set revenue targets, as were the other projects that engage in revenue-generating activities.
- **Resource staffing dependent on external support.** While most teams included people in several types of roles including content, technology, and outreach, some of the more specialized staff positions were dependent on grant support. This led, in two cases, to projects losing a key staff member (a programmer, for example) when caught in between grants.
- **Reliance on outside funds.** More generally, this challenge can be described as an overreliance on grant-based funding. While most resources we studied had developed systems based on multiple sources of

support, almost all of the leaders we interviewed relied upon grant funds to support any significant new phase of content or technology development.

- **Not going beyond digitization.** As digital content becomes a more integral part of the fabric of scholarly communication, making sure that collections are presented in a way that encourages usage is increasingly important. This may mean developing a curriculum or research tool component, integration into publishing, and allowing user contributions—that is, developing tools to enable people to work with these materials.
- **An underdeveloped sense of who the users of a digitized collection are and how to reach them.** While many of the resources engage in some degree of audience assessment to see how many users have visited the resource or how many page views they registered, few were engaging in actively researching or speaking with those who routinely use their digitized collections.

Searching for Sustainability: Conclusion

Researchers, students, teachers, and learners of all ages are today able to enjoy the wealth of content held by museums, libraries, archives, and historical societies in ways unthinkable one short generation ago. Until recently, these photographs, documents, records, and objects were available only to those diligent enough and of sufficient means to track them down, request access—often in writing—and journey to whatever major world capital or small hamlet happened to house the organization fortunate enough to have stewardship of the originals.

Those days are nearly unimaginable now, as the idiosyncratic holdings of collecting organizations worldwide are slowly but surely emerging onto the global shared space of the web.

And yet this transition is not a single orderly transformation, but rather the aggregate of many experiments, attempts, and individual efforts to imagine what the digital form of these precious physical artifacts can be. Some collections may resemble their physical counterparts fairly closely, being not much more than digital translations of their analog originals. As TIFF files replace images on paper or slide or microfilm, the experience of the researcher is vastly facilitated by the ability to now search those images and quickly view them in remarkable detail.

And many digitized special collections have grown increasingly complex, incorporating additional content and new tools that operate across multiple collections or institutions, and sometimes even permitting the audience to play a role by contributing material. Some collections, such as Quakers and Slavery and Maine Memory Network, are accompanied by interpretive essays and original educational materials, while others, such as HEARTH, reach beyond one institution to build a subject-based collection. Still others, such as the Grateful Dead Archive Online, seek ways to share their home institution's collection online, while also seeking contributions of relevant content from users. The best online "versions" of the physical collections do not just translate them to the web; they transform and enhance them, making them potentially even more useful than their physical counterparts.

No longer satisfied to collect and preserve content for those determined enough to find it, organizations from the largest public libraries to the smallest historical societies have started to realize that the value of their collections will only grow as more people are allowed and encouraged to interact with them. Managers of digital resources are increasingly capturing data on usage and considering other metrics for measuring the public impact of sharing digitized collections via the web. Yet, there are areas where further data would be useful both at the system-wide level and for individual projects.

The growing awareness among managers of digital resources of the importance of measuring usage and impact has not yet been matched by systematic efforts to define the level and type of interaction with users that will be deemed a success. Some tools have been developed to assist with this, such as the Oxford Internet Institute's Toolkit for the Impact of Digitised Scholarly Resources (TIDSR), which defines and explains many tactics for measuring impact.[33] But just as important is determining what meaningful measurements will be, based on a sound sense of the potential reach of a resource. For a collection to have successfully reached its audience, does it have to reach 100 people or 1 million? Is reaching the widest audience possible a costly distraction, as it might be for an academic library, or central to the mission of a publicly funded cultural organization? Discussions that help the managers of these resources to accurately define and assess the potential audience or audiences for the impact and reach of their digitized collections would be most useful in the earliest planning stages; additionally, these conversations will be most effective if they are based on awareness of the size of the potential audience, tempered by the ultimate aims and mission of the institution.

As earlier studies have shown and the cases in the present study confirm, the ongoing costs needed to support digitized resources are substantial, whether those expenses are associated with creating content, incentivizing others to create content, developing web-based interfaces, or keeping the communications channels humming. The work of managing a digital collection is ongoing and often labor-intensive; but it is often difficult to quantify precisely in financial terms. Few digitized collections are managed with separate budgets, making it difficult to know what is being spent to support any particular resource. And while the case studies presented here

demonstrate for the most part very active ongoing support activities, many respondents from ARL member libraries to a recent survey indicated that they see the greatest effort and expense devoted to creating new resources at their institutions, not to supporting existing ones.[34] The disparity between those two views may suggest that many of the libraries creating digitized special collections today are either not able to or not yet aware of the importance of investing the time or resources that they will need to in the future.

Going forward, how will organizations deliver value to a wide group of users and identify sources of support to sustain their work with digitized collections? These appear to be the key lessons for others offered by the cases we studied:

1. **Seek scale where possible….** Whether a team of like-minded institutions works together to support a major aggregation of content, a few partners choose to pool resources for a shared platform to host their collections, or a single institution builds infrastructure to support its many digitized collections, looking for places to benefit from scale is an important step to reducing the burden carried by any single digitized collection and may be more appealing for users, as well.
2. **…while also applying focused attention where needed: specifically, on understanding the needs of the users of specific collections.** Hosting multiple collections on a shared technical platform solves some problems, but does not necessarily drive usage. A nuanced understanding of a digitized collection's current and potential audience is necessary in order to ensure the resource is developed in ways that users will find valuable. While efforts to understand audience are especially critical for collections expecting to have user-contributed content or other types of donations, they hold for any digital resource that measures its worth in part by serving users.
3. **Dedicated leadership is the backbone—and occasionally the lifeline—of a digital resource.** In addition to devoted leadership guiding the strategy of a digitized collection with an eye to future directions, an impassioned champion—not necessarily on the team managing the collection—can be a vital source of support. This underlines the need for leaders of digital resources to stay connected to their institutional communities and to key external stakeholders, whether they are institutional administrators, major donors, or other committed supporters.
4. **Diverse funding sources may provide digital collections with greater long-term security.** A digital resource that relies on only one revenue source will find itself in a tight spot if that funding line is ever compromised. This insecurity might, in turn, mean that the team running that resource does not feel free to experiment or to further develop their collection beyond its initial scope. While those operating in an institutional setting like a library may not fear "losing" their core funding, they still struggle to identify additional funds that can cover ongoing development costs, such as a programmer who can continue to tweak the interface or new content additions. Creative efforts to identify philanthropic or earned revenue streams can offer leaders of digitized collections the latitude to keep valuable staff in place between grants or to pursue ongoing development.
5. **Identifying needed expertise and established systems can help defray startup costs, increase efficiency, and make room for creativity.** Some digitized collections rely on already established technical platforms on which a single individual can look after multiple resources. Other collections profit from the proficiency of an outside consultant. Both arrangements can benefit the teams managing these collections, making it easier for them to create a digital resources and, with all the pieces in place, to run it efficiently and keep it going.
6. **Align with stakeholders and the host institution.** For the digitized resources housed within institutions, checking to see how the aims of each collection further the mission of the host should be an ongoing

activity. Where a digitized special collection is a "one-off" project, it may not only prove costly to support, but it may prove challenging to make a case for internal support.

The path from digitizing a collection of rare or unique materials and to turning it into a resource that is shared with and useful to an online audience is not linear; it may involve some several forks in the road, a dead end here or there, and perhaps some doubling back. Sustainability goals will vary according to the aspirations of the project leaders and the missions of their host institutions. As technology evolves, as user needs change, and as more content comes to light, the challenges are to remain alert to these changes and to be willing to consider how these resources might best adapt. In all the cases considered in this study, the ability to attract devoted users and stakeholders has been critical to the collections' ability to attract the resources needed to persist and grow over time. In addition, institutions whose leaders have determined that "digital" is not a special case, but rather a core value of their organizations, may find it easier to obtain internal support for this work, providing them with the financial and human resources their collections will need over time.

And similarly, the institution whose leaders see "public impact" as a core value is more likely to devote staff time to thinking about who is using their web-based resources, what the users value in these digitized collections, and how to encourage more people to take advantage of them. Indeed, a large public institution may take a global view of offering access to people freely around the world; a smaller collection at a teaching-focused college may be justified in its aim to serve campus teaching purposes. To be fair, not every institution identifies "public impact" as its primary objective when undertaking digitization of its collections. A private, non-profit organization that functions as an independent entity, whose main users are scholars who conduct research onsite, may see the digitization of their collection not as important groundwork for a free, digital future, but as a source of much-needed capital in the present day.

Digitized special collections hold out the opportunity to share treasures once hidden in large and small libraries, archives, museums, historical societies, and other institutions across the world with those who can learn from them, teach with them, build upon them, and otherwise benefit from exposure to the artifacts that together comprise our history. As institutions of all types and sizes begin to participate in creating digital surrogates, creating and collecting born-digital objects, and crafting new ways for the public to engage with them, the landscape will only become richer, perhaps even more unwieldy. Preparing for the sustainability of these collections will require those who manage them to think not just about the hard work of scanning, cataloging, and preserving them, but the equally important tasks of determining who might one day use them and how and what will need to be done so that the collections remain valuable and useful to them—as well as viable for them—well into the future.

APPENDICES

Appendix A: Case Study Methodology

Developed by Ithaka S+R in partnership with the Association of Research Libraries, this study aims to share examples of successful digitized special collections created in research libraries and cultural heritage

communities, and, in so doing, to help these communities understand the approaches that some of their peers have taken to sustaining their own collections.

In choosing to write qualitative case studies rather than undertake a single survey or other quantitative study, the research team was able to dig deeper into the motivating factors and strategic decision points of the leaders of these digitized special collections. Because we endeavored to share lessons that would be instructive for other leaders of digital resources, we encouraged those we interviewed to share the different sustainability strategies they have implemented or tested along the way as well as the challenges and successes they have experienced while creating and managing their resources.

To this end, the Ithaka S+R research team developed a methodology that involved first identifying digitization projects with sustainable practices and then examining eight of them in great detail to understand the specific steps they have taken to arrive at the current models in place. We hoped that this approach would enable us to identify the factors influencing this positive outcome and to share examples of good practice.

To guide this work, ARL and Ithaka S+R assembled an advisory committee consisting of experts and senior administrators from the library and cultural heritage sectors. The committee reviewed project methodology, made recommendations on collections to examine, and provided feedback at key milestones in the project. The group convened in person and via conference call to review methodology and make recommendations of resources to examine; to approve the final selection of cases; and to read and critique the draft versions of the case studies and final report. The advisory committee was instrumental in helping the research team identify and articulate the successes, potential risks, and lessons that can be learned from each of these stories.

Case studies can be conducted in many ways. While some seek to capture first-person accounts of an event or process and others may illustrate unremarkable stories that are nonetheless representative of a larger group, the research team chose to seek out exemplary cases in order to ascertain process, environment, and decision points that may have been critical to success. Robert K. Yin in Applications of Case Study Research has articulated the benefits of finding cases that "reflect strong, positive examples of the phenomenon of interest" and working backward from this outcome to identify the factors that contributed to their exemplarity.[35] Yet while each of the resources ultimately studied was selected for this primary reason and has general lessons to share, each resource is also distinct, with a unique narrative often reflective of its particular environment. The case study format allows us to better understand the processes undergone to achieve these outcomes and to offer detail on these models so that other institutions can observe, emulate, challenge, and improve upon them.

Case selection process

The selection process sought to ensure that cases would represent the range of types of institutions we observed in the populations studied. To that end, we elected to choose resources that addressed the following criteria for selection:

- **Institution type.** The team sought resources created at both academic libraries and public libraries and museums, as it was thought that these institutions may be driven by different missions and goals, with the latter seeing the general public as its audience and the former serving their campuses first and foremost.

- **Institution size.** The team looked for resources created at both large and small institutions, so that the scale of activities possible in each group could be highlighted. For academic libraries, the initial line between "large" and "small" was drawn at a $1 million operating budget, because the 2006 IMLS report Status of

Technology and Digitization in the Nation's Museums and Libraries designated as "small" and "medium" all institutions with budgets of $1 million or less. When it became difficult to identify resources that met our criteria, that limit was raised to $8.5 million (the operating budget of the University of California at Santa Cruz). For museums, libraries, and archives, this category was so broad that, in theory, it included everything from the New York Public Library to local historical societies. To ensure that the cases would represent a wide range of institutional types, we selected some that were clearly "large"—the Florida Department of State, Division of Library and Information Services (annual budget $10 million) and the Smithsonian Libraries ($810 million)—and some that were considered small—the Maine Historical Society ($2 million) and the American Antiquarian Society ($5 million).

	TYPE		
SIZE		Academic library	Public library or museum
	Small	2	2
	Large	2	2

The initial funding source for the digitized special collection—internal monies from the base budget of the home institution or an external grant—was also treated as a segmentation category, because it was believed that the goals of the resource and the activities undertaken could vary depending on the source of initial support. This category proved very difficult and was later dropped due to the fact that very few collections of substantial size and prominence were funded internally.

Selection criteria

Within each segment, the research team identified digitized special collections that met criteria that Ithaka S+R's prior work has identified as evidence that a resource is sustainable:

- **Public benefit.** We sought evidence of impact, whether measured by size or engagement of audience, awards, or other compelling factors, as defined by the leaders of the resources, according to their own goals. Measurements came in the form of user comments, visitor counters, and references to the site elsewhere on the Internet (e.g., social media outlets, professional organizations, journal articles).

- **Financial sustainability.** Resources had to have developed ways to cover their costs; those with innovative, effective business plans and revenue models were given special attention, as the research team believed information about the strategies of those resources would be particularly welcome in this period of significant budget constraints. The team looked for information related to resource support post-launch (e.g., new grants) both on the site and elsewhere on the Internet, as well as for evidence of revenue generation through, for instance, requests for donations and sales of higher quality images or recordings. Also assuming that financially stable resources would be more likely to be up-to-date, the team sought recently and regularly updated sites and sites that looked "current." Blog posts, social media activity, copyrights, and notifications of when materials were added to the site were all helpful.

In addition to demonstrating impact and financial security, digitized special collections were required to have been online and publicly available for at least two years. In order to determine the online collections' ages, the

research team looked on their sites for copyrights and project histories with dates, as well as time-stamped resources elsewhere online, such as news articles and grant reports referring to the collection.

Screening process

From June through November 2012, the research team undertook desk research to identify eight digitized special collections that fit the criteria described above.

Two of the criteria required modification. First, when we struggled to find examples of eligible resources at institutions whose libraries had operating budgets of $1 million or less—again, a reflection of IMLS's own break-point—it quickly became clear that this definition of "small" academic libraries would have to change. We dealt with this in two ways. One resource selected—Quakers and Slavery at Haverford College—was more modest in its accomplishments than other resources under consideration, but it provided the opportunity to study the platform it shares with two other small institutions, Swarthmore College and Bryn Mawr College. Second, we incrementally increased the budget threshold until we identified a second case: the Grateful Dead Archive Online hosted at the University of California at Santa Cruz's library, which has an operating budget of $8.5 million.

The other criterion that proved problematic was the source of the funding that had underwritten the digitization of a special collection. While we had anticipated looking for both digital collections that had been created with the support of external funding and those whose creation had been funded internally, our initial conversations with staff associated with digitized special collections indicated not only that internally funded collections would be nearly impossible to find, but also that this level of detail would only arise after extensive interviewing. And more importantly, we came to learn that original funding sources for resources are often a combination of internal and external monies; identifying collections that were predominantly internally funded would be quite complicated, since the contributions were not often budgeted formally. Instead, we chose simply to consider funding sources in the larger analysis of the cases rather than making it a requirement of selection.

To develop a list of candidates, the research team took recommendations from the advisory committee and others familiar with the landscape of digitized special collections. Databases were also consulted, including the IMLS's Digital Content and Collections registry, which includes IMLS grantees, and data from the survey of digitized special collections at ARL institutions was used.[36] Lastly, we browsed the websites of Oberlin Group libraries and other institutions likely to have digitized special collections. In all, we compiled a list of 188 resources to examine.

The first step of work in this stage required the Ithaka S+R team to perform desk research on the list of collections compiled, which involved investigating the collections' websites as well as more general Internet searches for data on the institutional contexts of the collections and the collections themselves.[37] Desk research helps to narrow down the field of potential case studies by excluding those candidates that do not meet selection criteria. In some cases, exclusion was clearly indicated (digital collections no longer in operation; collections that had not been live for at least two years, etc.). Where possible, the research team entered into a spreadsheet as much key data as possible, including collections' names, URLs, and launch dates; each was then coded according to institutional characteristics (size and type) and assigned ratings of 1 (low) to 5 (high) for evidence of usage and/or impact and financial sustainability and innovation.[38] In total, the project team reviewed 109 digitized special collections at 66 academic libraries and 79 at 55 cultural institutions.

The leaders of the 31 resources with the highest rankings for the three sustainability criteria were then contacted by email for a screening via telephone.[39] The calls typically lasted 30 minutes, and provided the research team with an opportunity to confirm the data already gathered on the resource and to probe further on topics difficult to determine via desk research (impact, finances). Following this step, the list of resources was narrowed down to 11.

In December 2012, in consultation with the advisory committee, the Ithaka S+R research team reviewed the 11 resources remaining in order to prioritize the list of institutions that we would ask to participate in our study and to collect more ideas for collections to examine, as it had proven especially challenging to identify robust digitized special collections from small institutions. Two more collections were vetted, and the final eight were selected.

In January 2013, invitations to participate were extended to the leaders of eight digitized special collections:

MUSEUMS, PUBLIC LIBRARIES, HISTORICAL SOCIETIES, ARCHIVES		
Large	Biodiversity Heritage Library (BHL), Smithsonian Libraries	Florida Folklife Collection, State Library and Archives of Florida
Small	American Antiquarian Society (AAS)	Maine Memory Network (MMN) Maine Historical Society

ACADEMIC LIBRARIES		
Large	Home Economics Archive: Research, Tradition, and History (HEARTH), Cornell University	Vanderbilt Television News Archive (VTNA), Vanderbilt University
Small	Grateful Dead Archive Online (GDAO), University of California, Santa Cruz	Quakers and Slavery, Haverford College

Case study research

Case study research consisted of in-depth interviews with key members of the leadership team of the digitized special collection, and, where possible, with other partners and users of the collection. In all but one case, interviews were conducted face to face, with interviews typically lasting 60–90 minutes. The interviews that could not be held in person were conducted by telephone, and most were recorded to ensure accurate note taking.

Interviews followed a detailed interview guide,[40] and they elicited discussion of both the history of the digitized special collection and the ongoing systems in place to run it. Topics covered included project origins, startup and ongoing costs, funding sources, management, sustainability concerns, impact and usage and the activities invested in them, and future plans, as well as institutional support for digitized special collections more generally. At each institution, every effort was made to speak not only with leaders of the project, but also with key individuals working on the digitized collection, and where appropriate, with senior administrators at the host institution who could speak to organization-wide strategies and plans, and with external partners involved in the digitized special collection project.

Appendix B: Desk Research and Screening Protocols

The documents below provided instructions for members of the research team as they researched and screened the digitized special collections reviewed for the present study. The protocols ensured that special attention was paid to the factors that both indicate and influence the sustainability of those collections. Desk research involved investigating the collections' websites as well as more general Internet searches for data on the institutional contexts of the collections and the collections themselves. Screening calls were preceded by emails to managers of each of the digital resources to be examined in order to arrange interviews with each of them, and the subsequent telephone interviews lasted approximately 30 minutes each.

Desk research protocol

Selection Criteria: Segmentation

1. Type of Institution
   - Is this resource part of an academic library or a museum/public library?
     - This may be determined through primary observation.
   - Record findings: academic library or museum/public library.
2. Budget Size of Institution
   - Is the host institution of this resource large or small?
     - For academic libraries, determine large vs. small by using the statistics provided by the National Center for Education Statistics, Academic Libraries: 2010 First Look. [41]
     - For museums and public libraries, determine large vs. small by using the IMLS report Status of Technology and Digitization in the Nation's Museums and Libraries.[42]
   - Record findings: large or small.
3. Source of Initial Funding
   - Was this resource created through internal investment or with an external grant?
     - This may be determined through investigation of the resource's website, which may list site funders and other sponsors, and, if needed, a web search for press releases and articles announcing the resource.
   - Record findings: internal or external.

Selection Criteria: Sustainability Factors

1. Longevity
   - Has the resource been available publicly for more than two years?
     - Look on the website of the resource for evidence of its start date, either on its homepage or in a section on its history. If this is unsuccessful, search the web for press releases or other articles with these details. Try to verify results by looking at grant reports, where available.
   - Record findings: yes or no.
     - If no, conclude research. Resource does not fit our criteria.
     - If yes, continue.
2. Financial Stability
   - Does the resource have a plan in place that permits it to cover its costs and invest in needed upgrades, whether through internal support or external funding?
     - Determine financial stability by looking for evidence of creative and varied attempts to generate revenue (advertising, requests for donations, evidence of sponsors, pay models, etc.) on the resource's site or in other related locations (e.g., the host's site). If available, look in the resource's history for financial history. If the resource is still active, check to see if its site is current and has been updated recently and regularly.

Record findings: Rate on a scale of 1 to 5. A score of 5 will indicate that we identified a variety of robust revenue streams; 1 will indicate that the resource is no longer in operation.

If the resource rates 3 or higher, continue.

3. Pubic Benefit

Does the resource have significant value for the community it was intended to serve?

Determine impact by looking for a visitor counter and user activity in comment areas of resource's blogs and other user-submitted areas. Look to see if the resource has a social media presence (Facebook, Twitter, etc.) and if there is a community response. Via Internet search, check to see if the resource is cited in academic journals, the sites of professional organizations, or in the news media, and look for awards and accolades.

Record findings: Rate resource on a scale of 1 to 5, with 5 signaling a strong public benefit, whether it is for a small but active niche group or for a wide-ranging group that is less active. 1 will mean that the resource shows no signs of having built an audience, audience contribution, or other forms of impact.

If the resource rates less than 3, conclude research. Resource does not fit our criteria.

If the resource rates 3 or higher, add the site to the list of resources to be considered for phone screening.

Phone screening protocol

Selection Criteria: Segmentation

1. Type of Institution (pre-screened through desk research)
2. Budget Size of Institution (pre-screened through desk research)
3. Source of Initial Funding

What was the source of your initial funding to create this resource?

Record findings: internal or external.

Selection Criteria: Sustainability Factors

4. Longevity

To confirm findings from desk research about whether or not the site has been available publicly for more than two years.

Screening questions:

When did this resource become available to users?

When did the site launch?

Assessment:

If the resource has not been available for two+ years, conclude research. Resource does not fit our criteria.

If it has been available for two+ years, continue.

5. Financial Stability

To determine if the resource has a plan in place that permits it to cover its costs and invest in needed upgrades, whether through internal support or external funding.

Screening questions:

How is this resource currently supported?

Are these forms of support ongoing?

Do they permit continued maintenance and upgrades as needed?

Is there a plan in place for the future of the resource?

Assessment:

Rate site on a scale of 1 to 5. 5 will mean that the resource has a strong financial outlook, 1 will mean that it is defunct, and 3 will mean that it is covering its costs.

If the resource rates less than 3, conclude research. Resource does not fit our criteria.

If the resource rates 3 or higher, continue.

6. Public Benefit

To determine if the resource has a significant impact on the community it was intended to serve.

Screening questions:

How many users does the resource have? (and how is this measured?)

What kind of feedback has the site received and from whom?

What kinds of other attention has the site received (citations, news articles, etc.)?

In what other ways do you measure the impacts of the resource?

Assessment:

Rate resource on a scale of 1 to 5, with 5 signaling a resource with demonstrated public benefit, whether reaching a high volume of users, or a smaller group of users who have demonstrated their appreciation of it in some way (awards, active usage, contributions). 1 will mean that the resource appears to have had no impact.

If the resource rates less than 3, conclude research. Resource does not fit our criteria.

If the resource rates 3 or higher, add the site to the list of resources to be considered as a case study.

Resource Rating Template

Institution:

Collection name with hyperlink

Contact:

Overall Score:

CATEGORY	RESULT	SCORE
Type of Institution	Academic library or cultural heritage	—
Budget Size	Small or large (amount)	—
Source of Initial Funding	External or internal	—
Longevity	Yes (older than two years) or no	—
Financial Stability	Describe	Rank 1-5
Public Benefit	Describe	Rank 1-5

Description and Background
(describe)

Partnerships
(describe)

Impact
(describe)

Covering costs

Appendix C: List of Interviewees

American Antiquarian Society

Ellen S. Dunlap, President, American Antiquarian Society
Hal Espo, President, Contextual Connections, LLC, consultant and agent for the AAS
Susan Forgit, AAS Finance Director

AAS Content Coordinators

Lauren Hewes, Andrew W. Mellon Curator of Graphic Arts
Tom Knoles, Marcus A. McCorison Librarian and Curator of Manuscripts
Marie Lamoureux, Collections Manager
Elizabeth Watts Pope, Curator of Books
Laura Wasowicz, Curator of Children's Literature
S. J. Wolfe, Senior Cataloger and Serials Specialist

AAS Technical Staff

Meg Bocian, Digital Expediting Coordinator
Nick Conti, Director of Information Technology
Alan Degutis, Head of Cataloging Services
Babette Gehnrich, Chief Conservator
Christine Graham-Ward, Cataloger, Visual Materials
Kathleen Haley, Systems Librarian
Jackie Penny, Imaging Rights Coordinator

Biodiversity Heritage Library

Nancy Gwinn, Director, Smithsonian Institution Libraries
Martin Kalfatovic, Associate Director, Smithsonian Libraries and Program Director, Biodiversity Heritage Library

Florida Folklife Collection

Tina Bucavalis, former State Folklorist (1996–2009)
Peggy Bulger, former State folklorist (1975–1989)
William Chase, former Sound Archivist
Gerard Clark, Chief of Archives and Records Management
Jonathan Grandage, Archives' historian
Katrina Harkness, Education Officer
Joanna (Jody) Norman, Project Director, Archives Supervisor
Christopher O'Toole, Systems Analyst
Blaine Waide, State Folklorist (2011–present)

Grateful Dead Archive Online

Robin L. Chandler, Associate University Librarian, Collections and Library Information Systems, University of California, Santa Cruz (UCSC) University Library
Ethan Henderson, Senior Director of Development, UCSC University Library
Susan Chesley Perry, Head of Digital Initiatives, UCSC University Library
Nicholas Meriwether, UCSC Grateful Dead Archivist
Virginia Steel, former University Librarian and PI on the grant, UCSC University Library

Home Economics Archive: Research, Tradition and History

Dean B. Krafft, Chief Technology Strategist, Cornell University Libraries
Mary Ochs, Director, Mann Library
Joy Paulson, Digital Collections Librarian, Mann Library
Oya Rieger, Associate University Librarian for Digital Scholarship and Preservation Services, Cornell University Libraries
Frances Webb, Applications Programmer, Mann Library

Maine Memory Network

Amy Aldredge, Program Director and Curator, Yarmouth Historical Society
Kathy Bolduc Amoroso, Director of Digital Projects, Maine Historical Society
Steve Bromage, Executive Director, Maine Historical Society
Patricia Burdick, Assistant Director for Special Collections, Colby College
Candace Kanes, MMN Curator and Historian, Maine Historical Society
Larissa Vigue Picard, Partnership Coordinator, Maine Historical Society

Quakers and Slavery

John Anderies, Head of Special Collections, Haverford College
Brycchan Carey, Lecturer, University of Kingston, London
Berry Chamness, Information Acquisition and Delivery Coordinator, Bryn Mawr College
Christopher Densmore, Head of Friends Historical Library, Swarthmore College
Cheryl Klimaszewski, Digital Collections Specialist, Bryn Mawr College
Spencer Lamm, Digital Initiatives Librarian, Swarthmore College; TriCollege Library Technology Coordinator
Terry Snyder, Library Director, Haverford College

Vanderbilt Television News Archive

Joseph Combs, Associate Dean of Libraries, Vanderbilt University
Dana Currier, Abstractor, Television News Archive, Vanderbilt University
Connie Vinita Dowell, Dean of Libraries, Vanderbilt University
Frank Grisham, retired director of Joint University Libraries, Vanderbilt University
Sarah Kachevas, Billing and Marketing, Television News Archive, Vanderbilt University
Patrick Loughney, Director, Packard Campus, Library of Congress
John Lynch, Director, Television News Archive, Vanderbilt University

Appendix D: Case Study Interview Guide

Background of interviewee

What is your role at the institution?
What is your role in the management of this resource?
Professional background?
To whom do you report?

Resource origins

Describe this digitized special collection.
Why was it first created?
Whose idea was it initially? Who worked on it? Whose support was needed for this to happen?
What activities were involved in its creation? (Activities may include project management, general activities [scanning, metadata, website design/software development, user outreach and support, usage analysis, preservation, editorial, copyright clearance], user tracking and needs analysis, outreach.)
How were the digitization, metadata, preservation, etc. standards decided?
How were the costs for these activities covered?
Specifically, if this was grant-funded, tell us about the grant (from whom, how much, for what).
If not grant-funded, how was support raised to do the needed work?
How has the product/service evolved over time? What changes have been made to the original plan, and what motivated those changes?

Value proposition

When you first created this resource, what did you think its main value would be?
Has this changed over time? (How?)
Today, who is the audience for this resource?
How do you know?
Does this differ at all from the intended audience for this resource?
Is there anything unique or especially innovative about this resource?
Why is this collection valuable to users? If this resource were not available, what would users do instead?
Does it offer a value distinct from the physical collection? If so, what is it?
How does this resource compare to other, similar resources? What does it offer that other resources don't?

Governance and leadership

Who manages this resource?
What department does the resource "live" in?
Is this resource managed primarily by a single leader, or is it one among many in a department?
Is this similar to or different from the way other resources at the organization are managed?
Who else works on this resource and what are their roles?
Are there any advisory members associated with the resource?
What questions or issues do they help to resolve?
How deep is their involvement?
Has this governance model remained consistent throughout the resource's lifetime, or has it changed since its creation?
What led to those changes?
What were the operational effects of this transition?

Are there any specific plans in place for its management, should the current manager leave or change positions? (Please describe.)

Activities and ongoing costs

What are all the ongoing activities required to run the resource?

Project management, scanning, metadata, website design/software development, user outreach and support, usage analysis, preservation, editorial, copyright clearance, user tracking and needs analysis?

Where do these activities take place?

Does this resource have its own budget?

If so, what is it and what does it include?

What costs are covered through in-kind contribution, or are part of larger departmental budgets?

What department covers those costs?

Funding

How is this resource currently supported financially?

Please describe all revenue sources (annual budget, grants/donations, earned income, in-kind contributions).

What costs is the resource expected to cover directly?

How are these decisions reached?

What are the consequences if the resource does not reach its financial target?

If relevant: Describe for us how the costs of this resource are shared within the department/institution. What activities are shared?

What role does revenue generation play in the ongoing support of this resource?

What revenue-generating activities have you tried or what activities do you want to try?

What has worked, what has not? Why?

Have there been specific obstacles that have hindered revenue generation?

Usage measures and accountability

How do you measure the success of this resource?

How did you determine these measures?

How (and how often) do you measure progress toward these goals?

Who measures this, and how often?

How did you define the targets and determine what they would be?

What steps have you taken to reach these targets? Which tactics have worked, which have not, and why?

What steps do you take if targets aren't met?

Is there anything special or different about this collection, compared to others? Do you evaluate it in different ways from other collections?

In light of the goals you have for this digitized special collection, what risks do you see on the horizon?

Institutional context

How have your institution's characteristics shaped the direction of this collection?

Mission?

Governance?

What are the general practices your institution has in place for:

- understanding audience and usage
- resource enhancement

- outreach to students and teachers
- preservation

How does this resource compare—in terms of its costs, the revenue it generates, the impact it has had—to others in the institution?

How do the overall costs for this resource fit into the overall budget preparations?

Institutional perspective

Does your institution have a written digital strategy?

Where do digitized special collections fit into that strategy?

Do you see digitized special collections as a priority area? Why or why not?

Is there a specific budget for digitized special collections?

If digitized collections are a priority in the future of the institution, tell us how you imagine this activity will be funded going forward.

Tell us more about your institution's stance on revenue generation; specifically as it relates to your digital resources/digitized special collections.

Do you see examples of digitized resources within your institution that seem especially robust/successful? Tell us about them and what you find exceptional about them.

What do you see as the most important problems to solve concerning sustaining this digitized special collection and the digitized special collections your institution holds?

Are grant-funded resources viewed differently from resources that are funded through other mechanisms?

Sustainability challenges and opportunities

What do see as the risks facing the long-term success of your resource?

What do you see as future opportunities for the success of this resource?

How long do you plan to continue the operation of this resource? Do you expect its value to users to change in the future? If so, how?

What useful lessons have you learned in the process of working with this resource?

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NOTES

1 On July 22, 2013, the House of Representatives' Appropriations Committee released its 2014 Interior and Environment Appropriations bill, proposing 49% cuts to the budgets of the National Endowment for the Arts and the National Endowment for the Humanities. See U.S. House of Representatives, Committee on Appropriations, "Appropriations Committee Releases Fiscal Year 2014 Interior and Environment Bill," 22 July 2013 press release, http://appropriations.house.gov/news/documentsingle.aspx?DocumentID=343384.

2 Association of Research Libraries, "The Unique Role of Special Collections; Special Collections: Statement of Principles, 2003," http://www.arl.org/storage/documents/publications/special-collections-statement-of-principles-2003.pdf.

3 Association of Research Libraries, Special Collections in ARL Libraries: A Discussion Report from the ARL Working Group on Special Collections, March 2009, http://www.arl.org/storage/documents/publications/scwg-report-mar09.pdf, p. 9.

4 Rick Anderson, Can't Buy Us Love: The Declining Importance of Library Books and the Rising Importance of Special Collections, Ithaka S+R Briefing Paper, August 2013, http://www.sr.ithaka.org/sites/default/files/files/SR_BriefingPaper_Anderson.pdf, p. 4.

5 Jackie M. Dooley and Katherine Luce, Taking Our Pulse: The OCLC Research Survey of Special Collections and Archives, OCLC,2010, http://www.oclc.org/content/dam/research/publications/library/2010/2010-11.pdf, p. 56. In the United Kingdom, the numbers were even higher, perhaps simply because the survey there, Survey of Special Collections and Archives in the United Kingdom and Ireland (2013), was conducted two years later. Ninety-one percent of all the research libraries and archives examined in the study have already undertaken at least one digitization project and/or have an active digitization program in their institution. The study population included Research Library UK members, OCLC Research Library Partnership libraries in the United Kingdom and Ireland, selected LIBER (Association of European Research Libraries) members from the United Kingdom and Ireland, selected Copac contributors, and selected Modern Language Association–designated members. See Jackie Dooley et al., Survey of Special Collections and Archives, OCLC, February 2013, http://www.oclc.org/content/dam/research/publications/library/2013/2013-01.pdf, p. 68.

6 IMLS, Status of Technology and Digitization in the Nation's Museums and Libraries, 2006, http://www.imls.gov/assets/1/AssetManager/Technology_Digitization.pdf, pp. 26, 49, 95. Although the research that led to the IMLS report surveyed public libraries, museums, archives, and state library administrative agencies, only the first three categories are mentioned here because they are most closely aligned with the subject of the present report.

7 Ibid, Status of Technology and Digitization, pp. 37, 59, 78. Archives were not asked about their goals for digitization.

8 Respondents were asked to rate the factors on a 10 point scale, where 1 equals "Not at all motivating" and 10 equals "Highly motivating." Responses of 8, 9, and 10 were considered to indicate "strong motivation." Nancy L. Maron and Sarah Pickle, Appraising Our Digital Investment: Sustainability of Digitized

Special Collections in ARL Libraries, Ithaka ,February 2013, http://sr.ithaka.org/research-publications/appraising-our-digital-investment, p. 16.

9 Nancy Maron et al., Sustaining Digital Resources: An On-the-Ground View of Projects Today, Ithaka, 2009, http://www.sr.ithaka.org/research-publications/sustaining-digital-resources-ground-view-projects-today.

10 Kevin Guthrie et al., Sustainability and Revenue Models of Online Academic Resources, Ithaka, May 2008, http://www.sr.ithaka.org/research-publications/sustainability-and-revenue-models-online-academic-resources. An updated version of this study will be available in late 2013.

11 Maron et al., Sustaining Digital Resources, 2009. Two years later, the Ithaka S+R research team returned to these same projects to see how they were faring. See Nancy L. Maron and Matthew Loy, Revenue, Recession, Reliance: The SCA/Ithaka S+R Case Studies in Sustainability, Ithaka, 2011, http://www.sr.ithaka.org/research-publications/revenue-recession-reliance-revisiting-scaithaka-sr-case-studies-sustainability.

12 Ithaka S+R is currently producing a series of studies on host institution support in academic and cultural heritage settings. See Nancy L. Maron et al., Sustaining Our Digital Future: Institutional Strategies for Digital Content, Ithaka, January 2013, http://www.sr.ithaka.org/research-publications/sustaining-our-digital-future, and Sarah Pickle and Nancy Maron, Collections without Borders: Sustaining Digital Content at Cultural Institutions, to be released in fall 2013. A report on host support for digital humanities projects in American universities and colleges is forthcoming in spring 2014.

13 Judith M. Panitch, Special Collections in ARL Libraries, ARL, 2001, http://www.arl.org/storage/documents/publications/special-collections-arl-libraries.pdf, and IMLS, Status of Technology and Digitization.

14 Gail McMillan et al., Digital Preservation, SPEC Kit 325 (Washington, DC: ARL, October 2011), http://publications.arl.org/Digital-Preservation-SPEC-Kit-325/.

15 Rebecca L. Mugridge, Managing Digitization Activities, SPEC Kit 294 (Washington, DC: ARL, September 2006), http://publications.arl.org/Managing-Digitization-SPEC-Kit-294/.

Additionally, in 2013, Ithaka S+R in partnership with ARL conducted a survey of ARL institutions to learn more about the activities and corresponding costs that member institutions are taking on to support the maintenance, enhancement, and preservation of digitized special collections. See Maron and Pickle, Appraising Our Digital Investment.

16 See Kwong Bor Ng and Jason Kucsma, eds., Digitization in the Real World: Lessons Learned from Small and Medium-Sized Digitization Projects (New York: Metropolitan New York Library Council, 2010), and Abby Smith, Strategies for Building Digitized Collections, Council on Library and Information Resources, September 2001, http://www.clir.org/pubs/reports/pub101/reports/pub101/pub101.pdf.

17 A more detailed discussion of the case study methodology is available in appendix A.

18 Ithaka S+R has significant experience writing case studies. See Maron et al., Sustaining Digital Resources, and Maron and Loy, Revenue, Recession, Reliance.

19 The rating template is located in appendix B.

20 The screening protocol is located in appendix B.

21 The interview guide is located in appendix D.

22 Maron et al., Sustaining Digital Resources, p. 11.

23 The Grateful Dead Online Archive reached its two-year milestone in 2013. We permitted its inclusion due to the great difficulty of identifying viable projects at "small" academic research institutions and due to the fascinating potential for impact and usage the project offered.

24 John Anderies, "Quakers and Slavery," application for IMLS Library Services and Technology Act grant, 2008.

25 Campaign website available at https://crowdfund.ucsc.edu/project/521b8e6f0920652673f9fa55.

26 Maron et al., Sustaining Digital Resources, 2009.

27 See note 12 for more on Ithaka S+R's series of "host institution" research projects.

28 See Matthew Loy, Thesaurus Linguae Graecae® (TLG) 2011: How a Specialised Resource Begins to Address a Wider Audience, Ithaka, October 2011, http://www.sr.ithaka.org/research-publications/tlg-update-2011, and Matthew Loy, Stanford Encyclopedia of Philosophy 2011: Launching a "Freemium" Model, Ithaka, October 2011, http://www.sr.ithaka.org/research-publications/sep-update-2011.

29 For a discussion of libraries, see Maron and Pickle, Appraising Our Digital Investment, pp. 17–18; on born-digital collections, see Dooley and Luce, Taking Our Pulse: pp. 57–58. For more on museum staffing for the creation of digital resources, see IMLS, Status of Technology and Digitization.

30 Maron and Pickle, Appraising Our Digital Investment, shares data on the departments that manage these projects; see p. 17.

31 Other examples of individual budgeting include Cornell's arXiv project, with an operating budget of nearly $775,000. Other similar examples include the Stanford Encyclopedia of Philosophy, an online peer-reviewed resource, and the Thesaurus Linguae Graecae, a collection of ancient Greek texts. For more on the latter two, see note 28.

32 For support in determining costs and selecting a funding model, see Peter Kim et al., Finding Your Funding Model: A Practical Approach to Nonprofit Sustainability, The Bridgespan Group, August 2011, http://www.bridgespan.org/getmedia/aad62d72-936a-4193-9c9f-cc1bbddfcfed/Funding-Models-Guide.aspx. Among the respondents to the ARL–Ithaka S+R survey of digitized special collections, 49 percent reported

having at least experimented with revenue generation. See Maron and Pickle, Appraising Our Digital Investment, pp. 23–28.

33 Available at http://microsites.oii.ox.ac.uk/tidsr/.

34 For more on the topic of financial investments, see Maron and Pickle, Appraising Our Digital Investment, for data from the survey conducted by Ithaka S+R in partnership with ARL.

35 Robert K. Yin, Applications of Case Study Research, 2nd ed. (Thousand Oaks, Calif.: Sage, 2003), p. 14.

36 IMLS, Digital Collections and Content, http://imlsdcc.grainger.uiuc.edu/ and Nancy L. Maron and Sarah Pickle, Appraising Our Digital Investment: Sustainability of Digitized Special Collections in ARL Libraries, Ithaka, February 2013, http://sr.ithaka.org/research-publications/appraising-our-digital-investment.

37 For the desk research protocol guiding this work, see appendix B.

38 The rating template is located in appendix B.

39 The screening protocol is located in appendix B.

40 The interview guide is located in appendix D.

41 NCES, Academic Libraries: 2010 First Look, http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012365.

42 Available at http://www.imls.gov/assets/1/AssetManager/Technology_Digitization.pdf.