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# The Collection Is the Network: Collection, Collaboration, and Cooperation at Network Scale

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## Networks, Collaboration, Community





## The Collection Is the Network: Collection, Collaboration, and Cooperation at Network Scale

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**I**t is 2030 and faculty arrive at their University for new faculty orientation. During the introduction to workings of the University Library, they watch demonstrations of intelligent discovery systems, powered by machine learning that connect them with vast networks of analog and digital collections. They take out their mobile devices and explore the systems for texts that are foundational to their research. Searches return lists of important works regardless of whether the works are locally owned or licensed, and many are available because the research community has made them open to all. When they find what they want, they see different options. For a print title, they see an option that will deliver the material in less than 48 hours. If they want, they can borrow the item and keep it as long as they need. If the title is available in a digital format, the download is simple and seamless. If it is not immediately available digitally, the user connects to a suite of digital services that helps them get a basic digital reading copy or a digitized object that is optimized for computational analysis. From the point of view of the researcher, users get what they want, when they want, and in the format that they need. The faculty need not be concerned with whether the

materials are owned or licensed by their local institution. Instead, they are served by a network that is the result of years of collaboration among large academic libraries—libraries that work together to build, organize, and maintain collections to support the unique and specialized research needs of scholars in the twenty-first century.

Academic libraries exist to serve the scholarly community with access to collections as a fundamental service. During the twentieth century, academic research libraries evolved into large, complex organizations that supported access to analog collections. Significant investment of institutional resources went into building collections with the goal of providing ready, convenient access to affiliated scholars. Physical proximity to collections and traditional circulation was a priority, research institutions were protective of their collections, and many institutions would limit what and with whom they shared. In the United States, the academic centers where doctoral-level studies developed and flourished all had major research library collections at their core (Abbott 2011). These large academic research libraries optimized themselves to acquire, organize, store, and preserve massive corpora of physical information sources. Librarians and their institutions frequently used collection size as a quality measurement alongside unrealized aspirations of building a *comprehensive* collection. In reality, not even the largest academic library could achieve this goal. In the analog world, individual research libraries began to bridge the local and global information environment through collaboration in acquisitions, cataloging, and resource sharing.<sup>1</sup> Nevertheless, the physical nature of scholarship prevented a truly seamless experience across siloed library collections.

The debut of the Mosaic web browser on January 23, 1993, was a seminal moment (Gillies and Cailliau 2000). From that point forward, the desire for scholars to connect with information quickly and seamlessly would help spur the move from analog to digital collections that has transformed libraries. In the succeeding decades, scholars have witnessed a rapid increase in the availability of digital resources: journals, monographs, images, data sets, and archival materials. Engagement with physical collections has decreased as more material, both historic and current, is made available online. Circulation, a traditional library metric for collection use, continues to decrease (Linden, Tudesco, and Dollar 2018).

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<sup>1</sup> In this chapter, *resource sharing* refers to a wide variety of ways in which libraries share collections and services. This includes interlibrary loan, scan-and-deliver, shared staff, and cooperatively developed and deployed software.

Publication output has increased as the Internet continues to transform and facilitate publication and dissemination. Even before the advent of the Internet, librarians understood the impracticality of any single academic research library acquiring comprehensively (Putnam 1929). Instead, research libraries depend on networks to enable scholars to access global research collections of significant breadth and depth. The network is the foundation used by libraries to reorient their thinking and advocate for the principle that facilitating access to collections is a fundamental service to our scholars. What we have locally matters less, and what we can provide regardless of ownership matters more (Antleman 2017). Where scholars once built their research habits around a library at the core of their information universe, now they use a library that positions itself as a hub focused on facilitation of access across a networked information ecosystem, much of it based in libraries that will serve researcher needs (Dempsey and Malpas 2018). Libraries are embracing their role as advocates and facilitators for a more open scholarly communication landscape through a variety of collection development activities, including making locally created or held scholarly materials freely available. This is a major shift for academic research libraries as they move away from building collections primarily on what is acquired to an emphasis on providing broad access to scholarship and digital objects produced at the institutional level to the wider global community (Dempsey 2017).

Although the information environment is evolving rapidly, publishers still distribute much of their scholarly output in print and large academic research libraries are a key market for these materials. The continued growth of these print collections places considerable strain on library spaces. Library buildings typically occupy prime campus real estate, often near the center of campus. These are spaces that serve multiple needs as scholars seek collections as well as spaces to study and staff to assist them with research, writing, and digital projects. Scholars may also need access to basic and specialized equipment, from copiers to high-performance scanners. Library staff need space to work and collaborate with scholars and colleagues. The institutions need library spaces to reflect the ideals of the institution, which may include awe-inspiring reading rooms lined with beautiful historic texts. And finally, the libraries need space to house physical collections—making them accessible and browsable to the community.

Most large academic research libraries do not discard their collections to make room for new materials. Between the pressures of a growing

print collection and projects to repurpose traditional stacks to meet other needs, high-density storage facilities have become an important part of the landscape. They provide efficient, secure, and environmentally optimized storage for collections. The construction and operation of such facilities requires significant financial investment. The wealthiest academic libraries are looking to cooperate in this area. At the University of California, this has taken the form of two storage locations, one run by the University of California, Los Angeles (UCLA), and a second operated by Berkeley. Princeton, New York Public Library, and Columbia have a shared storage complex called *ReCAP (Research Collections and Preservation Consortium)*. Harvard, which is reaching capacity at its high-density storage location, has now joined ReCAP. Duke and UNC-Chapel Hill have shared off-site storage. These partnerships have made it possible for many institutions to keep their print collections intact. Smaller institutions have not been so fortunate. It has been fairly common practice for collections to be dramatically downsized due to the demands mentioned.

The largest collections are incomplete, and the broadest bibliographic diversity of North American academic libraries is held collectively within the collections of all libraries (Lavoie, Malpas, and Shipengrover 2012). The breadth and depth of bibliographic holdings contained in American and Canadian libraries is represented in Figure 11.1. Published by Lavoie, Malpas, and Shipengrover in 2012, and updated by Lavoie in 2018, it shows that no one region holds all of the publications in North American libraries. Even the largest regional metropolitan area, Bos–Wash (Boston–New York–Washington mega-region), contains less than two thirds of all publications within the entire network (Lavoie 2018).

In order to preserve and maintain our collective bibliographic diversity, “shared print” programs have emerged. Within these programs, which have been implemented at various levels of geography across the country, libraries commit to retain and share specific copies of a particular book or journal title. This protects against the risk of deaccessioning titles out of existence. By distributing the burden, all libraries benefit from the commitment made by participants to retain titles in these accessible shared print networks. The collective collection stays large and diverse, even as each institution buys less print and retains fewer copies. Current efforts, presently being advanced by The Partnership for Shared Book Collections are looking to find ways to bring together the various regional and subnational shared book programs to leverage even higher scales of network cooperation.

Alongside shared print programs that bring together existing collections, institutions continue to explore collaborations for prospective col-

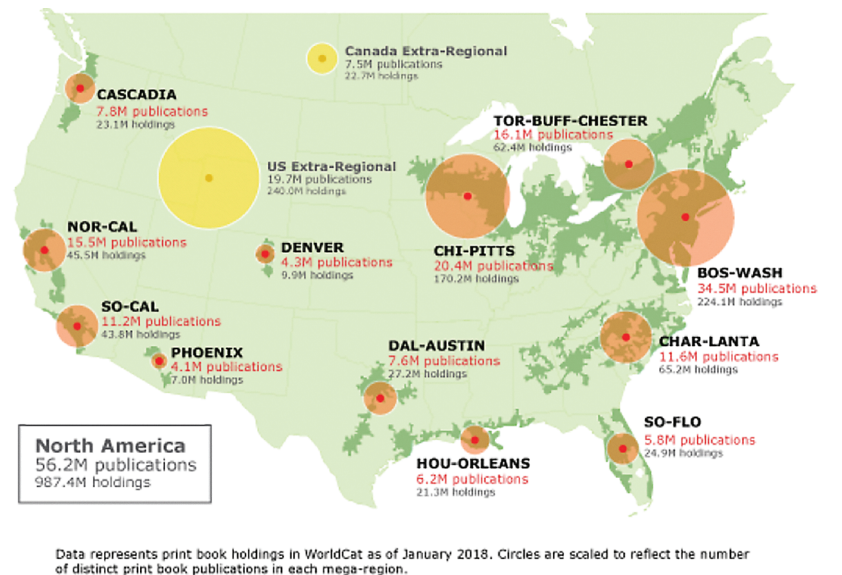


Figure 11.1 The North American mega-regional collective book collections (La-voie 2018).

lection development initiatives through multi-institutional cooperation. Duke and UNC-Chapel Hill cooperate to build a single German-language collection with minimal duplication. The Ivy Plus Libraries Confederation has taken a modest step in this direction by collecting Brazilian materials through a cooperative plan in which each institution takes materials from one or two states and thus realizes broad national coverage. The Big Ten Academic Alliance's BIG Collection Initiative expands the idea of a single, multi-institutional collection at scale in ways that are similar and in many ways more ambitious than the steps taken over many years by the University of California system schools and their California Digital Library.<sup>2</sup> Taken together, such networks of collections will be able to provide higher levels of completeness, and the onus is shared through coordination.

Although interdependence has grown, academic research libraries remain rooted in their respective institutions. Libraries are charged to

<sup>2</sup> The University of California system and its California Digital Library have shared storage facilities, a shared print holdings retention program, consortial licensing and shared cataloging programs. The Big Ten's BIG Collection is a system-wide collaboration that also aims to coordinate major collections in broad ways. See <https://www.btaa.org/library/big-collection/the-big-collection-introduction>.



**Table 11.1. Yale Circulation Data:14-Year Overview of Local and Network Usage**

<b>Year</b>	<b>Local</b>	<b>Network</b>	<b>Total</b>	<b>Network %</b>
2007	392,895	58,872	451,767	13
2008	395,121	62,928	458,049	14
2009	398,658	65,230	463,888	14
2010	393,903	69,806	463,709	15
2011	378,789	74,548	453,337	16
2012	356,743	79,648	436,391	18
2013	343,178	86,359	429,537	20
2014	308,269	89,257	397,526	22
2015	289,674	88,483	378,157	23
2016	270,949	84,643	355,592	24
2017	235,635	71,077	306,712	23
2018	225,993	74,843	300,836	25
2019	213,711	80,210	293,921	27
2020	148,821	58,189	207,010	28

be responsive to local needs/conditions, including community requests, and continue to acquire primary source materials apace. However, as research needs become more complex and discovery systems become more effective, libraries increasingly rely on partnerships at the network level to support local needs. Even the libraries with the most extensive collections recognize that researchers win when they have access to the largest pool of information, and the library of all libraries, that is, the “collective collection,” is certainly more comprehensive than any one library could hope to acquire. Evidence that researchers are using the network is demonstrated by circulation data from Yale University Library (Table 11.1). The data show that usage of local collections is trending down, whereas usage of network collections, that is, items borrowed through resource sharing programs like BorrowDirect, is trending up. Since 2018, over one quarter of all the materials checked out by the Yale community were provided through the library resource sharing network, even during the COVID-19 disruptions of 2020.

Researchers can only gain access to things they can find. Much important ongoing work seeks to create better systems to facilitate discovery. Combined catalogs have been a part of the academic library ecosystem for a long time. Examples include the Triangle Research Libraries Network (Duke, UNC-Chapel Hill, North Carolina Central University, and North

Carolina State University), the Five College Consortium (Amherst, Hampshire, Mount Holyoke, Smith, and University of Massachusetts), UBBorrow from the Big Ten Academic Alliance Libraries, and many, many more. These shared catalog programs facilitate access to materials for researchers through a combined discovery-and-request interface that leverages reciprocal borrowing policies. Within the Ivy Plus Libraries Confederation,<sup>3</sup> work is proceeding on a shared index to enable simpler discovery of its collective holdings. With tight integration to a request and delivery system, this will make it more seamless for scholars to discover and gain access to the collective collection in ways that feel as generous as access to locally held collections.

Resource sharing and openly available resources are key to our shared future, and libraries increasingly focus efforts on how to increase the speed and accuracy of interlibrary loan requests. The BorrowDirect system employed by the Ivy Plus Libraries Confederation uses real-time availability to put holds on available books in partner libraries and streamlines fulfillment. This greatly reduces staff time needed to manage the process, and books arrive within a few days instead of a couple of weeks. The network can obviate small and large distances. Libraries are increasingly looking at how we can share all parts of our digital holdings, and digitization on demand is making it possible to quickly share even rare materials held only in archives and special collections. Increasingly, and perhaps because materials are often housed in remote high-density facilities, libraries are scanning their own materials for their scholars through scan-and-deliver services in order to facilitate access to local collections. The network makes it possible to leverage this kind of service at greater scales, and so it matters less where an item is kept. This reinforces a perspective that makes information access a primary aim, which makes ownership look more like one among many possible means to support that access.

Digitization and born-digital materials provide their own challenges and opportunities, and librarians' work has evolved to include new areas related to licensing and copyright. In an increasingly online environment, libraries have moved to cooperate on negotiating deals for collective licensing of electronic collections. Libraries are working together to advo-

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<sup>3</sup> The Ivy Plus Libraries Confederation is a cooperative effort that aims to build capacity to manage and develop collections, share their collective materials, and take a leadership role in developing a more efficient and effective information landscape. The members are Brown, Columbia, Cornell, Dartmouth, Duke, Harvard, Johns Hopkins, MIT, Princeton, Stanford, University of Chicago, University of Pennsylvania, and Yale.

cate for more reasonable licensing terms, seek ways to make more content freely available, educate producers and consumers of information about their rights, and claim fair-use rights. We are seeing some amazing possibilities in shared digital collections and preservation. The Google Books program provided the seed content for the creation of the HathiTrust Digital Library. HathiTrust, begun in 2008 as a collaboration of the universities of the Big Ten (including the University of Chicago) and University of California system, has grown into a partnership of more than 180 academic libraries. This communal digital collection allows public reading of out-of-copyright materials, enables computational analysis of a massive corpus of information without regard to copyright status, was made available to support libraries on an emergency basis during COVID-related disruptions and closures, and supports access to all materials for print-disabled users. By pooling resources libraries can create a great system and work collectively on projects to improve access to the network-level collection. HathiTrust quickly developed into a digital library of immense proportions with more than 17 million volumes and has now emerged as a leader in print preservation through the HathiTrust Shared Print Program, enticing libraries to identify and commit to retain more than 5.6 million print titles out of the approximately 8.4 million titles that correspond to digital versions in the HathiTrust Digital Library.

Although the HathiTrust Digital Library, Google, Facebook, Amazon, and Twitter are all markers of major transformations in the information landscape, librarians recognize the interwebs we experience today will look like incunabula a generation or two from now. We should not plan as though our networked library information landscape will look, feel, or work as it does today. Discovery will work better, the legal landscape will improve, and resource sharing and other fulfillment systems for physical and digital materials will enable much better services. We need to keep in mind that in a rapidly changing landscape we are just at the beginning—as a library community of practice and as a society—we are at a relatively primitive moment when it comes to applying technology to how we identify, deliver, and use information.

As we plan for a vastly improved electronic information environment, we also must ensure appropriate preservation and access for older technologies. From a library collection perspective, as in society at large, new media formats transform previous formats, but frequently do not obviate their predecessors. The role of newspapers changed when radio arrived. Newspapers and radio changed with the rise of broadcast televi-

sion. On-demand technologies and the web changed newspapers, radio, and television. Because our researchers demand it, libraries continue to support many use cases for printed books, and not all of those important uses are by connoisseurs and Luddites. From a use and preservation perspective, digital and print are both important, and they support different uses; they complement each other no matter which version was born first.

As William Gibson said, “The future is here, it just isn’t evenly distributed.”<sup>4</sup> Many libraries are already realizing bits and pieces of the 2030 vision imagined earlier. More information is available to researchers everywhere while collective collections maintain and increase their scale, scope, and diversity. Materials are shared more broadly and more seamlessly; digital versions and print versions play their unique roles in the lives of scholars with fewer glitches. What does the future of the research library look like? If the trends discussed continue, the future looks much more evenly distributed and open, an increasingly substantial amount of the world’s scholarly output will be freely available in electronic form, and what is not open will be ever more quickly deliverable upon request. The location of collections will matter less than their ease of discovery and distribution. A network of large, shared print consortia will work to keep the print corpus available to researchers and students at academic institutions across the globe and through time. The tensions that surround digital texts will begin to loosen as cost models adapt, technology improves, and scholars continue to become more acculturated to reading online. In a positive view of the future, libraries will utilize new technologies, such as machine learning, to set up a robust, distributed infrastructure that ensures scholars can connect to the primary and secondary source material they need, when they need it, in the format in which they want it (Litsey and Mauldin 2018). Resources that were previously put in service of building and maintaining siloed collections will be deployed in areas that optimize and enhance the networked community. The ability to nimbly manage collections by connecting to these networks will be essential to meet the unique needs of scholars. In turn, scholars will continue to reorient their thinking, develop new models of scholarship, and utilize software tools to discover novel ways of engaging with texts and data. Librarians and scholars will work together as we adapt to new formats, new networks, and new tools that will result in new

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<sup>4</sup> This is the conventional restatement of Gibson’s idea, and Gibson seems to have been discussing this idea since the early 1990s. See <https://quoteinvestigator.com/2012/01/24/future-has-arrived/>.

scholarship. Researchers will have more streamlined and optimized access to a research library collection made of all library collections, an information service created, curated, and preserved collectively at network scale.

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