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OhioLINK – recent developments at a United States academic library consortium

Gwen Evans and Theda Schwing
Ohio Library and Information Network, Columbus, Ohio, USA

Abstract

Purpose – This paper aims to provide an update to Tom Sanville's 2007 overview of OhioLINK, a renowned US academic library consortium, and describe the current state of activity and services.

Design/methodology/approach – The approach used is descriptive.

Findings – OhioLINK's main collaborative services include document delivery, resource sharing and the establishment of digital libraries, including electronic journals, electronic books and open-access materials such as electronic theses and dissertations. This update to Tom Sanville's 2007 overview of OhioLINK issues and developments describes the current state of collaborative library services and resource sharing a decade later, including the challenges of hosted institutional repositories and the implications of shifting from shared print to e-book collections at the network level.

Originality/value – OhioLINK trends provide a snapshot of changing activity and sustainability in library resource sharing at network scale across many different types of academic libraries.

Keywords Consortia, Resource sharing, Electronic theses and dissertations, Interlibrary lending, Print to electronic transition, Shared print

Paper type General review

Introduction

In 2007, Tom Sanville wrote a description of the issues and approaches to resource sharing in OhioLINK, one of the premier academic library resource-sharing consortia, after more than 10 years of development and growth (Sanville, 2007). During the intervening years, much has happened in the information provision landscape – many of the trends Sanville identified have accelerated, some new ones have arisen and OhioLINK and its members' approach to some issues has shifted. Where is OhioLINK at the end of 2015?

OhioLINK is a state agency under the Department of Higher Education, created initially to serve the public research plus two private research universities in Ohio, as well as the State Library. Since 2007, OhioLINK has grown from 84 to 93 institutions – now, almost all accredited non-profit institutions of higher education in Ohio belong to OhioLINK. The growth has come from the addition of private colleges and universities of various sizes to the network and the expansion of regional campuses. OhioLINK member libraries from these institutions now number 121, including 16 research university libraries and a further 16 regional campus learning resource centers, as well as libraries from 23 two-year campuses, 52 independent college and universities, 8 law schools, 5 health science libraries including the Cleveland Clinic and the State Library of Ohio. The total FTE (full-time equivalent in

traditional US terms) served is over 500,000 for FY13-14 – more than 30,000 FTE than OhioLINK served in 2007 (Table I).

State funding for operations and content has fluctuated over time. Reductions in the operating budget since 2007 have been the norm, leveling off in FY2012 and remaining flat since then – a reduction of over US$1m since 2008. OhioLINK's current operating budget is US$6.2m year, which funds staffing and administrative costs, central computer hardware costs and annual maintenance, the Innovative, Inc. INN-REACH central union catalog and requesting system known as PCIRC, the courier costs for physical delivery and a portion of annual database costs ($946,000 annually). Nearly half of the operating budget is spent on the courier and electronic content.

OhioLINK also receives capital dollars from the state to buy digital published content. Currently, the yearly allocation for content is US$6m, all of which goes to subsidize e-journals. The membership contributes a further US$28m to the total content spend (databases, e-books and journals) for a total annual acquisitions budget of almost US$35m for "all OhioLINK" shared content. There is a further US$3.1m of "opt-in" acquisitions (access only for those members choosing to subscribe or buy). Cost allocations are still handled in various ways, depending on the resource. OhioLINK as a matter of history, strategy and member preference concentrates on content that is shared among all members – the majority of database, e-book and e-journal content is available to every institution within the consortium. The e-resource collection is particularly strong in STEM (Science, Technology, Engineering and Math). The depth of the all-OhioLINK collection across the entire state offers unique

Table I Number and types of patrons

	Undergraduate	Graduate	Other	Total
State Library of Ohio*			2,500*	2,500
Charter universities	248,777	45,682		294,459
Two-year colleges	125,486			125,486
Independent colleges and universities	87,277	13,422		100,699
Grand total	461,540	59,104	2,500	523,144

Note: *State library FTE corresponds to the number of state employees directly served by the State Library

opportunities for students, faculty and researchers at smaller or less well-funded institutions, affording them access to a research portfolio that they would otherwise be unable to afford. Even for the larger institutions, the collective e-journal packages offer access to more content from the major publishers than is available at the average Ivy League institution.

There have been other major changes at OhioLINK. In 2011, the Department of Higher Education merged OhioLINK into the newly created OH-TECH consortium (www.oh-tech.org/), designed to streamline and reduce duplication in technology operations. OhioLINK no longer has dedicated staff for a variety of services and instead spends 25 per cent of its operating budget on consortial services including general systems, database, desktop and business support delivered by OH-TECH. The major effect of this has been on software development projects, as the OH-TECH resources have to be shared and prioritized within the context of a larger organization or outsourced to outside developers. Sanville, the Executive Director for the 18 years of OhioLINK's rapid expansion and development, left in 2010 for Lyrasis, succeeded by John Magill, formerly Chief Strategic Officer in the office of Policy Research and Strategic Planning for the Ohio Department of Development. Gwen Evans has been the Executive Director since October of 2012.

Strategic perspectives redux

OhioLINK's core value proposition is still to deliver the most content, to the most users, at the least cost. Over the past decade, as library budgets failed to keep pace with journal and consumer price inflation, OhioLINK has made a series of journal and database cuts, focusing on retaining the most

Figure 1 Acquisitions budgets over time
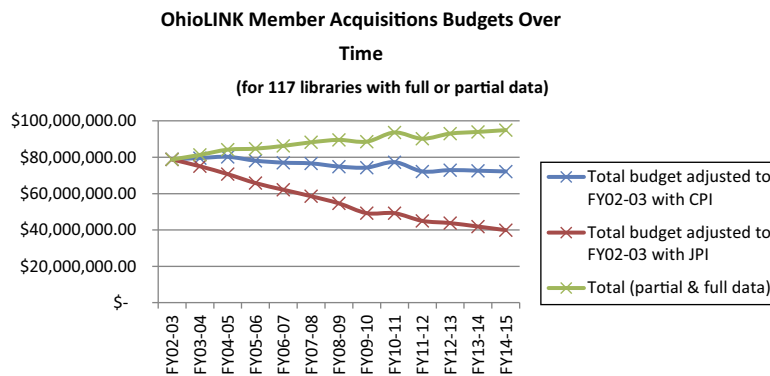
Note: This chart presents 117 libraries providing full or partial acquisitions budget data for all years, FY02-03 through FY14-15. These data are adjusted by the Consumer Price Index (CPI) and by EBSCO's reported journal price increases (JPI)
**Sources:** Bureau of Labor Statistics CPI: www.bls.gov/data/#prices and EBSCO's Five Year Journal Price Increases for College and University Libraries, total titles (USA and non-USA)

Table II Collection size

	2007	2015
Journal titles in Electronic Journal Collection*	6,837	10,728
Articles in Electronic Journal Collection	Over 7.6 million	Over 24 million
Databases	Over 100	Over 140
Electronic book titles (not including Safari Tech Books online)	Over 20,000	Over 125,000
# of item records in Central OhioLINK Union Catalog**	45,800,000.00	46,933,399
# of bibliographic records in Central OhioLINK Union Catalog**	>10,000,000	14,067,692.00

Notes: *The EJC collection contains OhioLINK's major publisher packages. These include current big deal packages from 14 publishers: Elsevier, Springer, Wiley, Sage, ACS, ACM, APA, RSC, IOP, OSA, CUP, OUP and Project Muse, as well as substantial backfiles from non-current subscriptions; **OhioLINK member libraries have been doing a record deduplication and cleanup over time, resulting in fewer records

Figure 2 E-Journal usage
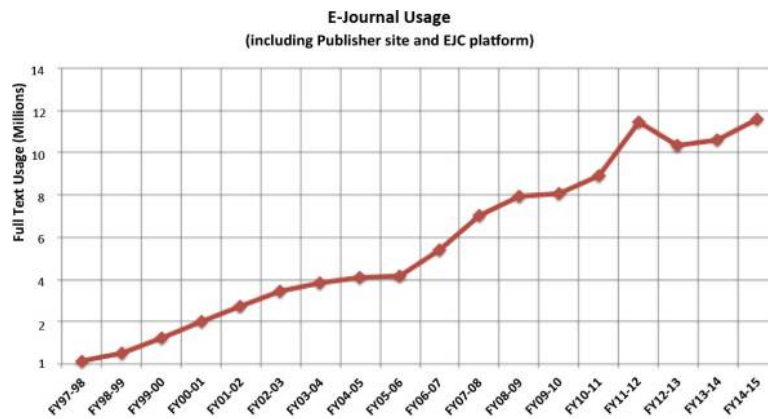
Notes: *The dip in usage from 2011-2014 is most likely due to a variety of factors: journal cancellations in the OhioLINK shared collection caused by the recession and deep budget cuts; a drop in enrollment across the state; and the possible effect of the federal sequester, which reduced the major sources of grants available and thus reduced activity related to grant funding

heavily used and highly valued content. With year-to-year increases in the cost of content between 5-10 per cent and far outstripping inflation during the past decade, it becomes very clear that the buying power of OhioLINK libraries for content has decreased drastically through FY14-15 to half of what it was in FY02-03. The loss in buying power is particularly acute for journal content (Figure 1).

Despite the sobering realities of library budgeting, OhioLINK and its members have added significantly to the shared collections in both print and digital (Table II).

The per-unit cost of information delivered or downloaded across the consortium, both print and digital, is currently at

Figure 3 Patron borrowing requests 2006-2015

$67 per FTE – less than the average cost for a single textbook for a single course. Use of digital materials, especially full-text databases and e-journals, has skyrocketed. Physical interlibrary lending via the consortial system, by contrast, is experiencing a persistent decline (Figures 2 and 3, Table III). With the increasing availability of electronic content throughout the OhioLINK consortium, there has been a steady decline in consortial borrowing of the print materials that largely make up the Central Catalog. This trend is clear in the average annual decrease in PCIRC requests from 2013 to 2015, approximately 13.7 per cent per year (see graph below). However, despite this high percentage of decrease, the actual number of requests for print materials remains high, with an average of 518,935 requests annually in that same time frame. Of these requests, 93.2 per cent were fulfilled.

Looking more closely at the data for CY2015, the types of items being requested from the Central Catalog have remained largely the same since 2007. The comparison of these percentages to 2007 data is in Table IV.

The partnership between OhioLINK and SearchOhio is a continuation of efforts to increase the amount of material available to OhioLINK patrons, and to allow the widest access to the OhioLINK libraries' collections. This effort started when OhioLINK began to include some public library systems directly into the Central Catalog in 2004. Additional public libraries were added over the years, but the increasing number

Table III All format usage statistics

	Statistics 2007: downloads or usage	Statistics FY2015* downloads or usage	Change (%)
Databases (including Safari Technical Books Online)	10,200,000	15,900,000	+56
E-journal packages (full text)	4,900,000	11,500,000	+135
E-book packages (excluding Safari)	55,000	320,0000	+5718
Physical media (books, AV, microfilm, etc.) circulation (PCIRC), including SearchOhio	822,240	464,631	−43

Note: *Numbers have been rounded where appropriate to match numbers in 2007 article

Table IV Physical material type requested

Material type requested	Percentage of all requests, 2007	Percentage of all requests, 2015
Books	94.2	94.6
Media (video and audio)	5.4	4.9
Microform	0.4	0.2
Other (CRL and periodicals)	0	0.3

Table V Non-returnables – OCLC

Non-returnables – OCLC	2006	2015	(%) change
Loans between members	50,000	2,136	−96
Lending from OhioLINK to outside libraries	115,000	2,509	−98
Borrowing by OhioLINK from outside libraries	70,000	2,532	−96

Table VI Returnables – OCLC

Returnables – OCLC	2006	2015	(%) change
Loans between members	6,200	34	−99
Lending from OhioLINK to outside libraries	51,000	2,921	−94
Borrowing by OhioLINK from outside libraries	N/A	1,354	N/A

of transactions and burden on the central system that this direct inclusion created made it necessary to work with Innovative to create functionality beyond the existing OhioLINK Central Catalog. The result of this work was a peer-to-peer patron-initiated requesting system that connected the OhioLINK INN-Reach catalog to the SearchOhio INN-Reach catalog. This system allows many more public library patrons to borrow OhioLINK content while at the same time providing OhioLINK patrons with access to more public library materials. Patrons beginning in one union catalog can click a button to move to the other union catalog, where patron-initiated requesting works in the same manner as the home union catalog.

In October of 2011, the first requests were made through this peer-to-peer network, and OhioLINK patrons now borrow about 30,268 items annually from the SearchOhio catalog. In return, SearchOhio patrons annually borrow an average of 84,426 items from the Central Catalog. Lending to SearchOhio is now a significant portion of OhioLINK INN-Reach-mediated activity.

Courier service

To move all requested items around the state, OhioLINK and the State Library of Ohio contract with a single courier that services both Ohio's public and academic libraries. In the OhioLINK consortium, there are 163 member library locations that receive deliveries, and there are an additional 53 SearchOhio library delivery locations, for a total of 216 stops. While the vast majority of these courier stops have deliveries made five days per week, there are a minority of library stops that only receive deliveries four, three or two days per week. With this setup, items continue to be able to be delivered across the state in about two to three days.

The pricing structure for this delivery is and has been based on a standard fee per delivery stop. Increases in the cost of fuel, increases in the annual cost of the courier contract and decreases in the number of items shipped have all led to an overall increase in the cost required to ship an item from one location to another. For CY2015, the cost to fulfill requests from OhioLINK patrons had grown to about $1.42 per item, per one-way trip. While this is significantly more than the cost of delivery service in 2007 (estimated then at $0.40), it still represents a good value for OhioLINK's patrons as compared to USPS Media Mail costs.

OhioLINK members lend physical and digital items via OCLC that are not available via the consortial system or full-text electronically in the shared collections. As shared electronic materials have increased, intra-OhioLINK OCLC serials requests have dropped even more precipitously. In 2007, OhioLINK sent slightly under 50,000 serials requests within the consortium and lent slightly over 70,000 outside

OhioLINK; by 2015, that lending has declined by more than 95 per cent for both groups (Tables V and VI).

The Electronic Theses and Dissertation Center

The Electronic Theses and Dissertation (ETD) Center (etd.ohiolink.edu) is OhioLINK's open-access dissertation and theses repository. In operation since 2003, it now serves 30 institutions in Ohio and is a prime example of shared services for efficiency and cooperation across multiple institutions. The ETD is a custom-built application on an Oracle database backend using Oracle Apex for the interface. Students submit their work and the administrative interface allows multiple institutions to customize their revision, approval and publishing workflows to suit their own needs. It now holds over 58,000 open-access publications and had over 500,000 downloads in 2015 worldwide. Recent enhancements include the ability to add an ORCID identifier on submission, to encourage researchers at the beginning of their careers to establish a persistent researcher identifier. The ETD Center also has a Twitter account (@OhioLINKstatus) and "autotweets" via scripting when a document is published, with the author, title, hashtagged keywords, and a link to disseminate the research of Ohio graduate students.

Institutional repository hosting: difficult to sustain

Two major changes have taken place in the OhioLINK portfolio of services mentioned in 2007. The DMC (Digital Media Center), a central repository of multimedia, was migrated to the open-source software platform DSpace in 2007. OhioLINK added the central OhioLINK Music Center for music files representing 81,000 classical and jazz tracks

Table VII Numbers of monographic item records added to the Central Catalog as new records each year, 2009-2015

	2009	2010	2011	2012	2013	2014	2015	Total
Local (non-shareable) e-books	9,300	8,025	38,972	65,922	74,019	168,798	192,576	557,612
Common e-books	15,664	23,420	24,701	48,140	31,224	46,702	52,302	242,153
Shareable print books	77,221	76,000	76,193	104,171	90,886	86,302	115,464	626,237

Notes: These figures are rough estimates, as the numbers are based on contributions of new records to the Central Catalog and various factors can come into play such as database cleanup and recontribution of records to Central. However, these numbers accord with what OhioLINK member libraries experience both as contributors of records and as they help patrons find materials in the Central Catalog – an increasing number of non-shareable e-books among newer titles

purchased from Naxos in 2011. In 2008, OhioLINK began implementation of a hosted repository program (The DRC program, for Digital Resource Commons), also implemented on DSpace, for member institutions. Over a span of five years, the number of institutional DRCs grew to 30 separate installations of DSpace, with more than 800,000 items from OhioLINK member libraries and institutions. Materials ranged from special collection items to preprints and other standard institutional repository content, almost all of the items open-access. However, OhioLINK found that the model of centrally managing individual repositories for every member did not scale, especially with more than 90 member libraries. Despite 3.5 staff developers and a very active and accomplished user community, including some DSpace code committers, the needs of member institutions for customization far outstripped the ability to stay on top of the request queue. In addition, individually customized repositories meant that upgrading to new versions was a very lengthy process, as upgrades tended to break custom code differently across every repository. In early 2013, the deans and directors participating in the program recommended that the hosting program be discontinued, as there was no economy of scale, and it was unlikely that OhioLINK could afford to add the additional institutions that were on the waitlist. The software also did not adequately support one of the main reasons for the program – to aggregate the metadata in one search portal. Since OhioLINK discontinued the hosted repository program, at least one other consortium has discontinued their centrally hosted institutional repository program, for some of the same reasons (Colorado Research Alliance)[1]. During the course of 2013, OhioLINK libraries migrated their content to a variety of institutional repository

platforms supported at the local level. The central DRC and OhioLINK Music Center, which contains the multimedia that is owned or licensed for member use, remains as an OhioLINK content service.

Digital preservation
Given the amount of digital content that OhioLINK continues to locally load in its own platforms, in 2016, OhioLINK is adding digital preservation of collectively purchased commercial publications, as well as the ETD content, to its portfolio. After a review and recommendations by outside consultants, OhioLINK licensed Rosetta from Ex Libris, and will begin the program by ingesting the ETD content which is unique to OhioLINK.

Near-term challenges for the next 10 years
The biggest current challenge for library consortia are e-books and the current licensing restrictions that either restrict lending or pricing models for unlimited simultaneous use that are prohibitively expensive for a consortium the size of OhioLINK. As with other academic libraries worldwide, OhioLINK's member libraries are converting library footage to active learning spaces, tutoring labs and other student- and researcher-centered activities instead of book warehousing. While print is still the preferred format for many users and certain disciplines, space constraints, pricing and workflow and staffing changes have led some OhioLINK institutions to move to "e-preferred" acquisitions of monographs. A recent OhioLINK analysis of the proportion of non-shareable e-books in the collective collection saw an alarming and rapid rise over the five years of materials that could not be lent in

Figure 4
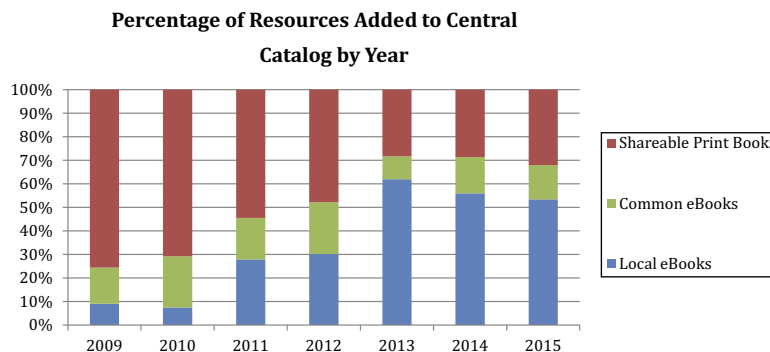
Percentage of Resources Added to Central Catalog by Year

their entirety to other libraries either within OhioLINK or through traditional interlibrary loan (Table VII and Figure 4).

While the analysis did not identify year of publication but year of record contribution, one can assume that the majority of acquisitions of all monographs are clustered in recent publications – this is certainly true of common e-books, as those are OhioLINK packages that are recurring purchases of the front list of selected major publishers. OhioLINK's analysis shows that individual titles have about a 10-year "half-life" of usage after year of publication (both print and electronic), with document delivery requests and downloads being heaviest 2-5 years after publication date, with a decrease of 50 per cent in requests in years 5-10, and an even steeper decrease subsequently. The effect of this increase meant for content added in the last seven years, users were as likely to find a non-shareable e-book as they were to encounter a shareable print book. This led to immense frustration on the part of users, and resulted in a policy change in 2016 that took all non-shareable e-resources out of the central union catalog. These trends illustrate across the consortium the effect that non-shareable monographs will have for interlibrary loan across wider networks (Figure 5).

OhioLINK's strategic initiatives for the next few years focus on responsible stewardship of the shared collections, both print and digital. This includes managing the footprint of the existing (and still growing, albeit slowly) print collection to ensure that unique titles are retained within the circulating shared collection and that sufficient print copies are available to meet consortial borrowing patterns and support teaching needs. In conjunction with these print-based initiatives, a strategy that ensures the continuation of a shared digital monographic collection built on sustainable funding models is critical for the future of the consortia and its continued ability

Figure 5

Seven Year Aggregate
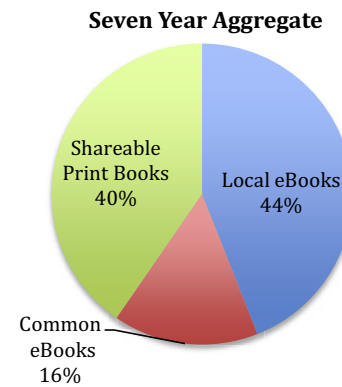
to serve its students and researchers, and continue to deliver both the expanded access and cost avoidance for which OhioLINK has long been known.

Note

1 Executive Director George Machovic, personal communication.

Reference

Sanville, T. (2007), "OhioLINK: a US resource sharing facility – issues and developments", *Interlending & Document Supply*, Vol. 35 No. 1, pp. 31-37, available at: http://dx.doi.org/10.1108/02641610710728177

Corresponding author

Gwen Evans can be contacted at: gwen@ohiolink.edu